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Characteristics of farming systems in Albania

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Joint Research Centre

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AWU: annual work unit
Dyn: surface measure used in Albania, 1dyn=0.1 ha
FNI: farm net income
GDP: gross domestic product
HM: household family members
IC: input costs
INSTAT: Albanian Institute of Statistics
MAFCP: Ministry of Agriculture, Food and Consumer Protection MBUMK:- Ministria e Bujqësisë Ushqimit dhe Mbrojtjes Konsumatore
MW: minimum wage
OV: output value

Exchange rate

EUR 1 = ALL 139.38

Preface*

Over the past 20 years, Albanian agriculture has undergone fundamental changes in terms of its structure, the organisation of the production units and the distribution of products and trading. As a consequence, analysis of the effects that these changes impose on the efficiency of the sector continues to be the subject of scientific research.

Analysis of agricultural production systems is part of agricultural economy research, in which researchers must analyse information from one or more farms in order to draw comprehensive conclusions and form a clear picture of the agricultural structure of a country and its effects on the domestic economy. This analysis, whose conclusions are based on information pertaining not only to entities with different organisational structures but with very similar objectives, is probably the only way to understand the characteristics of production at the farm level, which is the most important unit in agricultural production in Albania today. The sub-sectors of the food chain beyond the farm, such as the agricultural inputs sector, collection systems and agro-processing, cannot be understood without a good knowledge of agricultural production characteristics and farm structure.

At the same time, a significant proportion of the country's population lives in rural areas. Although the analysis of living conditions, welfare, educational opportunities and employment is very often conducted geographically, it is farms and farming families that constitute the basic socio-economic unit upon which is based any social initiative in rural areas.

All these factors combine to make the farm the basic unit of analysis: the farm is most important subject addressed by our policies, and the one that we expect to benefit from the policies. Therefore, for us, it is very important to understand the characteristics of farms operating today in Albania and to gain an appreciation of their production capabilities, taking into account the limited natural resources at their disposal, the state of the agricultural infrastructure and the techniques and technologies in use. Furthermore, it is important for us to understand which markets are addressed by farms, and above all farmers, to help us support progressive farmers: those farmers who see their future in agriculture as a choice and not as an obligation and those who understand that the problems they face cannot be solved alone and that having the courage to join other farmers in collective action can promote the adoption of new, more productive, technologies in order to cultivate larger areas. This is the way towards a more prosperous future.

The information need for such an analysis, which is so difficult to collect and process, enables a more detailed examination of production systems at the farm level. This is exactly the objective of the project 'Impact of policy instruments in Albanian agricultural systems'. This project was initiated by the European Commission Joint Research Centre Institute for the Study of Technological Perspectives in collaboration with the Faculty of Economy and Agribusiness at the Agricultural University of Tiranë. Through the analysis of data collected in three regions representative of agricultural systems in the country, obtained from more than 1 000 questionnaires on the characteristics of farm production methods, costs and technologies in use, agriculture experts will be able to provide the information needed by policy makers to design and implement policies that will provide more effective support schemes for agriculture.

The Albanian government is adopting a new strategy in terms of developing policies to support agriculture. It will no longer provide supporting instruments, with their associated positive and negative outcomes; instead, it is now time to move forward and to directly support agricultural products and to give farmers access to wholesale and retail markets, the food industry and, ultimately, the consumer. By doing so, farmers will be rewarded for their physical and financial investments, giving them an inventive to produce more and to bring their products to markets and consumers. It is the duty of public institutions to encourage those who already do this to do it even better and those who do not to begin to reflect on how they might move out of subsistence conditions. Of course, this product support scheme will not be complete unless it is accompanied by support for productive investments that aim to provide incentives not only to produce, but also to orient these products towards markets.

* Speech delivered by His Excellency Prof. Dr. Edmond Panariti, Minister of Agriculture, Rural development and Water Management opening the works of the workshop "The impact of policy instruments on the farming systems in Albania" Second Part- "Characteristics of the Albanian farming households and the effects of policy instruments"

This new phase of agricultural policy instruments in Albania will require in-depth analysis to determine the most appropriate policies to be applied. Furthermore, the effects of the policy instruments must be the subject of a similar level of analysis and must rely on methods, such as those we are discussing here. Thank you for the work you have done; we await with great interest the results of your analysis, and I hope that this will be a long-term cooperation, particularly for the *ex ante* analysis of agricultural policy instruments that are expected to be implemented soon. I wish you a distinguished and fruitful meeting. Please be assured that, in the future, the Ministry of Agriculture, Rural Development and Water Management will be an effective collaborator in projects of such interest and value to the country's agriculture.

Thank you.

Prof. Dr. Edmond PANARITI

Minister

Executive summary

Agriculture is one of the most important economic sectors in Albania. It contributes 13 % of the national gross domestic product (GDP) (INSTAT, 2011) and employs nearly half of the national workforce (2011). According to the European Commission, around 500 000 people work in agriculture, of whom 55 % work full time and 45 % part time (EC 2010). During the economic transition, Albania's agriculture sector changed significantly. This process continues in parallel with global trends, interspersed with periods of relative consolidation.

According to MACFP (2011), agricultural land covers only 24 % (or nearly 700 000 ha) of the total land surface: 54 % of the area is covered by forests, meadows, pastures, etc., and the rest (22 %) is used for other purposes (e.g. urban areas). The figure for agricultural area per inhabitant in Albania is low (only 0.370 ha/inhabitant), such that the country ranks 120 out of 220 worldwide (FAO 2014). Most agricultural land is owned by rural households (80 % of total agricultural area or 562 000 ha) and the rest (134 000 ha) is owned by the state ([1]) (MAFCP 2011).

The geography of Albania is more suitable for livestock production than for crop production. In 2012, the livestock sector accounted for 54 % of the total production value and crop production for 46 % (INSTAT 2012). Crop production is more important in the so-called Western plain (the regions of Durrës, Tiranë and Fier) and the region of Korçë, characterised by significant mountainous areas but also the second most important agricultural plain in the country. The other regions of the country are characterised by a higher proportion of livestock production.

According to the figures released by Albanian Institute of Statistics, the number of farms has decreased from more than 350 000 to 325 000 (EC 2013) ([2]). Farms in Albania are characterised by limited arable land and a high level of fragmentation. In the last 10 years, the average farm size has increased by 15 % (from 1.04 ha in 2002 to 1.20 ha in 2012) (INSTAT 2012) but is still remain extremely small. The average plot size in 2012 was only 0.26 ha. On average, farms have more than four plots (4.5 plots (MAFCP 2011)), and sometimes these are several kilometres from each other.

Direct support for production relies mainly on subsidies aiming to increase production and food-processing capacities. The strategic sectors are permanent crops (olives, nuts and other permanent crops), technology and infrastructure (greenhouses, irrigation on a small scale, new technologies, etc.) and food-processing sector standards and increased capacity.

This report is based on information collected from a face-to-face survey of more than 1 000 farmers from three regions of Albania (namely Berat, Elbasan and Lezhë). The extensive questionnaire used in the survey elicited information on:

- the household;
- the agricultural work offered (family and hired labour distributed by month);
- the farm (arable land, irrigation, plot characteristics, agricultural mechanics);
- agricultural activities (crop by plot and livestock production, crop rotations for at least 3 years);
- destination of agricultural products and agricultural incomes (self-consumption, sales, processing, stock, etc.);
- technical data about each crop activity and each livestock production (list of detailed costs for each production);
- agricultural support schemes;
- credit;
- distribution of expenses.

To identify a representative sample of Albanian farming systems, a three-step sample design was used. Firstly, Albanian regions were stratified into three non-overlapping strata, each the size of four regions. Each stratum included regions that have similar agricultural characteristics according to several indicators. The selected indicators were used to rank the Albanian regions according to their share. From each stratum a region was selected by applying

1 The areas owned by the state (134 000 ha) are generally land of low fertility that were rejected by households during the de-collectivisation process.

2 The detailed set of indicators will provide further information about the type(s) of farms that are more involved in this reduction and whether or not farmers of other types of farm have taken over the agricultural activity.

indicators of farming systems diversification. To select the farmers in each region, a multi-stage sampling method was used, having as the main variable 'the area' (area sampling frame methodology). This methodology is widely used in agricultural surveys in Albania.

A group of 11 variables dealing with the socio-economic characteristics of farms was selected to build up the farming system typology. Two typologies are used: one for the whole sample (three regions) and a second one for each region. The differences between the two typologies are considered to be a proxy indicator of different characteristics of farming systems in each region. The farm types identified are (1) poly-culture, mainly for the market; (2) leisure farms; (3) arable crops; (4) fruit trees; (5) self-sufficient; and (6) livestock. The farm typology is slightly different for the regions of Berat and Lezhë.

The farm types' strategies are constructed according to the land, infrastructure facilities and the investment availability of farms. Non-agricultural incomes (remittances, income from the construction, trade, pensions, etc.) appear to provide an important economic support for the farm household.

Farming structures in rural areas are characterised by the use of more labour and lower inputs. The farm types that tend to specialise in one activity are not always those that make the best use of labour and land.

Farming does not provide enough income to repay the work put in at the official minimum wage level. Non-agricultural work is better paid. Albanian farms provide at least a minimal income that is enough to keep the household members above the threshold of extreme poverty.

The farm types that base their incomes on agricultural activities are poorer than those that base their income on non-agricultural activities. Income structures and the low incomes generated by work in agriculture suggests that rural migration towards urban areas and abroad is a phenomenon that will persist into the future.

3. Introduction

Agriculture is one of the most important economic sectors in Albania. It contributes 13 % of the national GDP (INSTAT, 2011), and employs nearly half of the national workforce (2011). According to the European Commission (2010), around 500 000 people work in agriculture, of whom 55 % work full time and 45 % part time (EC 2010).

Albania is a net food importer. According to INSTAT (2011), the Albanian import–export ratio of foodstuffs is 8:1. The main export destinations and import origin countries are the EU Member States Italy, Germany, Greece and Austria for exports (71.4 %), and Italy, Greece, France and Poland for imports (50 %) (MBUMK 2012). The majority of Albanian foodstuff exports come from the agro-processing sector, which accounts for more than 55 % of total exports (2011), with 34 % from agriculture and the rest (10 %) from livestock (MBUMK 2012). The main exporting sectors are medicinal and aromatic herbs, tobacco, fresh vegetables, processed fish and animal hides. Food-processing sector imports comprise 61 % total agricultural imports, 26 % agricultural products and 11 % livestock. Despite the increase over the last 10 years in self-sufficiency in some products (eggs, some fresh vegetables, milk, fruit, etc.), Albania remains a net importer of foodstuffs.

The Mediterranean climate of the country allows a wide range of farming activities. According to Cela et al. (2010) the majority of the utilised agricultural area (UAA) is planted with fodder crops (49 % of UAA), followed by cereals, accounting for 37 % of UAA; the rest is planted with vegetables, potatoes and other crops. Over the last 10 years, the area of fodder crops has become more and more important to the detriment of cereals (especially wheat), which are decreasing. This is due to the importance of the livestock sector (52 % of total agricultural production in 2010).

The average yields of the main agricultural products have increased significantly over the last decade but, nevertheless, they remain below the EU average (Volk, Rednak et al. 2010). During the period 2000–2008 the average wheat yield increased 33 % and milk yield increased 2.5-fold. The same trend could be also observed for other agricultural activities (vegetables, apples, stone fruit, olives, cattle meat, etc.) (Cela, Marku et al. 2010).

The de-collectivisation process has had a significant impact on Albanian agriculture, and this has led to considerable land fragmentation (3.8 parcels/farm) and an increase in small and very small subsistence and semi-subsistence farms (1.2 ha), which are impeding the development of the sector (Civici 2003; Guri, Civici et al. 2011).

The farm structures and the level of fragmentation make it difficult to make use of a large-scale agricultural infrastructure, especially in hilly and mountainous areas. The land insecurity, the delay in compensating former landowners and the lack of appropriate policy instruments discourages farmers from increasing farm sizes (only 10 % in 5 years) (Civici 2003; MBUMK 2012).

In addition to land fragmentation, Albanian agriculture suffers from some critical structural problems, such as (1) underdeveloped irrigation and drainage systems; (2) deficient infrastructure; (3) restricted access to markets; (4) an underdeveloped agri-food industry; (5) low levels of technology; (6) the weakness of farmers' organisations; and (7) limited access to credit (EC 2010).

The **overall objective** of this report is to analyse the key characteristics of farming systems in Albania, their typology and their actual and potential role in the well-being of farming households.

The focus should therefore be on the future prospects and challenges for Albanian agriculture by analysing the following **specific aspects:**

(i) farming systems;

(ii) food production, consumption and surpluses;

(iii) economic drivers and the productivity of the different farm types.

The main contribution of the report is the analysis of the farming systems in Albania and their viability in terms of farm net income (FNI) provided for the household family and to highlight the most efficient farming systems in terms of land and labour productivity. The report presents the analysis of farm viability in terms of reproduction threshold presented on farm type level.

The report is a product of the workshop 'The impact of policy instruments on the farming systems in Albania', which

was took place two parts: 'General overview of Albanian agriculture and methodological tools', held in August 2013 in Seville, Spain; and 'Characteristics of the Albanian farming households and the effects of policy instruments', which took place in March 2014 in Tiranë, Albania.

4. Characteristics of Albanian agriculture and methodological issues

4.1 Characteristics of Albanian agriculture

4.1.1 General information

Albania is a Mediterranean country with an area of 28 748 km² and a population of 2.78 million, of whom 45 % still live in rural areas (INSTAT 2014).

Albania has a sub-tropical Mediterranean climate characterised by mild and rainy winters and hot, dry summers (MAFCP 2011). The rain (on average 1 485 mm/year) falls mainly (70 %) during the cold months (October–March) (MAFCP 2011). Being a mountainous country (only 24 % of the surface is plain (MAFCP 2011)), the agricultural area has an elevated slope and only 44 % of the total arable area has a slope of 5 % or less (MAFCP 2011). The Box 1 shows the main indicators of the Albanian economy.

Box 1: Main indicators of the Albanian economy

Albania is a middle-income country that has made enormous strides in establishing a credible multi-party democracy and market economy over the last two decades (WB 2013). The Albanian economy has been characterised by a macroeconomic stability and positive economic growth, even during the recent economic crisis. Between 2002 and 2008, poverty in the country fell by half (to about 12.4 %) and extreme poverty now affects less than 2 % of the population (WB 2013).

Main macro-economic indicators for Albania

	2009	2010	2011 (estimated)	2012 (projected)
Real GDP growth rate (%)	3.3	3.5	3	0.5
Consumer price index (average)	2.2	3.6	3.4	2.2
Public debt (percentage of the GDP)	59.3	57.8	58.6	60.9
Trade balance (goods and services) (percentage of the GDP)	–24.6	–20.7	–22.4	–18.8
Nominal GDP (in billions of ALL)	1 151	1 237	1 319	1 357
GDP/inhabitant (ALL)	397 145	430 947	463 959	481 932
GDP/inhabitant (EUR)	2 829	3 069	3 305	3 433

Sources: (IMF 2013) ; (INSTAT 2014).

According to the International Monetary Fund (IMF), Albania will experience positive economic growth in 2014 of 2.4 % (IMF 2013).

According to Cela et al. (2010), the agricultural area in Albania can be divided into three main types.

The plain areas (24 % of the land area (MAFCP 2011)) are located at an altitude of less than 180 m. These areas are characterised by mild winters (average temperature in January 9.8 °C) and hot summers. The annual rainfall is 800–1 000 mm/year, but it is not equally distributed between the winter and summer months (only 10 % of rain falls in summer).

Hilly areas are located at an altitude above 180 m but below 800 m (45 % of the land area). The average temperature is lower (by 3–4 °C on average) than in the plain and frosts are frequent in winter. This agricultural area is important for its potential production, especially in the south-eastern part of the country (the plain of Korça).

The third type of agricultural area is the mountainous area (26 % of the land area), located above 800 m. In these areas, most of the land is covered by forests and permanent pastures. The arable area is limited.

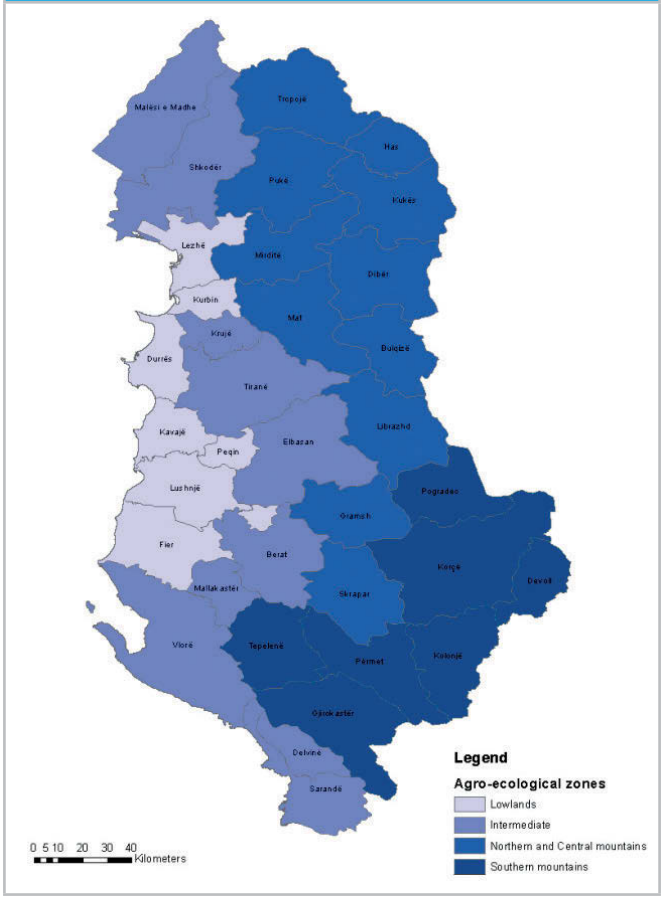
According to Sutton et al. (2013), the Albanian territory can be divided into four agro-ecological zones. Each zone has the same characteristics in terms of terrain, climate, soil type and water availability (Figure 1).

The plain areas that are typical of the western part of the country falls into the intermediate agro-ecological zone that links the plain area and the mountainous area. In this area the characteristics of both areas can be found (lowlands and mountainous areas). The third agro-ecological zone covers the mountainous areas of northern and central Albania, and the fourth covers the mountainous areas of southern Albania.

According to Shundi (2006), the main soil types in Albania are fertile alluvial soils in the coastal area, flysch and marls in the intermediate area and limestone, mainly in the mountainous areas.

Owing to the slope of the hilly and, particularly, the mountainous areas, an important proportion of agricultural land is subject to erosion or is at high risk of erosion: 70 % of the agricultural land is eroded at a rate of 30 t/year, 20 % is eroded at a rate of 5t/year and only 10 % of agricultural land is not affected by this phenomenon (Shundi 2006).

Figure 1: Agro-ecological areas in Albania



Source: (Sutton, Srivastava et al. 2013).

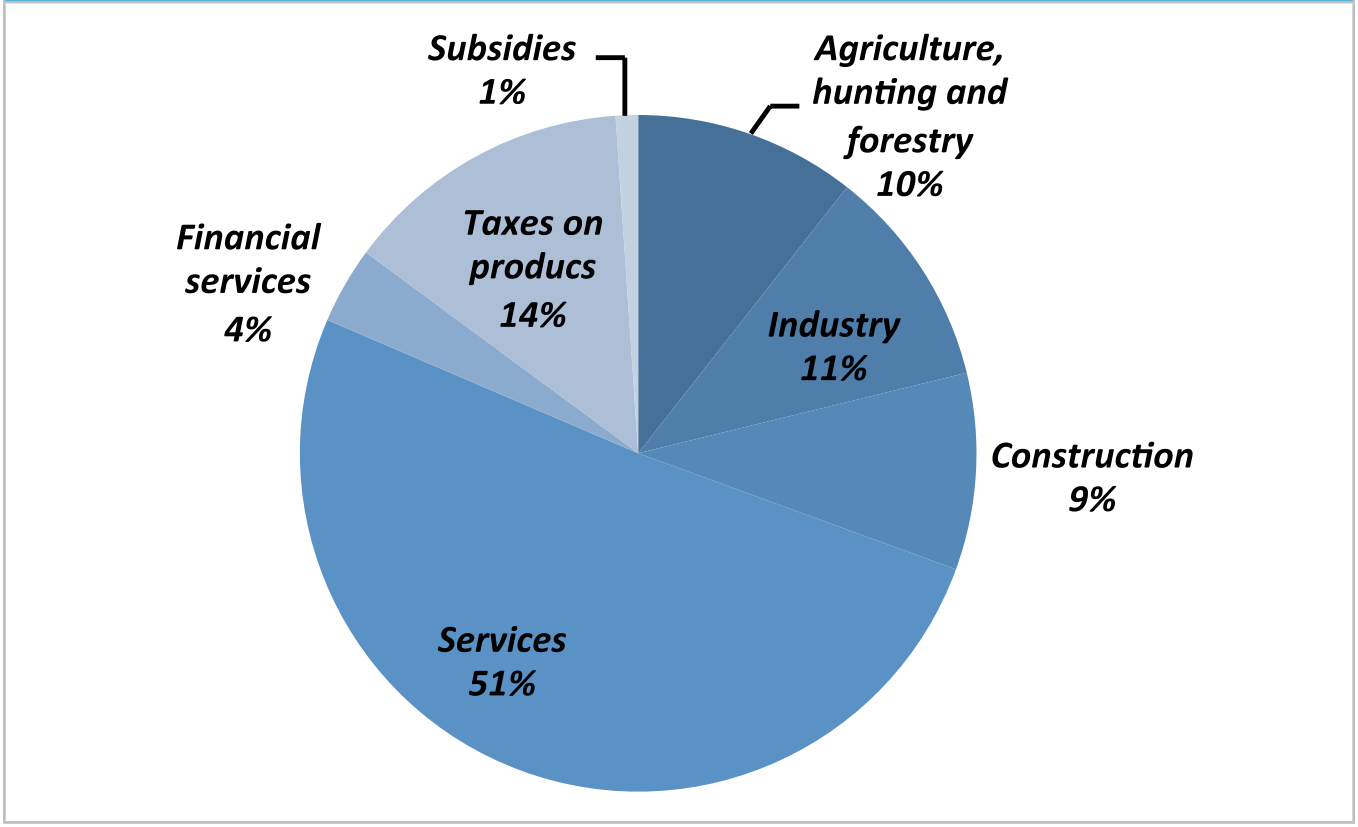
4.1.2 The importance of the agriculture sector

Agriculture remains one of the main economic sectors of the Albanian economy (IMF 2013). According to Cela et al. (2010), over the last 16 years, the contribution of agriculture to GDP has been decreasing, from 60.1 % in the 1950 to less than 20 % in the 2000s. In 2013, agriculture contributed only 10 % of GDP (INSTAT, 2014). Agriculture is characterised by growth rates that are more stable but less significant than those experienced by other economic sectors. Over the period 2000–2010, the average annual growth rate of the agriculture sector was 4 %, one third that of the construction sector

The tertiary sector is the main economic sector in Albania (Figure 2). Services account for more than half of Albanian GDP. Over the last 15 years (1997–2011), services and construction have been the main contributors to growth in GDP, although the construction sector has experienced a recession since 2003, with negative economic growth rates since 2008.

A significant proportion of the population lives in rural areas (45 % of total population). The rural population is dominated by the younger age groups and massive employment in agriculture (MAFCP 2011).

Figure 2: The structure of Albania's gross domestic product in 2011



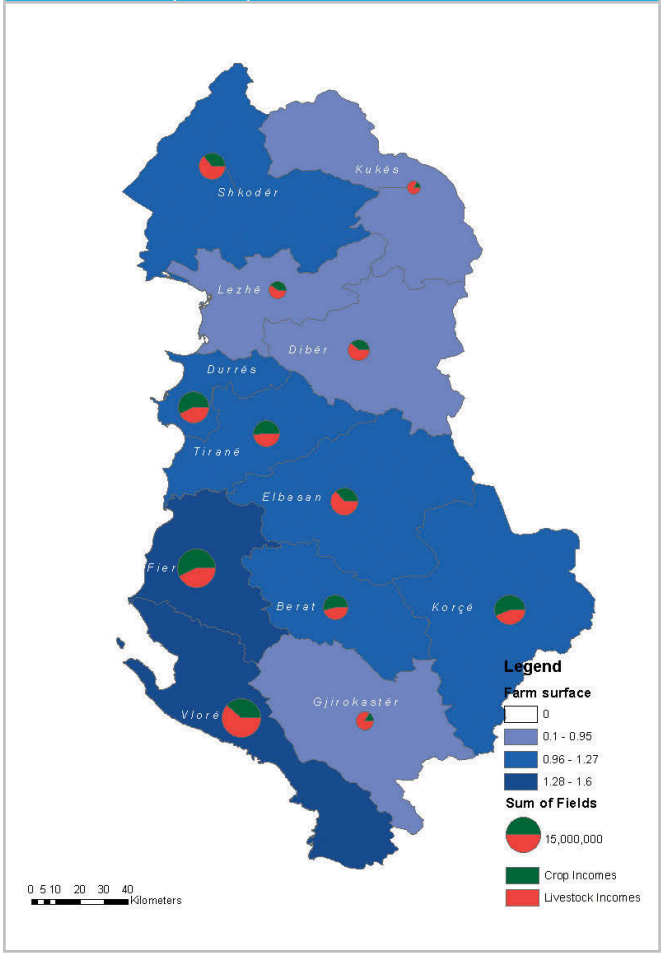
Source: INSTAT, 2012.

4.1.3 Farm structure

According to the MACFP (2011), agricultural land covers only 24 % (or nearly 700 000 ha) of the land area; a further 54 % is covered by forests, meadows, pastures, etc., and the rest (22 %) is used for other purposes (e.g. urban areas). The size of the agricultural area per inhabitant in Albania is low (only 0.370 ha/inhabitant), such that the country ranks 120 out of 220 worldwide (FAOSTAT). The majority of agriculture land is owned by rural households (80 % of total agricultural area or 562 000 ha) and the rest (134 000 ha) is owned by the state ([3]) (MAFCP 2011).

According to the first figures released by Albanian Institute of Statistics from the most recent agricultural census, carried out in 2012, the number of farms decreased from more than 350 000 to 325 000 over 10 years (2000-2010) (EC 2013) ([4]). Farms in Albania are characterised by a small area of arable land and a high level of fragmentation. In the last 10 years, the average farm size has increased by 15 % (from 1.04 ha/farm in 2002 to 1.20 ha/farm in 2012) (INSTAT 2012), but it remains extremely low. The average plot size in 2012 was only 0.26 ha. On average, farms have more than four plots (4.5 plots (MAFCP 2011)), and sometimes these are several kilometres from each other.

Figure 3: Farm size (ha) for 2012 and sales income distribution (value)



Source: INSTAT, 2012.

3 The areas owned by the state (134 000 ha) are generally land of low fertility that were rejected by households during the de-collectivisation process.

4 The detailed set of indicators will provide further information about the type(s) of farm involved in this reduction and whether or not farmers of other types of farm have taken over the agricultural activity.

4.1.4 Production characteristics

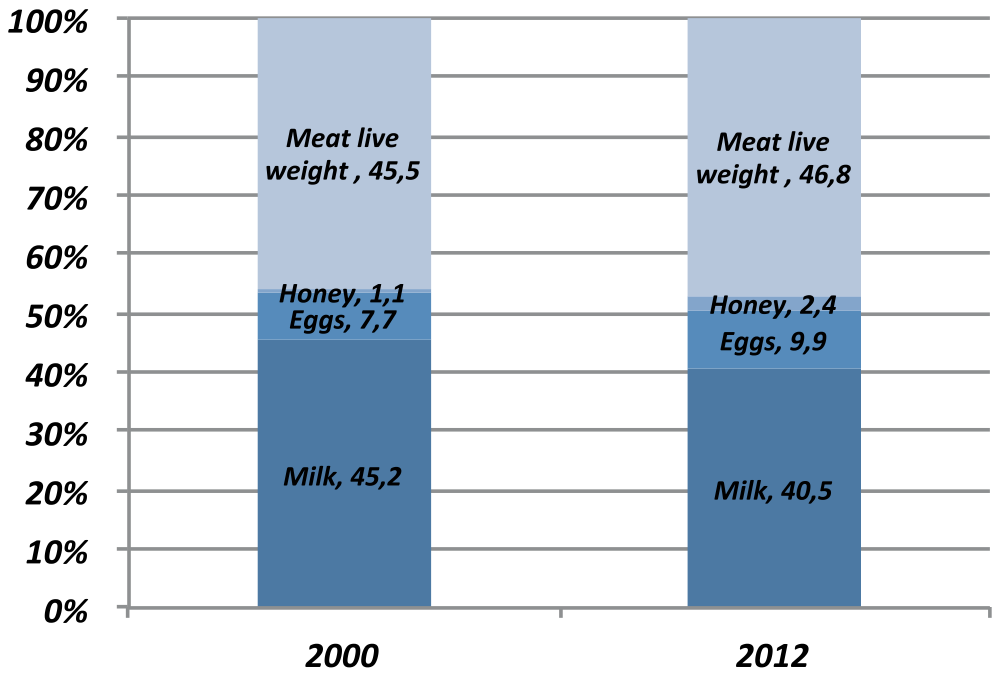
The regions in the western part of the country (Fier, Vlorë, especially the district of Saranda) and the region of Korçë in the eastern part of the country are the main agricultural producers. The four most productive regions (Durrës, Fier, Vlorë and Korçë) account for more than half (55 %) of the agricultural production of the country but only 45 % of the arable area. This group of regions is responsible for more than 60 % of total crop sales. The less productive regions are those of the north-east (Kukës, Dibër), the region of Lezhë in the centre of the country and the region of Gjirokastër in the south of the country. These four regions produce only 14 % of the total national sales (crops and livestock) despite cultivating 21 % of the agricultural area. In terms of crop production, these regions account for less than 10 % of national crop sales. Mostly mountainous, these regions are characterised by steep slopes and low fertility of the agricultural land.

The geography of Albania is more suitable for livestock production than for crop production. In 2012, the livestock sector accounted for 54 % of the total production value and crop production for 46 % (INSTAT 2012). Crop production is more important in the so-called western plain (the regions of Durrës, Tiranë and Fier) and the region of Korçë, characterised by significant mountainous areas but also the second most important agricultural plain in the country (see Figure 3). The other regions of the country are characterised by a higher proportion of livestock production.

The structure of livestock production has stabilised over the last 10 years (Figure 4). Between 2000 and 2012, livestock production was characterised by important contributions to meat and milk production (nearly 90 % of the value of total livestock production). Other products (honey, eggs) have also increased their contribution (from 9 % to 13 %) but remain less important.

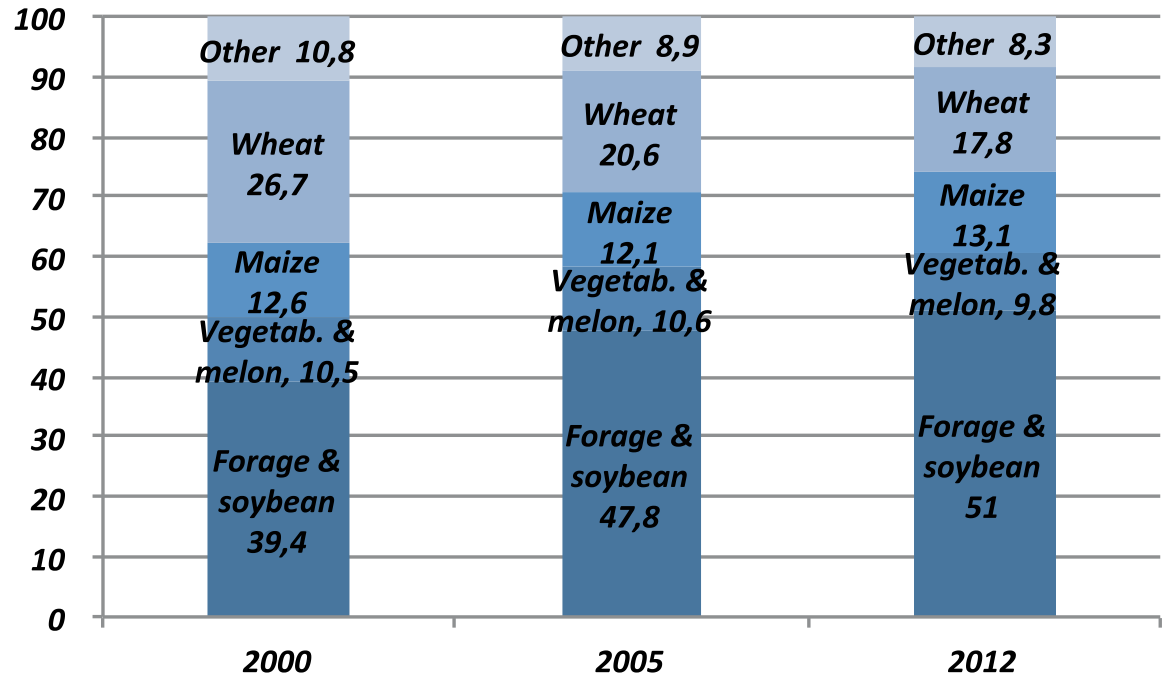
Half of the arable area is cultivated with forage plants, thus increasing the importance of the livestock sector. The breakdown of the harvest for 2000 and 2012 (Figure 5) shows that in nearly 12 years fodder crops have replaced cereals, especially wheat. Wheat imports have steadily increased over the same period (INSTAT 2012; MBUMK 2012). The direct payment scheme applied to fruit trees, particularly olive trees and nuts, and significant private investments have in 10 years doubled the contribution of fruit trees to the value of agricultural production (from 22 % in 2000 to 40 % in 2012)(Figure 5). It seems that, in future, the contribution of fruit trees will increase when newly planted plantations enter into production.

Figure 4: Distribution of livestock production (in value) for 2000 and 2012



Source: MAFCP, 2012

Figure 5: Breakdown of harvested area share by main crops for 2000, 2005 and 2012



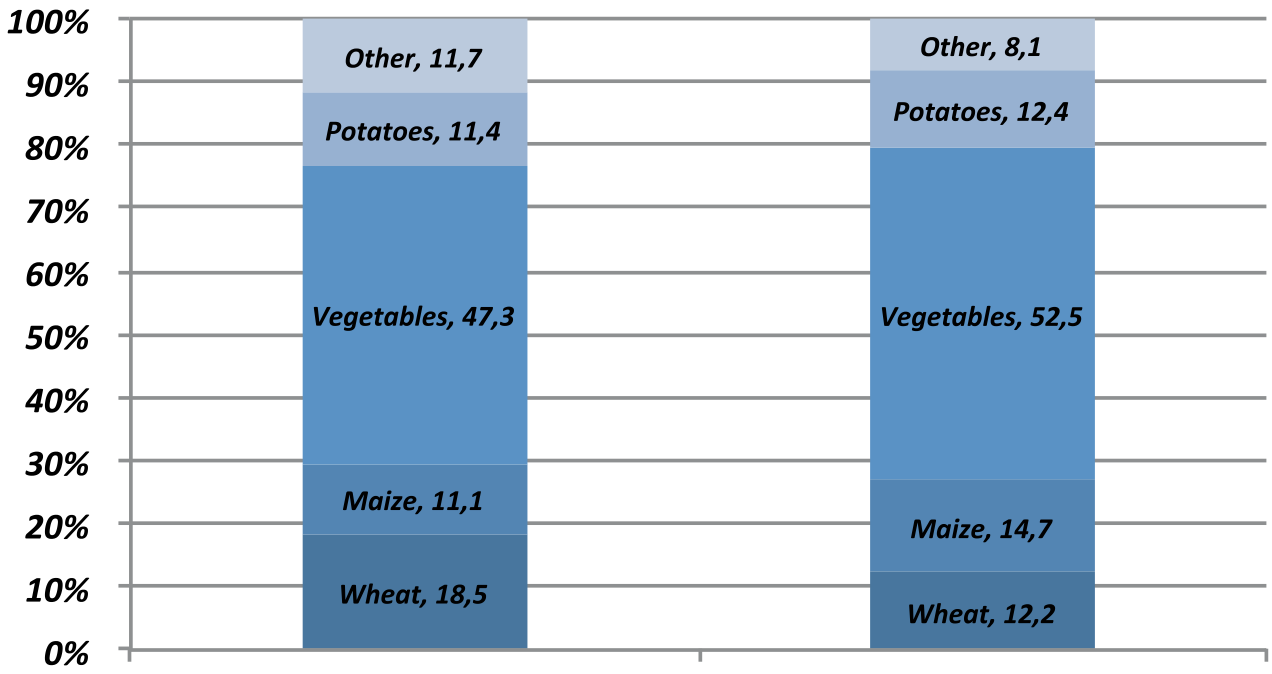
Source: MAFCP, 2012.

The transition in Albania is characterised by an improvement in the productivity of the main crops and livestock production, but productivity remains below the European Union average. The change in the yield of wheat over the last 12 years can be used as an example. Albanian wheat yield during this period (2002–2012) increased by more than one-third (34 %) but is still 20 % lower than the EU-27 average (INSTAT 2012; EUROSTAT 2014); the picture is the same for the milk production. According to Cela et al. (2010), Albanian agriculture still faces significant problems in terms of productivity. The breakdown of the crops value is presented in Figure 6.

Albania remains a net importer of food products (Figure 7). In 2012, Albania imported more than EUR 623 million of food products and exported more than EUR 92 million. Over the last 10 years, agricultural exports have accounted for, on average, only 11 % to 15 % of food imports. The ratio has improved for 2012 owing to an increase in exports and a stabilisation of imports. Crop and livestock exports over the period 2010–2012 increased by 51 % and 67 %, respectively, whereas imports for the same period increased by only 13 % and 4 %, respectively.

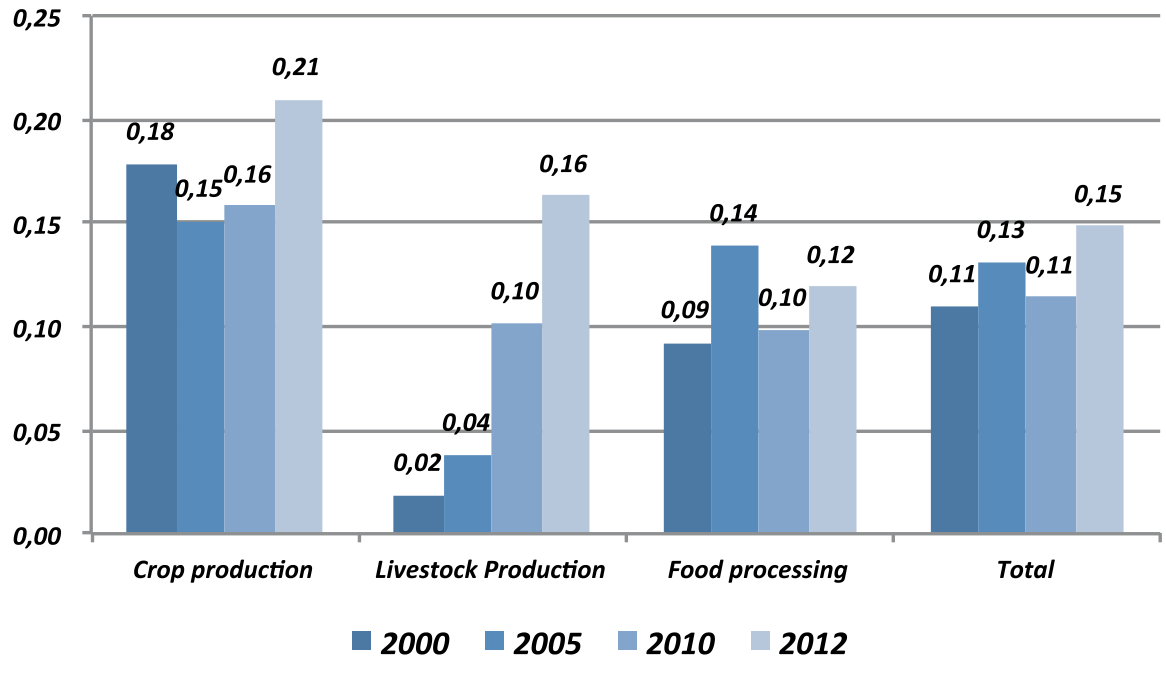
The main Albanian agricultural exports are medicinal herbs and vegetables, tobacco, tinned fish and animal leather; the main imports are meat and meat products and fruit and vegetables. Albanian exports are niche products that require labour-intensive production methods (Cela, Marku et al. 2010). Albania is a world leader in production of some medicinal herbs (sage, thyme, etc.) (Cela, Marku et al. 2010). The traditional collection of wild sage is being replaced by cultivation of sage, creating new types of farming systems, especially in hilly and mountainous areas. The cultivation of sage has the potential to increase farm incomes in those areas where farms have a small area of low-quality land.

Figure 6: Breakdown of the value of crop production for 2000 and 2012



Sources: MAFCP, 2011 INSTAT, 2012.

Figure 7: Import–export ratio over the period 2000–2012



Sources: MAFCP, 2011 INSTAT, 2012.

4.1.5 Agricultural policy framework

The main policy instruments of the Albanian government intervention to handle some of these problems are provided in the agriculture and food sector strategy 2007–2013 (EC 2010). According to (Cela, Marku et al. 2010), the main objectives of the above strategy are (1) the development of sustainable agriculture; (2) the improvement of the livelihood of rural households; (3) an improvement in the economic efficiency of agriculture and the food industry; and (4) the improvement of agricultural markets, etc.

Direct support for production relies mainly on subsidies aiming to increase the production and food-processing capacities. The strategic sectors are permanent crops (olives, nuts and other permanent crops), technology and infrastructure (greenhouses, irrigation on a small scale, new technologies, etc.) and food-processing sector standards and increased capacity.

The first support measures for agriculture in Albania are relatively new (2007), with direct support for permanent crop plantations and for livestock production (sheep and cattle). In recent years the range of activities supported by these schemes has included production of nuts (chestnuts, walnuts), greenhouse construction and almost all livestock production, as well as the agro-industry sector.

As EC (2010) highlights, the 'direct payments ([5]) in Albania are not compatible with EU rules'. They are not decoupled and they have no environmental requirements and/or other types of 'cross-compliance' standards.

In 2014, the Albanian government added new policy instruments aiming to increase farmers' participation in the fresh fruit and vegetable markets. Farmers can apply for extra direct support of 15 % of the product value for fruit and vegetables if the quantity sold to the wholesale markets, processing units and fresh fruit and vegetable collection centres is greater than 3 tonnes for fruits and 5 tonnes for vegetables, up to a limit of 30 tonnes and 50 tonnes, respectively.

5 Direct payments are applied for milk and olive oil, as well as per head payments for sheep and goat production; recently, payments for chestnut production have been implemented.

4.2 Farm typology in Albania

4.2.1 Introduction

This report is based on information collected from a face-to-face survey of more than 1 000 farmers from three regions of Albania (namely Berat, Elbasan and Lezhë). The extensive questionnaire (see Annex 1) used in the survey elicited information on:

- the household;
- the agricultural work offered (family and hired labour distributed by month);
- the farm (arable land, irrigation, plot characteristics, agricultural mechanics);
- agricultural activities (crop by plot and livestock production, crop rotations for at least 3 years);
- destination of agricultural products and agricultural incomes (self-consumption, sales, processing, stock, etc.);
- technical data sheet for each crop activity and each livestock production (list of detailed costs for each production);
- agricultural support schemes;
- credit;
- distribution of expenses.

The information gathered was processed in order to build up a farm system typology to understand the strategies of the farm systems, the impact of the agricultural policy instruments and the potential future evolution of Albanian agriculture.

The de-collectivisation process that took place in Albania during the 1990s totally reorganised the farming structure. The farming systems created by this reform are small and fragmented (Civici 2001; Civici 2003; Miluka, Carletto et al. 2007; Guri 2008; Deininger, Savastano et al. 2012; Zhllima and Guri 2013; Sikor and Müller 2009). The agricultural land area of nearly 700 000 ha is divided among more than 300 000 farming households, resulting in small farms of less than 1.30 ha on average. Moreover, these tiny areas are divided into several plots of 0.3 ha on average (INSTAT 2012). Albania has experienced the highest de-collectivisation index among the transition economies in Central and Eastern Europe (Miluka, Carletto et al. 2007).

The principal aim of the generalised farming system created by de-collectivisation was that farms should produce enough food to meet farming families' personal needs. This would require farmers to grow several crops (cereals, forage,

vegetables and fruit trees) and keep several types of livestock (a combination of sheep and goats in the mountainous areas and generally cattle in the lowland areas). Empirical studies show clearly that family is the major source of labour on Albanian farms and that the agricultural labour market is very small (Miluka, Carletto et al. 2007).

Twenty years on, the average land area per farm has improved slightly (by only 16.3 %, increasing from 1.04 ha at the beginning of 2000 to 1.21 ha in 2010) (MBUMK 2012), as has the average plot area (increased by only 1.2 %). Studies have shown that the land market is developed mainly for urbanisation purposes near urban and coastal areas (Guri and Jouve 2003; Guri 2008).

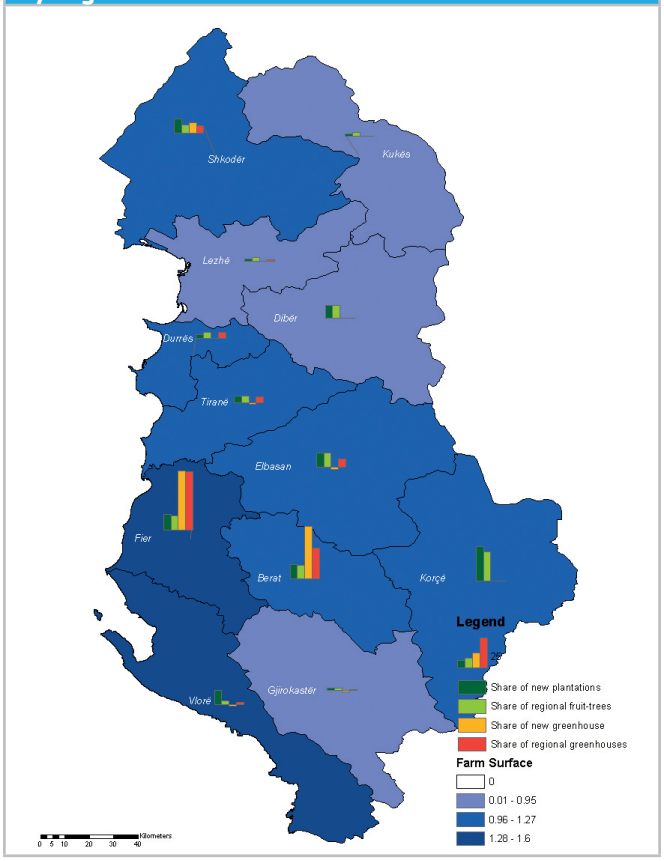
4.2.2 Is a typology really needed in Albania?

The structure of farms in Albania and the way in which these farms were created after de-collectivisation may lead to the conclusion that a farm typology is obsolete in Albania.

The de-collectivisation process that ocurred in Albania in 1991 produced farms with similar land areas, soil quality, agricultural techniques, etc. Generally, farms are very small and poorly equipped. The main objective of post-collective agricultural farms was subsistence ([6]) (Kodderitzsch 1999). The cropping and livestock pattern is based on cereals and vegetables, mainly for family consumption and sale of surpluses. This generalised situation left little room for, on the one hand, farmer-developed strategies and, on the other hand, adapted public policy instruments.

Twenty years later, many factors (geographical, infrastructure, non-agricultural income, introduction of new techniques, agricultural investments, etc.) have made it possible for different farms types to emerge in Albania. In general, the average UAA is still in the same range as it was in 1991, but the cropping pattern and strategies are quite different. Many farms in the western part of the country (Fier Lushnjë Kavaja, etc.) now specialise in vegetable and fruit production for the markets, with a corresponding reduction in the proportion of total production that goes to self-consumption. Other farms are increasingly specialising in out-of-season production ([7]). In other regions of the country livestock farming systems predominate. A good example of changing farming systems is the growth of the areas under fruit tree plantations and greenhouses (in hectares) in the period 2006–2012 and 1996–2012, respectively (see Figure 8).

Figure 8: The development of fruit tree production (1996–2012) and greenhouse area (2006–2012) by region



Sources: MAFCP, 2011; INSTAT, 2012.

6 According to Kodderitzsch (1999), on average only 18 % of crop, 30 % of livestock and 2 % of on-farm processed production reaches the markets.

7 According to INSTAT (2012), the area under greenhouses has doubled in the last 12 years (2000–2012).

The map of fruit tree distribution shows clearly that in regions where fruit tree production has traditionally been important (Fier, Berat, Korçë) the area consumed by fruit tree production increased further over the 16-year period 1996–2012. The same is true of greenhouse production. In regions with significant areas under greenhouses (Fier, Berat), that area has increased even further over the 17-year period 1996–2013. At the same time, regions where a the production of fruit or vegetables in greenhouses was previously low have experienced only a small increase in area, or it may even have decreased (for example, the greenhouse area in the region of Gjirokastër). These two examples show that Albanian agriculture is undergoing a process of specialisation. These general trends need to be analysed in a more detailed way by constructing a farm typology that groups farms with similar characteristics within a group and highlights important differences among groups (Köbrich, Rehman et al. 2003; Iraizoz, Gorton et al. 2007). The creation of a farm system typology allows the specification of research questions, the elaboration of policy instruments and improvements in extension interventions in rural areas (Jouve 1986; Landais 1998).

The role of the typology can be summarised as 'an efficient method to summarise diversity of farming systems, intrinsic to every rural area' (Righi, Dogliotti et al. 2011).

In the case of Albania, constructing a representative farming system typology helps the policy maker to develop policy instruments to meet specific needs.

Some scholars conclude that, even in small areas, the typology remains a pertinent instrument to understand farming systems and farmers' strategies Canali et al., 1998; Biba, 2001; Guri, 2002; Çakalli 2012). Independently of their research objectives, they agree that typology is one of the few instruments that allows us to identify the differences between farms in Albanian rural areas.

The majority of typologies developed until now have been expert-based ones for a limited number of farms and districts. Below we have presented a non-exhaustive list of typologies drawn up in Albania over the last 20 years.

Table 1: A non-exhaustive table of typologies applied in Albania

Author	Objective	Number of questionnaires	Region	Main indicators	Methodology
(Biba 2001)	Farm strategies	70	Lezhë, Korça	Agricultural incomes, share of self-consumption	Expert based
(Canali, Hetoja et al. 1998)	Farm strategies	n.a.	Lushnjë	Irrigated area	Expert based
(Civici, Gocaj et al. 1997)	Farm effectiveness	n.a.	Central and north-west Albania	Net agricultural income/worker	Expert based
(Civici 2003)	Land use strategies	315	Seven districts of Albania (mainly southern and central areas)	Availability to participate in land market	Expert based
(*Çakalli 2012*)	Effectiveness of policy instruments	70	Vlorë	Agricultural mix (fruit trees)	Expert based
(Guri 2002)	Farm strategies	150	Durrës-Kavaja	Agricultural incomes, non-agricultural incomes, distance from the coast	Expert based
(Ronza 2011)	Level of subsistence	n.a.	Albania	Share of sales	INSTAT, 2000

Source: Compiled from the authors' research.

The majority of typologies drawn up over the last 20 years deal with the identification of farming systems trajectories and their evolution.

Three are the main indicators recurrently used to group Albanian farming systems:

Agricultural and non-agricultural income Agricultural income is one of the main research issues in Albania. The higher level of poverty in rural areas (Azzarri, Carletto et al. 2006) is a result of the lower productivity of work in agriculture, limited agricultural resources (especially land), obsolete technologies and the absence of specific support policies. The farm household strategy depends heavily on the quantity of non-farm income (Azzarri, Carletto et al. 2006). The literature shows that generally only a small part of non-agricultural income or remittances is invested in agricultural production or improvement of agricultural techniques; however, agricultural activity is shaped according to the availability of labour within the household (Miluka, Carletto et al. 2007).

Land use strategies One of the main issues in Albanian agriculture is the limited area of agricultural land per farm (on average 1.20 ha/farm (INSTAT 2012)). Moreover, this tiny area is split into several plots of 0.26 *ha* on average (INSTAT 2012) sometimes located as much as 2 or 3 km away from the farmer's household. Despite this, the Albanian government has not introduced sufficient specific ways of reversing the situation and increasing the average area of farms. In this framework, the analysis of land use strategies seems to be one of the main research questions for Albanian scholars (Guri 2002; Civici 2003). In these cases the research is related to the specific region(s) of the country without giving any overview of the whole-country situation.

The effect of policy instruments on agricultural income In 2007, the Albanian government introduced a set of agricultural investment support schemes, mainly applicable to fruit tree plantations, greenhouse construction, improving herd size, etc. The direct and indirect effects of these instruments on agricultural income/farms are poorly documented. This is partly because insufficient time has elapsed —most investments by farmers are in fruit trees (olives), which are not yet in production. The studies done (*Çakalli 2012*) are partial and deal only with one type of fruit tree in a limited area (generally a sample in a district).

A common feature of all farm typologies developed for Albanian agriculture during the last 20 years is the methodology used, which, generally, has been expert based. Typically the number of questionnaires administered low and the sample covers only a small number of districts. There is only a little information about sample designation and sample representativeness at a country or district level. Only the typology developed by the Albanian Institute of Statistics and presented by Ronza (2011) is capable of being statistically representative at country level, but no detailed information is provided in the paper.

5. Methodology

The methodological approach of the study is organised into different parts.

The first part deals with the sample design and identification of regions, districts, communes and farms that are representative of the diversity of Albanian farming systems.

The second part of the methodology explains the construction of the farm typology, and the third part presents the indicators used to assess the viability for each farm type.

5.1 The sample design

The sample is designed to be representative of farming systems in Albania. The limited financial and administrative resources meant that the survey had to be restricted to three regions of the country selected for their diversity of farming systems. The farms taking part in the survey were selected randomly to be representative of the farming systems in the area. The methodology of sample selection is explained below.

5.1.1 Selection of three representative regions (prefectures)

Albania is divided into 12 administrative counties called 'prefectures', 'qarks' or 'regions' (hereafter regions). To identify a representative sample of Albanian farming systems, a three-step sampling design was used.

Firstly, Albanian regions were stratified into three non-overlapping strata, each the size of four regions. Each stratum included regions that have similar agricultural characteristics in terms of:

Gross added value of agriculture in millions of Albanian lek —as an indicator of the importance of regional agriculture for the national agriculture sector.

Propensity to market (sales/total production (in value))—one of the most cited indicators in the identification of the different types of farming systems in Albania. The propensity to market is generally measured by proportion of total agricultural production accounted for by sales or the contribution of agricultural sales to total income.

Agricultural work productivity (workers/million Albanian lek of production)—an indicator of the intensification of farming systems in the region.

Productivity of the land (million Albanian lek per hectare)—an indicator of the intensification of land in the region.

The data used for agriculture gross added value and employment in agriculture came from by INSTAT (Albanian National Statistics Institute), and the data used for the agricultural production (in value), sales (in value) and arable area came from the Statistical Yearbook 2010 of the Ministry of Agriculture Rural Development and Water Management. The latest common year for the two sources is used.

5.1.1.1 Ranking

The selected indicators are used to rank the Albanian regions according to their contribution to total production.

Ranking is done by a user-defined function ([8]), with the main goal of ensuring the sustainability of sums. Assuming that each indicator is equally valid, the final ranking uses the average ranking of all indicators. Table 2 shows the classification of Albanian regions into three non-overlapping strata.

8 A function developed by Hans Pottel, commonly used for ranking in statistics, reviewing the Excel RANK function (the sum of ranks for a list of a given length changes depending on the number of ties), by assigning fractional ranks to ties to keep the sum consistent.

Table 2: Regional ranking

Region	Indicator 1		Indicator 2		Indicator 3		Indicator 4		Average rank	National classification
	GVA in agriculture		ALL from sales/ ALL produced		Workers/million ALL produced		ALL produced from crops/ ha			
	Million ALL	Rank		Rank		Rank	000 ALL/ha	Rank		
Berat	16 894.40	7	0.34	4	2.48	8	173.7	9	7.0	8
Dibër	12 217.00	4	0.39	7	2.84	11	168.2	7	7.3	7
Durrës	15 329.00	5	0.53	11	2.34	5	152.2	4	6.3	9
Elbasan	24 709.00	11	0.34	3	3.15	12	159.0	6	8.0	4
Fier	43 507.00	12	0.36	5	2.43	7	186.4	10	8.5	3
Gjirokastër	7 722.70	2	0.39	6	2.32	4	93.9	1	3.3	10
Korçë	20 477.90	10	0.43	9	2.71	10	156.9	5	8.5	2
Kukës	7 142.00	1	0.25	1	1.49	2	138.8	3	1.8	12
Lezhë	10 843.00	3	0.27	2	2.39	6	109.1	2	3.3	11
Shkodër	18 794.00	9	0.40	8	2.16	3	188.0	11	7.8	6
Tiranë	18 024.00	8	0.48	10	2.58	9	169.6	8	8.8	1
Vlorë	15 655.00	6	0.54	12	1.08	1	232.1	12	7.8	5

GVA, gross value added;M ALL, million Albanian lek.
Source: INSTAT, 2011; MACFP, 2011.

The regions ranked from first to fourth place (Tiranë, Korçë, Fier and Elbasan) are part of the first stratum, regions ranked from fifth to ninth place (Vlorë, Shkodër, Dibër and Berat) are part of the second stratum and the remaining regions (Durrës, Gjikorastër, Lezhë and Kukës) are constitute third stratum. The regional stratification is presented in Figure 9.

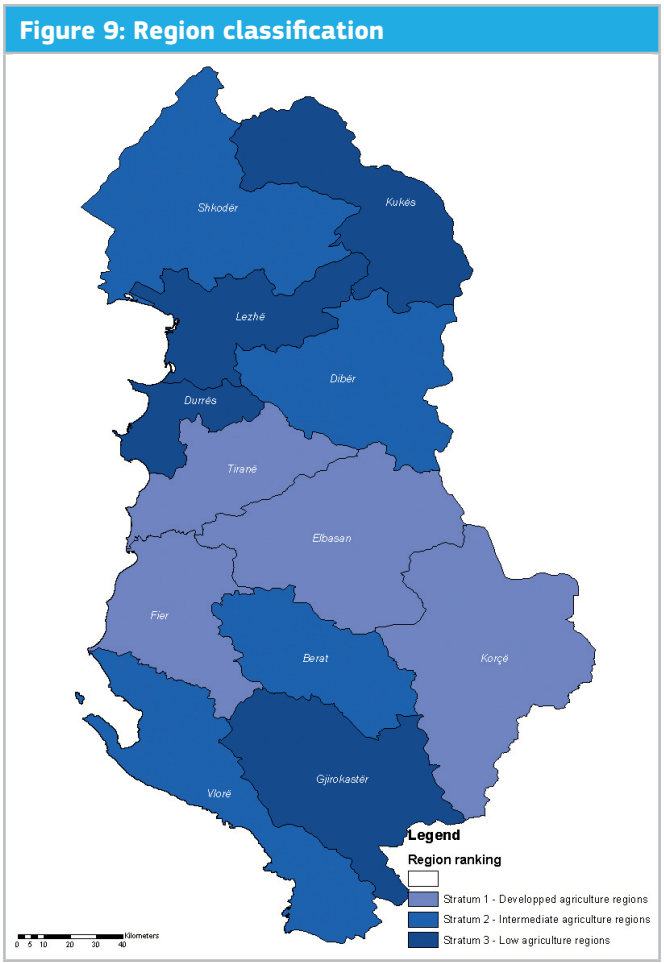
Within each stratum the regions have similar characteristics of agricultural production.

The first stratum includes the most advanced agricultural regions in the country. The combination of the four selected indicators ranks these regions in first place. This is not universally true for each region and for each indicator. For example, Elbasan is classified among the most advanced regions in terms of agricultural production but its farm propensity to market is not highly ranked. This indicator decreases the overall performance of the region but not so much that it is demoted to the lower group of regions. The agricultural added value of these regions is higher. Farming systems clustered in this group sell a higher proportion of their products than do farms in other regions of the country. Another factor influencing intensification is the presence of at least one important agricultural products market within the region's boundaries or in close proximity. Tiranë, Elbasan and Korç*ë* are among the most populated cities in the country. Fier region is in between the capital and the second largest city of the country (Tiranë and Vlor*ë*, respectively). This favourable geographical location reduces the transaction costs of farms in Fier compared with those in other regions of the country. Traditionally these regions have been important agricultural producers at a country level. Some of them specialise in particular products (fruit and vegetables, cereals, potatoes, etc.) or production techniques (greenhouses).

The second stratum is composed of regions that are characterised by a lower proportion of agricultural production or lower productivity. It is difficult to give a general description of the whole stratum.

The third group of regions is composed of mountainous regions, which are more rural and have a lower agricultural production. In this group livestock production is important, but it is difficult for farmers to get their produce to the main agricultural markets of the country.

Figure 9: Region classification



Source: authors' compilation.

5.1.1.2 Region selection

To ensure better representativeness of the country and farming systems, a region for each stratum is selected.

To select the region within the stratum, indicators of farming systems diversification are applied. Following the same strategy as in the first step of sampling, but using indicators of cropping pattern (arable crops, orchards and livestock production in million Albanian lek), the regions of each stratum are ranked within the stratum (Table 3). In each stratum, the region whose average ranking is closer to the average of the stratum is selected to be the one surveyed.

The selected regions are Elbasan among the most agriculturally advanced regions, Berat among the middle regions, and Lezhë among the least agriculturally advanced regions. The main rationale behind region section methodology is not only to have representative regions on a country level, but also to have the greatest representation possible of agricultural systems in each group of regions.

Table 3: Region selection

	Arable crop (M ALL)	Rank	Orchards (M ALL)	Rank	Livestock (M ALL)	Rank	Average ranking
Korçë	7 414	2	2 659	2	10 732	2	2.0
Elbasan	7 771	3	3 558	3	13 964	3	3.0
Fier	17 138	4	5 304	4	19 405	4	4.0
Tiranë	5 833	1	2 216	1	10 012	1	1.0
Average	2.5						
Shkodër	5 753	4	1 702	2	11 109	4	3.3
Vlorë	2 941	1	3 480	3	9 767	3	2.3
Berat	5 174	3	4 197	4	7 459	2	3.0
Dibër	3 969	2	1 245	1	6 561	1	1.3
Average	2.5						
Durrës	4 405	4	1 751	4	8 877	4	4.0
Lezhë	2 997	3	937	2	6 269	3	2.7
Gjirokastër	1 795	2	1 180	3	4 684	1	2.0
Kukës	1 755	1	650	1	5 679	2	1.3
Average	2.25						

Source: MAFCP, 2010 and authors' calculations.

5.1.2 Farm selection

Albania does not have yet a national farm register (it is expected to be established after the finalisation of the agricultural census (anticipated in 2014)). To select the farmers in each region, a multi-stage sampling method was applied, having as the main variable 'the area' (area sampling frame methodology). This methodology is widely used in agricultural surveys in Albania. In this case we have selected a sub-sample of a large master sample: 'The large sample is intended to provide enough "banked" sample cases to support multiple surveys over several years without having to interview the same respondents repeatedly' (U.N. 2005).

To select the farms for the sample, there are several methodological steps: (1) stratification; (2) construction of primary sampling units (PSUs), their numeration and selection; (3) the construction of sample Units (SUs), called segments, their selection and identification; and (4) the selection of a fixed number of farmers with activity for each selected segment.

(1) In the first step, the stratification of the regions is done according to the importance of agricultural activity in each area. The region's area is split into seven strata, of which only four have agricultural interest: (1) land cultivation intensity over 75 %; (2) land cultivation intensity from 25 % to 74.9 %; (3) land cultivation intensity under 25 %; and (4) land cultivation intensity 0 %. Three other strata do not cover agricultural land, namely (1) military areas; (2) principal cities; and (3) water, rivers and lakes. Survey farms are selected from the first four strata.

Identification of strata for each prefecture is made firstly by designing prefecture boundaries on transparent paper from topographic maps (1:100 000) and laying them over satellite images, to identify the areas of different strata, objects and physical boundaries according to the map legend. Following that, the transparent paper is again placed over topographic maps, in order to register the information from satellite images. The stratum boundaries are then painted onto the maps in different colours.

(2) The second step of sample design methodology is the definition of the PSUs. These are designed for each stratum based on the predefined size boundaries (Table 4).

The process of the measurement and design of PSUs on the maps is the same as that used to define the strata at regional level.

A segment is a confined area of land within a PSU with a definite size depending on the stratum and defined absolutely in space using real physical boundaries (Table 5).

Table 4: Definition of the primary sampling units

Stratum	Minimum (ha)	Desirable (ha)	Maximum (ha)
1	800	1 000	1 200
2	800	1 000	1 200
3	1 600	2 000	2 400
4	1 600	2 000	2 400

Source: authors' calculations.

Table 5: Area definition for each stratum

Stratum	Area (ha)	Area Margin
1	25	± 10 %
2	50	± 10 %
3	100	± 10 %
4	100	± 10 %

Source: authors' calculations.

The total number of segments identified in the country is 41 513.

The allocation of PSUs to strata and regions is done by the proportional to size probability method (comparing the size of each stratum with the country's total area to identify the PSUs for each stratum, and comparing the size of each region with the stratum size to define the number of PSUs per region). One segment is selected for each selected PSU. The number of selected segments (selected PSUs) and their size is defined based on the sample variability, cost, problems related to identifiable boundaries, farm size, number of farms, etc. To improve the level of precision, to determine if the estimated number of segments was appropriate, estimations are made for different agricultural products in terms of comparing variance between segments with that inside the segments.

The selection of segments is made by a systematic selection process with a random start. The interval is defined by dividing the total number of segments per PSU by the number of selected segments. The segments are identified and localised on maps, measured through the digitisation process and identified in the field using maps on a scale of 1:10 000 or 1:25 000.

The list of farms with or without activity, together with the total land, for each segment is updated by the Ministry of Agriculture, Food and Consumer Protection (MAFCP) in the regions on an annual basis.

This sample can provide good results and representativeness at country and regional level with a limited budget and human resources. ,This method has the following advantages, among others:

- The potential uses are unlimited—it can be used to collect representative data on the area planted with crops and orchards and on livestock and agricultural production as well as socio-economic data.

- It can ensure statistical validity—the method used to design the frame takes into account all areas.

Following the above method, the PSUs and the segments for the survey are selected.

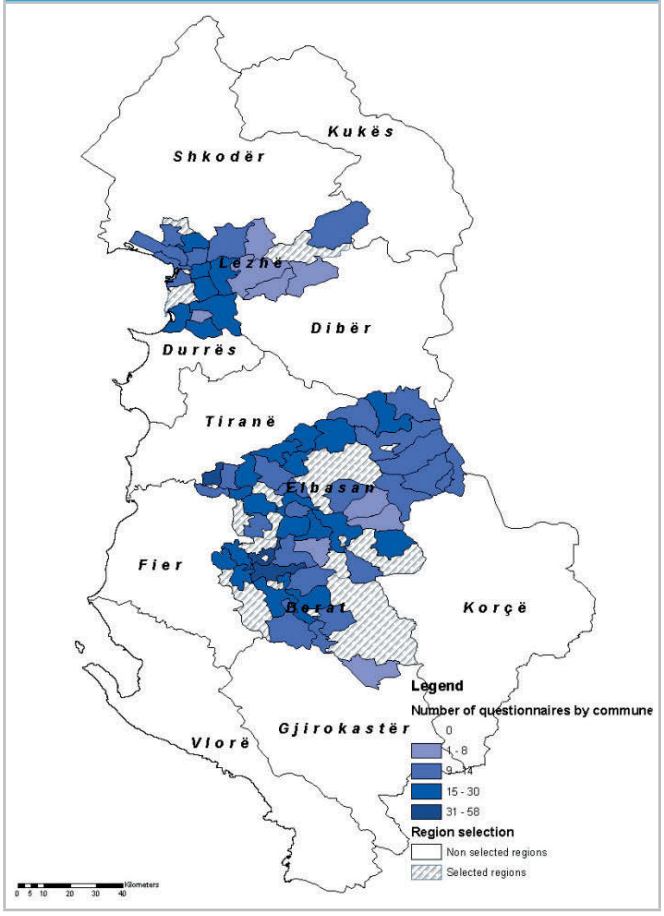
The number of selected segments for each selected region is 30 for Berat, 56 for Elbasan and 30 for the region of Lezhë (Table 6 and Figure 10). From each segment, 10 farms with agricultural activity are selected for surveying. The selection is casual starting point and systematic.

Table 6: Region sample

Region	Questionnaires
Berat	276
Elbasan	505
Lezhë	255
Total	1 036

Source: authors' calculations.

Figure 10: Sample distribution at commune level



Source: Authors' calculations.

5.1.3 Regional up-scaling

All the results of our analysis are presented by farm type on a regional level. The up-scaling of the results is done by applying the expansion coefficient to the sample results.

The expansion coefficient (weight) is calculated by the combination of three elements: (1) the ratio

$$K_1 = \frac{total\ number\ of\ segments}{number\ of\ selected\ segments}$$

this indicator having same value for within the regions of the same stratum; (2) the ratio

$$K_2 = \frac{total\ number\ of\ farms}{number\ of\ selected\ farms}$$

this indicator having the same value within the segment; and (3) the ratio

$$K_3 = \frac{area\ surface\ within\ the\ segment}{total\ farm\ area}$$

this indicator varying for each farm in the sample. The weight of each farm is calculated by the multiplication of the three ratios:

$$Expasion\ Coeficient = K_1 \times K_2 \times K_3$$

5.2 Farm household typology

5.2.1 Farm household typology indicators in Albania

A bunch of 11 variables dealing with the socio-economics characteristics of farms are selected to build up the farming system typology. Two typologies are drawn up: one for the whole sample (three regions) and a second one for each region. The differences between the two typologies are considered to be a proxy indicator of the different characteristics of the farming systems in each region. The literature recommends selecting variables that explain farm characteristics, among others, in terms of farm size, capital, labour, production pattern, soil quality, managerial ability, etc. (Köbrich, Rehman et al. 2003) (Riveiro, Marey et al. 2008). Other authors classify variables into three main groups: (1) biophysical resources (farm area, land use patterns, livestock resources, fruit trees, etc.); (2) socio-economic aspects (labour, capital, etc.); and (3) equipment (availability of tools, equipment, etc.) (Righi, Dogliotti et al. 2011). Castel et al. (2010) use seven groups of variables to build the typology of dairy farming systems in a province of Poland, i.e. (1) soil quality; (2) socio-economic conditions; (3) infrastructure; (4) structure of agricultural production; (5) inputs in agricultural production; (6) production income and profitability; and (7) index of agricultural profitability. Tittonell et al. (2010) built a typology of smallholder farms by adding variables ([9]) related to the propensity of farms to take part in agricultural produce markets. In the case of the Albanian farm typology, five groups of variables have been selected:

(1) The physical characterises of the farm: (a) total area of the farm; (b) share of rented land; and (c) share of irrigated land. This group of variables helps us to cluster the farms according to their physical characteristics (total area), the agricultural infrastructure (irrigation) and the intensity of farming system that the household wants to apply on the farm (share of rented land). The farm structure in Albania arising from the de-collectivisation process is characterised by small and regionally equal agricultural areas/farm. All the inhabitants of Albania living in the rural areas at the beginning of 1990 acquired a small plot of land. This framework led us to conclude that renting land is not a survival strategy but an expansion strategy generally followed by farmers who want to intensify their farming system.

(2) The cropping pattern: (a) the share of livestock production value over the total production value; and (b) the share of crop production value over the total agricultural production. This second variable is constructed from three main categories of crop production: (i) arable crops; and (ii) vegetables and potatoes and fruit trees. The cropping pattern is one of the main structural characteristics of farming systems that shape their strategies.

(3) Capital structure: (a) agricultural capital/agricultural production; and (b) total expenses/agricultural production. These two variables can be used to differentiate farming systems according to their capital intensification.

(4) The fourth group of variables tries to differentiate farming systems according to the propensity they have to participate in agricultural markets. Scholars differentiate three main types of agricultural farms in Albania (Biba 2001; Guri 2002): (a) self-sufficient farms producing mainly to fulfil the family's need for food and selling only some surplus to local markets; (b) mixed farms producing both to fulfil the family's need for food but selling also being an important part of their operation, mainly to local markets but also abroad. This strategy is followed by farms in areas that are well known for a specific type of agricultural production, farms that are located close to market infrastructures or farms that have invested in improving their production capacity; and (c) farms that produce exclusively for market. The share of these

9 Tittonell et al. (2010) use the following variables to build their typology: total area, UAA, area with cash crops, family size, family labour, age of household head, share of household income from off-/non-farm income, number of years of generating off-farm income, production orientation (share of production for market), total number of livestock, number of local cattle breeds, number of improved cattle breeds, and months of food self-sufficiency.

farms is limited because it is rare for a farming household to sell all of its produce. The farms in this group are generally those that have extensive areas under greenhouses or fruit trees or large livestock herds.

(5) The last variable is used to group farming systems by analysing the share of non-agricultural income in the total income. Income structure is among the most used variables in expert-based typologies in Albania (Biba 2001; Guri 2002) owing to the characteristics of the farming system in Albania. Non-farm incomes are one of the main sources of revenue in rural areas. These may come from non-agricultural employment or social transfers from members of the family who have emigrated (Kilic, Carletto et al. 2009), governmental social transfers known as poverty allocations or retirement pensions. Studies have concluded that non-farm employment in Albania is more a substitute for than a complement of agricultural employment and that the non-farm income is generally channelled to non-agricultural activities within the household. The exception is livestock production if the produce is destined for market (Kilic, Carletto et al. 2009). According to the studies mentioned, the higher proportion of non-agricultural income will result in farms with lower agricultural sales and diversified employment but outside of agriculture.

5.2.2 Clustering farms

To construct the typology of farming systems in the regions all the variables mentioned above (see section 5.2.1) are used. Some of these variables are not sufficiently variable among the farms and so they are not considered in the typology. The variables of rented land, agricultural capital and hired workforce are not included for this reason.

The final variables used to construct the typology of farming systems at the sample level are the following:

(1) Farm structure: (a) total farm area; (b) cultivated area/ total area;

(2) Agricultural crops: (a) proportion of livestock production; (b) structure of agricultural production: (i) arable crops; (ii) vegetables and potatoes; (iii) fruit trees.

(3) Intensification strategies: (a) total expenses/value of agricultural production; (b) annual work units/value of agricultural production (1 AWU = 1 800 working hours = 225 days of work ([10])).

(4) The farm's propensity to market: share of agricultural sales value over the value of total agricultural production.

(5) Proportion of non-agricultural income.

Three are the main steps in constructing the typology construction: (1) test the need for a factor analysis procedure; (2) hierarchical clustering to define the most appropriate number of clusters; and (3) non-hierarchical clustering to define the clusters of the sample and the characteristics of each type (Köbrich, Rehman et al. 2003; Bidogeza, Berrensten et al. 2007).

A **factor analysis procedure** is needed when the variables are correlated with each other. In order to eliminate the inter-relation among the variables, a principal components analysis (PCA) is performed with the aim of reducing the dimensions of the dataset but maintaining the variation.

To identify the inter-relation among the variables we applied the Kaiser–Meyer–Olkim (KMO) test (1970) to identify a correlation or partial correlation. If the value of the KMO test is higher than 0.5, a factor analysis is required. In our case the KMO test value was 0.603. The second test applied was Bartlett's sphericity test . The hypothesis tested is that the correlation matrix is an index matrix meaning that the variables are completely independent from each other. The null hypothesis is rejected ($p < 0.001$) meaning that a correlation exist among the variables taken into consideration.

The results of these two tests (Table 7) demonstrate that, before clustering can be done, a factor analysis is required.

10 We used the EUROSTAT definition of AWU: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Annual_work_unit_(AWU)

Table 7: The results of the Kaiser–Meyer–Olkim test and Bartlett's sphericity test						
Component	**Initial eigenvalues**			**Rotation sums of squared loadings**		
	Total	**Share of variance**	**Cumulative share**	**Total**	**Share of variance**	**Cumulative share**
1	2.577	25.773	25.773	2.178	21.781	21.781
2	1.725	17.246	43.019	1.721	17.208	38.989
3	1.377	13.771	56.790	1.668	16.683	55.672
4	1.056	10.564	67.354	1.168	11.681	67.354
5	0.827	8.267	75.621			
6	0.648	6.484	82.104			
7	0.622	6.218	88.323			
8	0.543	5.426	93.748			
9	0.447	4.465	98.213			
10	0.179	1.787	100.000			

Source: authors' calculations.

A component is statistically significant if the eigenvalue is above one (Guttman–Kaiser rule) (Köbrich, Rehman et al. 2003; Iraizoz, Gorton et al. 2007). In our case this is true for the first four components. Table 7 shows that the first four components account for more than 67 % of the initial variance of the variables retained. This result is in line with those reported in papers using the same techniques (Iraizoz, Gorton et al. 2007).

5.2.3 Cluster analysis

The factors arising from the PCA are used in the two-step clustering analysis method. In the first step, a hierarchical cluster in method is applied using Ward's minimum variance. This method minimises the variance within the cluster and tends to find or create clusters of relatively equal size and shape as hyper-spheres (Köbrich, Rehman et al. 2003). In the second phase, a non-hierarchical clustering method is applied, using the number of clusters established in the first step, trying to minimise the variance within the cluster as a measure of cluster homogeneity.

The final result is taken by cutting the dendogram (Figure 11) at level 5 of the linkage distance, which is the lowest cut giving a reasonable number of clusters. In this case the cluster number is 6. The cluster selection is supported by the analysis of variance test (*F*-values and *P*-values).

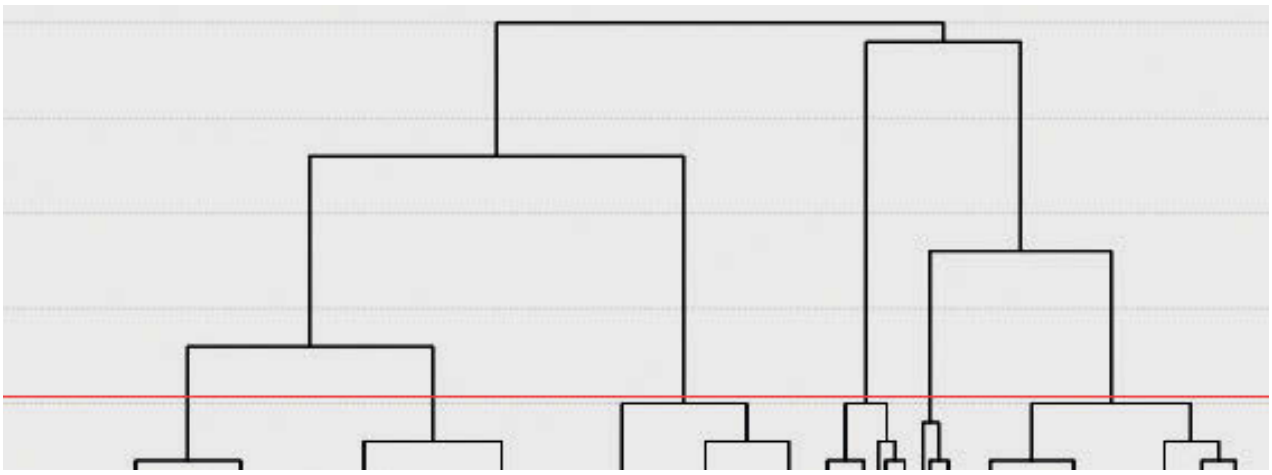
5.3 Methodology of farm viability analysis

The main analysis of the project is to identify the most productive farm types in Albania in terms of FNI, the types that yield a higher income for each household family member, and the types that give a better return for the work of each AWU employed in agriculture as well as for the land.

5.3.1 Farm net income calculation

In this report the methodology of FNI calculation (Box 2) and the analysis of viability among the farm types is based on the methodology followed in the JRC Scientific and Policy Report 'Rural poverty reduction and food security: the case of the smallholders in Sierra Leone' (Gomez y Paloma S., Acs et al. 2012).

Figure 11: The dendogram of cluster analysis



Source: authors' calculations.

Box 2: Farm household income calculation

The household income is measured by the sum of farm net income (FNI) and off-farm income:

$$FNI = OV - IC$$

where OV (output value) represents all agricultural production used for sale, self-consumption and stock. The value is calculated by multiplying the production by the market prices (declared by the household or, if it is not available (because the household does not sell the product), an average of prices declared by farms surveyed in the same commune). The OV formula is:

$$OV = \sum_i (C_i \times p_i) + \sum_j (L_j \times p_j)$$

where C_i and p_i are the production quantity and price, respectively, for each type of crop and L_j and p_j the quantity and price, respectively, for each type of livestock production.

IC (input costs) is the sum of variable costs (VC) and the fixed costs (FC).
VC is proportional to the production amount. The VC is calculated by the following formula:

$$VC = \sum_{i,j} (Lab_{i,j} \times p_w + Seeds_i \times p_i + L_j \times p_{j,m}$$

where $Lab_{i,j}$ is the labour used for crop and livestock production; p_w is the wage; $Seeds_i$ is the cost of seeds per crop type; p_i is the price for each crop seed type; L_j is the number of livestock; and $p_{j,m}$ is the variable costs for livestock maintenance (feed, veterinary services, etc.)

FC includes the value of fixed assets such as land, tools, machinery, buildings and livestock purchase (if the livestock is sold within the year). The formula used to calculate the fixed costs is:

$$FC = L\,Rent + \sum_i Tools_i \times d_i + \sum_j L_j \times d_j$$

where $L\,Rent$ is land rent paid per year; $Tools_i$ is the quantity of tools by each type of tool; and d_i is the depreciation (calculated by a linear method $d = \frac{(Iv - Fv)}{n}$, where Lv is the initial value of the tool, Fv is the final value of the tool and n is the economic life of the tool expressed in a year); L_j is the amount of purchased stock; and d_j is the annual depreciation of the purchased livestock.

The FNI per working unit:

$$\frac{FNI}{WU} = \frac{OV - VC}{WU} - \frac{FC}{WU}$$

where WU is the number of working units. To calculate the WU, the EUROSTAT definition of AWU is used (1 AWU is equal to 225 days of work/year).

To achieve equivalence between men's, women's and children's work, an equivalence ratio is applied: adult male = 1, adult female = 0.8 and child = 0.5.

Source: (Gomez y Paloma S., Acs et al. 2012)

5.3.2 The farm type viability analysis

The analysis of farming system types is organised into two parts:

The economic performance of each farm type is evaluated by calculating their viability and productivity.

Calculation of farm type viability is done using the reproduction threshold (RT), which is a benchmark for assessing the economic viability of different farming or production systems (Gomez y Paloma S., Acs et al. 2012). In this case two indicators are used to assess the viability of farming systems.

The first is the minimum wage approach, which is the comparison of the FNI/WU with the minimum wage ([11]) for 2014. The second indicator is the comparison of FNI/ household member with the poverty line ([12]). The same level of minimum wage and poverty line indicators is applied to the whole sample. Table 8 shows the utilisation of these two indicators.

The analysis is performed on farm type, and the discussion of the results is on the basis of farm type level, but a comparison of the results among different farms types of the region is also made.

The importance of non-farm incomes in Albanian rural areas makes it necessary to perform the analysis not only for the FNI, but also for the total household income (THI). The THI is calculated as:

$$THI = \frac{FNI}{HM \times 12} + \sum_{h} w_h + \sum_{j} Rp_j + \sum_{i} Pp_i + \sum_{n} R_n$$

where $\frac{FNI}{HM \times 12}$ is the monthly income for each household family member; is the monthly wage(s) of the household family members; is the monthly amount of retirement pension(s) of household family members; is the monthly amount of poverty payments; and is remittances or other incomes, expressed at the monthly level.

The second step in determining farm type economic performance is to analyse the farm type productivity. Productivity indicators of work ($\frac{FNI}{WU}$), land ($\frac{FNI}{UAA}$) and capital ($\frac{FNI}{C}$) are calculated for each farm type. A comparison of these indicators will give a better explanation of farm types in terms of work, land and capital.

The analysis will conclude with a ranking of farm types in terms of economic performance in each region.

Table 8: Method of calculation of work and land productivity

	Indicator		Value	Note
Reproduction threshold	Minimum wage	$\frac{FNI}{WU \times 12 \times MW}$	> 1	The work in agriculture is paid more than the minimum wage (MW)
			= 1	The work in agriculture is paid as much as the minimum wage
			< 1	The work in agriculture is paid less than the minimum wage
	Poverty line: extreme poverty	$\frac{FNI}{HM \times 12 \times 4037 ALL}$	> 1	The members of the family live above the extreme poverty line
			= 1	The members of the family live on the extreme poverty line
			< 1	The members of the family live below the extreme poverty line
	Poverty line: complete poverty	$\frac{FNI}{HM \times 12 \times 4891 ALL}$	> 1	The members of the family live above the complete poverty line
			= 1	The members of the family live on the complete poverty line
			< 1	The family members live below the complete poverty line

Source: adapted by the authors from Gomez y Paloma et al. (2012).

11 For administrative reasons, the Albanian government fixes the level of the minimum wage. In 2014 the minimum monthly wage amounts to ALL 22 000 (EUR 156.6).

12 According to the Institute of Statistics of Albania (INSTAT), an inhabitant is in extreme poverty if his or her monthly income does not exceed ALL 4 037 (EUR 28.7) and is in complete poverty if the monthly income does not exceed ALL 4 891 (EUR 34.8).

6. The farm typology results

6.1 Sample analysis results

Table 9 shows the values for each variable for the six groups of farms created after the cluster analysis. The farm type average indicators represent an overview of the farm type strategies.

Cluster 1 is the group **'poly-culture mainly for the market'**. This group is characterised by the highest proportion of sales (64 % of the total production value) as well as no clear specialisation in one type of agricultural production. Agricultural income is the main source of income in the household (only 8.28 % of non-agricultural income) and the production expenses are among the lowest, as a result of adopting a strategy of little mechanisation and a lot of manual labour. The farm structure is characterised by relatively larger areas (13.55 ha) but little potential to use irrigation (only 20 % of the total land). The farming mix is dominated by crops (77 % of total production). The distribution among cropping activities favours fruit tree production, but other crops such as arable crops (31 %) and vegetables (nearly 20 %) also make an important contribution.

Cluster 2 comprises farms that can be called **'leisure farms'**. The main part of their income comes from non-agricultural activities (nearly 70 % of total income). The farms in this group are characterised by the smallest land area among the farm types in our sample (0.7 ha) and a higher proportion of crop production than livestock farming. The crops cultivated are generally those that do not need any particular know-how (arable crops 74.4 %) with little cultivation of fruit trees (less than 5 %) and the rest in vegetables and potatoes. Almost the whole of the arable area is cultivated (97 %), employing the greatest amount of labour (nearly 7 AWU/million Albanian lek). These figures

Table 9: The results of cluster analysis for the whole sample

		Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	*F*-Value	*P*-Value
1	Sales/production	64.07	29.32	50.34	63.89	44.21	37.63	48.13	0.000
2	Irrigated area/total UAA	20.91	90.93	11.19	15.21	10.37	75.46	573.33	0.000
3	Livestock production/total production	22.01	35.26	32.18	9.00	36.67	41.42	43.92	0.000
4	Arable crops/Total agricultural production	30.70	74.40	87.73	18.14	82.24	78.67	318.08	0.000
5	Fruit trees/agricultural production value	54.75	4.14	5.93	76.77	8.96	4.82	587.10	0.000
6	Expenses/total production	0.36	0.40	0.48	0.42	0.36	0.26	16.34	0.000
7	Cultivated area/arable area	90.62	96.95	92.86	91.94	93.49	98.59	7.31	0.000
8	Arable area	13.55	6.89	13.74	10.67	14.31	8.99	31.90	0.000
9	AWU/000 ALL of production value	0.0046	0.0069	0.0038	0.0055	0.0042	0.0046	4.81	0.000
10	Income off-farm/total income	8.28	69.19	67.57	70.80	4.69	6.13	822.18	0.000

Source: authors' adaptation.

allow us to conclude that the farming systems of this group are small and extensive.

Cluster 3 can be called the **'arable crops type'**. In this group, arable crop production is dominant (nearly 90 % of total crop production). The other types of crop production (fruit trees or vegetables) are cultivated only for family consumption. The proportion of sales remains important and the household also has considerable support from non-agricultural activities. It seems that the choice of crop production is the result of the lack of agricultural infrastructure for farms of this type. Only 11 % of the arable land is irrigated. There is clear competition for the workforce between agricultural activities and other activities. The farms in this group use only 3.8 AWU/million Albanian lek of agricultural production, which is the lowest amount of labour used among all the types identified. On the other hand, the farms in this group use a higher proportion of agricultural machinery and other expenses. The limited workforce and the reduced potential for irrigation lead farmers to follow a strategy of intensifying agricultural production by increasing the use of mechanisation. Production is divided between self-consumption and the market—trying to produce not only food for the family also products that can be sold in markets without significant transaction costs (not direct sales).

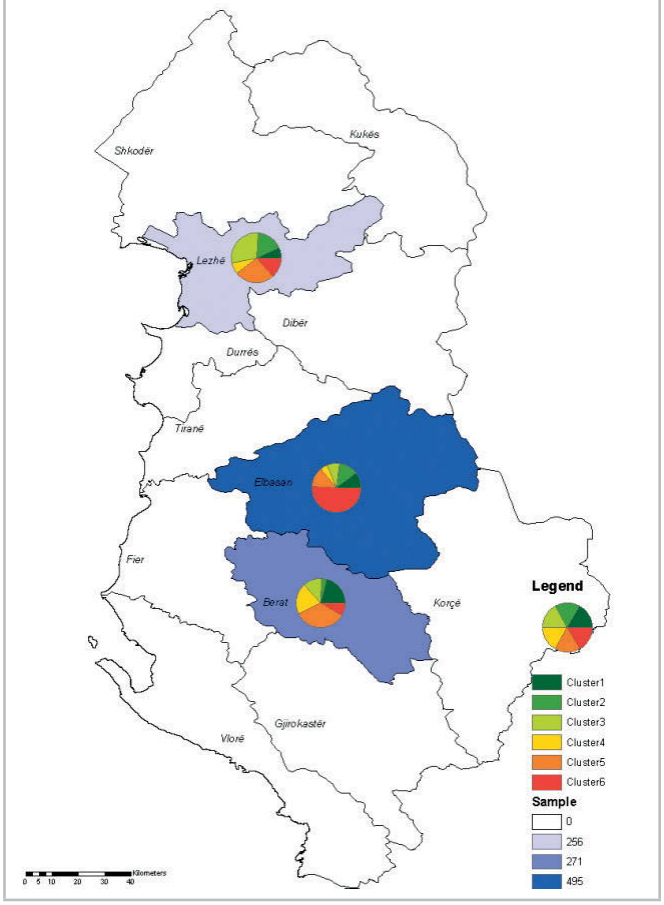
Cluster 4 is clearly the **'fruit trees'** group. In fruit trees, we have included all types of fruit trees (pome fruits, stone fruits, nuts, sub-tropical fruits, citrus, olives and vines) The farms in this group have a clear specialisation in fruit tree production (77 % of crop production) and are market oriented (64 % of the production is sold). This specialisation is not enough to provide income for the family. The farms in this group have the highest level of non-agricultural (70.8 %) income among all the groups. The irrigated area is limited and the expenses for agricultural production are among the highest of those in the sample (0.48). Fruit tree production, if done in an intensive way, may incur higher expenses and may also need a bigger workforce. In this case, farms need on average 5.5 AWU to produce ALL 1 million. Livestock production and arable crops are not important and the produce is used only for home consumption.

Cluster 5 farms have the characteristics of **'self-sufficient'** farms, with less participation in the market than the previous group. The majority of production satisfies the household needs for food. Non-agricultural income is not important (less than 5 %). The farms in this group spend relatively less to produce, meaning that their main strategy is not intensification. The average amount spent on the workforce reinforces the idea that this group of farms is trapped in a type of agriculture with little potential for diversification or increasing the area of land (due to a bigger family) and only a low potential for intensifying (lack of funds, agricultural infrastructure (only 10 % of the land is irrigated) or both reasons).

Cluster 6 farms are those that are more specialised in '**livestock**' production. This group of farms is characterised by lower sales (one-third of total production) but a significant proportion of livestock activity. It seems that this strategy is the result of limited arable land (on average less than 1 ha/farm) and reduced potential for employment in non-agricultural sectors. The proportion of cultivated land (99 % of total land) demonstrates the need for extra land are for the farms in this group. Crop production in this group is characterised by limited use of machinery or other agricultural expenses and a not excessive use of the workforce.

Figure 12 shows the distribution of farms among the three regions considered. In the Lezhë region, the main types of farms are those of type 3 (arable crops) (75 farms) and of type 5 (self-sufficient subsistence) (66 farms). The third group of farms is located mainly on the lowland area of the region near the main road axes and urban areas. Farms located in these areas have strong linkages with the non-agricultural sector that heavily complement their agricultural income. All these areas have important irrigation and drainage systems (constructed mainly during the collective period). Being on the plain, the use of agricultural machinery is more frequent (explained by the higher spending on agricultural machinery). Their proximity to urban markets helps them to sell a significant part of their production. This group makes little by way of agricultural investments (e.g. fruit trees). The farms of type 5 in the Lezhë region are situated in hilly or mountainous areas. These farms are characterised by being

Figure 12: Regional representation of farm typology



Source: authors' compilation.

isolated and they have little potential for diversification. Mountainous areas in the region have little potential for irrigation, the climate is no longer Mediterranean, but continental, and the agricultural mix is composed mainly of cereals, with an important contribution from livestock production, generally goats. Production is extensive (with little use of agricultural machinery or improved seeds and fertilisers).

In the region of Elbasan, the three main farm types are type 2 (leisure farms) (57 farms), type 5 (self-sufficient) (114 farms) and type 6 (livestock specialisation) (225 farms). The situation in Elbasan region is a little similar to the Lezhë region in the sense that in both regions the plain and the mountainous area are clearly identifiable. Type 2 farms are generally those located in the lowland areas, having strong connections with urban areas and non-agricultural activities and producing mainly for home consumption and selling only the surplus. Type 5 farms have the same characteristics as those in the region of Lezhë. The last important group (type 6) is characterised by the importance of livestock production. Apparently, the farms in this group are found not only in mountainous areas with herds of sheep and goats but also in lowland areas with herds of sheep. Farms in the second group are the main milk producers for the urban areas of the region, and milk is generally sold directly from household members.

The farm types most present in the region of Berat are farms of type 1, 'poly-culture mainly for market' (69 farms), type 4 'fruit trees' (66 farms) and type 5 'self-sufficient (subsistence)' (56 farms). The region of Berat is nationally known as an important agricultural producer (fruit, vegetables and arable corps). This explains the greater presence of farms that are market oriented but without a specific type of production and farms that have a clear specialisation in fruit trees. In fact, among the three regions, Berat is over-represented in the 'farm trees' type (nearly 50 % of farms are of that type). At national level, Berat is well known for fruit tree and olive cultivation. Fruit tree production (and especially olive trees and nuts) is the type of production that has been the most supported over the last 5 years by public support schemes. But the new plantations set up under the framework of this support scheme have only partly come into production.

6.2 The cluster analyses on a regional level

The literature concludes that national typologies are scarce and do not always contain the relevant information and detailed information (Capillon et al., 1975, cited in (Duvernoy 2000)) by variables for the specific study (Duvernoy 2000). Another regional typology is built up using the same variables as in the first case, this time by applying them for each region sample in separately. The sample is designed in such a way that it is representative of farm systems for each region. The typology built is therefore going to be representative of farms systems in the region, reducing the risk of having types not reflecting the characteristics of agriculture in the region. On the other hand, the comparison between the two typologies is going to highlight the 'regional factor' in agriculture.

6.2.1 Farm typology for the Berat region

The region of Berat is characterised by a greater diversity of farming systems. Seven farms types are identified in this region (Table 10).

Cluster 1, 'poly-culture for market' (55 farms), is characterised by farming systems based on several agricultural products but grown to feed the household and to sell in the local markets. These farms do not have any specialisation (the proportion of income from each product is comparable to the others) as a risk reduction strategy. This is more important owing to their limited non-agricultural income (only 11 % of the total income). Agriculture is the main economic activity (99.6 % of the UAA is cultivated), although the agricultural infrastructure is not very advantageous (only 20 % of UAA is irrigated). The farms need a limited workforce (2.7 AWU/ million Albanian lek of agricultural production) and try not to use excessive inputs (ALL 0.36 /million Albanian lek of production), which is average for the region's farm types.

Table 10: Farm typology for the Berat region

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7
Sales/production	69.95	74.43	41.16	74.84	26.31	50.78	44.82
Irrigated/total UAA	20.75	42.20	12.19	15.77	4.90	45.59	0.00
Livestock production/total production	24.63	0.71	39.48	7.03	24.92	50.26	3.89
Arable crops/agricultural production	33.32	82.48	78.06	10.36	72.74	89.53	22.03
Fruit trees/total production)	47.10	9.82	17.45	85.06	24.78	5.00	76.44
Expenses/total production	0.36	0.58	0.48	0.40	0.51	0.35	0.31
Cultivated area/arable area	99.68	97.08	98.56	92.80	84.74	98.13	51.01
Income off-farm/total Income	10.84	78.95	63.07	65.84	4.93	14.91	17.19
Income off-farm/total Income	0.00	0.01	0.00	0.00	0.01	0.00	0.01

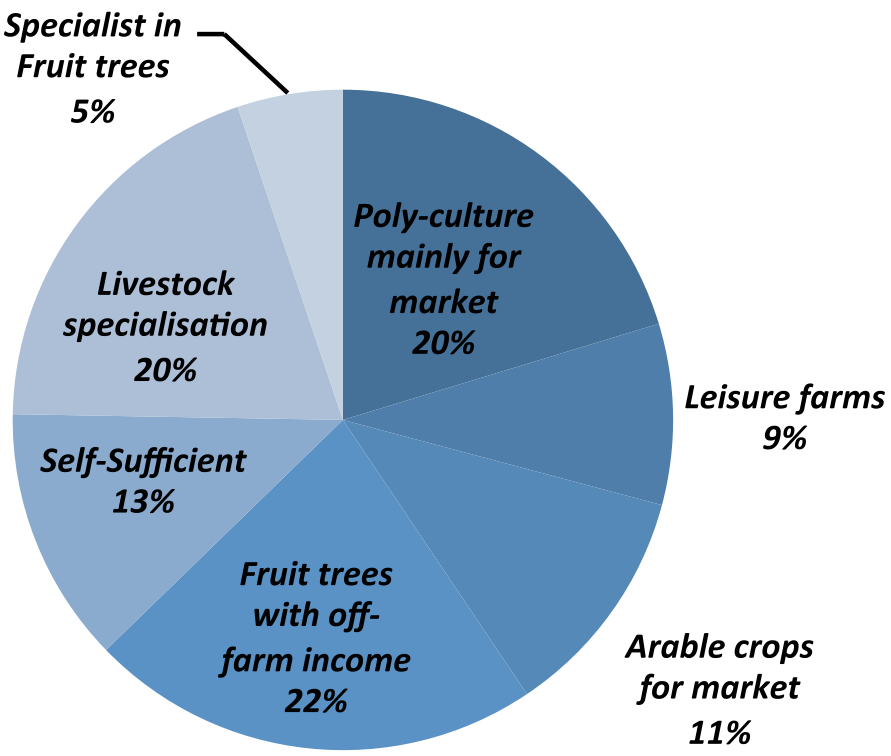
Source: authors' calculations.

The second cluster identified in the Berat region is 'leisure type' (24 farms). This group is characterised by a significant non-agricultural income (75 % of total income) and good relations with agricultural markets (two-thirds of agricultural production is sold). The farming system is characterised by significant use of production inputs (more than half of each Albanian lek produced is spent on inputs) and a significant workforce (more than 9 AWU contribute to produce ALL 1 million). It seems that agriculture is the main economic activity for those members of the family who have not been able to find other employment outside agriculture.

The third group of farms, 'arable crops (31 farms), is characterised by a duality between agricultural and non-agricultural activity. More than half (63 %) of the total income comes from the non-agriculture sector. The cropping pattern for this group is characterised by a clear dominance of arable crops. With a limited irrigated area, this does not allow much specialisation in a particular type of production, and agricultural expenses and the workforce employed are average.

The fourth group of farms, 'fruit trees with important non-agriculture income' (60 farms), is characterised by significant fruit tree production (85 % of crop production value). The farms in this group have followed a specialisation strategy in that they produce only one or two types of crop, generally vines and/or olives, and sell the produce in the local markets. The non-farm income reduces the risk for the household. The farms in cluster 7 follow the same strategy but, not having another non-farm income supporting this strategy, the area under trees is reduced and the proportion of arable crops and livestock is more important. The farms in this group do use important resources in their production and the workforce used is limited. In this group, agriculture is in clear competition with the non-farm sector.

Figure 13: Proportion of each farm type in Berat



Source: authors' compilation.

The fifth group, 'self-sufficient' (34 farms), is characterised by small farms that have only a limited presence in the market (26 % of their production value), with little agricultural infrastructure (only 5 % of the arable area is irrigated). Their main objective is to secure food for the family by cultivating a wide range of crops, thus leaving little room for specialisation. Agriculture is their main activity (non-farm incomes are less than 5 %), and they use more inputs than the other groups (ALL 0.5 for every Albanian lek produced). The family workforce is considerable (9. 4 AWU/million Albanian lek), demonstrating little use of agricultural machinery but reflecting too one of the main problems of Albanian agriculture – the hidden unemployment. On farms where agriculture is the only economic activity, the available workforce is not employed in an efficient way. The literature defines this group of farmers as 'stocked in agriculture'.

The sixth group of farms, 'livestock specialisation' (53 farms), is characterised by relatively higher livestock production (in value) (50 % of the total production) and a significant proportion of arable crops to provide feed for the animals. The significant proportion of arable crops demonstrates the importance of the cattle herd compared with other livestock herds (sheep and goats); on the other hand, the reduced cost of production (0.35 centimes for each Albanian lek of production) suggests an extensive method of production that is typical of fodder and forage crops in Albania. For this group of farms, agriculture is the main activity (the off-farm income is limited) and sales are the main source of cash in the household.

The last group of farms, 'specialist in fruit trees' (14 farms), is a group of farms that for the first time does not appear in this region. It is characterised by farms that see their future in agriculture and specialising in agricultural production. In this case the main agricultural activity is fruit tree production, but they have not totally abandoned the system of poly-culture (the proportion of arable crops remains important). It seems that the specialisation is the result of their limited agricultural facilities (no irrigated land) and the method of cultivation—an extensive one —and limited financial resources. The absence of other employment possibilities drives all the household workforce to work on the land (1.3 AWU/million Albanian lek of agricultural production). The future of this group is uncertain regarding whether they are going to move forwards into type number 4, 'fruit trees with extra income'; however, in this case, farms should diversify their income with off-farm income or they may end up falling into the self-sufficient group.

6.2.2 Farm typology for the Elbasan region

The Elbasan region is a geographically large region with a considerable diversity of farming systems (lowland hilly or mountainous ones) and climate (Mediterranean or continental). This is why the sample for this region is nearly twice the size of that for the other regions (495 farms). The farm typology in the region is expected to be similar to that of the general sample. Indeed, in this region the sample farms are grouped into the same groups as in the general sample (Table 11 and Figure 14).

Table 11: Farm typology for the Elbasan region

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6
Sales/production	69.91	42.64	27.16	52.51	43.93	34.12
Irrigated/total UAA	41.66	12.22	94.76	20.35	17.52	79.58
Livestock production/total production	23.32	20.27	35.41	0.72	32.06	42.23
Arable crops/agricultural production	27.21	85.02	74.87	17.69	80.21	81.80
Fruit trees/agricultural production value	51.75	9.81	5.68	77.96	10.62	3.67
Expenses/total production	0.29	0.56	0.34	0.52	0.33	0.23
Total area	10.59	15.11	6.26	7.35	13.50	8.83
Income off-farm/total Income	3.84	68.58	63.80	73.36	2.97	4.32
AWU/000 of production	0.0051	0.0054	0.0079	0.0121	0.0038	0.0045

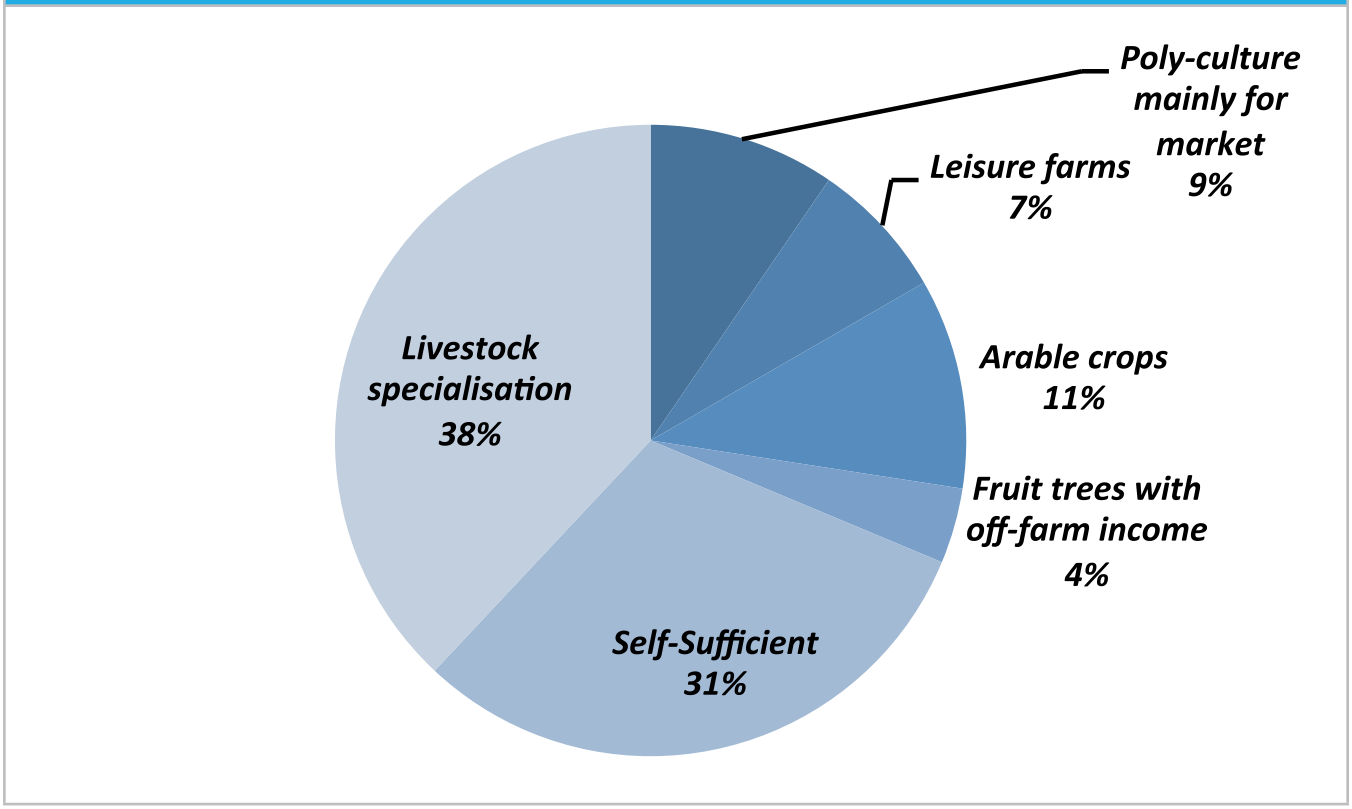
Source: authors' calculations.

The first type of farm identified in the region of Elbasan is the group 'poly-culture for market' (47 farms), which, as in other cases (for the whole sample and for Berat), is characterised by a significant level of sales (nearly 70 % of total production) coming from different activities. Nevertheless, farm tree production contributes slightly more than the other sectors. Agriculture is the main sector in terms of production, and off-farm incomes are limited (3.9 % of total income). The farms in this group have limited agricultural facilities (nearly half of their arable area is irrigated) and use few agricultural inputs (only 29 centimes of each Albanian lek produced). It seems that the lack of inputs is compensated for by an abundant use of labour (5.1 AWU/million Albanian lek).

The second group of farms is 'leisure farms' (35 farms). The main income of these farms comes from off-farm activities (68.5 % of total income). The off-farm income allows the farms in this group to use high-quantity agricultural inputs and machinery (they have the highest level of expenses for each Albanian lek produced). A larger average area shows that the family household is numerous and divided into two parts: those working out of agriculture and those working on the farm. The high level of AWU used per unit of value of agricultural production (5.4 AWU per million Albanian lek) is an indicator of this situation.

The third group of farms is 'arable crop farms' (53 farms). Agriculture contributes only 36 % of total income, mainly from arable crop production, which accounts for two-thirds of crop production. Sales are limited at only 27 % of total production, and the main objective of agricultural production is to provide food for the family. The high number of AWU used for agricultural production demonstrates little off-farm activity, and it seems that the off-farm income comes from family members working outside the village. The limited expenditure on agricultural production shows that agriculture is not the priority of the household and they are not trying to intensify or specialise and that their future is totally related to the income derived from the non-farm sector.

Figure 14: Distribution of farm types in Elbasan



Source: authors' compilation.

As in the region of Berat, the farms grouped into the fourth cluster are specialised in 'fruit tree' production (19 farms). For the farms in this group, agricultural income is less than 30 % of the total income. Agriculture employs the highest number of AWU per unit of production value (12.1 AWU/ million Albanian lek) and has a higher level of agricultural expenses (52 centimes for each Albanian lek of production) than the other groups. These two indicators show a clear strategy of intensification (high level of expenses) but also using all the available workforce of the family in fruit tree production. These farms with limited arable area (0.735 ha), a limited proportion of which is irrigated (20 % of total area), and a large workforce follow an intensification strategy in an agricultural activity that does not need larger areas and that needs limited irrigation facilities (typical of the olive cultivation in this area) but does need a relatively large workforce, in particular for short periods (such as harvesting). This strategy of specialisation is made possible by high levels of off-farm income that reduces the risk of income fluctuation typical of specialised farms.

The fifth group of farms, 'self-sufficient' (151 farms), is, as expected, one of the most important farming groups of the region. This group is characterised by limited proportion of off-farm income, a lower engagement of the workforce (3.8 AWU/million Albanian lek), a small irrigated area, and low agricultural expenses (33 centimes for each Albanian lek of production). Eighty per cent of the agricultural production comes from arable crops, meaning that specialisation in higher added value products, such as fruit trees or livestock, is not the strategy followed by this group. A relatively high proportion of sales (43 % of total production value) shows that the households in this group try to take part in the local markets but follow their main strategy of providing food for home consumption.

The last group identified in the region of Elbasan is the group of 'livestock specialisation' (187 farms). This group of farms have limited potential for specialising (low arable area, low off-farm incomes, and low potential to intensify the agricultural production (low agricultural expenses). It seems that the main sales are of livestock products.

6.2.3 Farm typology for the Lezhë region

The sample of Lezhë region is characterised by only five clusters. The types of clusters are slightly different from those in the general sample. The farm classification for this region uses mainly the same indicators as we have seen in the other cases but also some new variables that are statistically not important in the other regions. For the first time the proportion of vegetable production, and of hired labour, are important variables.

The farm types of the region are shown in Table 12 and Figure 15.

Table 12: Farm types for Lezhë

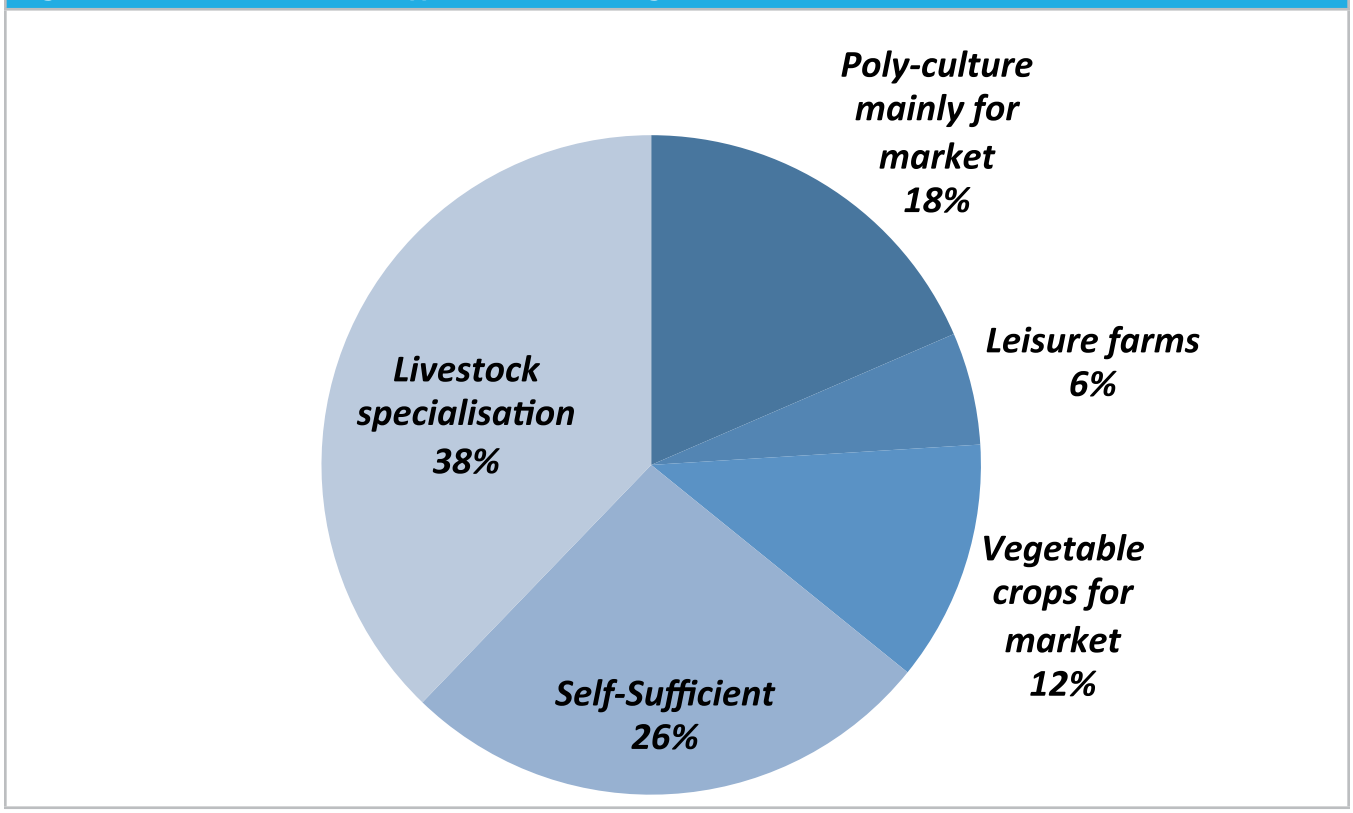
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Sales/production	59.35	16.65	44.34	30.02	50.20
Irrigated/total UAA	6.96	31.09	33.68	87.48	10.76
Livestock production/total production	21.42	39.47	32.09	44.56	46.87
Vegetable crops/agricultural production	3.04	50.99	39.91	22.83	5.35
Arable crops/agricultural production value	75.17	30.66	41.12	75.66	88.97
Cultivated area/arable area	96.41	57.79	77.89	95.69	94.65
Total area	12.13	6.14	8.74	7.47	13.07
Hired labour/total labour	25.91	7.14	0.00	0.00	2.55
Income off-farm/total income	76.26	82.11	2.22	53.78	24.82

Source: authors' calculations.

The first group of farms, 'poly-culture for the market' (47 farms), is a type of farm identified in the three regions. As in other regions, the farms of this type are characterised by a high proportion of sales (nearly 60 % of the total production) and no clear specialisation in one type of production. The farms have high off-farm incomes and use a significant proportion of hired labour (25 % of total AWU). They have a larger agricultural area than the other farm types (1.21 ha), but no significant agricultural facilities (only 7 % of the arable land is irrigated). The importance of hired labour shows the competition for labour among different economic activities. This is an important variable that shows the differences in agriculture between the regions in the central (Elbasan, Berat) part of the country and the western regions (Lezhë). The latter are economically more developed with a wider range of non-agricultural activities and a more vegetable production systems not only for home consumption ,but also for sale.

The second group of farms (14 farms) is characterised by substantial off-farm incomes (82 %), a low level of sales (17 % of total agricultural production) and a limited arable area (0.6 ha/farm). The farmers in this group cultivate only half of the arable area.

Figure 15: Distribution of farm types in the Lezhë region



Source: authors' compilation.

The third group of farms, 'vegetables for market' (30 farms), appears for the first time in the Lezhë region. Farming systems based on vegetable produce are typical of the farms of the western part of Albania. These farms have a relatively better agricultural infrastructure (34 % of irrigated arable land). The limited proportion of off-farm activities explains the limited specialisation of farms in vegetable production. In this group, other agricultural activities are important (livestock and arable crops). The farmers in this group use only family labour.

The fourth group of farms, 'self-sufficient' (67 farms), is characterised by an important proportion of off-farm incomes, and a relatively small proportion of agricultural sales. The arable land is limited (0.7 ha/farm) but irrigated. The distribution of the main agricultural activities is nearly equal between crop production and livestock, and, as expected, the proportion of the arable area is much higher than that under vegetable production.

The last group of farms, 'livestock specialisation' (96 farms), is characterised by limited off-farm incomes (only 25 % of total incomes), and a quite significant proportion of sales (50 % of total production in value). The farms are larger (1.3 ha/farm) and almost the whole arable area is cultivated. The significant proportion of cultivated land the existence of hired labour can be indicators of lowland farming with cattle herds for milk and meat.

6.2.4 Comparison of sample-based and region-based farm typology

The comparison between the typology constructed for the whole sample and the typology built up on a regional level shows that they are consistent, with some minor differences for Berat and Lezhë (Table 13).

Table 13: Statistically important variables for the whole sample and for regions

Whole sample	Berat	Elbasan	Lezhë
Sales/production	Sales/production	Sales/production	Sales/production
Irrigated/total UAA	Irrigated/total UAA	Irrigated/total UAA	Irrigated/total UAA
Livestock production/total production	Livestock production/total production	Livestock production/total production	Livestock production/total production
Arable crops/agricultural production	Arable crops/agricultural production	Arable crops/agricultural production	Arable crops/agricultural production value
Fruit trees/agricultural production value	Fruit trees/agricultural production value	Fruit trees/agricultural production value	-
Expenses/total production	Expenses/total production	Expenses/total production	-
Cultivated area/arable area	Cultivated area/arable area	-	Cultivated area/arable area
Arable area	-	Arable area	Arable area
AWU/000 of production	AWU/000 of production	AWU/000 of production	–
Income off-farm/total income	Income off-farm/total income	Income off-farm/total income	Income off-farm/total Income
			Vegetable crops/agricultural production
			Hired labour/total labour

Source: authors' calculations.

Nearly all the variables with a greater level of variability for the whole sample are also important on a regional level. Indicators such as proportion of sales, proportion of irrigated area, proportion of livestock production and proportion of arable crops are important for the whole sample and for the three regions as well. But indicators such as proportion of fruit tree production, vegetables crops or hired workforce are important in the region of Lezhë but not in the other regions.

This is the reason why the farm typology is performed twice (whole sample and regional level), in order have detailed and specific information on a regional level.

The farm typology on a regional level revealed the existence of a farm type specialised in vegetable production. The western region of Albania is one of the few areas of lowland and more fertile agricultural area. On the other hand, this area also has the main urban areas of the country (the cities of Tiranë, Durrës, Fier), which contain a significant proportion of the total urban population of Albania. The comparative advantages of this area (more fertile land, important urban markets, good weather conditions) makes the strategy of vegetable production natural for households with small areas of land and a significant proportion of family workforce unemployed. The analysis at a whole-sample level hides this important piece of information about farm strategies in Albania.

The second important piece of information is the hired labour. It is generally agreed that the agricultural workforce in Albania is familial. The proportion of hired labour is generally small. In our sample in the region of Lezhë, the proportion of hired labout shows enough variability to be statistically significant in the farm typology construction. In this region the diversity of work is greater, and agriculture is the least remunerative activity. The family members that can work outside agriculture do so and unskilled workers are hired to work in agriculture. In these households, agriculture is not the main economic activity.

The region farm type analysis demonstrated another farm type in the region of Berat—one specialised in fruit tree production. This small group of farms (14 households or 5 % of the regional sample) has very limited off-farm economic resources and few other important agricultural activities apart from fruit tree production.

Table 14 shows that the there are no significant differences between the farming systems at a regional level. Poly-culture mainly for market seems to be the most profitable farming system in Albanian rural areas. Twenty years after de-collectivisation, agriculture is still mainly based on self-sufficient strategies and farm specialisation is based on activity diversification as a strategy for economic protection. Being mostly hilly and mountainous, Albanian rural areas have strong links with livestock production (mainly milk), giving the farm household an income for most of the year.

Table 14: The farm types for the sample and for each region

Clusters	Total sample (1 023)	Berat (271)	Elbasan (495)	Lezhë (256)
1	Poly-culture mainly for market (131)	Poly-culture mainly for market	Poly-culture mainly for market	Poly-culture mainly for market
2	Leisure farms (113)	Leisure farms	Leisure farms	Leisure farms
3	Arable crops (151)	Arable crops for market	Arable crops	Vegetable farms
4	Fruit trees (104)	Fruit trees with off-farm income	Fruit trees	
5	Self-sufficient (subsistence) (234)	Self-sufficient	Self-sufficient (subsistence)	Self-sufficient
6	Livestock specialisation (289)	Livestock specialisation	Livestock specialisation	Livestock specialisation
7		Specialist in fruit trees		

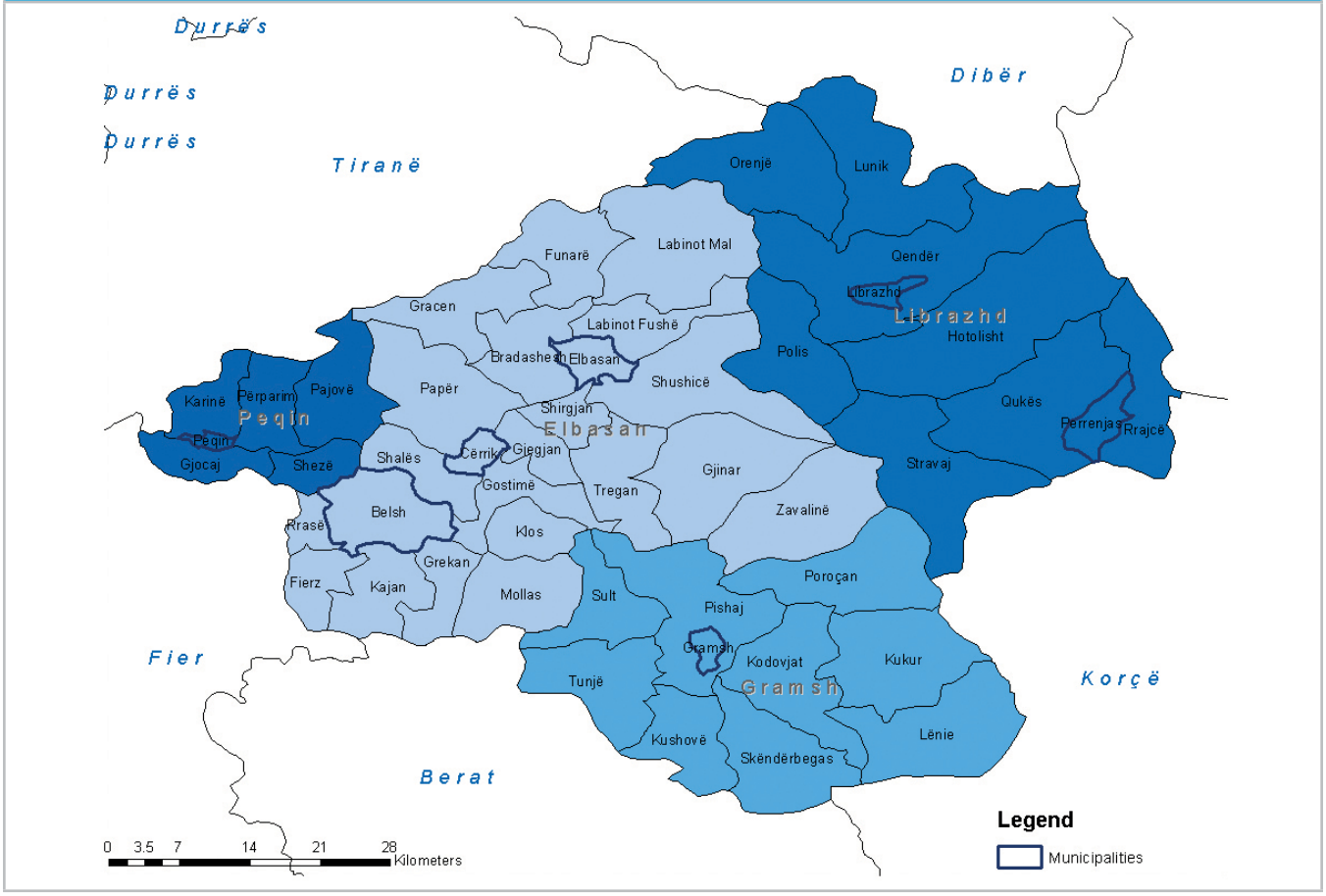
Number of farms in parentheses.
Source: authors' calculations.

7. Elbasan region: agricultural characteristics

7.1 Administrative organisation

Albania is divided into 12 regions and consists of 36 districts, 65 municipalities and 309 communes ([13]).Elbasan (Figure 16) is one of the intermediate regions ([14]) and consists of four districts (district of Elbasan, Gramsh, Librazhd and Peqin), seven municipalities and 43 communes with a total of 50 local government units. The total area of the region is 3 199 km².

Figure 16: Map of Elbasan region



Source: authors' compilation.

13 Law No 8653, dated 31.07.2000, 'On the administrative-territorial units of local government in the Republic of Albania'.

14 OECD Classification.

Elbasan region is bordered by the regions of Tiranë and Dibër in the north and north-east, by the regions of Fier and Berat in the west and south, by the region of Korçë in the south-east, and by the Former Yugoslav Republic of Macedonia in the north-east.

This region, owing to its location in the central part of the country, enjoys good access to major national infrastructure but is estimated to have a low to medium level of urbanisation, most evident in the hilly and mountainous areas of the region (INSTAT, 2011).

The district of Elbasan is the one with the highest population and also serves as the administrative centre of the region. It has an area of 1 290 km^2. The population of Elbasan district is 224 689 and constitutes approximately 76 % of the regional population (INSTAT, 2012). From the point of view of administrative organisation, the region consists of three municipalities (Elbasan, Belsh and Cërrik) and 20 communes (Bradashesh, Fierzë, Funarë, Gostimë, Gracen, Grekan, Gjergjan, Gjinar, Kajan, Klos, Labinot-Fushë, Labinot-Mal, Mollas, Papër, Rrasë, Shalës, Shirgjan, Shushicë, Tregan and Zavalinë).

Gramsh district consists of one municipality (Gramsh) and nine communes (Kodovjat, Kukur, Kushovë, Pishaj, Poroçan, Shënepremte, Skënderbegas, Sul and Tunjë). It has a population of 24 230 inhabitants.

Librazhd district consists of two municipalities (Librazhd and Përrenjas) as well as nine communes (Hotolisht, Lunik, Orenjë, Polis, Qendër (Librazhd), Qukës, Rajcë, Steblevë and Stravaj). The population of the region is 63 192 inhabitants.

Peqin district consists of one municipality (Peqin) and five communes (Gjocaj, Karinë, Pajovë, Përparim and Shezë). The population of the region is 31 004 inhabitants.

The current administrative organisation of the region and the demographic movements of the last two decades have produced complex issues regarding the efficiency of the operation of local units and the quantity and quality of public goods they provide to citizens. Under this context, the necessity for reorganisation of the public administration of the region (and the country, too) is accepted by almost all important decision-making actors.

7.2 Description of the natural resources and geography

7.2.1 Land area

The area of agricultural land in Elbasan region is 72 872 ha or 10.4 % of the agricultural land area at country level (Elbasan is ranked third regarding area of agricultural land in the country, after Fier and Korça). The non-agricultural land (forestry, pasture and other uses) is estimated to be about 253 992 ha (MoAFCP 2013). Despite the amount of agricultural land, it should be remembered that a good part of it lies in hilly and mountainous areas, especially in Librazhd and Gramsh districts, respectively. The area of irrigated agricultural land has increased significantly over the last decade from 8 100 ha in 2001 to about 21 493 ha in 2012, or 29.5 % of the agricultural land area, although it is still far from reaching its potential irrigated land area of about 60 % (MoAFCP 2013).

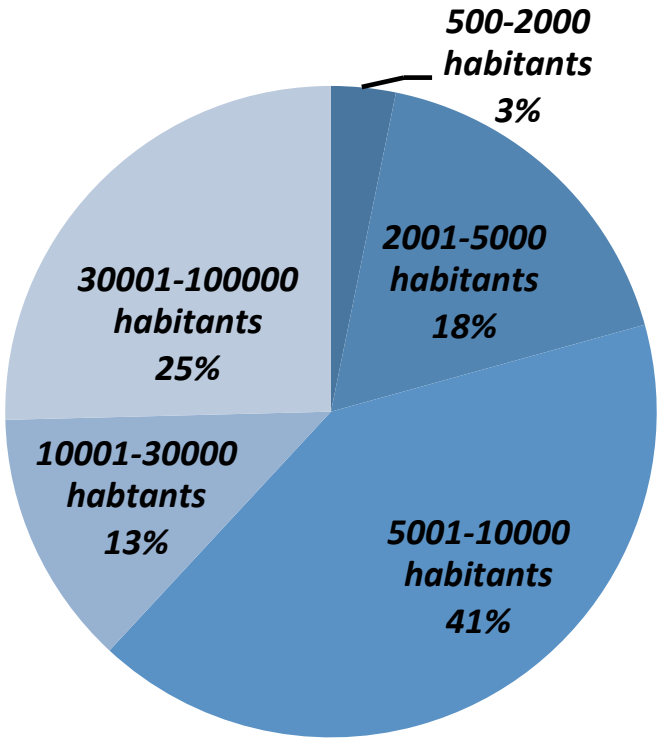
7.2.2 Natural resources

Elbasan region is rich in water resources. Several rivers, such as the Shkumbin, Devoll and Seman, traverse the region. River valleys that cross the considerable length of this region create good opportunities for the development of agricultural activities throughout their length. The climate of this region is typically Mediterranean. The average annual temperature is 15.4 ºC. The annual average rainfall is 1 157 mm. As for the quality of the environment, Elbasan region has been found to be one of the areas where th level of pollution with sulphur dioxide and carbon dioxide gases is above the national average. This is due to the concentration of heavy industries established in the region under the totalitarian system, some of which are still in partial operation.

7.2.3 Population

As for the population, Elbasan region counts for about 11 % of the country's population and is ranked third in terms of this indicator, after Tiranë and Fier (INSTAT 2011).

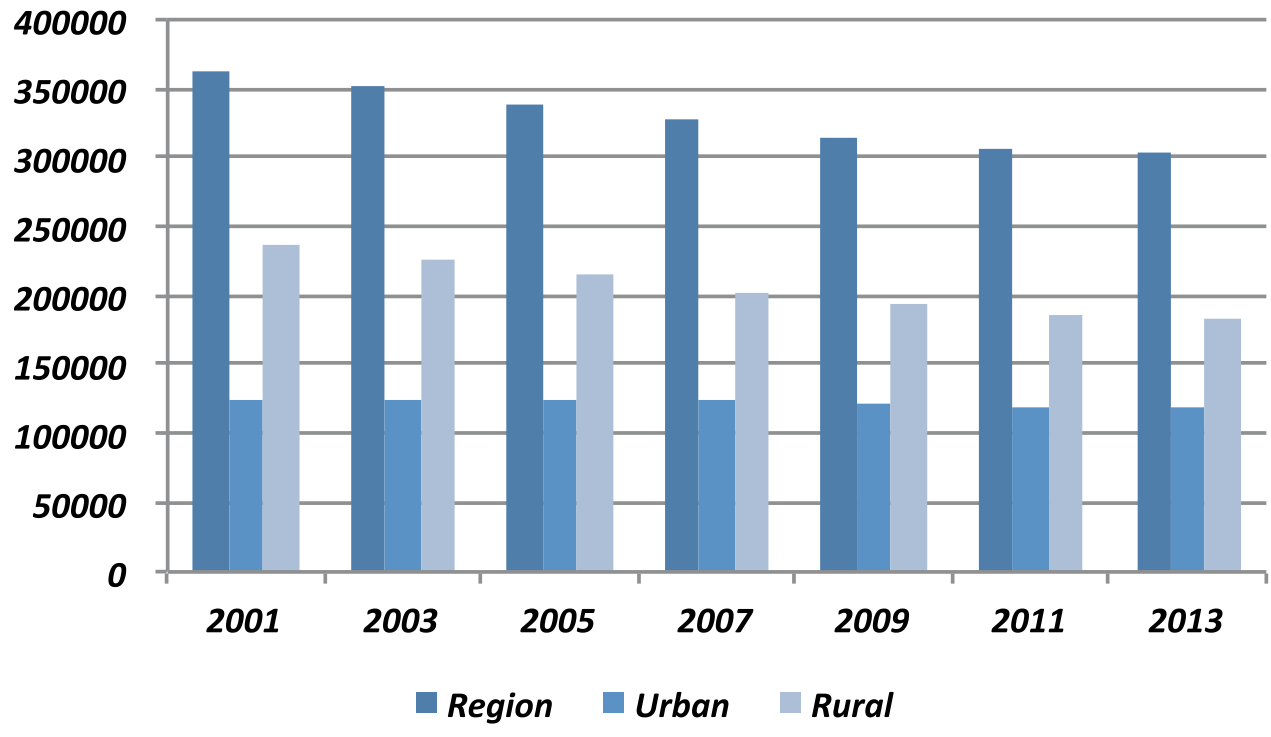
Figure 17: Map of Elbasan region



Source: authors' compilation.

It is estimated that about 21 % of the administrative units have a population of fewer than 5 000 inhabitants (Figure 17), while the average number of inhabitants for each administrative unit is about 78 % of the national average. These facts make the administrative fragmentation and the problems associated with it more visible (MoAFCP 2013). According to statistics for 2013, the population of Elbasan is 292 956.

Figure 18: Population trend in Elbasan region 2001–2013



Source: (INSTAT 2014).

The proportion of the population living in urban and rural areas is 38 % and 62 %, respectively (INSTAT 2014). This ratio has changed only 4 % in the last 10 years which indicates some movement towards the urban areas of the region and main regions of the country and some emigration. Although the population distribution has changed very little, the total population in the past decade has decreased by about 23 %, with residents displaced mostly to urban metropolises and smaller numbers emigrating.

7.3 Socio-economic situation

7.3.1 Economic development

Annual income per capita in 2009, according to EUROSTAT statistics for the Elbasan region, was about ALL 287 000 (EUR 2 053 ([15])), about 20 % lower than the national average (WB 2012). Meanwhile, the level of poverty in two mountainous districts of the region (Librazhd and Gramsh) is 2 % higher than the national average (MoAFCP 2013). Besides construction and development services, there is a growing trend towards agricultural activity, especially in terms of olive and vegetable cultivation in open fields and greenhouses. About 32 439 farms operate in this region. The average farm family is 4.9 persons, compared with the national average of 4.5 persons (MoAFCP 2013). As for the age structure of family farms, farming families are relatively young, with about 66 % of the population aged from 15 to 54 years.

7.3.2 Analysis of the regional farm typology

This part of the study will focus on the assessment and analysis of detailed data that are collected through structured questionnaires on selected farms, according to the methodology described above. This analysis will enable us to draw conclusions on farm characteristics that can serve as a useful tool for evaluating the policies pursued, as well as the design of future policies for agriculture and rural development.

A total of 497 face-to-face interviews with farmers were conducted throughout the region. This phase was preceded by piloting the questionnaires and adjusting them in accordance with the problems identified. The number of farms surveyed by district is shown in Table 15, while Table 16 presents the farm typology identified and the number of farms within each typology.

Table 15: Districts and distribution of questionnaires

Districts	Number of questionnaires
Elbasan	226
Gramsh	76
Librazhd	99
Peqin	104
Total	**505**

Source: calculations based on the survey.

Table 16: Types of farms and their number identified in the region of Elbasan

Type of farm	Number
Poly-culture for market	47
Livestock	187
Leisure farms	35
Fruit trees	19
Arable crop farm	58
Self-sufficient	151

Source: calculations based on the survey.

15 Exchange rate EUR 1 = ALL 139.38: http://ec.europa.eu/budget/contracts_grants/info_contracts/inforeuro/inforeuro_en.cfm (accessed 15/06/2014).

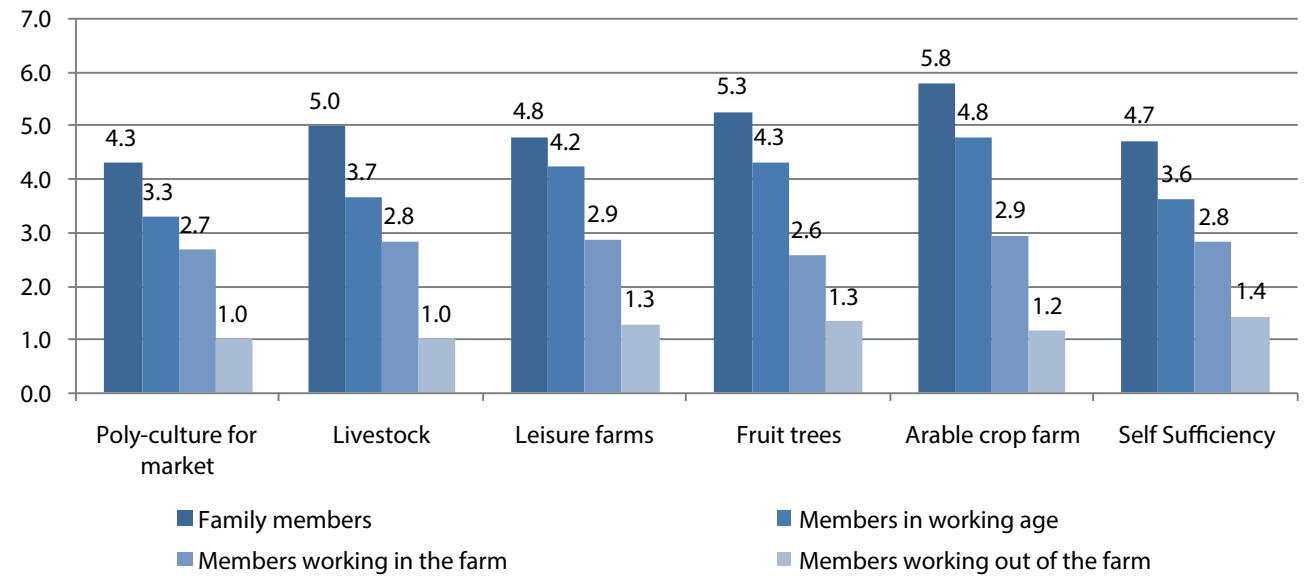
7.3.3 Farm family structure

According to data processed for a selected sample, the average farm family size in the region of Elbasan is approximately five persons, and changes little even taking into consideration regional data. The average number of persons employed on the farm ranges from two to three. Thus, indicator values from one type to another reflect insignificant changes. Similarly, the data show that, according to almost all typologies, one to two family members are engaged in non-agricultural activities. This phenomenon is more evident in areas that are closer to urban markets and where the employment opportunities are greater. This is a clear expression of the farm's incapacity to fully employ the family workforce in agricultural activities. More detailed information about the structure of the family, as well as persons engaged in farm activities, is presented in Figure 19.

7.3.4 Education level

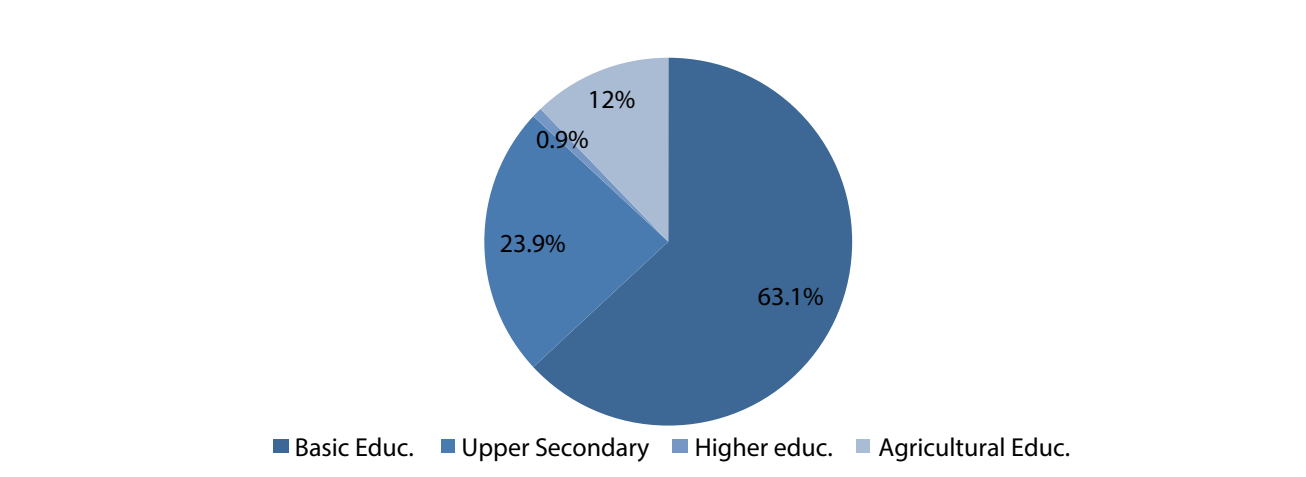
One of the factors of particular importance in terms of the effectiveness of farm activities is the education level of farmers, and in particular the level of their agricultural education. Detailed data on the education level of farmers are presented in Figure 20.

Figure 19: Farm family structure



Source: calculations based on the survey.

Figure 20: Education level of farmers

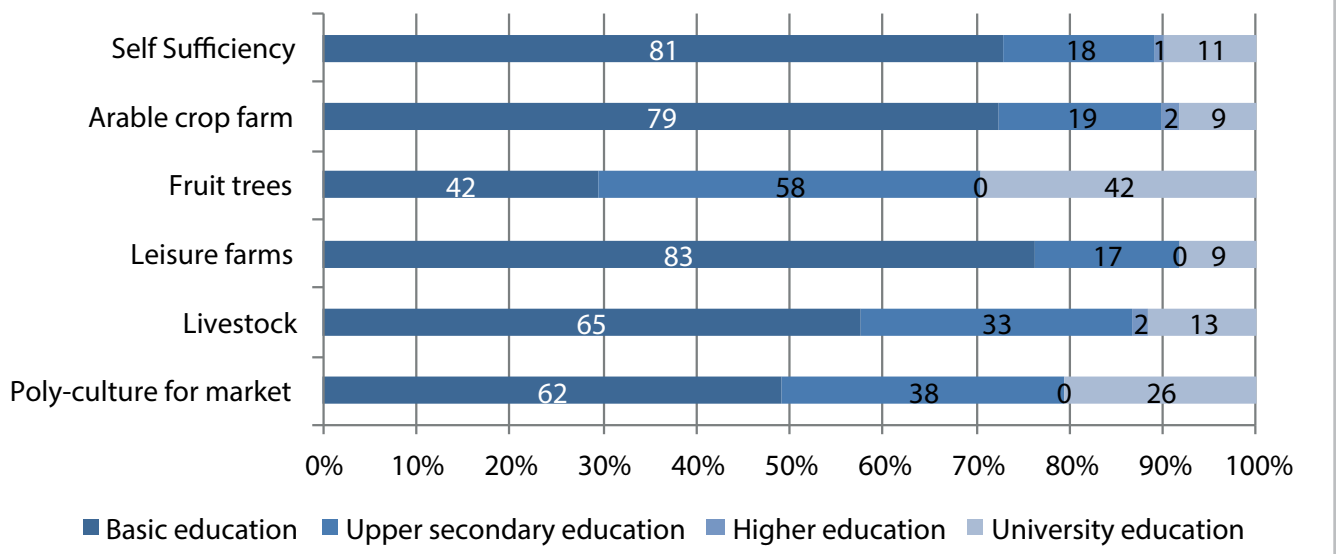


Source: calculations based on the survey.

The high proportion of farmers with a basic education (63 % of the sample) and the comparatively low proportion of farmers with a vocational education (only 12 % of the sample) may reduce farmers' capacity to embrace new agricultural techniques in order to increase the productivity of labour and/or land.

It is clear that the basic level of education predominates in all typologies (Figure 21) This indicator is highlighted in clusters 3, 5 and 6: leisure farms, arable crop farm and self-sufficient farms, respectively, with a value of about 80 %. As for secondary education, it is most predominant among farmers producing fruit trees, at about 58 %, followed by farmers involved in poly-culture, at 38 %, and it is lower among farmers in other clusters. As for farmers with a higher level of education, the proportion is very low (the value of this index ranges from 0 to 2 %). The data show that a link can be established between level of education and the level of specialisation of farms. Farmers with a higher level of education, on average, seem to have a greater motivation to increase specialisation on the farm (i.e. fruit trees, livestock, poly-culture for market) and to improve labour productivity. The analysis of FNI shows that these type of farms (i.e. poly-culture for market, livestock) have the highest FNI among all farm types. Taking this into account, encouraging secondary vocational education in agriculture would seem to be an appropriate strategy to improve the economic performance of agriculture.

Figure 21: Education level according to typologies



Source: calculations based on the survey.

7.3.5 Type of farm labour

Data collected for the region of Elbasan indicate that, in almost all typologies identified, farms with one or two workers (measured in AWU) predominate (from 38 to 58 % of the total).

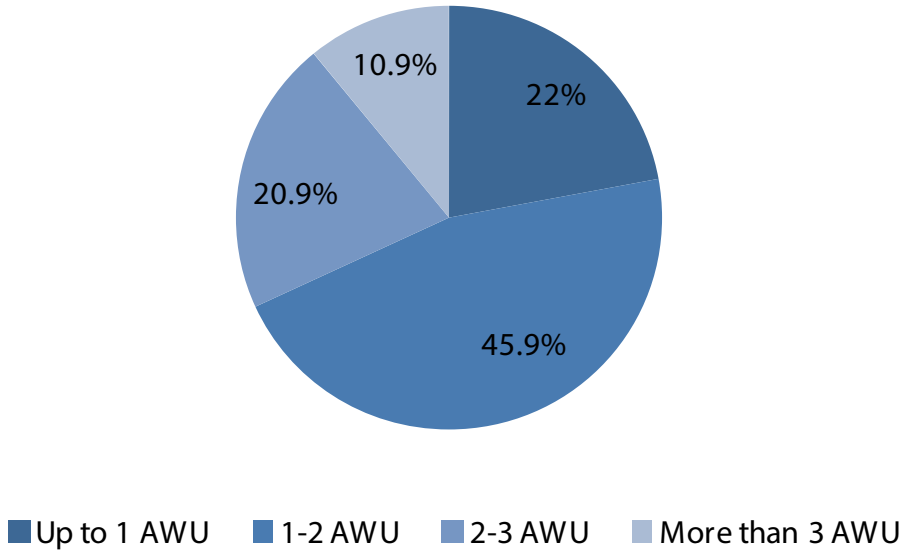
Farms with over three workforces account for a relatively low proportion of the sample, = less than 10 % of the total. If we analyse the structure of farms in terms of workforce capacity, disregarding their typologies, the results are as shown in Figure 22 below.

About half of the farms in the sample have no more than two workforces. However, referring to the high population concentration in rural areas and the farm structure (i.e. small and fragmented area), we can conclude that there is clearly some level of under-employment of the labour force. This becomes more evident in the types of farms where labour is less important, such as on fruit tree farms.

Nearly one-third of the family labour supply is fully employed in agriculture (Figure 23). The agricultural systems in the region of Elbasan is based on the co-existence of agricultural and non-agricultural activities. A higher proportion of non-agricultural work may lead to two different farm household strategies: (1) intensification and/or specialisation of agricultural activities (e.g. fruit tree farms) as a possible way of financing investment in agriculture; and (2) reducing farm activities, to be supported mainly by non-farm income (e.g. leisure farms).

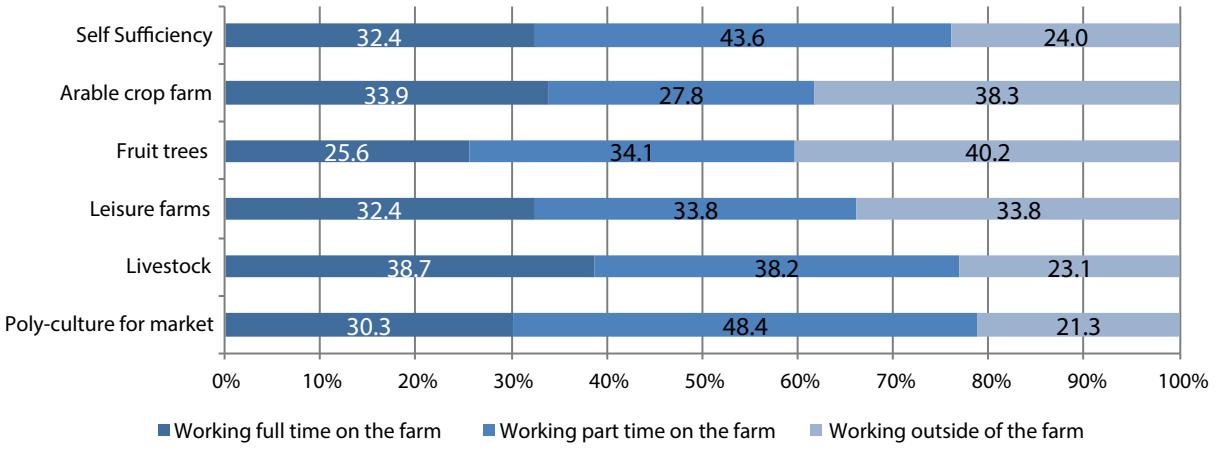
The main non-agricultural activities are in the construction, trade and service sectors in rural areas (varies from 21 to 40 %).

Figure 22: Farm size according to the size of the labour force



Source: calculations based on the survey.

Figure 23: Farm size according to the size of the labour force



Source: calculations based on the survey.

7.3.6 Land structure and farms size

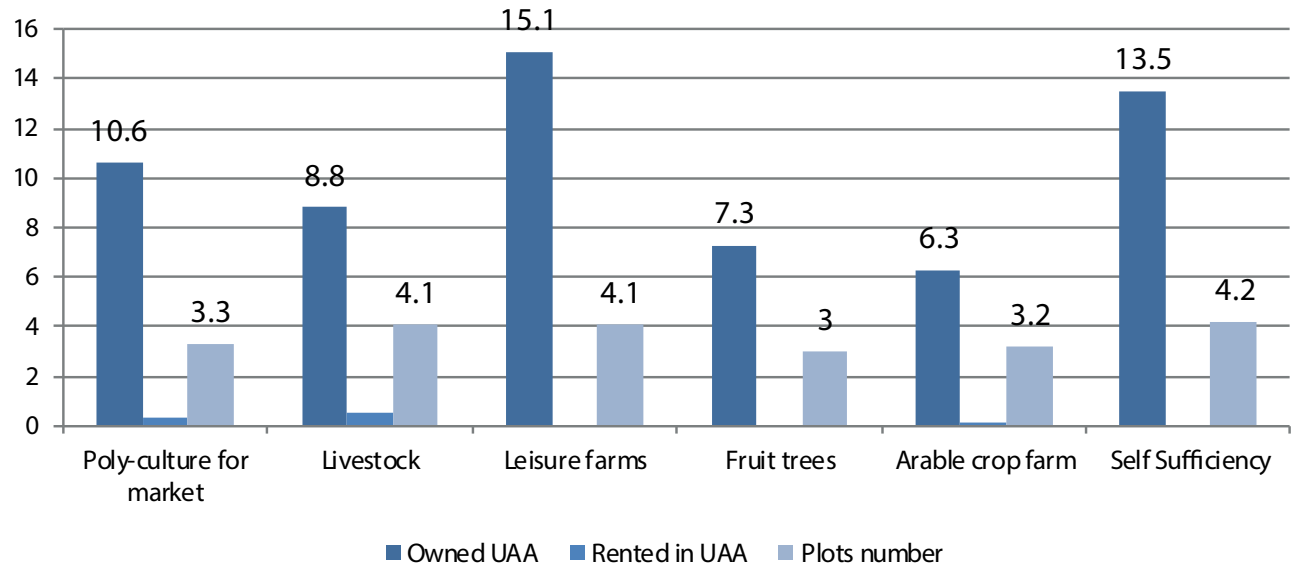
The region of Elbasan is characterised by the same range of farm areas as the national average. Figure 24 presents the average farm size in terms of owned and rented areas, as well as number of plots.

Referring to indicators of farm size, arable crop farms are the smallest, with an average area of 0.6 ha, while leisure farms and self-sufficient farms have an average area of about 1.5 ha.

Figure 24 does not provide us with further information about possible size improvements in the region. The size differences among the farm types are not linked to labour efficiency (e.g. leisure farms are the largest but not the most efficient) and they are still a function of family size. Another indicator that shows the small improvement made in farm size is the almost absent rent-in and rent-out areas.

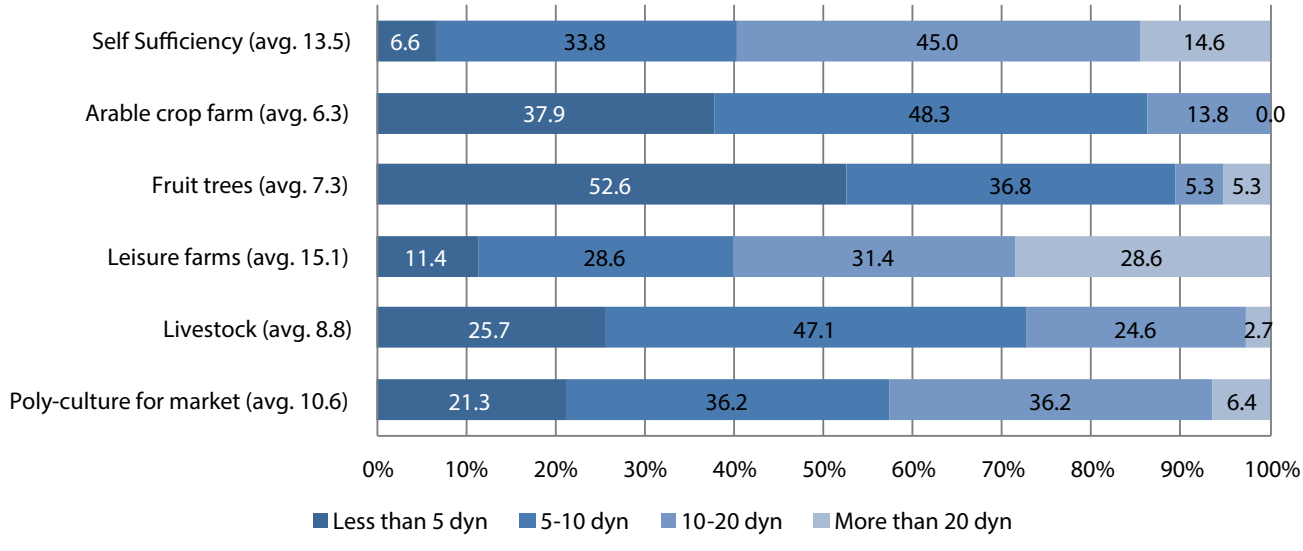
Similarly, the large number of plots for each farm continues to be a barrier to the development of the sector. Among the main reasons for this may be the high cost of renting land, the distance between plots and poor road infrastructure in rural areas. As a consequence, efforts to consolidate land are slow to yield results.

Figure 24: Farm size (in dyn.)and number of plots



Source: calculations based on the survey.

Figure 25: Farm size according typologies



Source: calculations based on the survey.

The land structure (Figure 26) among the farm types shows that the specialisation strategy is a result of the fact that it is impossible for farmers to acquire larger areas. So, among the most specialised farm types (fruit trees and livestock) there are more farms of fewer than 5 dyn and fewer farms with an average area of more than 20 dyn.

In the cluster **poly-culture for market**, farms with 5–10 and 10–20 dyn constitute 72 % of the total farms (each of the two categories counts for 36 %). Up to 70 % of the total value of production is sold into the market. This market-oriented behaviour creates opportunities for farmers to rent and also raises the potential to buy more.

In the **livestock** cluster, large farms of 5–10 dyn account for almost half of the total number of farms. The number of farms with an area of 20 dyn is considerably lower. The land structure in this cluster seems to be mainly dedicated to fodder for animals and some cash crops for home consumption.

In the **leisure farms** cluster, large farms, over 20 dyn, have considerable weight compared with the other clusters, accounting for 29 % of the total. Moreover, in the **fruit trees** cluster, over 53 % of farms are less than 5 dyn, and farms with 10–20 dyn and more than 20 dyn of land each account for 5 % of the total farm number. Most fruit tree farms have a limited area of land, and income is generated mainly from fruit tree production, which needs a large amount of initial investment. This may be why areas planted with fruit trees are limited. On the other hand, the large number of family members (five) increases the necessity to have market-based activities instead of fruit trees.

In the **arable crop farm** cluster, farms of up to 10 dyn dominate,with over 86 % of the total farms included in this cluster. Only 14 % of the farms comprise between 10 and 20 dyn of land. Finally, in the **self-sufficient** cluster, farms with 10–20 dyn dominate, and about 45 % of total farms belong to this cluster. However, 34 % of the farms have a size of 5–10 dyn, and 15 % have a farm size more than 20 dyn.

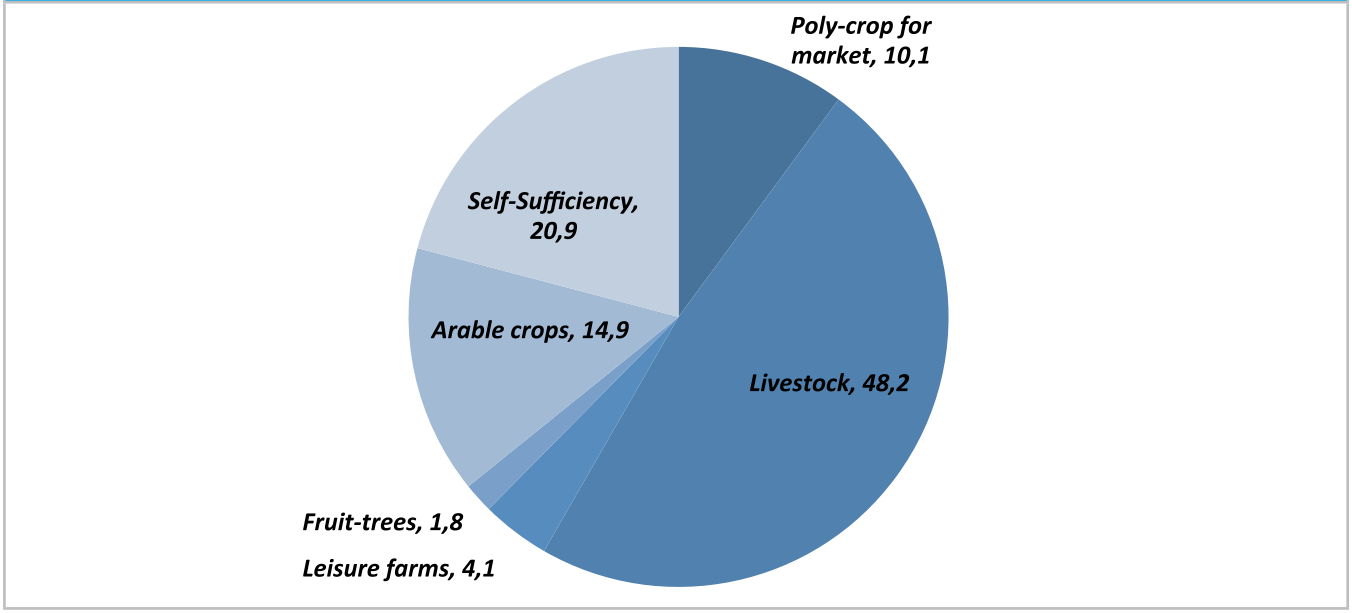
7.3.7 Irrigation

Despite the significant investments made in the irrigation infrastructure over the last 20 years, the proportion of irrigated area is still limited (16.6 %) (Figure 26). The drive to intensification of production on all types of farm would not be meaningful without an overall support policy (not only water use but also its resources) and without farmers' ability to see irrigation and draining as a way of increasing their income.

Irrigation is particularly important for Elbasan region, as it has a very wet winter and a dry and hot summer; thus, agriculture in the region has particular need of both irrigation and drainage systems.

Despite the high irrigation potential, and taking into account the important infrastructure systems constructed during the Communist period, the uptake of irrigation by farmers is not very encouraging.

Figure 26: Percentage of farms using irrigation within cluster



Source: calculations based on the survey.

By comparing the irrigated area according to farm type, it is apparent that livestock farms that breed animals and irrigate count for about 48 % of the total farms falling into this typology. The lowest level of this indicator is for fruit tree farms type owing to the fact that irrigation is not always necessary for fruit trees (especially olives). Self-sufficient farms come after livestock farms, with 20.9 % of farms using irrigation.

7.3.8 Equipment and tool inputs

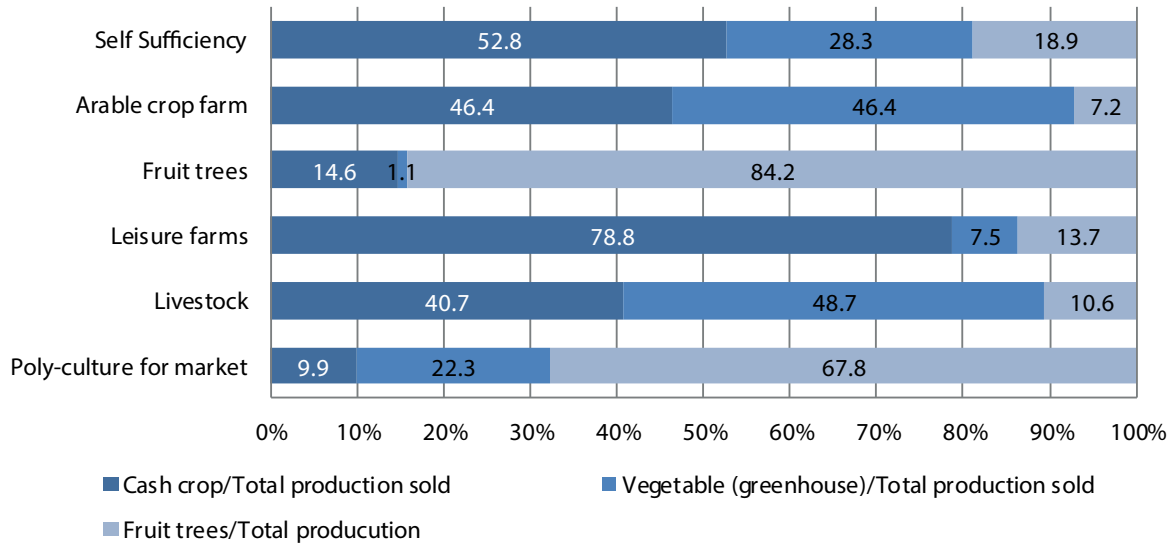
Just as important as irrigation in its impact on farm productivity is the use of agricultural machinery. The data collected indicate a low level of mechanisation. Out of 497 farms surveyed, only eight have their own tractor, and other equipment is almost absent. The highest percentage of farms using machinery turns out to be in cluster 6 (self-sufficient farms). This is in line with the indication that self-sufficient cluster farms deal mainly with arable crops (roughly 80 % of the total agricultural production). In fact, arable cropping, by definition, is the kind of activity that requires more mechanisation.

7.3.9 Farm agricultural production structure

Figure 27 shows the farm production structure among farm types. Each cluster is characterised by a large number of agricultural productions. So, in the self-sufficient farm type, the highest contribution of 52.8 % is from cash crops, followed by 28.3 % from vegetables and the remainder (18.9 %) is from by fruit trees. In arable crop farms we find an equal proportion of cash crops and vegetables (46.4 % each) and a small proportion of fruit trees of 7.2 %. Obviously, the highest proportion of fruit trees (84.2 %) is in the fruit tree farms type.

The largest proportion in the leisure farms, 78.8 %, is generated by cash crops followed by small proportions of fruit trees (13.7 %) and vegetables (7.5 %). In the livestock cluster we find the greatest proportion of vegetable production among all clusters of 48.7 %, followed by 40.7 % of cash crops and 10.6 % of fruit trees. The last cluster, poly-culture for market, occupies second place for fruit trees with 67.8 %, while 22.3 % is represented by vegetables and 9.9 % by cash crops.

Figure 27: Crop production structure (in value) among farm types as a proportion of total agricultural production



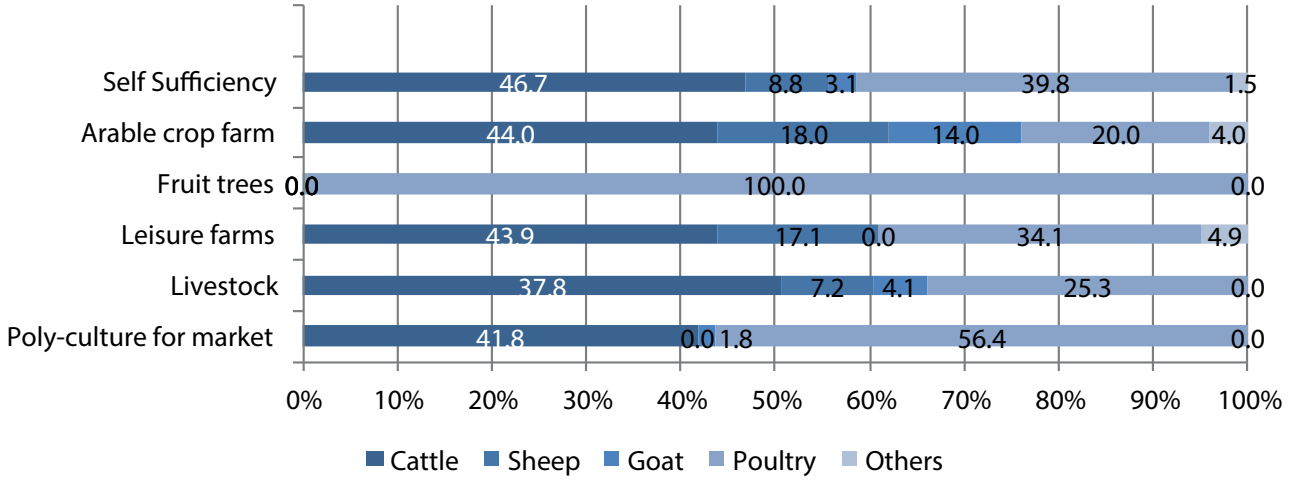
Source: calculations based on the survey.

7.3.10 Livestock production structure

Livestock production is divided mainly between cattle and poultry with a little attributable to sheep and goats (Figure 28). It is very interesting that in the fruit tree farm type we find only poultry and not cows (traditionally in Albania each farm has at least a cow, as is shown in the other farm types). Cattle represent 46.7 % in the self-sufficient farm type, 44 % of arable crop farms, 43.9 % of leisure farms, 37.8 % in the livestock cluster and 41.8 % in the poly-culture cluster.

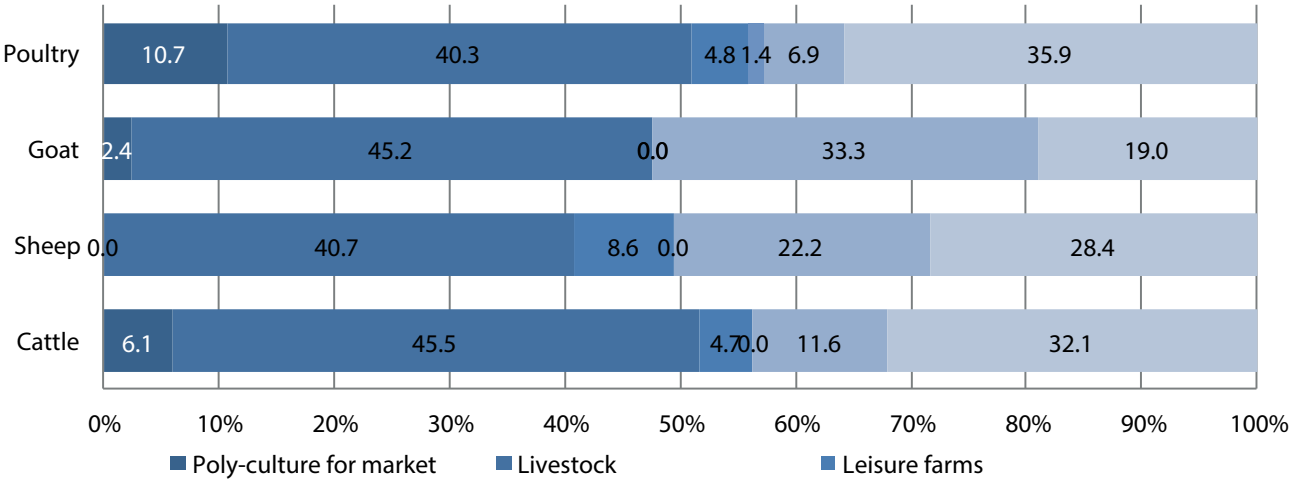
Poultry represents 39.8 % in the self-sufficient cluster, 20 % of arable crop farms, 34.1 % in leisure farms, 25.3 % in the livestock cluster and 56.4 % in the poly-culture cluster. All other livestock types occupy a very small proportion in some of the farm types. Poultry rearing appears to be a compulsory activity on farms for a variety of reasons. Poultry is one of the few sources of animal protein (eggs and meat) for the farm family and also provides a cash income.

Figure 28: Livestock production structure (% of farms within cluster)



Source: calculations based on the survey.

Figure 29: Livestock production structure (% of farms among clusters)

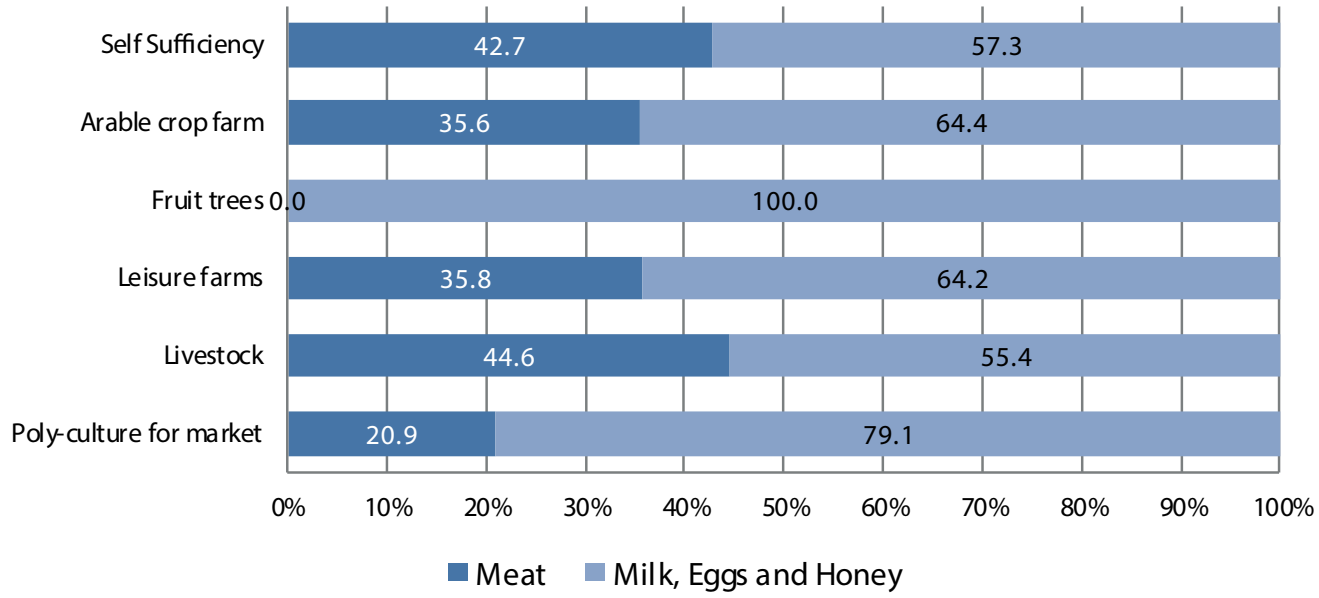


Source: calculations based on the survey.

Looking at livestock structure from a different point of view, among clusters we see that the livestock cluster represents the majority of farms in all types of production (Figure 29). 40.3 % of poultry is attributable to farms belonging to the livestock cluster, 45.2 % of goats, 40.7 % of sheep and 45.5 % of cattle. Self-sufficient farms also have quite a good presence in terms of livestock structure. These farms are ranked in second place, except for goat production. So, it can be seen that 35.9 % of poultry, 19 % of goats, 28.4 % of sheep and 32.1 % of cattle are attributable to self-sufficient farms. Quite a big proportion of small ruminant production is also seen in the arable crop farm type, represented by goat production (33.3 %), and sheep production (22.2 %). The other farm types have only small amounts of the different types of livestock production.

Livestock production value is divided into two main groups: meat and livestock product—milk, eggs and honey. For all farm types the main proportion of the livestock production value is represented by milk, eggs and honey production. The production value of milk, eggs and honey accounts for 57.3 % on self-sufficient farms, 64.4 % on arable crop farms, 64.2 % on leisure farms, 55.4 % on livestock farms and 79.1 % on poly-culture farms (Figure 30). On fruit tree farms, the livestock production value is entirely accounted for by milk, eggs and honey production, which is logical as long as the poultry production (Figure 30) represents 100 % of production structure. Meat is also an important part of livestock production and counts for 42.7 % on self-sufficient farms, 35.6 % on arable crop farms, 35.8 % on leisure farms, 44.6 % on livestock farms and 20.9 % on poly-culture farms.

Figure 30: Structure of livestock production in value (as percentage of total livestock production)



Source: calculations based on the survey.

7.3.11 Income and cost

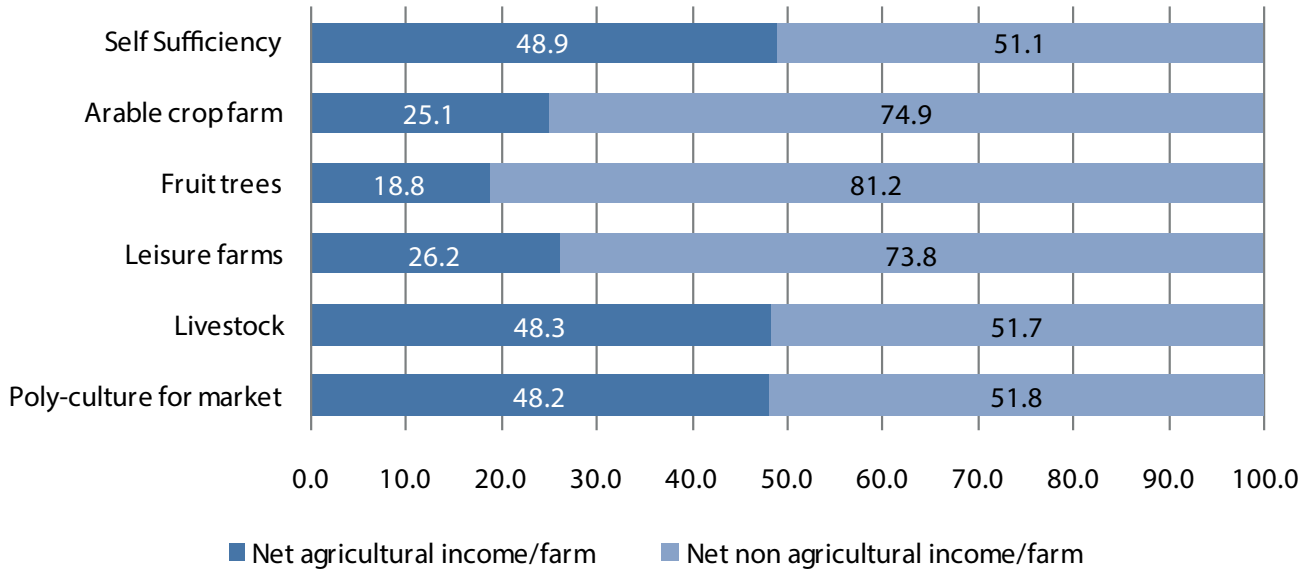
Income structure in the Elbasan region shows the highest proportion of off-farm income in terms of total household income (Figure 31). For all clusters, the off-farm income is higher than the FNI. This means that farming activity is not the main source of income for the household. As a matter of fact, the off-farm income over total household income, varies from 51 % for self-sufficient farms to 81 % for fruit tree farms. So, these types of farm rely more on off-farm employment than on agricultural activities. The main off-farm activities are construction, trade, pensions and remittances.

Among the farm types that have the highest non-agricultural incomes (arable crops, fruit trees and leisure farms) we should identify two farming strategies: (1) farms on which the importance of agriculture decreases with time (arable crop farms and leisure farms); and (2) farms that use non-agricultural incomes to improve farm specialisation (fruit trees). In this case the income from non-agricultural activities is used to finance the agricultural activities.

Expenditure on seeds accounts for the main proportion in the total expenditure structure of the family farm in Elbasan region. The arable crop farm type has the highest expenditure on seeds (ALL 39 428.9) followed by poly-culture for market and livestock farms. The other three clusters spend less on seeds than the first ones but are still the highest within their cluster. Farm expenditure on buying nitrogen fertilisers is in second place. These expenditures are higher in the livestock cluster, followed by arable crop and poly-culture, which spend the same amount on nitrogen fertiliser. Again, expenditure on nitrogen fertilisers remains in second place even within each cluster. Expenditure on ploughing and other land preparation processes comes third, while, among farm types, the highest expenditure on land preparation appear to be on farms belonging to the arable crop and poly-culture farm types. In fact, the last two farm types deal more with arable crops throughout the year (the value of arable crop/ total agriculture is 71 % and 80 % respectively)—the type of activity that requires more land preparation.

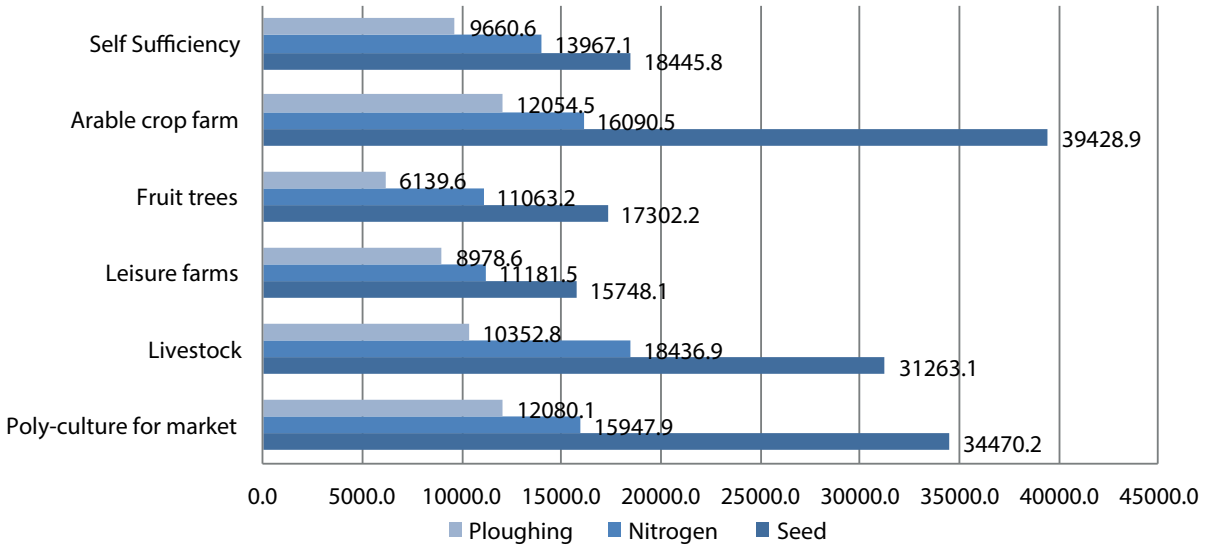
Financing farming expenditure is one of the main obstacles of farming systems (Figure 32). Based on the current financial situation, Figure 33 presents quite a pessimistic situation in terms of having access to the credit market. Opportunities for building capacity and making efficient use of farm inputs still remain very low in Elbasan region.

Figure 31: Farm net income and off-farm net income and their proportion of the total household income



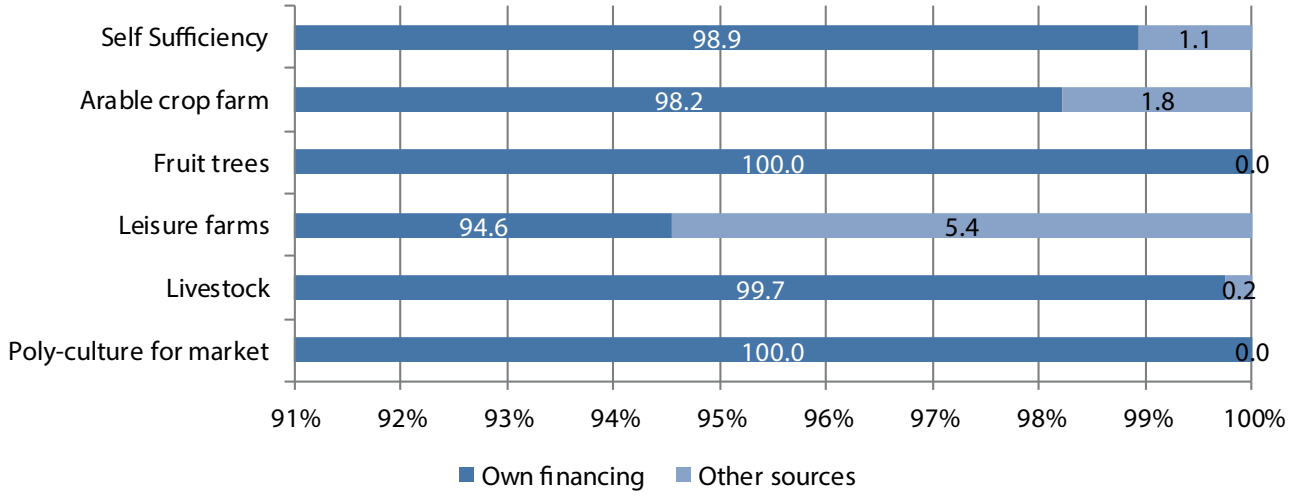
Source: calculations based on the survey.

Figure 32: Farm main expenditure structure in absolute values (in ALL) per hectare



Source: calculations based on the survey.

Figure 33: Means of financing farm expenditure



Source: calculations based on the survey.

Figure 33 shows that all the clusters are financing their expenditure mainly through their own sources. Farming families do not have access to micro-credit institutions and banks, while only a few of them use other sources to finance their expenditure. Farms belonging to fruit trees and poly-culture for market farm types finance up to 100 % of their expenditure using their own sources. The livestock cluster is financed almost 100 % through its own sources. The leisure farm cluster shows a somehow different pattern in terms of finance, whereby a little more than 5 % of them use other sources to finance their expenditure. Other sources refer mainly to remittances brought in from family members working abroad. The absence of credit institutions in the farming systems of Elbasan region causes great difficulties for farming families in terms of financing new projects and growing their capacities. The fact that, for all clusters, off-farm activity is the main source of total household income may explain the indifference of farming families to having access to credit. But, on the other hand, low factor productivity, low farming capacity and a low level of market integration may mean that the farming systems of this region are not attractive to credit institutions.

7.4 Analysis of farm economic performance

7.4.1 Farm productivity

Productivity is a broad concept but, within this study, by productivity we mean the farm net income (FNI) per annual work unit (AWU), per utilised agricultural area (UAA). By means of these three indicators, we aim to determine the productivity of Elbasan's agricultural units.

Farm net income per annual work unit

As shown in Figure 34, Elbasan's farm types perform differently in terms of FNI/AWU and repaying the workforce. Thus, farms that belong to the clusters poly-culture for market, self-sufficient and livestock are more productive in terms of repaying labour than the other clusters such as leisure, fruit tree and arable crop farms. Analysing the poly-culture for market, it is worth saying that this cluster gives the greatest repayment of labour of all clusters, and this is a consequence of having the highest percentage of sales (69–91 % of total production). Furthermore, this cluster includes orchards (57 % of the activities), where the need for labour is not too high, meaning that the level of workforce repayment is relatively higher. With regard to the self-sufficient cluster, it could be argued that this surprising level of performance in terms of FNI/AWU is justified by the fact that this cluster has the highest value of production in terms of field crop activities (ALL 16 093) and a lower value for orchard activities (1 133 ALL) than other farm types.

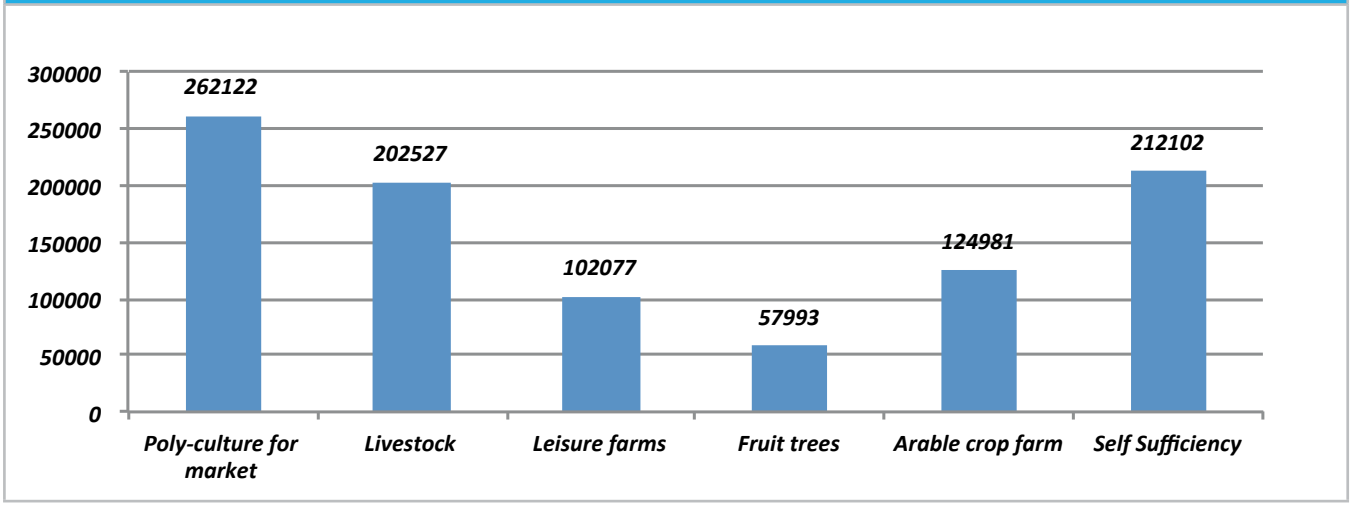
In contrast to the poly-culture, livestock and self-sufficient clusters, the leisure, fruit tree and arable crop farm types are not as productive regarding repayment for labour. The fruit trees cluster has poorer performance in terms of productivity of FNI/AWU, mainly because the investments are made during the non-productive phase, in this way reflecting an inadequate level of repayment for labour compared with other clusters.

Farm net income per utilised agricultural area

Besides the FNI/AWU, productivity analysis requires considering how effective farms are in utilising their agricultural land area. Figure 35 shows that land use on livestock farms is more productive (FNI/UAA) than on other farm types. The main reasons behind these differences is linked to the limited average UAA surface of this farm types, and the comparatively higher price per unit of production of livestock products compared with crop products. These reasons, and the potential for some types of livestock (mainly ruminants), to use village-owned rangelands that are not included in the farm's UAA, considerably increase the productivity of the land in terms of FNI.

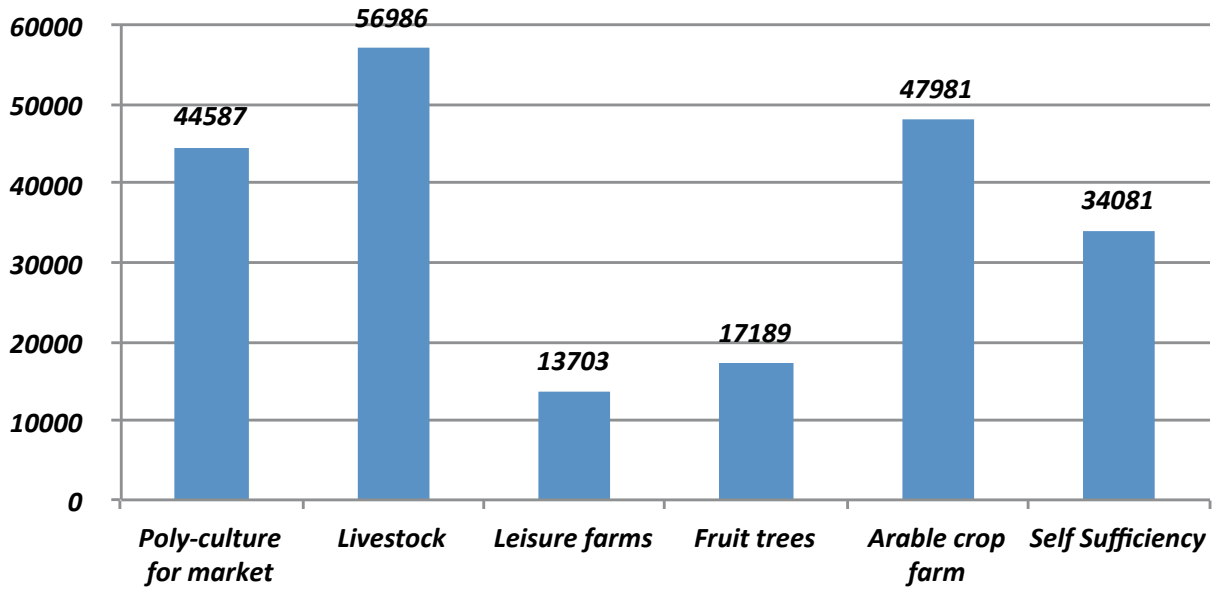
The low productivity in terms of FNI/UAA for leisure and fruit tree farm types may be explained by the fact that these types of farms do not consider agriculture as the main economic activity of the household. The higher proportion of non-agricultural income of these groups (i.e.68.58 % and 73.36 %) support this explanation.

Figure 34: Farm net income/annual work unit (ALL)



Source: calculations based on the survey.

Figure 35: Farm net income/utilised agricultural area (ALL)

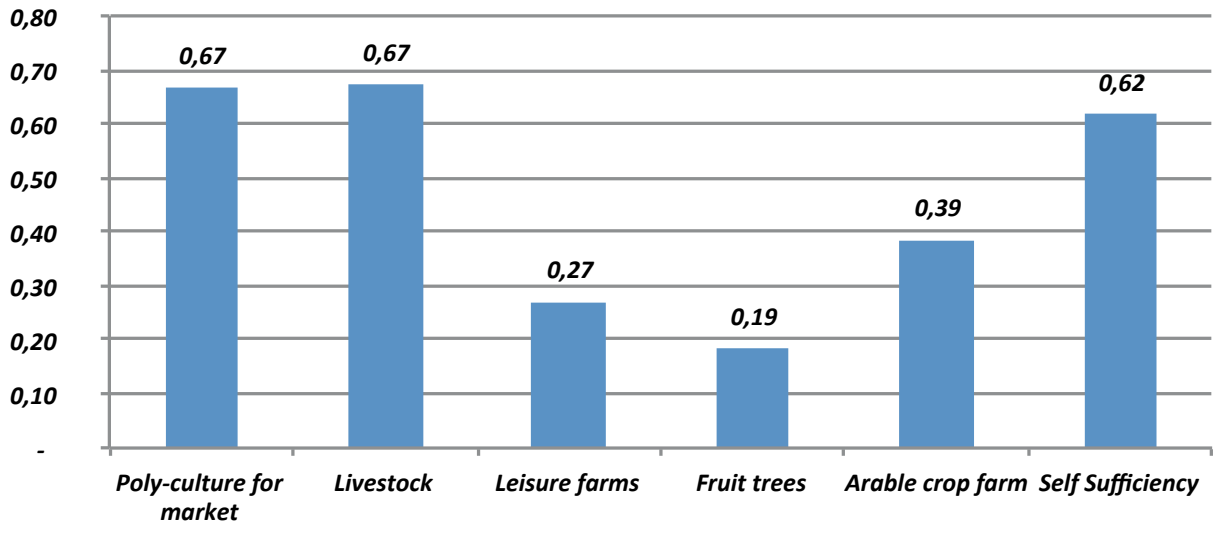


Source: calculations based on the survey.

7.4.2 Farm viability

The analysis of the farm viability shows that that all clusters are paying less than the minimum wage per work unit (Figure 36). Furthermore, even the farm types that give the highest repayment for labour do not reach even 70 % of the minimum wage. These results demonstrate that the farm structure in Elbasan region does not produce enough income to reach the minimum wage threshold. Some of the obstacles contributing to this situation could be the high cost of agricultural inputs, lack of cooperation, lack of investment, high transaction costs, etc.

Figure 36: Annual work unit repayment as a proportion of the minimum wage



Source: calculations based on the survey.

One of the main characteristics of Albanian agriculture is the mutual support of farm incomes by non-farm incomes and vice versa. As the survey data show, agricultural income is only a part of the total household income. That is why our analysis of the poverty level in the region of Elbasan was made taking into consideration both indicators: FNI and THI, which includes both agricultural and non-agricultural household incomes.

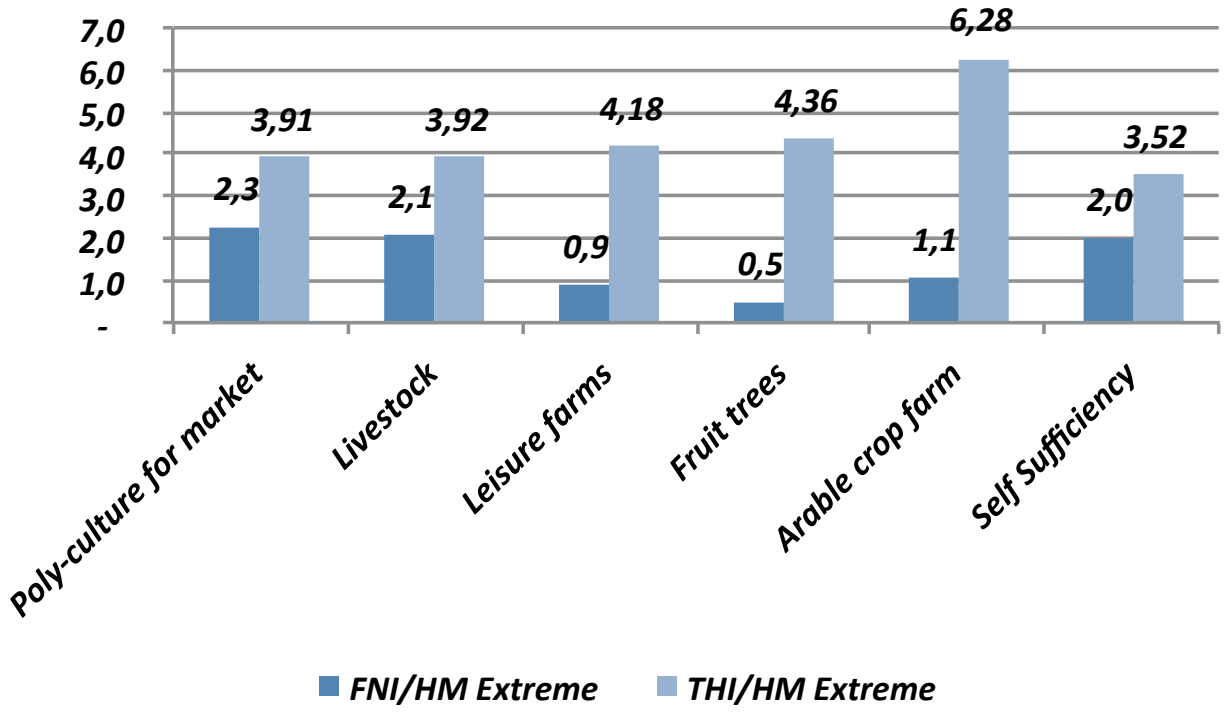
From Figure 37, we again conclude that the income from agriculture allows household members of poly-culture, livestock and self-sufficient farm types to reach the extreme poverty threshold incomes. In fact, this justifies the importance of agricultural businesses in terms of contributing to welfare and the standard of living in rural areas. In addition, even in terms of productivity (FNI/AWU and FNI/UAA) and minimum wage, these clusters were performing better compared with the other farm types.

When we focus on the leisure and fruit tree clusters, we can conclude that agricultural activity is not sufficient to provide farming families with sufficient income to reach the extreme poverty threshold. These farm types cannot exist without an extra agricultural income (construction, trade, remittances from abroad, etc.) and it seems that their future does not have a strong connection with agriculture.

The analysis in terms of THI instead of FNI shows for all clusters a clear increase in standard of living. Further improvement in the standard of living is seen for leisure, fruit tree and arable crop farms and, from this point of view, they are perform better than other clusters. This result because these three clusters have the highest off-farm income compared with the other clusters. This demonstrates that off-farm incomes make the most important contribution to farming families' standard of living. Figure 37 shows that the richest habitants in rural areas are not those that see agriculture as part of their future.

The analysis of the complete poverty level gives a very similar picture to that of the extreme poverty level.

Figure 37: Extreme poverty level analysis in terms of farm net income and total household income per household member



Source: calculations based on the survey.

7.5 Conclusions

The agricultural sector in Elbasan region is characterised by small and fragmented farming systems that use few inputs and little mechanisation. Agricultural activity offers only a small income.

The analysis of farm structure shows that the process of farm enlargement is still in its early days and that the farm size is not yet proportional to the labour input and or the productivity of the land.

The poverty line analysis shows that the more productive farm households in the region are the poorest in terms of both extreme and complete poverty level.

Households are heavily supported by non-agricultural incomes (remittances from abroad, retirement pensions, non-agricultural employment and social financial aid), and some of them (self-sufficient and leisure farms) do not consider agriculture as the main economic activity of the household in future.

8. Berat region: agricultural characteristics

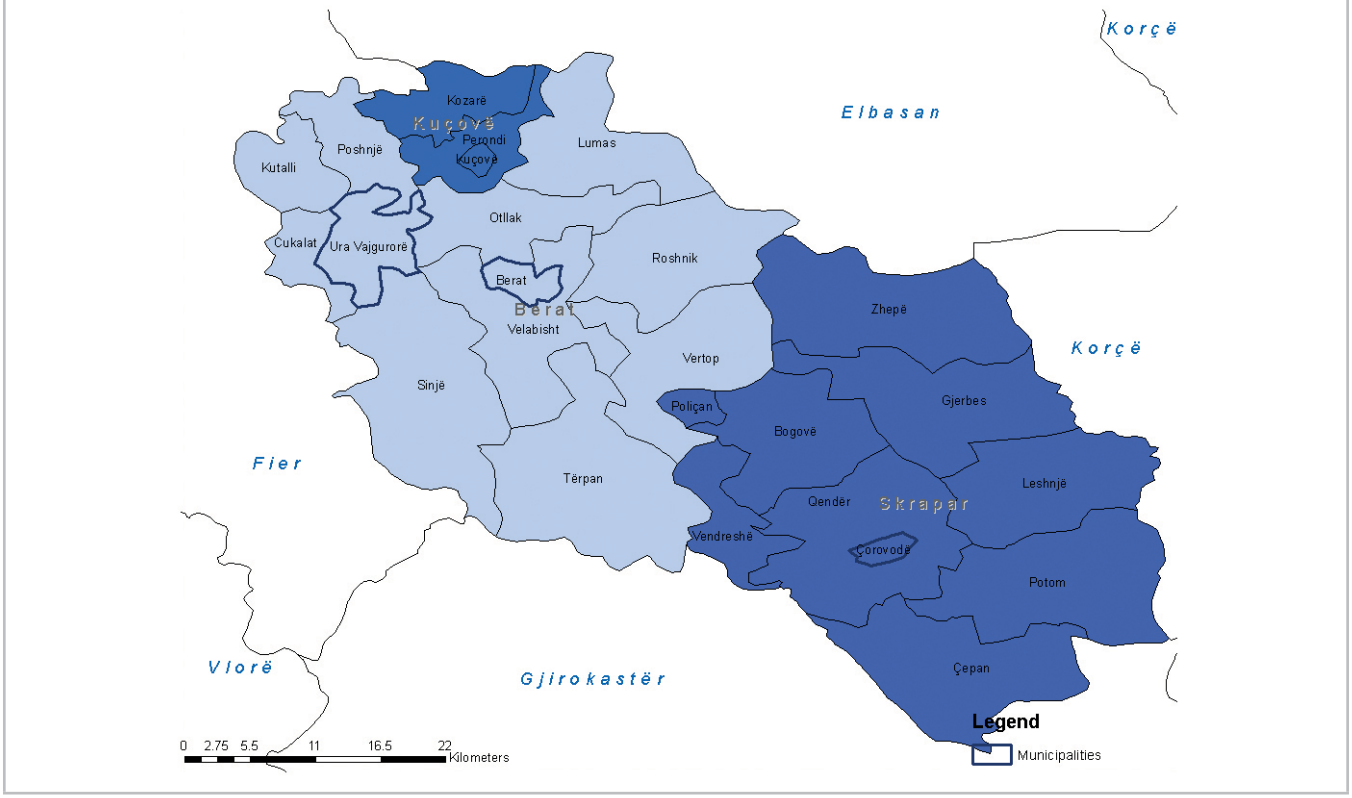
Berat is one of the 12 regions in Albania. According to the Organisation for Economic Cooperation and Development (OECD) classification (http://qarkuberat.gov.al/), it is part of the intermediate region, which, besides Berat, includes other regions such as Elbasan, Fier, Vlora and Shkodra. It is important to specify that the intermediate regions account for 45.8 % of the territory and 41.2 % of the whole population in Albania.

8.1 Geographical characteristics

The region of Berat has an area of about 1 798 km², it is located in the internal part of the country, it has no access to the coast, and it is not bordered by another country (Figure 38). In the northern part, it is bordered by Elbasan, in the west by Fier, in the southern part by Gjirokastër region and in the east by Korçë region. The region of Berat is divided into three districts: Berat, Kuçovë and Skrapar. The district of Berat is the centre of the region.

The climate in this area is typically Mediterranean, with an average annual temperature of 15.9 °C. The average temperature of the coldest months is 7.2 °C and of the hottest month is 28.2 °C. The average annual precipitation (mainly during the autumn, winter and spring months) is 928 mm (http://qarkuberat.gov.al/)

Figure 38: Map of Berat region



Source: authors' compilation.

8.1.1 Berat district

The district of Berat consists of two municipalities, 10 communes and 122 villages. It has a population of 141 944 inhabitants, of which 64 501 (45.4 %) live in urban areas, while 77 443 (54.6 %) live in rural areas (INSTAT 2011). In recent years, the population has declined by about 27 %. The biggest decrease in population has been in rural areas. The number of inhabitants in the region has declined as a result of rural migration. Rural migration has been an important phenomenon of the last 20 years. Three are the main migratory phenomena:

- migratory movements within the region, from mountainous areas in the south-east to the urban areas of Berat, Kuçovë and their surroundings;
- migratory movements outside the region, to other regions such as Tiranë, Durrës, Fier and Vlorë;
- emigration abroad—it should be highlighted that a considerable proportion of the population has emigrated abroad, mainly to Greece, Italy, etc.

The population of Berat is older than the national average, and the territory is more populated than the national average (Berat region: 141 inhabitants/km^2; national average 105 inhabitants/km^2) (INSTAT 2011). Furthermore, the majority of the population lives in the lowlands (77 % of population lives in dwellings located at an altitude of less than 300 m).

The total land area counts for 93 888 ha, of which 35 324 ha are agricultural land, most of which is distributed in small farms with an average area of 1.5 ha.

8.1.2 Kuçovë district

Kuçovë district has a population of 25 600 inhabitants (INSTAT 2011) and 6 736 households. Kuçovë district includes under its administration a municipality, two communes and 18 villages. The capital of the district is Kuçovë, with an area of 85 km^2. The district possesses 8 410 ha of land, of which 5 500 ha are agricultural, and the average farm size is 1.5 ha. Kuçovë is distinguished for being an area rich in oil and natural gas. Currently, the oil industry remains the main source of income for the population, along with the retail trade, agricultural and livestock processing units and handicrafts (such as bags, shoes and iconography).

8.1.3 Skrapar district

Skrapar district consists of two municipalities, eight communes and 103 villages. It has a population of 16 100 inhabitants and 4 236 households. The capital of Skrapar district is Çorovodë, which is one of the areas with the lowest density of population in the region (45 inhabitants/km^2). The district are is 77 495 ha, of which 12 095 ha is agricultural land. The majority of the land is distributed among farms with an average area of 1.3 ha. The district of Skrapar has the lowest average farm size in Berat region.

8.2 Rural and urban infrastructure

The region of Berat has a road network of 1 055.2 km (140 km of national roads, 112.6 km of regional roads and 802.6 km of local roads). 32 % of the national roads are tarred. The region is connected to the rest of the country through two national roads, but the roads are in poor shape and greatly increase the cost of transporting agricultural produce. Infrastructure and public services are insufficient throughout the region, especially in the mountainous areas, and this leads directly to many deficiencies in a series of vital sectors (economy, education, health).

8.2.1 Economy, infrastructure and geography

Berat region has a total area of 179 793 ha, of which 29.4 % is agricultural land. Most of the landscape is hilly and mountainous. Table 17 gives detailed information about land use in the region of Berat.

The region has a forestry area of 53 833 ha (nearly 30 % of the total area). It has been increased year on year as a result of participation in national initiatives and policies to encourage the forestation and reforestation of eroded areas. Meanwhile, meadows and pastures areas account for 17 % of the total area of Berat region. The distribution of these land use types is shown in Figure 39.

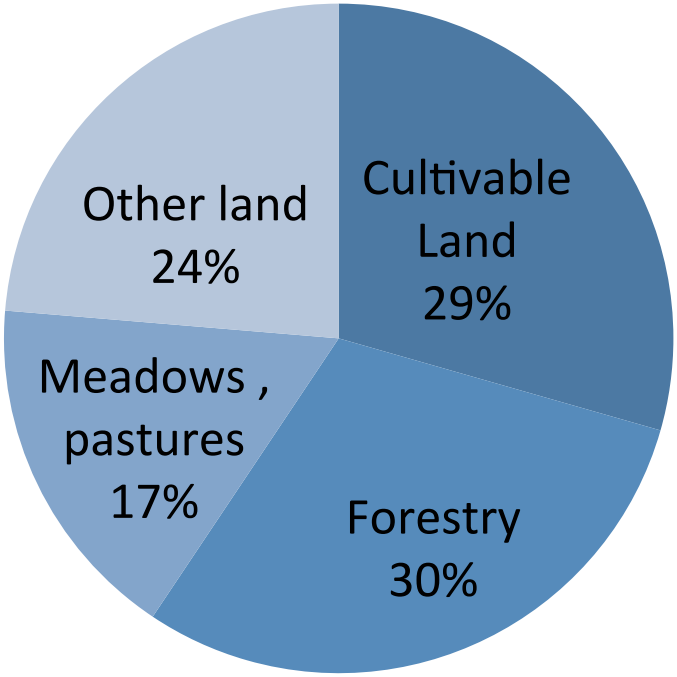
Table 17: The land use in Berat region (ha)

No	Districts	Total land	From these: cultivable area	From: cultivable area		Forestry	Meadows, pastures	Other land
				Divided by farmers	Not divided			
1	Berat	93 888	35 324	28 861	6 463	28 251	8 183	22 130
2	Kuçovë	8 410	5 500	4 594	906	1 082	129	1 699
3	Skrapar	77 495	12 095	7 122	4 973	24 500	22 160	18 740
	Region	**179 793**	**52 919**	**40 577**	**12 342**	**53 833**	**30 472**	**42 569**

Source: (MoAFCP 2013).

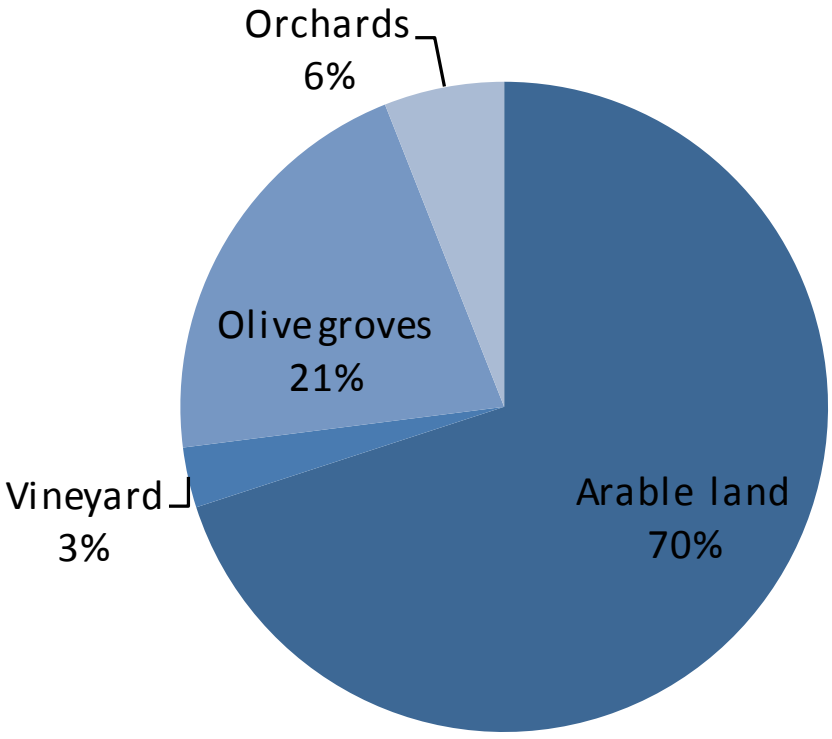
On the other hand, as can be seen in Figure 40, most of the cultivable area (70 %) in the region can be used for arable crops. Olive groves are the most important perennial crop (21 % of the cultivable area), while orchards and vineyards occupy a smaller area (6 % and 3 %, respectively, of the cultivable area) in the region.

Figure 39: Land use structure in Berat region



Source: calculations based on the survey.

Figure 40: Structure of the cultivable area in Berat region



Source: calculations based on the survey.

8.2.2 Economic development of the region

Berat is not one of the wealthiest regions of Albania. It is classified sixth in terms of GDP per capita for 2009, with a GDP of EUR 2 456 per capita/year, which is nearly 10 % less than the average for the country (EUR 2 814 per capita for the region and EUR 3 080 per capita for the country (INSTAT 2011). The closed economy and the weak infrastructure may result in poor productivity in agricultural and industrial activities.

The main economic activity (in terms of employment and production) of the region is agriculture owing to the predominance of a rural population employed in farming. Economic activities are concentrated in the central–western part of the region. It is important to point out that, besides agriculture, there is a tendency towards developing other economic sectors, such as a mineral industry, a textile industry (although textiles have a low added value), a processing industry and tourism.

In addition, Berat region has a lower poverty level than the country average; the depth and severity of poverty are lower than the country's average. However, it is important to mention that around 13 % of region's population is considered as poor (less than USD 2/day/inhabitant, according to (INSTAT 2011)). Table 18 presents poverty indicators for Berat region and Albania.

8.3 Agricultural development of the region

Agriculture accounts for 32 % of regional GDP and has much greater importance compared with agriculture at the country level, which accounts for 18 % (INSTAT 2011). This region is rich in agricultural resources, and has a long tradition of agricultural production. The soil structure favours the development of farming activities, especially vegetables, olives and fruit trees. Berat is well known for its production of olives, figs, grapes, vines, fruits and vegetables, as well as herbs and spices.

8.3.1 Farms and production capacities

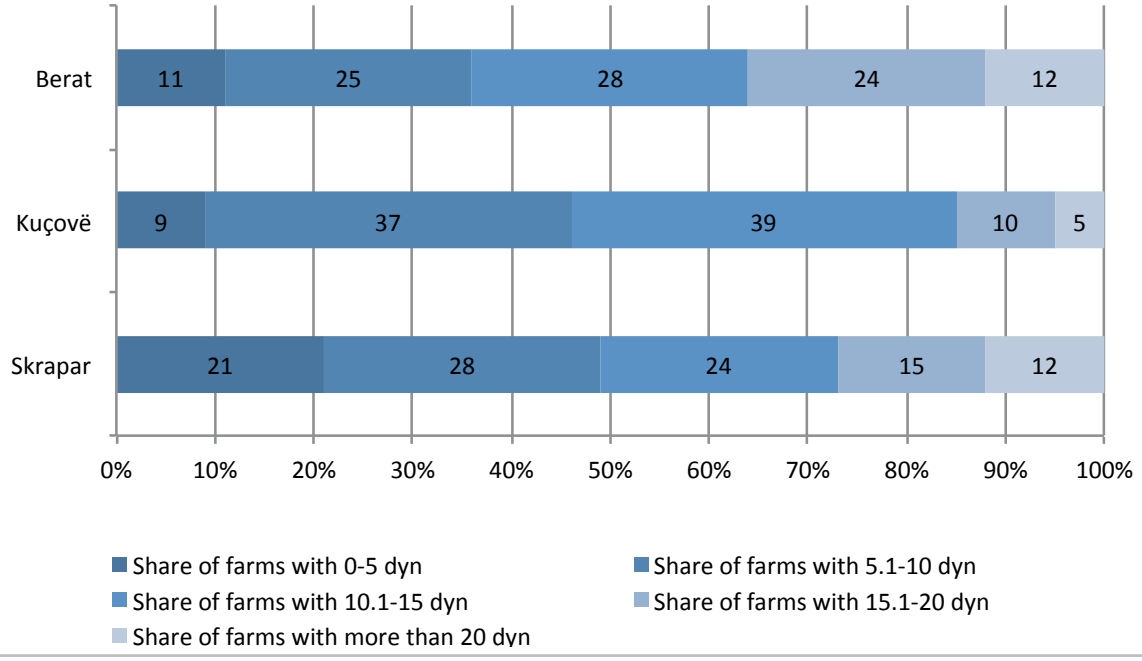
After land privatisation (Law No 7501, 19 July 1991), growth of the agriculture sector in Berat region was quite slow, owing to the limited area per farm, the high level of fragmentation and the small plot size. Figure 41 presents the average farm size for each district of Berat region and their proportions.

Table 18: Poverty indicators, Berat 2012

Item	Poverty level	Poverty depth	Poverty severity
Berat prefecture	12.7	2.4	0.7
Albania	14.3	2.9	1.0

Source: (INSTAT 2011).

Figure 41: Percentage of farms according to size, within the district



Source: (MoAFCP 2013).

Most farms in Berat region have an area of 0.5 to 2 ha, and only a small proportion is larger than 2 ha. This situation is in line with the average farm size on a national level, which does not exceed 1.4 ha. In Skrapar district the number of farms with less than 0.5 ha is lower than in other districts. Among districts, the level of development of the farming sector varies. Plains have differences in population in terms of economic well-being compared with mountainous areas (highlands). Mountainous areas are characterised by a larger number of farms of a size of less than 0.5 ha.

8.3.2 Farms and development of agricultural activities

In Berat region, almost all kinds of plants typical of Albania can be grown and all types of livestock typical of Albania can be raised (cattle, sheep, goats, poultry, pigs, bees, etc.). The main agricultural productions of the region (in value) are cereals, vegetables (especially those grown under cover), forage, industrial plants (sunflower, etc.), permanent crops (fruit, citrus, olives) and livestock. Table 19 provides detailed information on agricultural production in 2012.

Table 19: Agricultural production evaluated by sector and activities for 2012

No	Item	Estimated production	
		ALL 000	%
I	Arable crops (total)	9 499 100	42.7
	Cereals	2 556 000	26.9
	Vegetables, potatoes, beans	3 859 300	40.6
	Fodder	3 068 000	32.3
	Tobacco, sunflower, etc.	15 800	0.2
II	Permanent crops (total)	4 344 000	19.5
	Fruits	1 040 000	24
	Grapes	998 400	23
	Olives	2 200 000	50.6
	Citrus	105 600	2.4
III	Livestock (total)	**8 402 600**	37.8
	Milk	3 423 000	40.7
	Meat	3 936 600	46.8
	Eggs	853 400	10.2
	Others	189 600	2 3
	Total (I + II + III)	**22 245 700**	**100**

Source: (MoAFCP 2013).

The arable crop production value accounts for the highest revenue of the sector, with 42.7 % of the total, followed by livestock and orchards. Within arable crop production, vegetables contribute the highest level of income (40.6 %), followed by forage crops. Meanwhile, crops represent about 27 % of its revenue, while industrial plants are ranked at the bottom.

Greenhouse vegetable production is particularly important in Berat and Kuçovë districts. There has been an upwards trend in the construction of greenhouses over the last 10 years. Over this period, greenhouse cultivated areas increased three-fold (MoAFCP 2013). The districts of Berat and Kuçovë, which are mainly located in lowland areas, are particularly affected by this trend. More fertile soils and proximity to the main markets (Lushnjë, Durrës, Tiranë and Fier) serve as an incentive to increase the area of protected crops.

Cereal production has increased considerably over the last 10 years, mainly as a result of improvements in yields (from 3.03 t/ha in 2001 to 4.39 t/ha in 2011), by nearly 45 %. Cereal production is mainly used for animal feeding.

Livestock is the second most important agricultural activity (in terms of value of production) in the region. Within the total value of livestock production, meat production accounts for 46.8 %, milk production for 40.7 % and egg production for 10.2 %. The income from farming activities is mostly generated by rearing cattle, small ruminants (sheep and goats), pigs and poultry. Small ruminant livestock rearing is located mainly in hilly and mountainous areas, whereas cattle herds are concentrated mostly in the lowland areas of Kuçovë and Berat. Most meat production is sold at the regional markets or is processed by three meat-processing units. Milk production is dominated by cow's milk, at 79 % (goat's milk accounts for 11 % and ewe's milk accounts for 10 %).

The establishment of some agricultural processing units has boosted both the cultivated area and agricultural production.

Berat has a long tradition of permanent crop production, and it is known for some native varieties of olives and figs. Over the last 8 years (2004–2012), area of the fruit trees has increased by 50 %, the area of vineyards has doubled and the area down to olive trees by nearly 20 %.

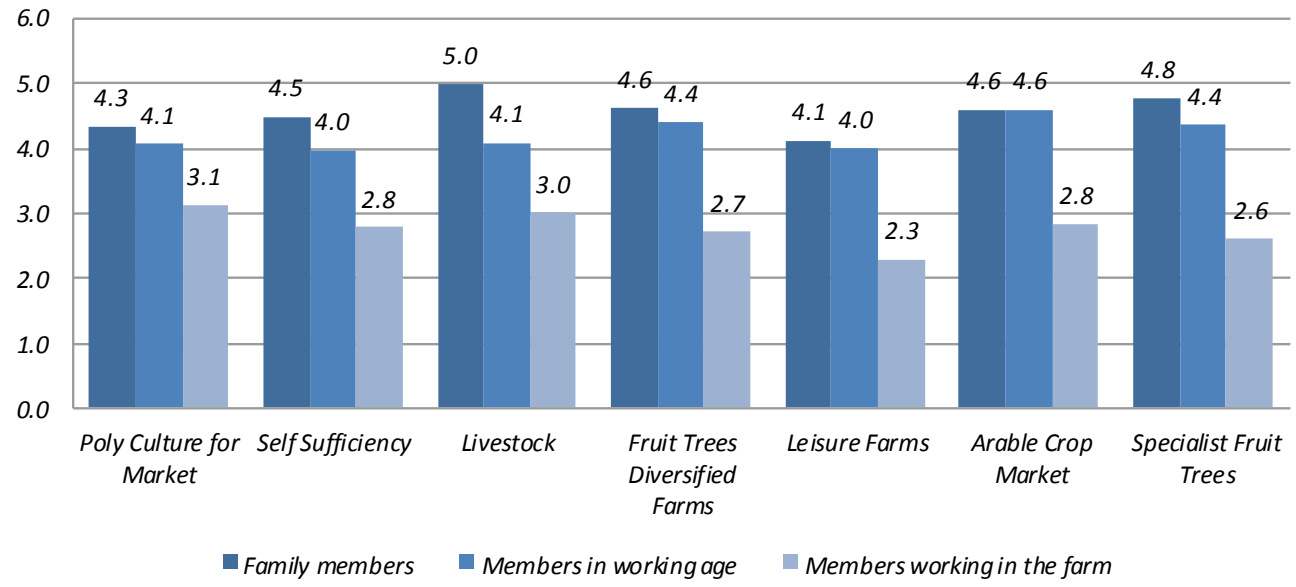
8.3.3 Family structure

The number of questionnaires returned in each district of Berat region (276 questionnaires) was 169 for Berat, 58 for Kuçovë and 49 for Skrapar.

The results of the survey show that the family farm in Berat region is composed on average of four to five people and the employment rate is in line with the national level. Family structure in the Berat region appears to be much the same among clusters. When it comes to the number of people of working age, the overall picture varies from a minimum of 4.0 on the self-sufficient farm type to a maximum of 4.6 on arable crop farm types. Members of family farms working on the farm vary from 3.1 on the poly-culture for market farms type to a minimum of 2.3 on leisure farms. Poly-culture farms are more labour intensive than other clusters in Berat region. The overall situation shown in Figure 42 demonstrates that the family farm is relatively densely populated and that the available labour is divided between agricultural and non-agricultural employment.

1It seems that on-farm activities do not offer the potential for increasing the level of employment. This is the reason why household members of working age have to look for other employment possibilities.

Figure 42: Family farm structure



Source: (MoAFCP 2013).

8.3.4 Farm structure

The average farm size for Berat region is about 1.4 ha, with the distribution among the clusters as shown in Figure 43.

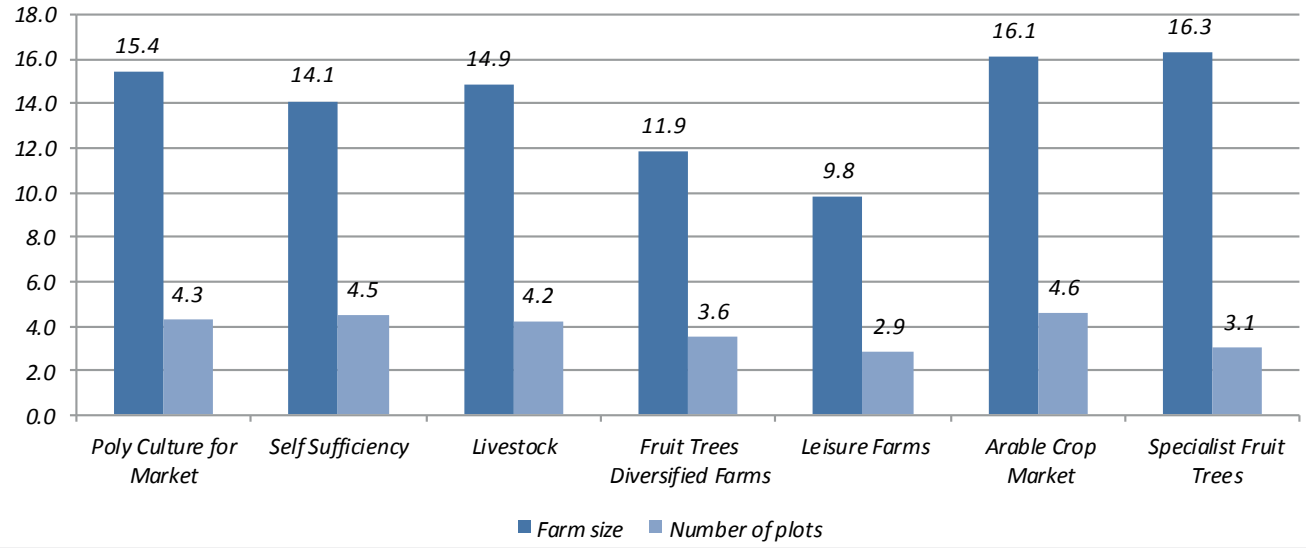
According to survey, the data show that farms belonging to the specialist fruit tree farm type are the largest (almost 16.3 dyn), followed by the arable crops for market with around 16.1 dyn, poly-culture for market with 15.4 dyn, and so on. Leisure farms are the smallest, at 9.8 dyn/farm.

The limited average farm size and the number of plots by farm type is one of the main issues of Berat's agricultural sector. The level of fragmentation, which is important, is present in all farm types in the region. The arable crops for market farm type is the more fragmented one, at 16.1 dyn/farm and 4.6 plots/farm.

More information on farm size intervals according to clusters (less than 5 **dyn**, 5–10 **dyn**, 10–20 **dyn** and larger than 20 **dyn**) is presented in Figure 44.

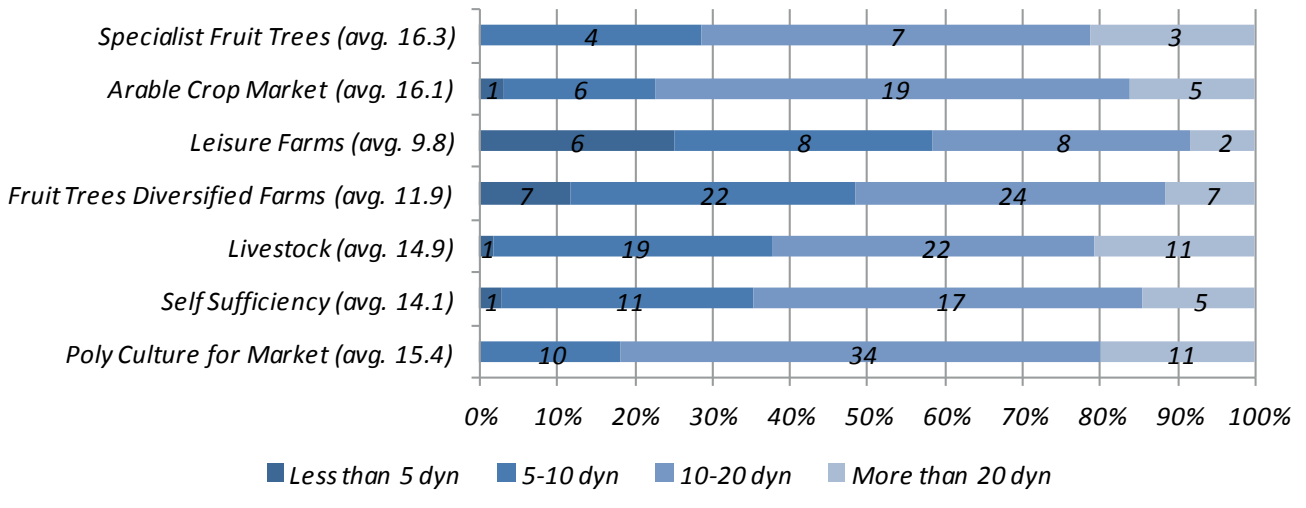
The figure above shows a large range of average farm size among the different farm types, from 0.98 ha to 1.63 ha. On the other hand, average farm fragmentation level is quite high, from 2.9 to 4.6 plots per farm. The difference in the average farm size seen in poly-culture for market, arable crop for market and specialised fruit tree farms compared with the other types indicates increased opportunities for these types to expand and grow. In this framework, farm specialisation and intensification of agricultural techniques is one of the few strategies available to increase agricultural production in the region.

Figure 43: Average farm size (dyn) and average number of plots per farm



Source: calculations based on the survey.

Figure 44: Farm size according to the clusters (in %)



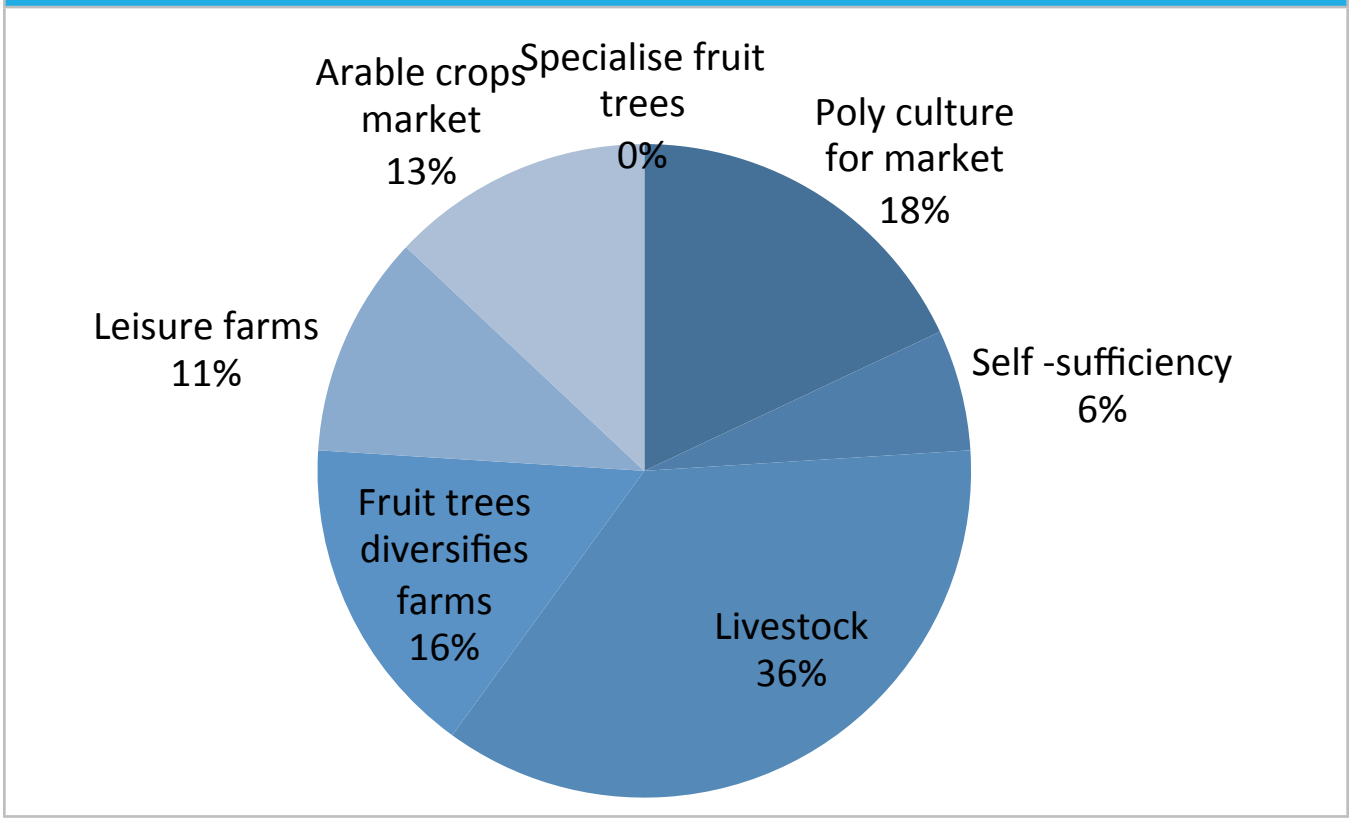
Source: calculations based on the survey.

8.3.5 Irrigation

Irrigation continues to be one of the main factors that significantly affects the effectiveness and sustainability of agricultural production in the region. Agriculture requires both drainage in the winter and irrigation in the summer. The irrigation facilities in Berat are still poor. Farmers irrigate on average from 36 % of their area on livestock farms to 6 % of the area on self-sufficient farms (see Figure 45).

The diagram above provides a clear picture of the percentage irrigation for each cluster. As can be seen, farms in the livestock cluster account for the largest irrigated area. It may seem like a paradox, but there is an explanation for this situation. Many farms are located in the lowland areas, where irrigation facilities are more accessible to farmers. The majority of animal feed, especially for cattle breeding is produced on the farms and irrigation has the potential to increase the proportion of feed produced on the farms. The large proportion of fodder plants cultivated by these farms supports this strategy.

Figure 45: Use of irrigation according to cluster (%)



Source: calculations based on the survey.

8.3.6 Equipment and tool inputs

The data presented in Table 20 give a detailed picture of the kind of machinery and other mechanical inputs used by farmers in Berat region.

In a sample size of 271 farmers, the number of tractors available was 14 (0.05 tractors per farm). The tractors are not equipped with other agricultural machines necessary for land preparation, as they number only 14. The tractors are equipped with milling machines but not all of them with a plough. This indicates that ploughing is done not only by tractors. Consequently, it can be concluded that the provision of machinery in the region of Berat is inadequate. The above conclusion is supported by the fact that fruit tree diversified farms turns out to be the best equipped in terms of machinery (50 % of the total tractors). The use of machinery leaves a lot to be desired, and part of the farm work continues to be done by manpower and animals.

Table 20: Number of different types of farm machinery owned

No	Item	Poly-culture for market	Self-sufficient	Livestock	Fruit trees diversified	Leisure farms	Arable crops for market	Specialist fruit trees	Total
1	Cultivator				1				1
2	Trailer	1	1	2	2		2		8
3	Cart								0
4	Moto-cultivator	1		1	3		1		6
5	Tractor		1	5	7		1		14
6	Harvester			2					2
7	Springer irrigator	1			1				2
8	Fertiliser spreader								0
9	Planter			1					1
10	Plough			4	5		1		10
11	Others	9		1	3		1		14

Source: calculations based on the survey.

8.3.7 Extra-farm activities

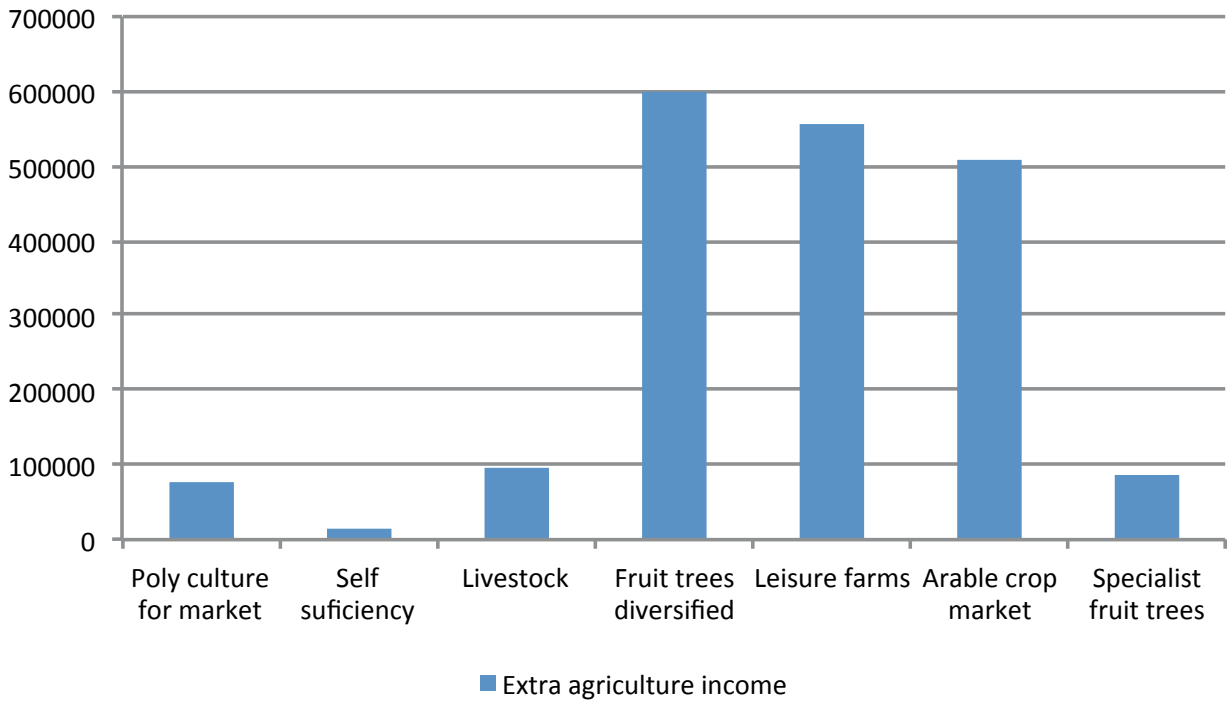
Non-farm incomes remain an important source of income for rural households in Berat region.

Non-agricultural incomes among the farm types are presented in Figure 46 and prove to be quite interesting. Farm households in the region follow a strategy of specialisation, some of them in agriculture (i.e. poly-culture for market, self-sufficient livestock and specialist fruit trees) and others in non-farm activities within or outside the rural area (leisure farms and arable crops for market). Fruit trees diversified falls in between these two strategies: the household has important non-agricultural incomes, and the investments in agriculture (financed mainly by non-agricultural incomes) reveal the aim of agricultural specialisation.

Following the above analysis, it is worth focusing on the structure of non-agricultural incomes. The data analysis indicates that income from a pension is the most frequent source of extra-agriculture income for the majority of farms in all clusters in Berat region, ranging from 25 % for leisure farms up to 76.9 % for livestock farms. In second place are remittances from abroad registered in five clusters out of seven (not present in self-sufficient and specialised fruit tree farms). The proportion of income ranges from 16.7 % in poly-culture for market up to 47.1 % in arable crops for market farm types. Off-farm work in the public sector makes a considerable contribution to the off-farm income structure in the poly-culture for market cluster, fruit trees diversified and arable crops for market farm types, ranging from 12.5 % up to 25 %. Other alternatives to off-farm activities make a minor contribution to the structure of extra income for all farm types.

The results of the study show that of farm family members working off the farm, 3.2 % of them work in agricultural activities outside their farm, 11 % in trade, 10.5 % in construction, 23 % in the public sector, 41.6 % are retired and 31.6 % have emigrated. The above situation in terms of employment is the reality for the Albanian rural population. This duality of employment shows the lack of capacity of the agriculture sector to absorb the labour supply in rural areas. This means that the number of people living in rural areas declines and there is the potential for an improvement in the productivity of labour.

Figure 46: Average non-farm incomes (ALL) among the farm types



Source: calculations based on the survey.

8.3.8 Crop production

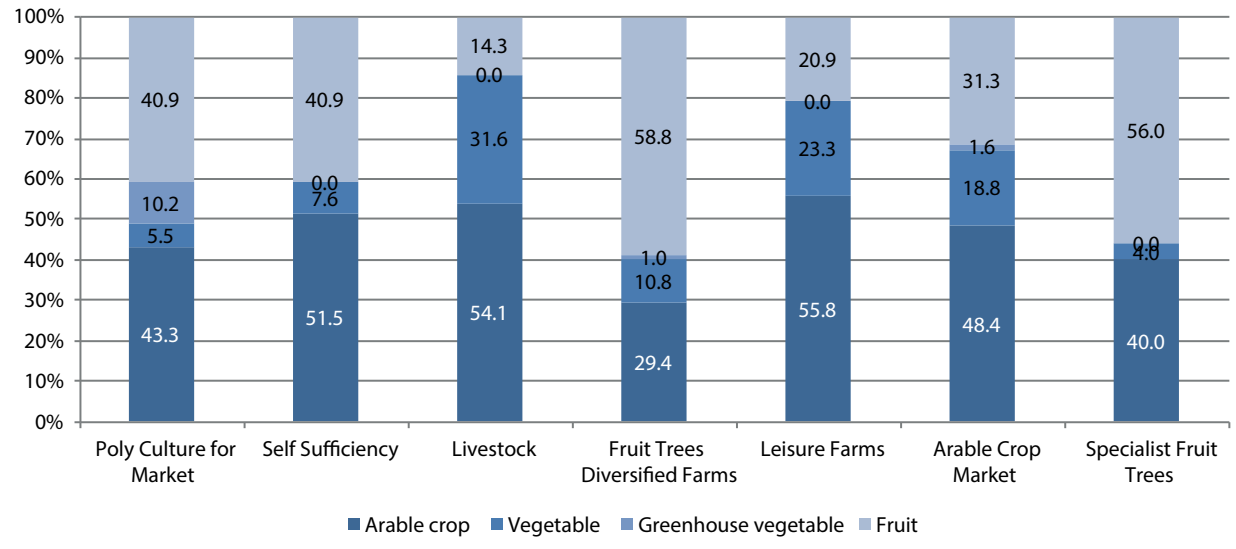
Crop production is the main agricultural activity for all cluster farms in the Berat region, except for livestock farms, in terms of the proportion of total agricultural production. There is a predominance of farms that cultivate arable crops in all clusters. The percentage of farms cultivating arable crops ranges from 29.4 % for fruit farms diversified up to 55.8 % for leisure farms. The highest percentage of farms growing arable crops being in the leisure farms cluster is in line with the fact that around 82 % of the value of agricultural production in this cluster comes from arable crops. Again, arable crops require less labour compared with other agricultural activities such as vegetables both in the open field and under cover, and fruit tree and leisure farms have the highest number of farms with less than one worker equivalent (compared with other clusters). Alongside arable crops, fruit trees are the other main activity of farms in all clusters. It seems that these two activities dominate in Berat region. The percentage of farms cultivating fruit trees ranges from 14.3 % for livestock farms up to 56 % for specialised fruit tree farms. Despite two fruit tree farm types demonstrating a high percentage of farms with fruit trees, self-sufficient and poly-culture for market farms also appear to be actively involved in fruit tree activities (40.9 %) within their cluster. Open field vegetable production dominates over greenhouse vegetable production in terms of farms dealing with these activities. Livestock farms, alongside arable crop farms, are dealing also with open field vegetable production (31.6 % of them), and are followed by leisure farms (23.3 %). Regarding greenhouse vegetable production, only the poly-culture for market cluster shows a noticeable percentage of farms dealing with that activity (10.25 %). The percentage of farms producing vegetables under shelter in other clusters appears to be very low or even zero (Figure 47).

Regarding sales, the percentage of farms that sell produce in each cluster does not differ too much from the percentage of farms dealing with the aforementioned agricultural activities. Around 30 % of poly-culture for market farms sell in the markets, and almost all farms producing fruit trees and greenhouse vegetables are market oriented. In the self-sufficient cluster around 28 % of farms producing arable crops sell in the markets, while only half of farms producing open field vegetables and fruit trees sell in the markets. The picture is the same for livestock farms as in the self-sufficiency cluster in terms of the percentage of farms that sell for each group of crops. In the fruit trees diversified cluster the percentage of farms that sell versus farms that grow each group of crops varies from nearly 40 % (arable crop farms) up to 50 % (greenhouse-grown vegetable farms). For the remaining clusters, the percentage of farms that sells, considering each group of crops, is around 40 %, with the exception of farms growing open field vegetables within the leisure farms and arable crops for market clusters (23 % and 14 % of them, respectively, sell on the market).

The structure of sales shows the importance of fruit trees in the region (Figure 48). The revenue from these products is the main source of income for each farm type in the region. The importance of fruit sales is particularly high in the poly-culture for market, fruit trees diversified and specialist fruit tree farm types. The abovementioned farms types are those that have the highest average sales incomes from crop cultivation.

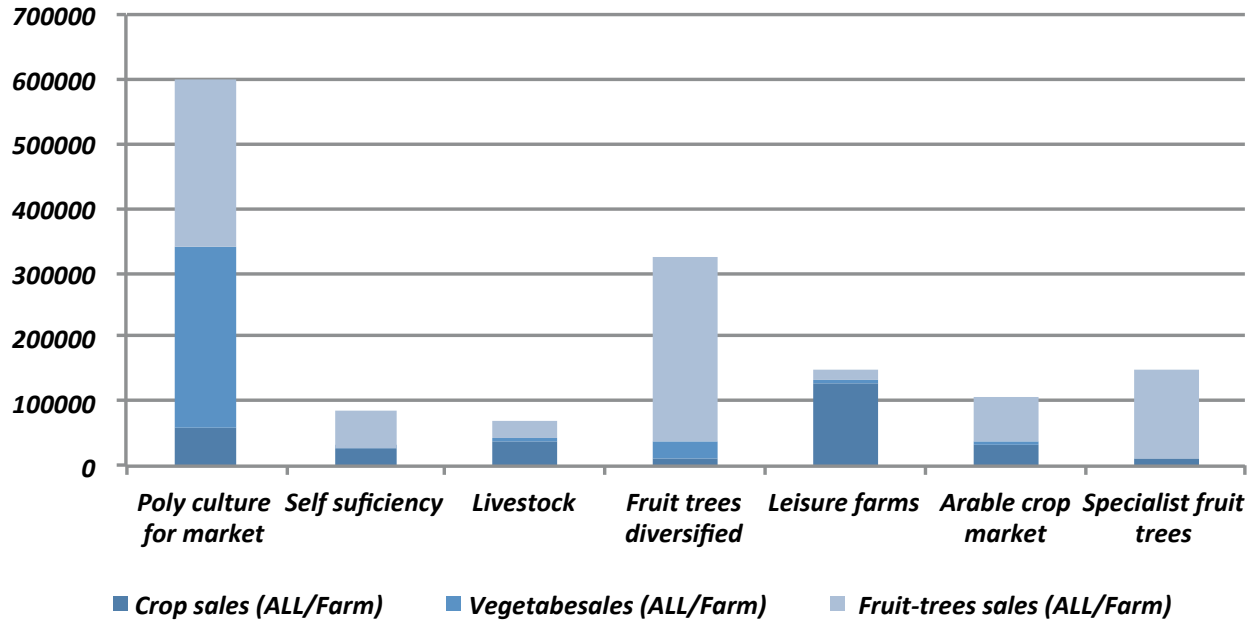
The relatively high proportion of crop sales from leisure farms is mainly because the majority of farm production is sold (77 % of agricultural production in value) and not for home consumption. On the other hand, the relatively higher proportion of home consumption (80 % of the agriculture production in value) in the other farm types can justify the limited sales.

Figure 47: Farms according their activities and clusters



Source: calculations based on the survey.

Figure 48: Structure of sales (ALL/farm)



Source: calculations based on the survey.

8.3.9 Livestock production

Livestock production is less important in the region of Berat. Only one farm type (livestock) has a higher livestock production value than its agricultural production value (Figure 49) The geography (mainly lowland) and limited agricultural land have shaped farm strategies in this region. Livestock production in terms of value in the region of Berat is dominated by milk, eggs and honey for all farm types (Figure 49). Mixed livestock breeding (meat and milk) is a characteristic of the Albanian livestock sector and is not particular to the region of Berat. The limited land area and the abundant workforce in rural areas means that farms favour a mixed breeding strategy for nearly all types of livestock. On the other hand, livestock products (milk and eggs) are important sources of protein for rural households and provide a regular cash income for the household.

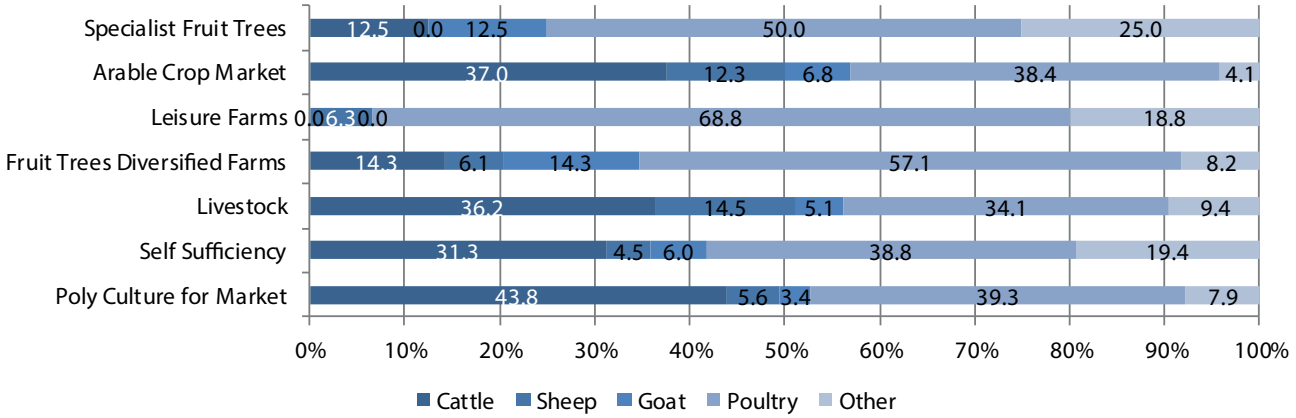
Animal production within farm types in Berat region is quite diversified. Almost every cluster keeps all types of stock. Poultry is most widely kept type of livestock within farm types (ranging from 34.1 % for livestock farms up to 68.8 % for leisure farms). The picture for leisure farms is in line with the value that meat from poultry adds to the total value produced from livestock activities. Cattle breeding in Berat region seems to be the main livestock activity only for the poly-culture for market farm type, where about half of the farms have cattle. Farms that keep goats and sheep account for a relatively low percentage within each farm type compared with cattle, poultry and other animals.

Figure 50 shows that there is no clear specialisation in livestock activity in the region of Berat. The strategy followed by farms aims to reduce the risk by diversification. The main livestock type present on many farm types—poultry – is farmed mainly for household and home consumption in an extensive way.

Figure 49: Structure of livestock production in terms of value (ALL)

Source: calculations based on the survey.

Figure 50: Structure of livestock production in terms of value

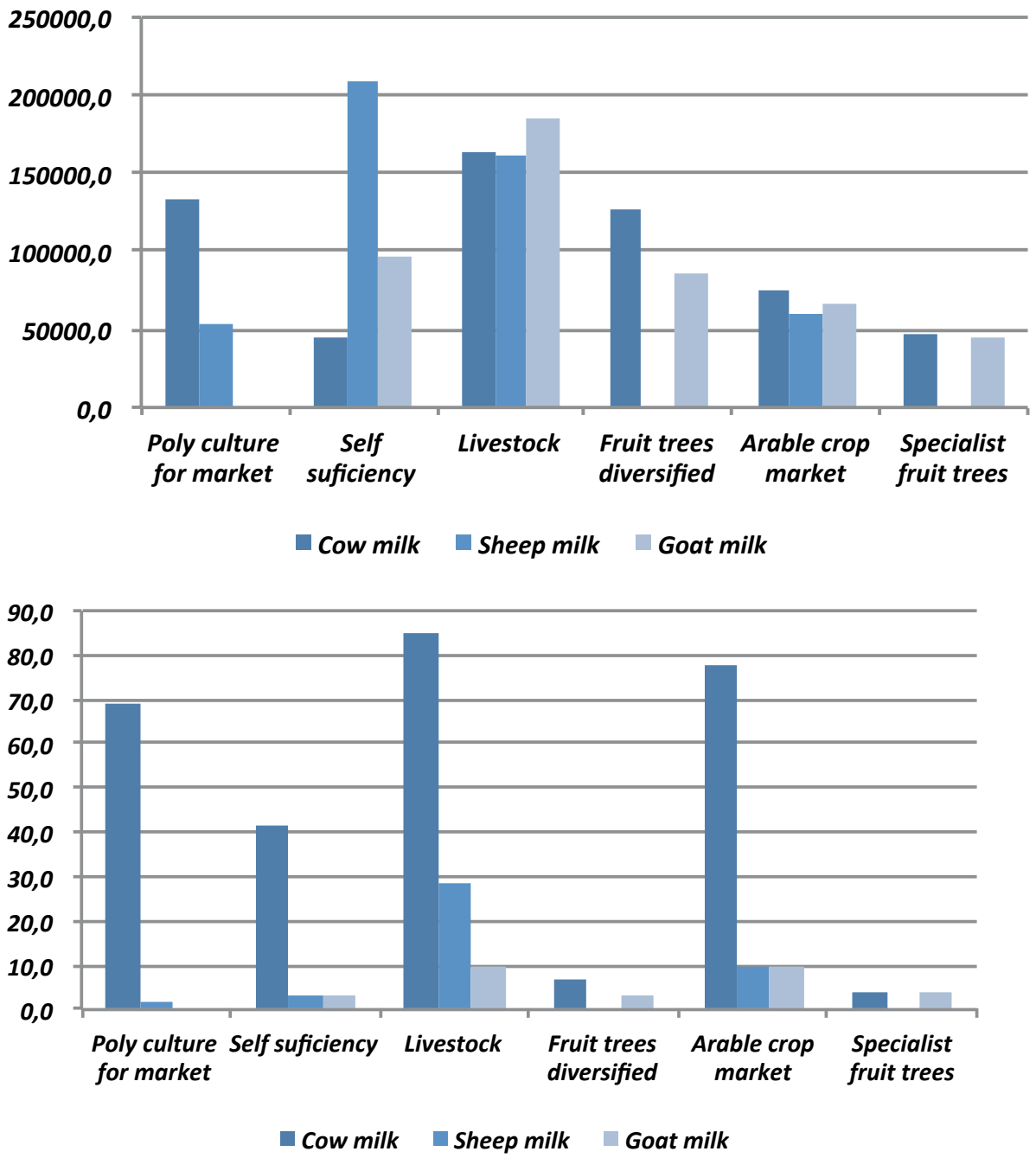


Source: calculations based on the survey.

Farms selling milk are represented in all farm types except leisure farms. Almost all farms breed milking animals (cattle, sheep and goats) and sell milk onto the market. Furthermore, most farms (with minor differences) in each farm type keep all three types of livestock—cattle, sheep and goats. The highest proportion of farms selling milk is in the self-sufficient, livestock and arable crop farm types, more than 80 % of farms altogether. The lowest proportion appears to be in the specialised fruit trees farm type.

There is an important discrepancy between the proportion of farms selling a certain type of milk and the income earned by the sales. Figure 51 presents the income from sales of each milk type (above) and the proportion of farms selling different milk types (within each farm type—below). The second graph clearly shows that the majority of farms in each farm type sell cow's milk, but the income they earn is not proportional to the amount, compared with ewe's and goat's milk. From these two graphs, we can deduct that sheep and goat breeding activities are much more intensive and market oriented than keeping cows for milk. There are several explanation for this: firstly, a significant proportion of cow's milk is used for household consumption, whereas ewe's and goat's milk is mainly sold for cheese making; secondly, cattle farming is limited to small farm structures, whereas sheep and goat flocks use communal rangelands located in hilly and mountainous areas; and, thirdly, the hill and mountain farmers in Albania are specialists in sheep and goat breeding.

Figure 51: Proportion of farms selling milk by farm type (in average value and percentage of total farms within farm types)

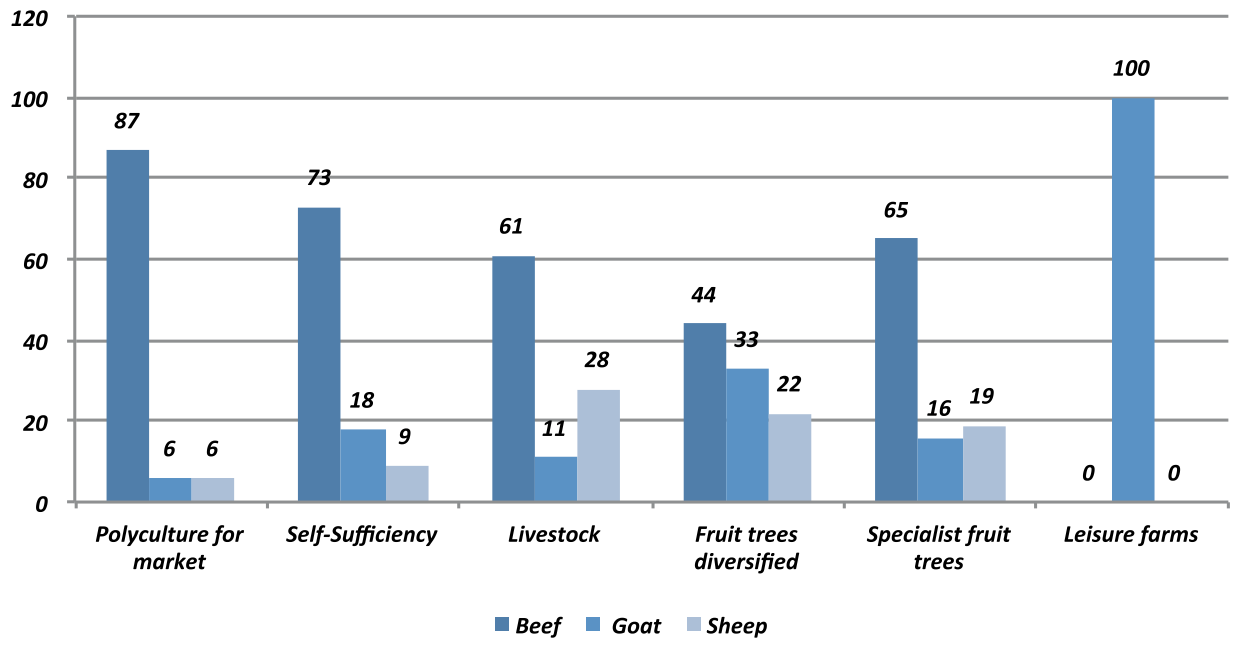


Source: calculations based on the survey.

It is clear that the main objective of animal production is not meat but milk, and therefore the proportion of sales for milk is much higher. Sheep and goat rearing is mainly for milk production, and this is very significant for the four clusters. It can be seen that the greatest quantity of milk sold is from sheep (70–89 %) and goats (50–93 %).

Figure 52 below presents the number of farms selling meat within each cluster expressed as a percentage. The poly-culture for market type has the highest percentage of farms that breed animals for meat purposes. However, farms breeding cattle for meat are the highest percentage within each farm type, varying from 44 % to 87 %. On the other hand, 100 % of leisure farms produce and sell goat meat. What distinguishes the diversified meat production farms is the presence of farms within each classification that breed cattle, sheep and goats for meat. Arable crops for market farms are not shown in the graph because there are no farms in this farm type that sell meat on the market. So, they produce meat for home consumption.

Figure 52: Meat sold by farm type (%)

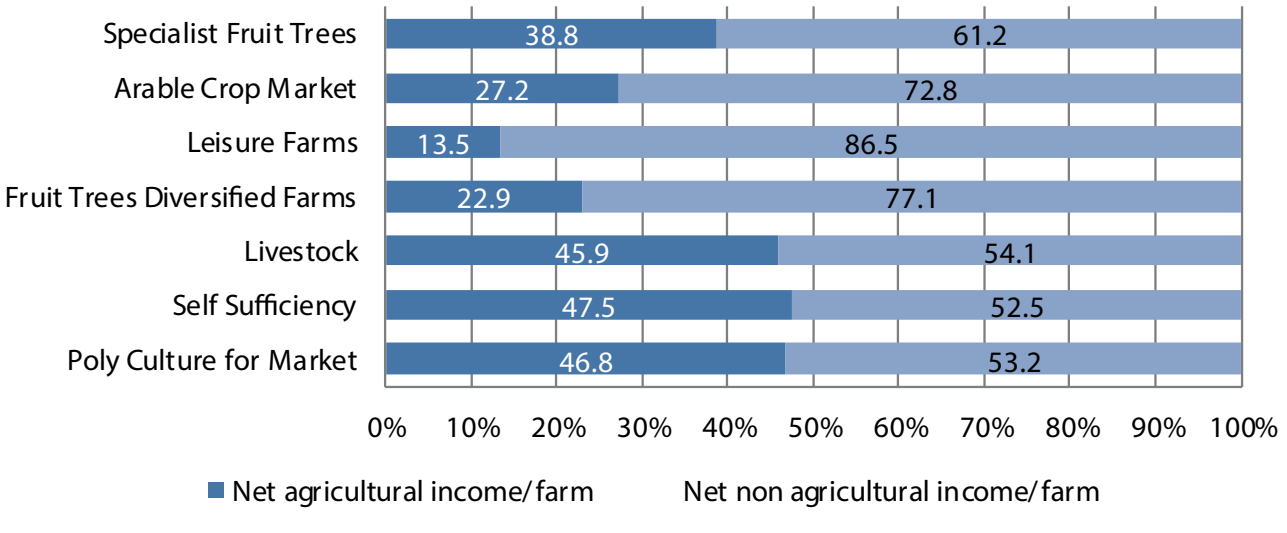


Source: calculations based on the survey.

8.3.10 Income and costs

The income structure in Berat region shows that off-farm income contributes a substantial proportion of THI, as is the case with the other two regions in this study (Figure 53). For all farm types, the off-farm income is higher than the farm income. Therefore, farming activities (agricultural and livestock) and their contribution to THI comes second. The first three farm types, poly-culture for market, self-sufficient and livestock farms have almost equal proportions of farm and off-farm income in terms of THI. These three types of farm rely more than the other types on market-based agricultural activities. For the next four types of farm, the off-farm income is almost twice that of farm income for specialised fruit tree farms and is more than five times farm income for leisure farms (86.5 % vs 13.5 %). The main off-farm activities involve construction, trade, pensions and remittances from abroad, the same as in the other regions in this study.

Figure 53: Farm net income and off-farm net income as a proportion of total household income



Source: calculations based on the survey.

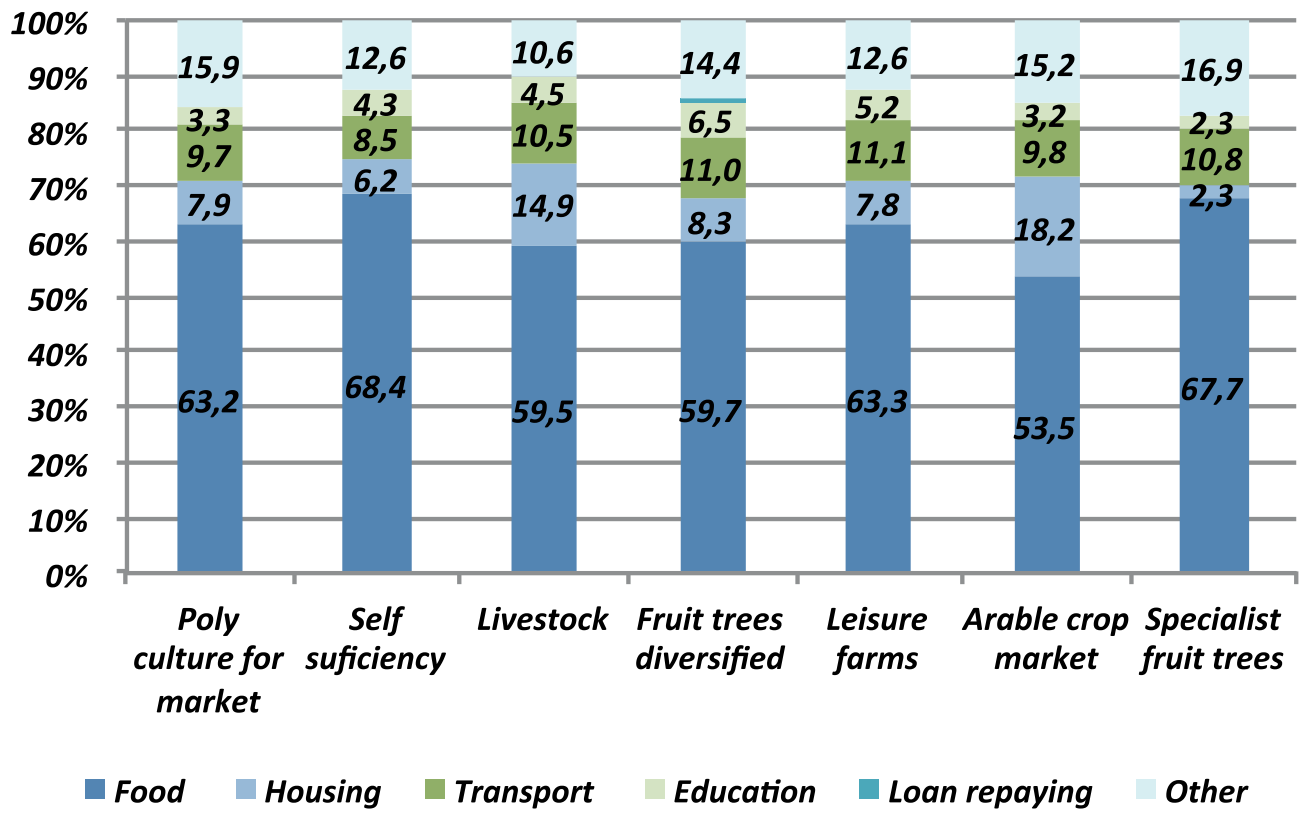
Expenditure on seeds accounts for the main proportion of total expenditure of the family farm in Berat region, with the exception of specialised fruit tree farms. Meanwhile, the poly-culture for market farm group has the highest expenditure on seeds, followed by the fruit trees diversified group. These higher expenditures on seeds are a consequence of the diversified production structure of those farms. The remaining farm types spend less on seeds than the previous farm types. Expenditure on nitrogen fertilisers appear to be in second place in terms of nominal values for all farm types except for the specialised fruit trees group, where these expenditures are in first place. Expenditure on ploughing is less than expenditure on seed and nitrogen fertilisers for all farm types in the Berat region. Considering all farm types, the differences in expenditure on nitrogen fertiliser and ploughing are minor, whereas these differences are bigger when it comes to expenditure on seed. So, the basic and necessary agricultural practices (ploughing and fertilisers) have almost equal costs, whereas the prices of seed explains its higher cost.

The level of farm inputs is undoubtedly connected with having the necessary resources to finance them. To investigate this, information was requested on four potential sources of finance (from own (personal) sources, bank loans, micro-finance funding and from other sources). The results of the study showed that own sources represent over 95 %, while other sources make a minor contribution to financing farm expenditure. The absence of credit institutions (banks and micro-credit institutions) to finance farming systems in the Berat region shows the great difficulties that farming families are faced with when trying to finance new initiatives. The fact that, for all farm types, off-farm activity is the main source of THI might explain the reluctance of farming families to approach the credit institutions. Besides this, the low level of market integration may make the farming system in this region unattractive to credit institutions.

Self-financing possibilities are very limited, taking into consideration the structure of household expenditure, and are shown in Figure 54.

As can be seen, almost 65 % of family income goes on household spending. Considering that personal or self-financing sources represent over 95 % of all expenses, an improvement in agricultural performance will need an increase in agricultural expenditure that cannot be provided only by the household.

Figure 54: The structure of family expenditure



Source: calculations based on the survey.

8.4 Analysis of farm economic performance: Berat region

The income structure in Berat region si quite inequal. Rural household make up from agricultural activates from 16 up to 90% of their incomes (Table 21). It can be identified clearly two group of farm types those: i) farms type with a clear agricultural objective (poly culture for market, self-sufficient, livestock, specialist fruit trees), and ii) farms with diversified activities where agriculture is one of the activities and not necessarily the most important one.

Farms in Berat region continue to be over-populated in terms of both household members and workforce. The main characteristic of the farms in this region is the domination of family labour. About 90 % of the farms satisfy their labour needs from family members. The small farm size offers little opportunity for full-time employment.

8.4.1 Farm productivity

Farm net income per annual work unit

As can be seen in Figure 55, the clusters of poly-culture for market, fruit trees diversified, arable crops for market and livestock farms are better performing in terms of FNI/AWU than the other clusters. Labour productivity is higher in these clusters, because it is known that one of the advantages of production diversification and livestock production is the full usage of labour. As can be seen, in Albanian agriculture, farms that are diversified are better performing than specialised farms in terms of FNI/AWU.

Labour productivity is lower in self-sufficient and specialised clusters. Regarding self-sufficient farms, as a result of their main purpose of producing mainly for home consumption, they can justify their poor performance in terms of FNI/AWU. This is because these farms are not much interested in being economically effective in terms of FNI/AWU but more so in providing food for the family household.

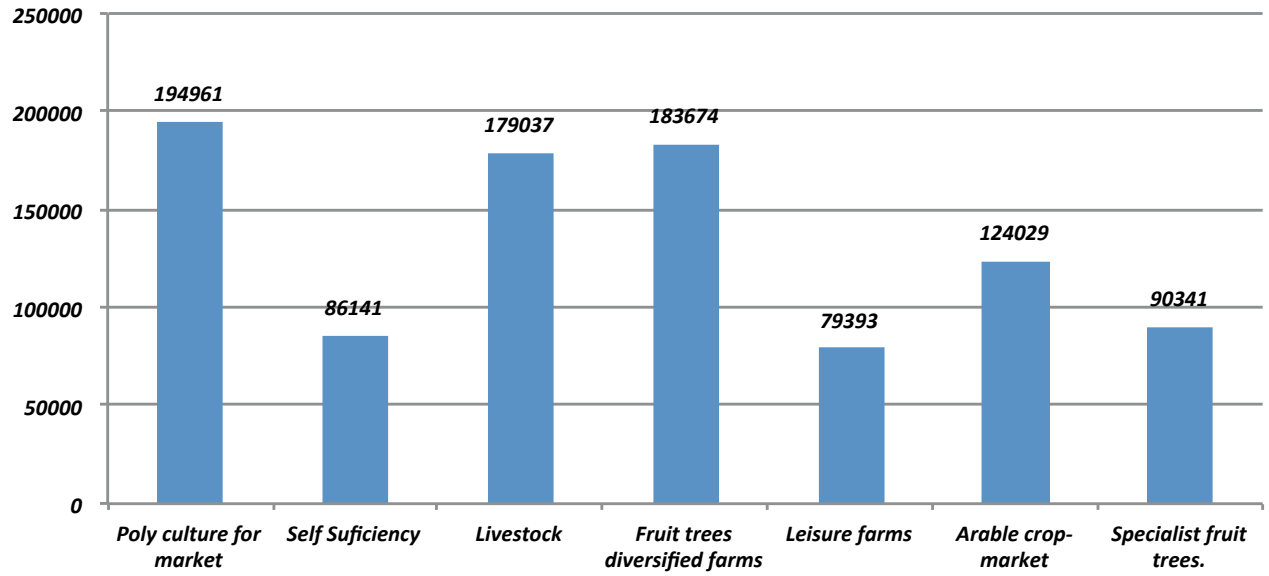
Concerning specialised farms, such as specialist fruit trees, with regard to investment they are not yet effective because of the production cycle of fruit trees. A single activity should be more profitable to justify unused labour and production resources during certain periods of the year.

Table 21: Income structure by farm type in Berat region (ALL)

Farm type	Net income per farm (FNI)	Off farm income per farm	Household net income	% of farm income
1	2	3	4 = 2 + 3	5 = 2/4
Poly-culture for market	777 370	105 066	882 436	88
Self-sufficient	244 476	25 928	270 404	90
Livestock	599 111	107 642	706 753	85
Fruit trees diversified	406 981	963 210	1 370 191	30
Leisure	217 858	1 181 738	1 399 596	16
Arable crops for market	543 797	910 967	1 454 764	37
Specialist fruit trees	214 128	123 700	337 828	63

Source: calculations based on the survey.

Figure 55: Farm net income per annual work unit in (ALL)



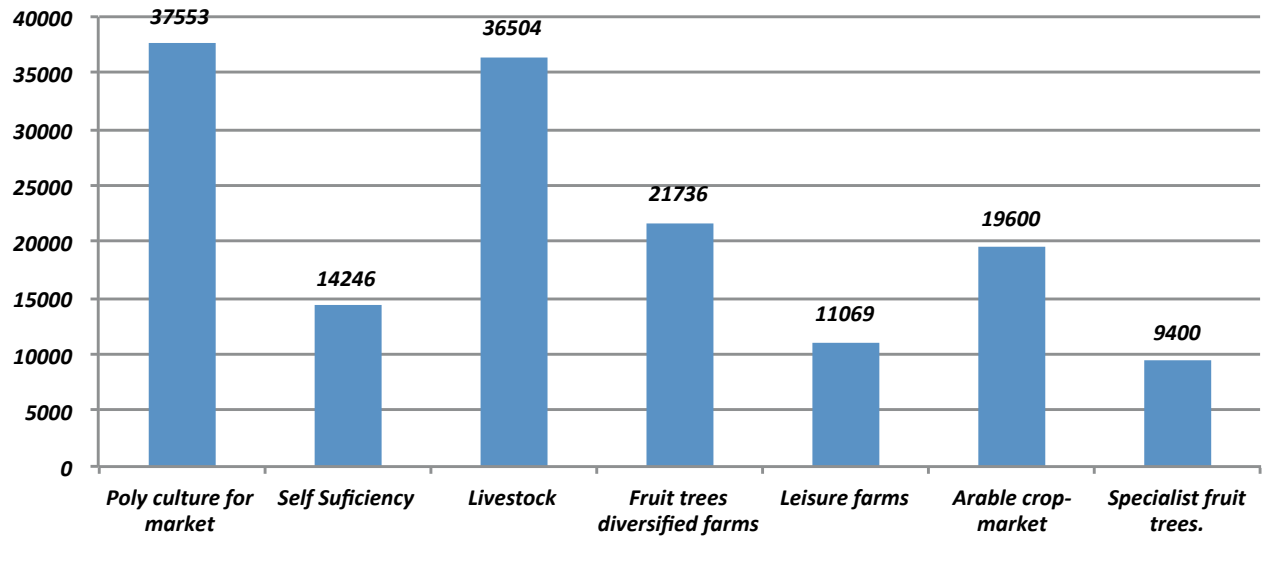
Source: calculations based on the survey.

Farm net income per utilised agricultural area

Effective land use is higher on diversified farms and livestock farms (Figure 56). This is because vegetables and livestock products have high added value. Land productivity is lower on subsistence farms, leisure farms and specialised fruit farms. Poly-culture for market and livestock farms will need financial support from government in the future in Berat region.

It is a known fact that on part-time farms (leisure farms), farm income does not constitute the main source of income for the family. The low level of income on specialised fruit farms has is because in new orchards production is low in the early years of their economic life.

Figure 56: Farm net income per utilised agricultural area (ALL/ha.)



Source: calculations based on the survey.

8.4.2 Farm viability

Farm net income/annual work unit (AWU) compared with minimum wage: AWU repayment

The effectiveness of the agricultural labour force in Berat region is very low. Work in agriculture is paid less than the minimum wage for all farm types (Figure 57).

Only for poly-culture for market farms is labour paid nearly 94 % of the minimum wage. On livestock and arable crops for market farms, work is paid at 75 % of the minimum wage. The other farm types pay agricultural work at from half to two-thirds of the minimum wage. The limited repayment for labour, as well as the abundant workforce in the rural areas, lead us to the conclusion that the rural areas in Berat will be an important source of migration of the workforce to urban areas in the future.

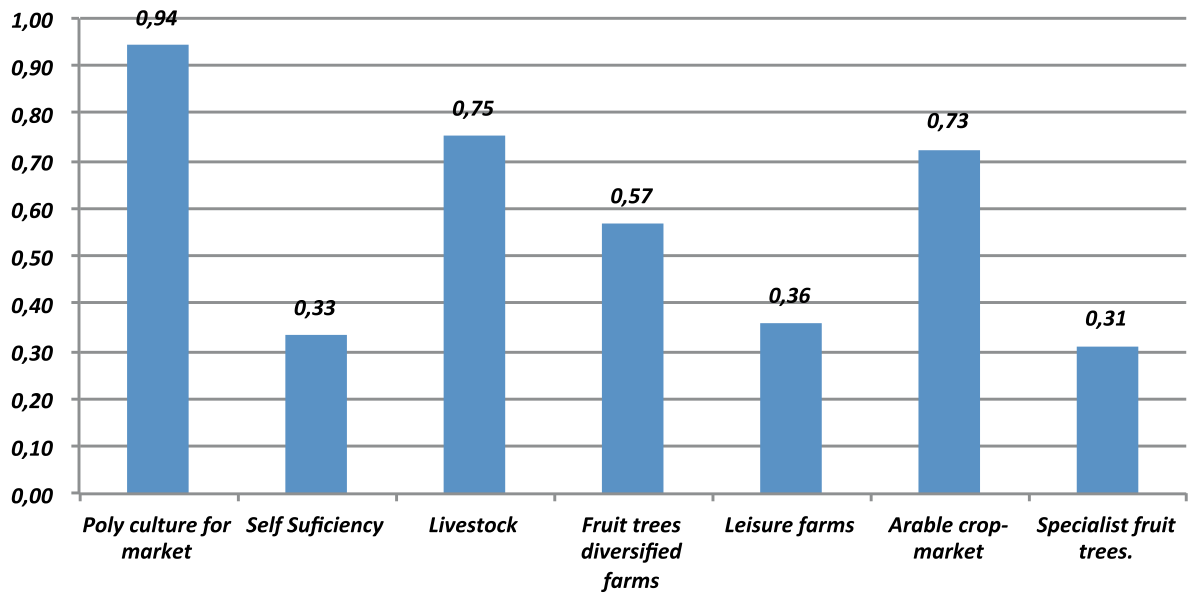
Farm net income/total household income per household member and extreme poverty

Agricultural activity in the region of Berat manages to provide incomes above the extreme poverty threshold. The only exception is the specialist fruit tree farms, where the income level is low owing to the low productivity of fruit trees in the first years after planting. Analysis of the extreme poverty threshold allows us to draw similar conclusions as those drawn for the region of Elbasan. Firstly, the farm types that try to maintain and develop agricultural activity on farms are among the poorest in terms of THI by household member. It seems that the less the farm type contributes to agricultural development, the richer the household members are (leisure farms). Secondly, the high level of self-funding of agricultural investments has a direct impact on the household poverty level (specialist fruit trees). Thirdly, it seems that the poly-culture farms perform better than those trying to specialise in one crop.

FNI/THI per household member in complete (full) poverty

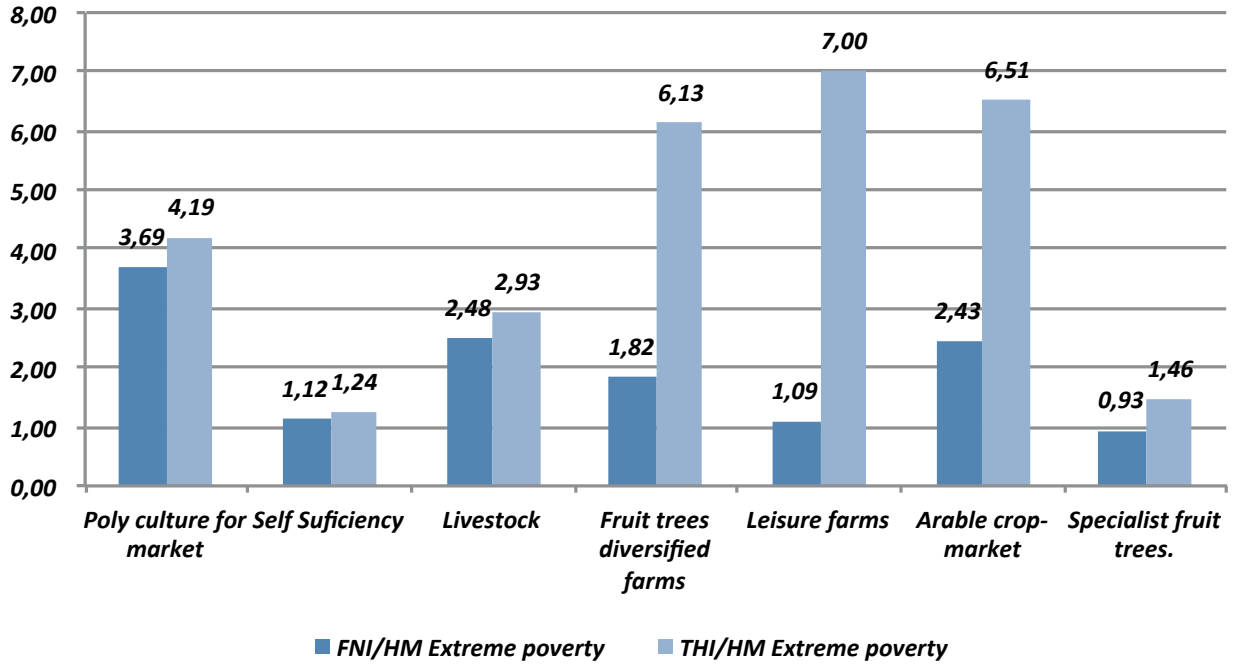
Regarding the standard of living of household members, in terms of complete poverty, with regard to the FNI, we can say that household members of farm types such as poly-culture for market, livestock, fruit trees and arable crops for market are living above the complete poverty level. In contrast, the household members of farm types such as self-sufficient, leisure and specialised fruit trees are living below the complete poverty level.

Figure 57: Annual work unit repayment



Source: calculations based on the survey.

Figure 58: Farm net income/total household income per household member and extreme poverty



Source: calculations based on the survey.

8.5 Conclusions

The economic performance of agricultural units in Berat region, in terms of productivity and viability, still does not justify their importance. Hence, as has been argued, some farms were repaying the workforce but not making most efficient use of their agricultural land. For example, clusters such as leisure and specialised fruit trees have a lower agricultural viability indicator (extreme and complete poverty) compared with other clusters. Furthermore, considering the viability of agricultural units in Berat region, except for the poly-culture for market and livestock clusters, all other clusters do not make a significant contribution to the standard of living of the household members. Therefore, when FNI per household member is analysed in terms of extreme poverty, its role is not significant in all clusters, with the exception of the poly-culture and livestock clusters because the coefficients are close to 1 (the line of extreme poverty). Considering the role of THI in terms of extreme poverty, all farm clusters make a significant contribution to the standard of living of household members. This means that the THI remains a very important source of income for farm household members in Berat region. Furthermore, even in terms of complete poverty, the role of THI remains significant for farm household members in Berat region.

Poly-culture in agriculture can have several positive effects, but it is not likely to be a long-term strategy for agricultural development due to the low level of specialisation of this strategy. The development of livestock, particularly cattle and small ruminants, should be considered and evaluated as a long-term strategy for agriculture development in Berat region.

9. Lezhë region: agricultural characteristics

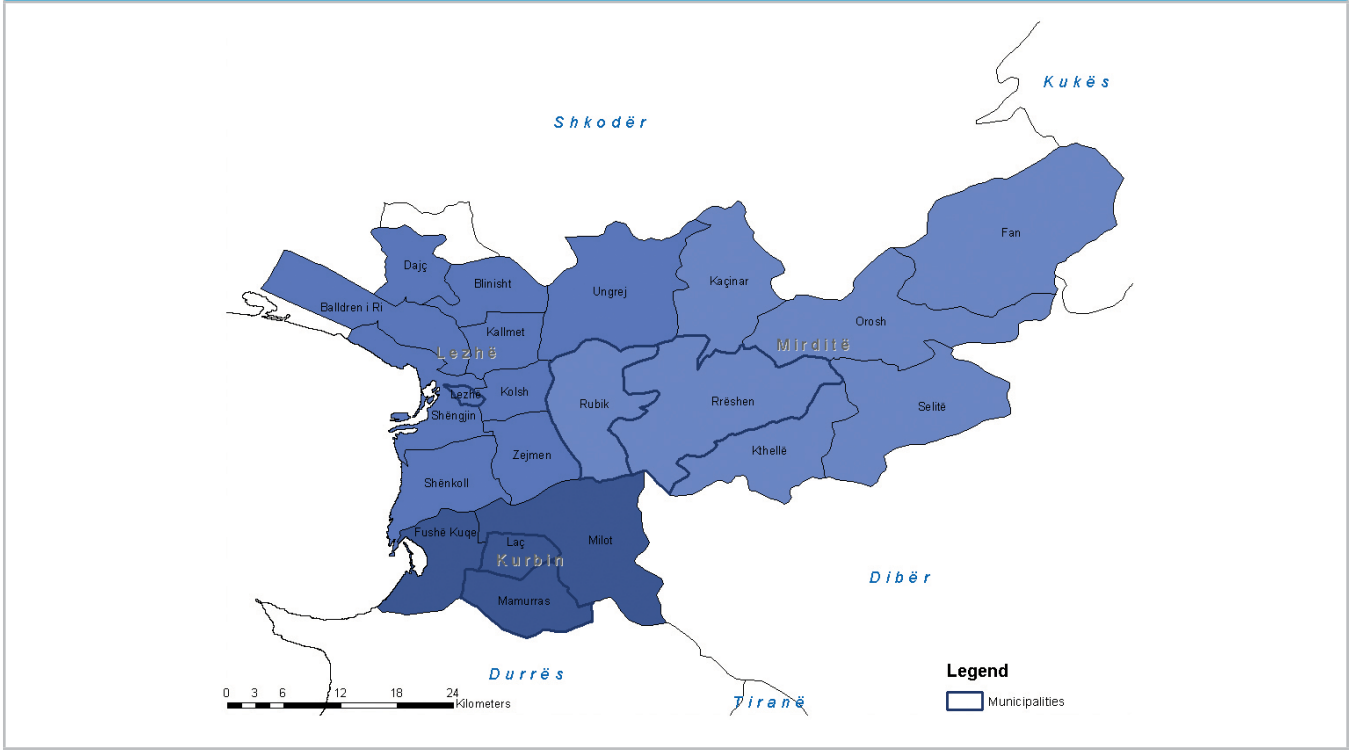
9.1 General information about the region

The region of Lezhë is composed of the districts of Lezhë, Mirditë and Kurbin, five municipalities and 16 communes (170 villages) (Figure 59). The total area of the region is 1 620 km^2. Total population is 134 027 inhabitants, with an urban population of 72 131 (53.8 %) inhabitants and a rural population is of 61 896 (46.2 %) inhabitants. The average household is 4.13 persons. The population density is 139.94 inhabitants/km^2 (http://www.qarkulezhe.gov.al/index.php)

The region of Lezhë is bordered by the region of Shkodër in the north, Kukës in the east, Dibra in the south-east and partly in the east and Durrësi in the south. Lezhë region is also bordered in the west by the Adriatic sea. The districts of the region have good access to the main national roads of the country, while the rural areas, especially the mountainous ones, have limited access to the road infrastructure.

Lezhë district is the most important administrative unit (economically and geographically) of the region and serves as the administrative centre of the region. It has an area of 479 km^2. The population is 77 184 and represents approximately 48.6 % of the region's population. Lezhë district has one municipality (Lezhë) and nine communes (Balldre, Blinisht, Dajç, Kallmet, Kolsh, Shëngjin, Shënkoll, Ungrej and Zejmen)(http://www.qarkulezhe.gov.al/index.ph) Mirditë district consists of two municipalities (municipality of Rreshen and Rubik) and five communes (Fan, Kaçinar, Kthellë, Oros and Selitë). It has a population of 26 668 and an area of 867 km^2, thus representing approximately 53.5 % of the total area of the county. Kurbin district consists of two municipalities (Laç and Mamurras) and two communes (Milot and Fushekuq). The district population is 54 977 and has an area of 273 km^2. (http://www.qarkulezhe.gov.al/index.php)

Figure 59: Map of Lezhë region



Source authors' compilation.

9.2 Natural resources and geography

9.2.1 Land resources

The area of agricultural land is Lezhë region is 35 152 ha. The area of forest in this region is among the largest in the country with an area of 2 510 ha, while that of pastures and meadows is 34 258 ha. The irrigated area is 5 382 ha, or 55 % of irrigation feasibility, and only 30 % of the potential irrigated area (http://www.qarkulezhe.gov.al/index.php)

9.2.2 Natural resources

Lezhë region is rich in natural and water resources. It is traversed by some of the country's main rivers such as the Drin, Gjadri, Fan and Urakë. There are throughout the territory about 15 reservoirs, representing a very good water supply for irrigation purposes.

River valleys that cross the region create good opportunities for the development of agriculture and commercial areas along their banks.

As highlighted above, the region has a significant coastline bordering the Adriatic sea, thus creating opportunities for the development of aquaculture, exploitation of water resources and tourism activities, as well as for the rapid development of the business and tourism sector in general.

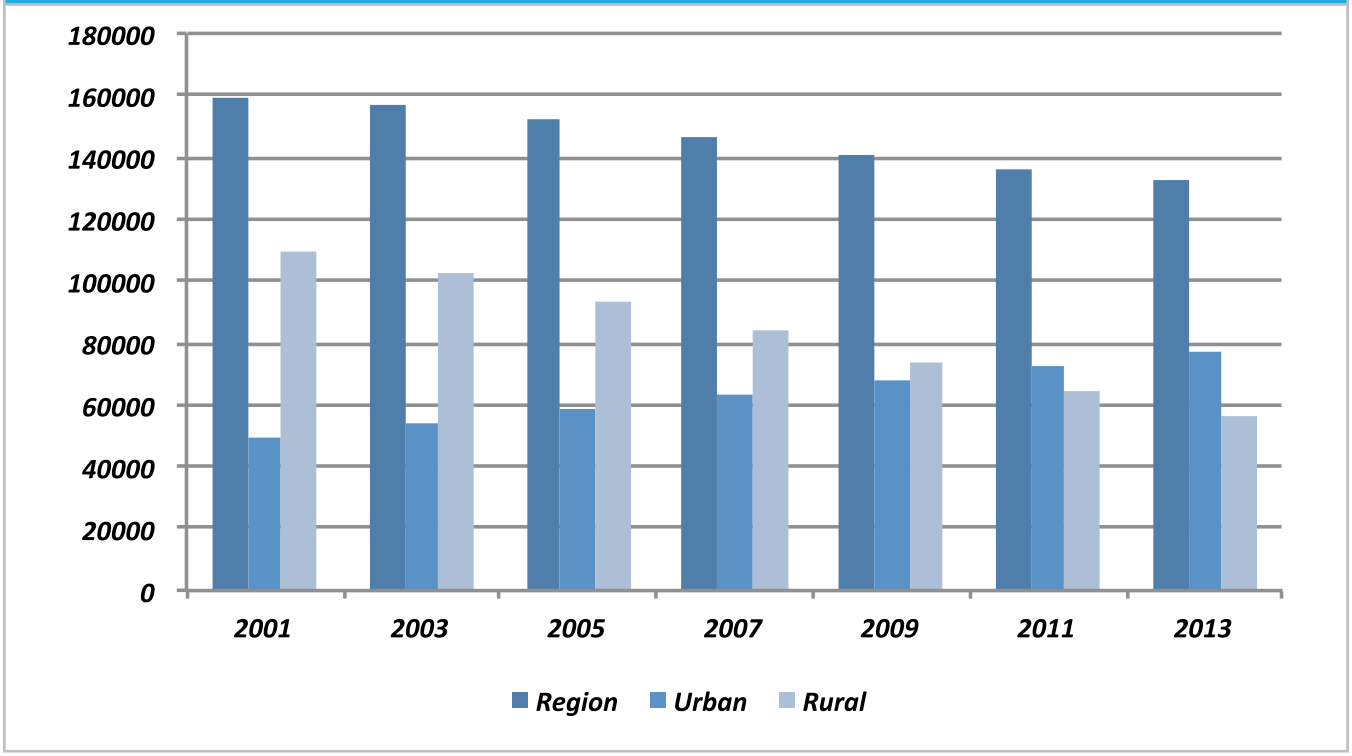
9.3 Population

Relatively low accessibility, moderate urbanisation, location of settlements at high altitudes and on steep slopes, relatively high fragmentation of settlements, poor access to services and low environmental pollution are some of the major characteristics of Lezhë region. It is dominated by moderate economic development, and has relatively large structural problems. It is characterised by weak overall economic performance and a stable population (Figure 60).

The population of the region has decreased and the proportion of the urban population has increased over the last decade in Lezhë region. This proportion was 31 % in 2001, showing that the population was very concentrated in rural areas, and had increased up to 57 % by 2013.

These figures show a considerable demographic shift towards urban areas and developed markets and greater employment opportunities and changes in lifestyle. The statistics also show a decline in the total number of region's population over the last 10 years by about 16 %. These indicators make this region one of the most exposed to demographic change on a national level.

Figure 60: Population trend: years 2001–2013



Source: (INSTAT 2014).

9.4 Socio-economic situation

9.4.1 Economic development

GDP per capita for the region of Lezhë is about ALL 269 567, which is 25 % lower than the national average. From the economic development point of view, there is a growing trend towards more and more engagement in the tourism sector. This is seen mainly in Lezhë and Kurbin districts. In the agriculture sector there are nearly 27 607 farms, while the number of farm families is 55 947 (more than two families per farm). The structure of farms by region is presented in Figure 61.

The number of farms in the region of Lezhë is noticeably higher than in the other two regions, regardless of the fact that Mirditë district is almost twice as big as Lezhë district. The number of families living on the same farm is higher than in the other regions (2.3 families per farm). This indicator is significantly higher than the than the national average.

9.5 Analysis of the regional farm typology

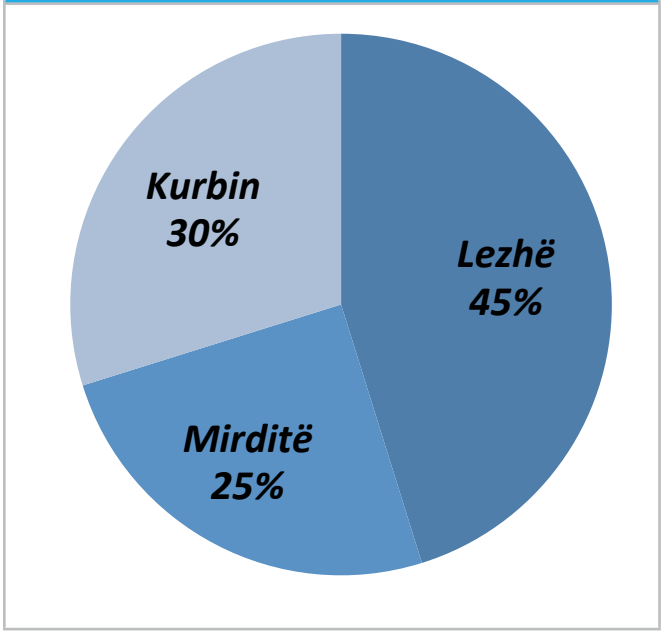
The whole analysis of Lezhë farm typology is based on the information gathered by the survey run in 2013. Table 22 below presents the number of farms surveyed per district.

The farm typology of Lezhë region highlights the main aspects of the farm according to the farm types identified. A detailed description of the family structure, the farm structure, crop production, livestock production and income and cost of production is presented below. The indicator family structure presents average number of people living on the farm, average number of people working on the farm, those who are working in off-farm activities and their levels of education.

Farm structure is one of the main indicators of farming systems analysis in the region of Lezhë. The analysis concerns land structure, the average number of plots comprising a farm, and the average irrigated land area, as well as the characteristics of agricultural markets in the region. Crop production details – arable crops, vegetables, greenhouses and fruit trees – their main aspects and characteristics are also highlighted. The same applied to livestock production: the structure of livestock farming – cattle, sheep, pig and goat production—and their main characteristics comprise the main body of this section.

The last part of the analysis deals with income and the cost of farming activities. A number of indicators are discussed such as average household income, average FNI, and percentage of farming activities (crop and livestock production) in the income structure. The costs of production related to agricultural activities and their main aspects are also measured and discussed. Finally, the productivity of production factors is calculated. The calculations are done with respect to each farm cluster/typology

Figure 61: Proportion of farms in each region



Source: (MoAFCP 2013).

Table 22: Districts and number of questionnaires returned

Districts	Returned questionnaires per region
Lezhë	120
Kurbin	75
Mirditë	60
Total	255

Source: calculations based on the survey.

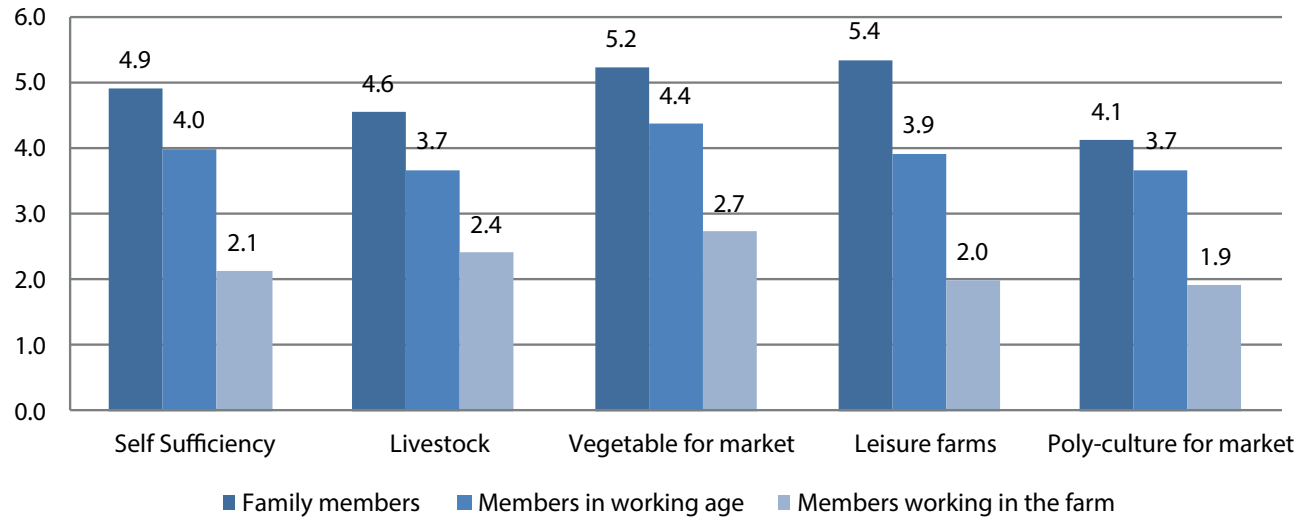
9.5.1 Family structure

Family structure in Lezhë region appears to be similar among clusters, except for the last one (poly-culture for market) in terms of the number of people living on the farm. When it comes to the number of people of working age, the overall picture varies from a minimum of 3.7 on livestock farms to 4.4 on vegetable for market farms. There are minor differences among clusters in terms of members of family farms working on the farm. So, self-sufficient and leisure farms and farms producing vegetables for market have on average 2.1, 2 and 1.9 members working on the farm, respectively, with livestock and vegetables for market farms having the highest average number. In the case of Lezhë, these are the clusters typically oriented to market, thus the labour input is more intensive than that for other farm types. Indeed vegetable production and livestock production is more labour intensive compared with other farm types. The overall picture shown in Figure 62 demonstrates that the farm family is relatively highly populated but the number of people who are engaged in agricultural activities is relatively low.

The analysis of the proportion in agricultural employment shows that the differences among the farm types are limited and do not fully justify the expected differences in agricultural output/AWU. The difference in the proportion in agricultural employment between the most agricultural farm type (livestock) and the least agricultural farm type (leisure farms) is only 13 %. This means that there is not a choice between the agricultural employment and non-agricultural employment; on the contrary, agriculture offers work to those who do not have the option of finding better employment.

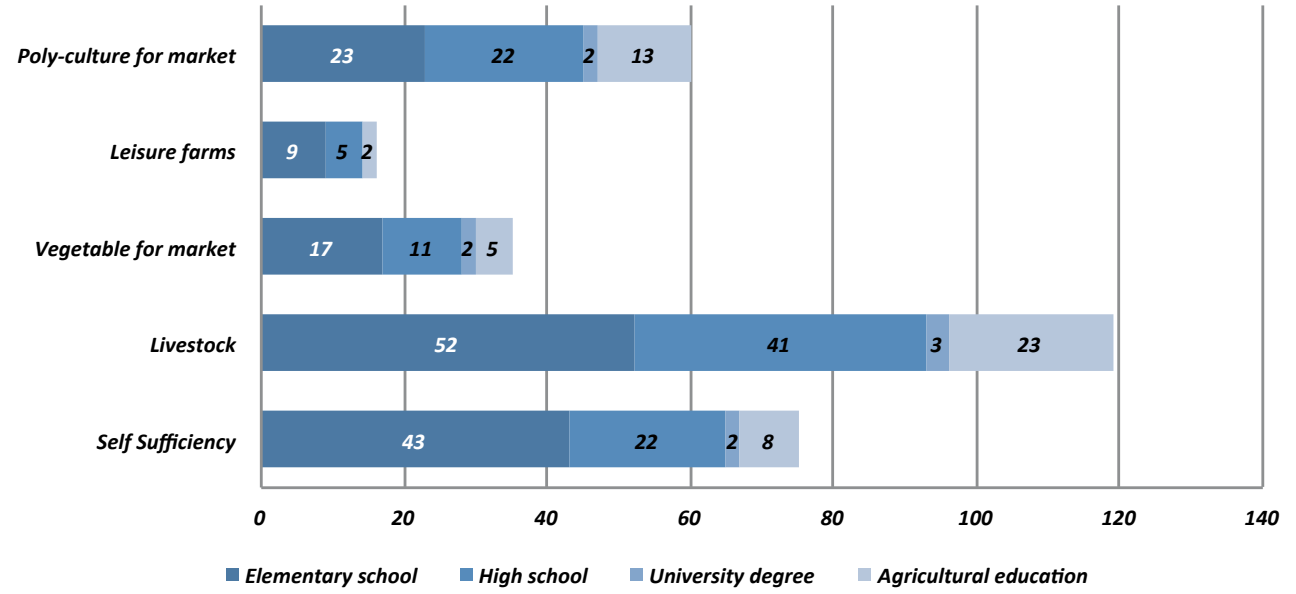
Level of education is an indicator that, when used appropriately, can explain the behaviour of the farmer (head of farm). In this study it was thought to be important to have a snapshot of the farming system regarding level of education. As it turns out, the picture looks to be almost the same as it is in the other regions. There is a predominance of farmers with elementary school education in almost all clusters (Figure 63). The livestock cluster has the highest preponderance, with 52 farms belonging to this cluster, followed by self-sufficient and poly-culture for market farms, with 43 and 23 farms, respectively. Farmers with high-school education are found more frequently in the livestock farm type followed by self-sufficient and poly-culture for market farms. Farmers with a university degree, although very low in number, are found in four clusters, with the exception of leisure farms. Regardless of level of agricultural education, again livestock farms encompass the greatest numbers of farmers.

Figure 62: Farm family structure for each cluster



Source: calculations based on the survey.

Figure 63: Number of farms and the level of education of the farmers

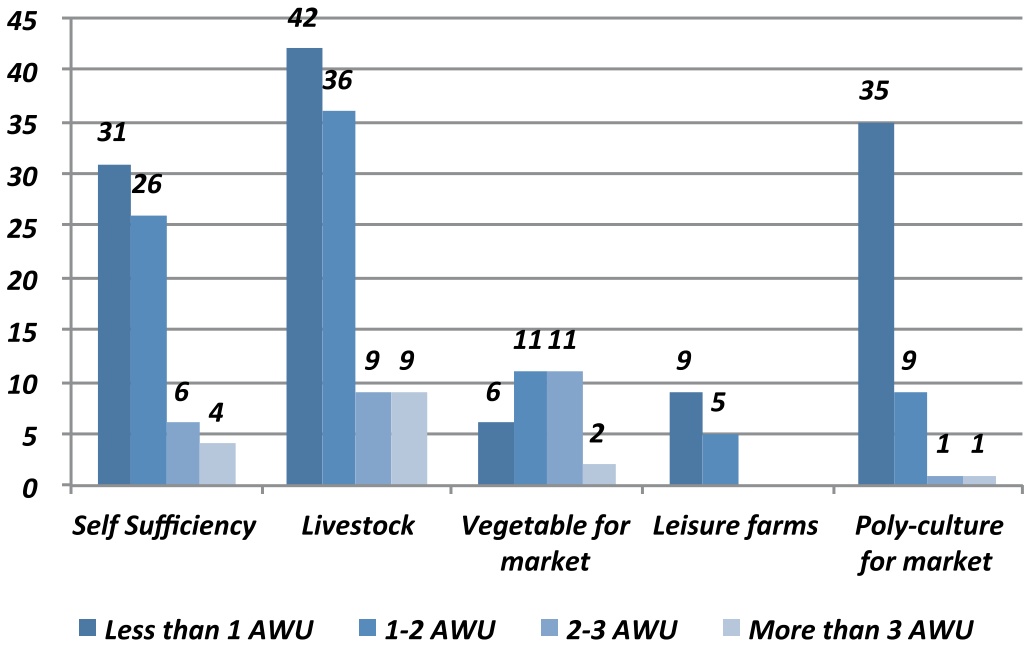


SSource: calculations based on the survey.

The analysis of the proportion of farmers with agricultural education shows that there are no differences among the farm types. In each farm type at least 15 % of the farmers have an agricultural education. The self-sufficient group has the highest proportion of farmers with agricultural education (nearly 30 %). It is difficult draw conclusions regarding whether or not an agricultural education helps the farmer to diversify and adopt risk reduction strategies. The education system in rural areas during the collective period was based mainly on vocational high schools (agriculture), and for the majority of farmers that was the only possible education.

The labour force is distributed quite unevenly among clusters in the Lezhë region (Figure 64). For three clusters, self-sufficient, livestock and poly-culture for market, most of the farms have less than the equivalent of one worker. The first two clusters have a large number of farms with two workers, whereas vegetables for market has an equal number of farms with two and three workers, and there are only a few farms with more than three workers. It seems that farmers of this farm type have selected this cropping pattern owing to the availability of a lot of labour on the farm. Among all farms types, only a few farms have more than three workers.

Figure 64: Distribution of the labour force between clusters



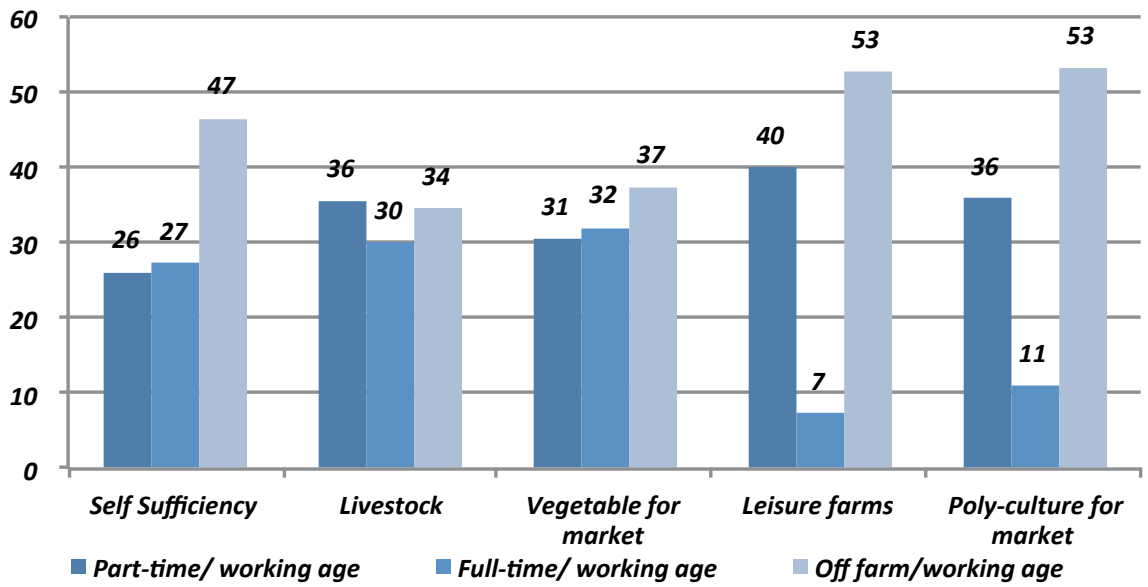
Source: calculations based on the survey.

The type of labour is another indicator that is measured at the farm level. The time spent working on the farm represents the intensity of labour usage. On the other hand, off-farm activity is again an indicator that can help us to understand the importance of farming activity versus off-farm activity. At least one-third of the farm workforce for each farm type works in off-farm activities (Figure 65). This proportion is higher for leisure and poly-culture for market farm types, where more than one household workforce out of two works outside agriculture. The figures, which show the same trend as in the other regions of the country, highlight the main conclusion that the household farming system in rural areas has to adopt a strategy of double employment and that the farm does not provide enough work for the household members. From the relatively slow process of farm consolidation and improvements in size, we can conclude that the workforce distribution between agriculture and non-farming activities will be present in rural areas in Lezhë region and in general in Albania for a long time. Full employment in agriculture is less important (from 7 % to 32 % of the farm type workforce), and it is not a surprise that farmers that sell more agricultural produce employ a bigger workforce.

9.5.2 Farm structure

Table 23 shows the data gathered from questionnaires in regard to farm structure. This section deals with land issues: the distribution of land, its quality (irrigated, not irrigated), the fragmentation level (average number of plots), and, finally, cropping structure and market access.

Figure 65: Type of labour for each cluster as a percentage of working age family members



Source: calculations based on the survey.

Table 23: Farm structure (land)

Indicators/clusters	Self-sufficient	Livestock	Vegetables for market	Leisure farms	Poly-culture for market
Average farm area (dyn)	7.5	13.1	8.7	6.1	12.1
Average irrigated area (dyn)	5.8	1.3	2.5	1.7	0.9
Average plot number	2.8	3.0	3.1	2.3	2.9
% produce sold /total production	32.36	28.35	59.59	13.94	48.49
Average rented land per farm (dyn)	0	0.1	0.3	1.3	0.7
Average greenhouse area (dyn)	0	0	0.1	0	0
Average pasture area (dyn)	0	0.1	2.1	0.7	0.1
Average distance from house (km)	1.2	1.7	1	0.7	1.6
Average distance from market (km)	9.5	8.1	14.9	11.2	10.1

Source: calculations based on the survey.

Farms belonging to the leisure farms cluster own the lowest average area of land, followed by the farms in the self-sufficiency and vegetables for market clusters. Farms in the other two clusters own nearly the same average area of land. The average irrigated area appears to be very low among all clusters, with exception of the self-sufficiency cluster, in which 77 % of area is irrigated. This again underlines the intensity of land use by farms in this cluster, as the land is utilised almost year round by a succession of different crops. These farms also have a better distribution of family labour throughout the year for the same reason: many types of crops and livestock create a stable demand for labour.

The average plot numbers represent a high level of farm fragmentation in Lezhë region, but this is true for the other regions in this study. Considering the average distance of the farm from market, and of the farm plots from the central plot (containing the house and outbuildings), the high level of fragmentation reduces the efficiency of agricultural work.

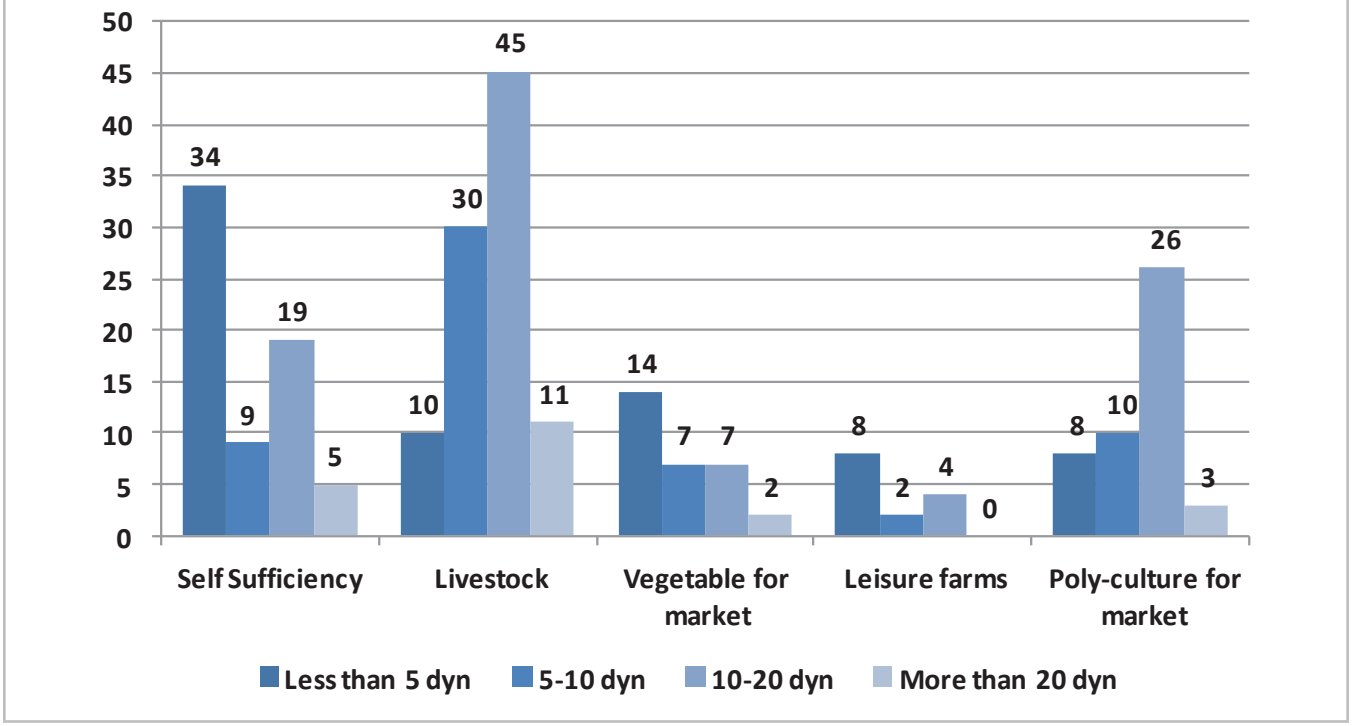
The ratio of produce sold to total production is quite an interesting indicator. Vegetables for market and poly-culture for market farm types have greater access to markets compared with the other clusters. 60 % and 48 %, respectively, of their produce is sold in markets, whereas sold produce for the other clusters is less important. It seems that market participation is not related to the distance of plots from the market. Farm types that are located far away from market sell a higher proportion of their produce than those that are located close to markets. There can be two main reasons for this: (1) all farm types are relatively close to markets and the differences among several farm types are not important; and (2) in Albania market participation is not only a function of the distance to market but also of the quality of the road infrastructure, which can be a crucial factor in market participation. Relatively low use of markets for self-sufficient farms, livestock and, particularly, leisure farms indicates only small quantities of produce available to sell owing to limited availability of inputs, higher transport cost for these farms, and a significant proportion of produce for home consumption.

Renting activity (land rented in and out) is not widespread among farms in all clusters. Leisure farms, as they are mostly focused in off-farm activities, rent out on average 1.3 dyn of land per farm. Poly-culture for market, vegetables for market and livestock farms engage in a little land renting activity in descending order, whereas self-sufficient farms do not rent land at all.

The land structure in Lezhë region shows in general the same pattern as other regions (Elbasan and Berat). The land area is distributed unequally between farms within clusters and among clusters. The livestock and poly-culture for market clusters have the highest number of farms with an area between 10 and 20 dyn (Figure 66).

Within each farm type the picture is quite diverse. Most farms in the self-sufficient cluster have less than 5 dyn, followed by farms with 10–20 dyn, then by farms with 5–10 dyn and lastly by farms with more than 20 dyn. The livestock cluster has a different pattern in this regard. Most of the farms have 10–20 dyn, and these are followed by those with 5–10 dyn, and, finally, the lowest number of farms have less than 5 and more than 20 dyn.

Figure 66: Number of farms and their land area among clusters



Source: calculations based on the survey.

The poly-culture for market cluster follows the same pattern as the livestock cluster. The difference is in the number of farms, which in the case of poly-culture farms is lower. Meanwhile, two other farm types, vegetables for market and leisure farms, have a predominance of farms with less than 5 dyn of land, fewer farms with 5–10 and 10–20 dyn of land, and only few of them (in the case of vegetables for market) with more than 20 dyn. In conclusion, land distribution among clusters and within clusters is quite different, and as consequence it is difficult to draw patterns among farm types.

9.5.3 Crop production

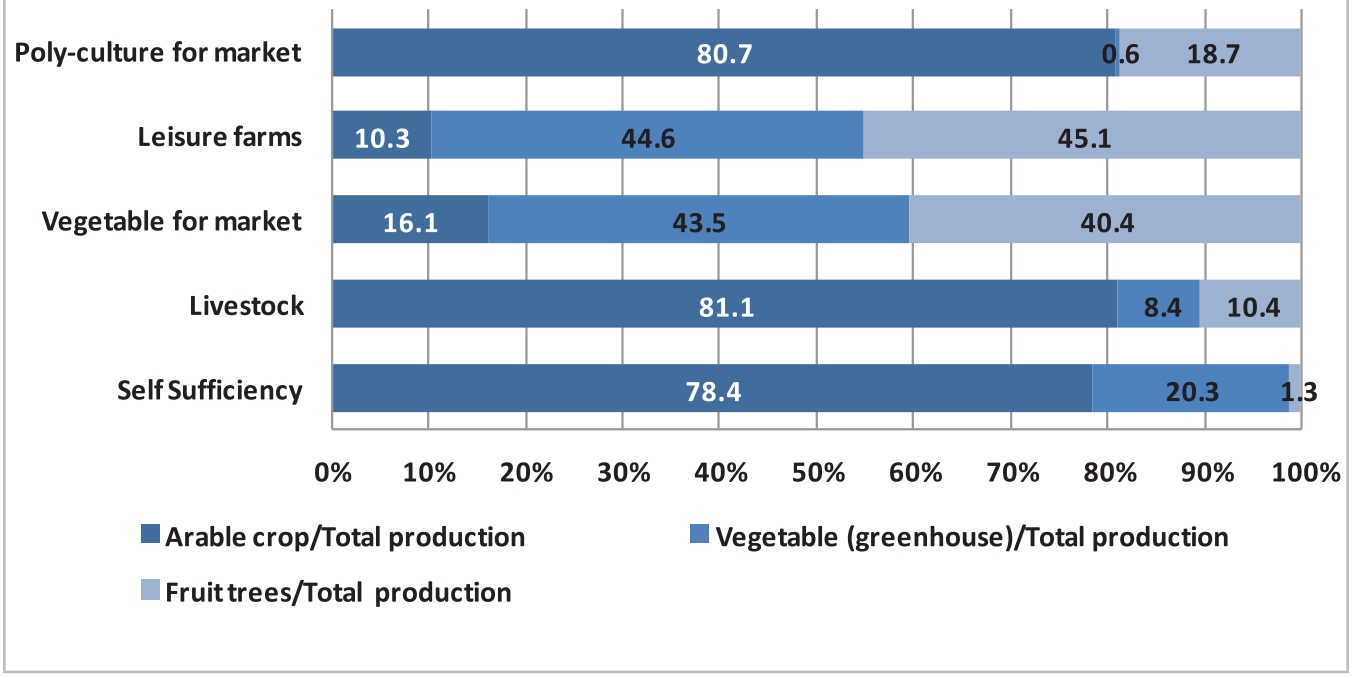
The data shown in Figure 67 indicate that in the poly-culture, livestock and self-sufficient clusters arable crop production predominates with, 80.7 %, 81.1 % and 78.4 %, respectively. In the two other farm types, leisure and vegetables for market, the proportion of arable crops is quite low, at 10.3 % for leisure farms and 16.1 % for farms producing vegetables for market. In the poly-culture cluster vegetable production is very low, accounting for only 0.6 %.

The structure of agricultural production reflects the regionalisation of production before 1990. Lezha region was mainly focused on arable crop activities and other crop production came in second place. Indeed, even livestock husbandry takes second place in terms of its proportion of overall value of agricultural production, despite the fact that hilly terrain favours this activity. Arable crop production as a proportion of the total value of agricultural production (including livestock) accounts for around 40 % at its lowest value (leisure farm type) up to 88 % at its highest value (livestock farm type).

9.5.4 Livestock production

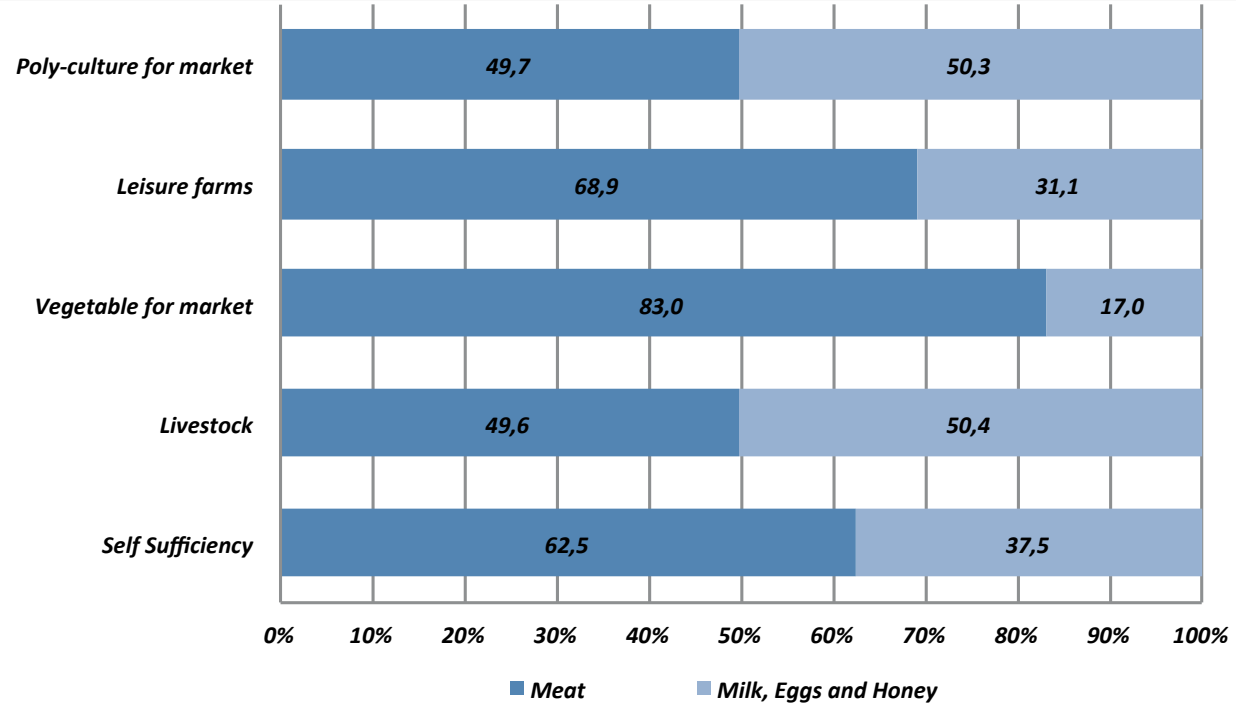
Regarding the value of livestock production, in most clusters in Lezhë region, the greatest part is represented by meat production (Figure 68). In the poly-culture for market farm type, milk, honey and eggs account for the largest proportion (50.3 %), while meat accounts for 49.7 % of the value of livestock production. The livestock farm type shows nearly the same pattern of contribution in value between meat, on the one hand, and milk, eggs and honey, on the other. In the vegetables for market cluster, meat production (83 %) predominates over milk, eggs and honey. A similar ratio (whereby the meat proportion is larger) is found in livestock and self-sufficient farm types.

Figure 67: Crop production by cluster as a percentage of total agricultural production



Source: calculations based on the survey.

Figure 68: The structure of livestock production (as a percentage of total livestock production)

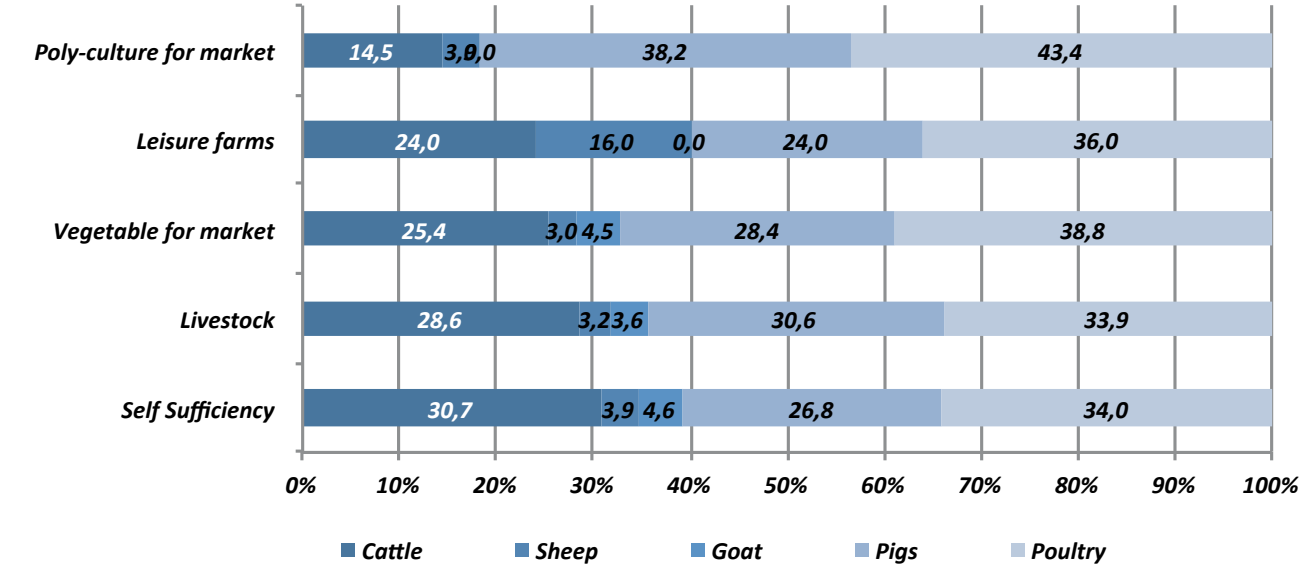


Source: calculations based on the survey.

Poultry accounts for the largest proportion of livestock production, for all clusters in Lezhë region: 43.4 % poultry in poly-culture for market farms, 36 % in leisure farms, 38.8 % in farms producing vegetables for market, 33.9 % in livestock farms and 34 % in self-sufficient farms (Figure 69).

Goats and sheep make the smallest contribution to livestock production in Lezhë region. On poly-culture for market and leisure farms, goats are not raised at all, while on vegetables for market, livestock and self-sufficient farms, they make a very small contribution: 4.5 %, 3.6 % and 4.6 %, respectively.

Figure 69: Livestock production structure (percentage of farms within farm type)



Source: calculations based on the survey.

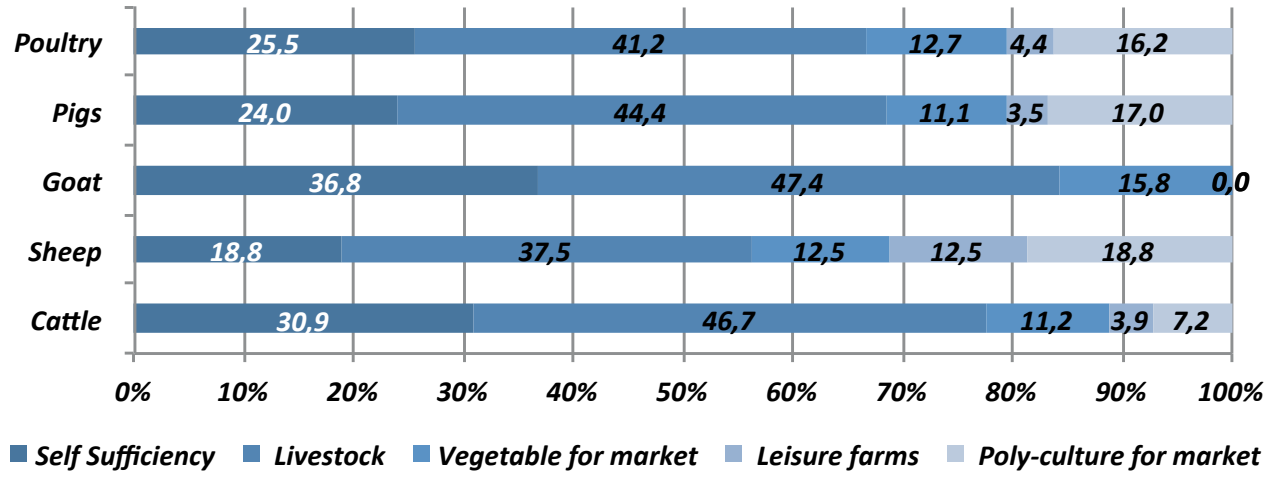
The predominance of farms raising pigs over sheep and goat farms among all clusters is linked to the traditional consumption of pork in this region. The number of pig farms is nearly the same as those raising cattle among all clusters. Regarding pig breeding, the poly-culture for market cluster has the highest percentage of farms compared with the other clusters.

From Figure 70 we can generate some interesting information on how different types of livestock production are divided between the clusters in Lezhë region. Poultry is more evident in the livestock cluster, with 41.2 % of the total poultry production, followed by the self-sufficient cluster with 25.5 %. It is interesting that the livestock cluster is the leading cluster in terms of all livestock production, accounting for 41.2 % of poultry, 44.4 % of pigs, 47.4 of goats, 37.5 % of sheep and 46.7 % of cattle. On the contrary, leisure farm are the least represented cluster in terms of livestock production, with 4.4 % of poultry, 3.5 % of pigs, 12 5 % of sheep, 11.2 % of cattle and no goat production at all.

9.5.5 Incomes and costs

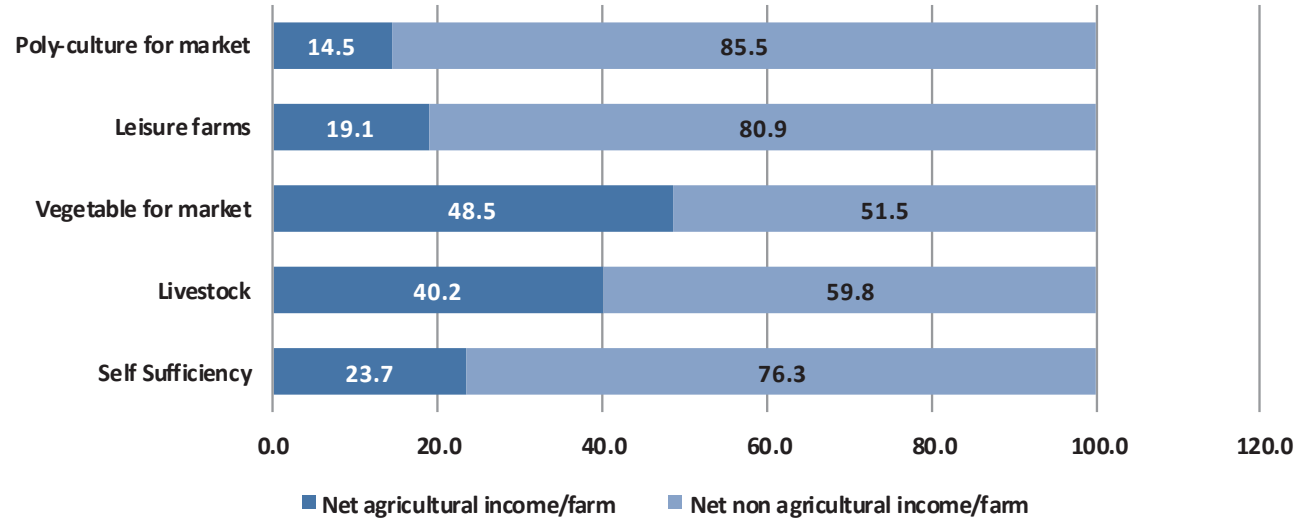
The income structure in Lezhë region shows predominance of off-farm income in the THI (Figure 71). For all farm types, off-farm income is greater than the farm income. This means that farming activities and their contribution to the financial means of the farmers are minor, except for the vegetables for market (where it is almost balanced at 48.5 % and 51.5 %), and livestock types where the difference between the two types of income is lower than for the other types of farms (40.2 % and 59.8 %). These two types of farms rely more than the others on market-based agricultural activities. Using a methodology based on existing data, the ratio of off-farm activity to THI is somewhat lower than the real data demonstrate. This ratio was around 82 % for leisure farms and 76 % for poly-culture for market farms, and much lower for the other types, declining to 2.22 % in the vegetables for market type of farms. The real situation shows about the same picture for leisure farms and a somewhat different picture for poly-culture for market farms and the rest of the farm types in this regard. The main off-farm sources of income are construction, trade, pensions and remittances from abroad. The last one accounts for a significant amount of off-farm income.

Figure 70: Livestock production structure (percentage of farms among clusters)



Source: calculations based on the survey.

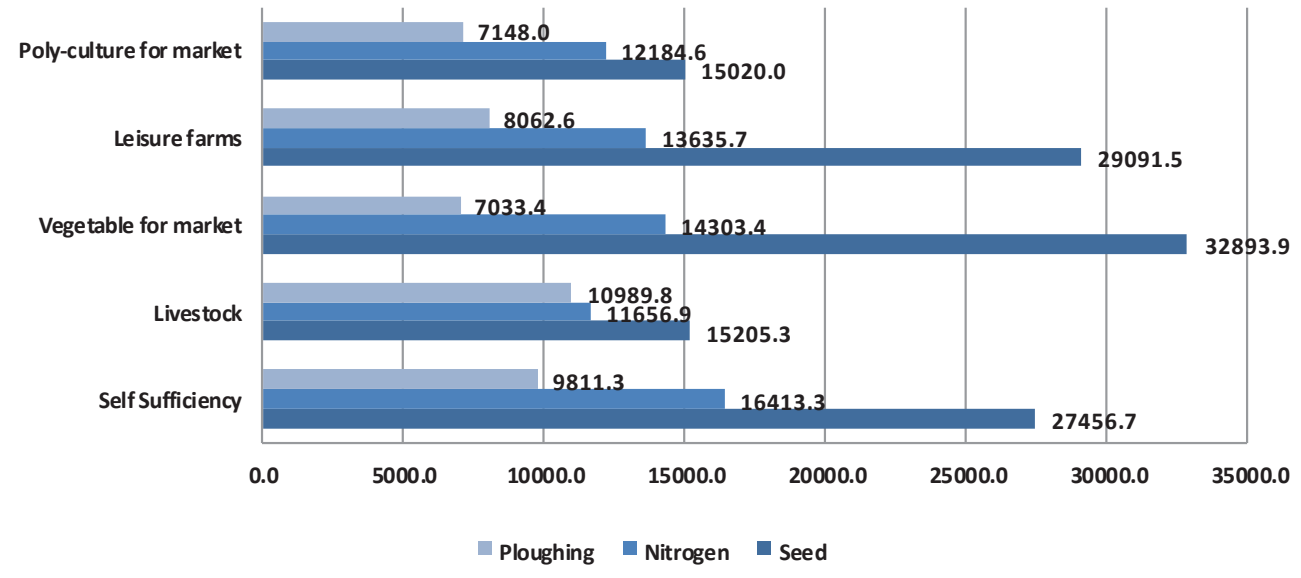
Figure 71: Farm net income and off-farm net income: proportion of the total household income



Source: calculations based on the survey.

Expenditure on seeds accounts for the main part of the total expenditure structure of the family farm in the Lezhë region (Figure 72). The vegetables for market cluster has the highest expenditure on seeds followed by leisure farms and self-sufficient farms. The other two farm types spend less on seeds, but within the cluster it remains the highest. Among farm types, expenditure for on nitrogen fertiliser remains in second place. These expenditures are higher in the self-sufficiency cluster, followed by vegetables for market and the other three clusters, which spend the same amount on nitrogen per dyn. Again, expenditure on nitrogen fertiliser remain in second place even within cluster. In third place, within clusters, stands expenditure on ploughing and other land preparation processes; among clusters the highest expenditure on land preparation appears to be among farms belonging to the livestock cluster. The other farms types show nearly the same amount spent on land preparation.

Figure 72: Main farm expenditure structure in absolute values per hectare



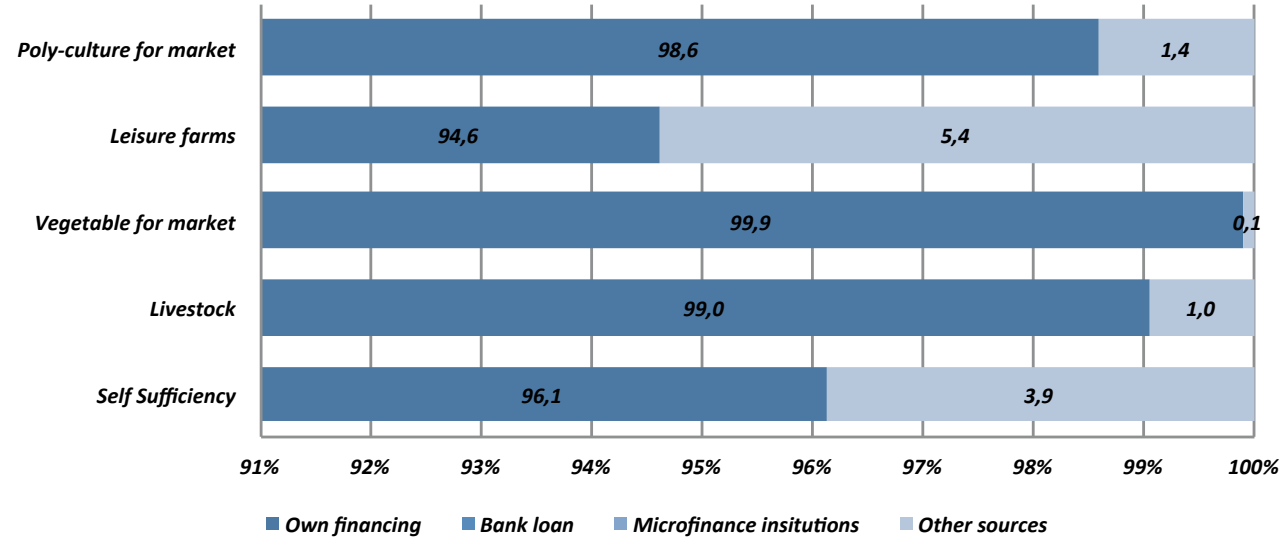
Source: calculations based on the survey.

Financing farming expenditure is one of the main obstacles for farmers when it comes to building capacity and taking up new ideas. Judging by the current finance situation, the picture looks quite pessimistic in terms of access to credit. Consequently, the potential for building capacity and increasing the efficiency of farm inputs still remains very low in Lezhë region.

As the Figure 73 shows, almost all the farms among the clusters finance their expenditure from own sources. Farming families have no access to micro-credit institutions and banks, while few of them use other sources to finance their expenditure. Farms belonging to the vegetables for market cluster finance up to 100 % of their expenditure from their own sources. The leisure farm cluster shows a somehow different pattern in terms of finance, whereby a little more than 5 % of them use other sources to finance their expenditure. The self-sufficient cluster is the same. Other sources refer mainly to remittances brought in from family members working outside the country.

The absence of credit institutions (banks and micro-credit institutions) in the farming systems in Lezhë region indicates that farming families face great difficulties in financing new projects and building capacity. The fact that, for all farm types, off-farm activity is the main source of THI might explain the indifference of farming families towards accessing credit institutions. On the other hand, low factor productivity, low farming capacity and a low level of market integration may make the farming system in this region unattractive to credit institutions.

Figure 73: Means of farm expenditure financing



Source: calculations based on the survey

9.6 Analysis of farm economic performance: Lezhë region

This section deals with identifying the most productive farm types in Albania in terms of FNI, the types that yield a higher income for each household family member and the types that give better repayment for each AWU employed in agriculture, as well as for the land. The methodology for calculating FNI is the same as that used in the case of Elbasan region.

9.6.1 The farm type viability analysis

The analysis of farming system types is organised into two parts: the economic performance of each farm type is evaluated by calculating their (1) viability and (2) the farm productivity.

The calculation of farm type viability is made by using the reproduction threshold (RT), which is a benchmark for assessing the economic viability of different farming or production systems (Gomez y Paloma S., Acs et al. 2012). In this case there are two indicators used to assess the viability of farming systems.

The minimum wage approach (Figure 74) is the comparison of the FNI/WU with the minimum wage ([16]) for 2014. The second indicator is the comparison of FNI/household member with the poverty line ([17]). The same level of minimum wage and poverty line indicators is applied for the whole sample. The following table shows the utilisation of these two indicators.

The analysis is performed on farm type, and the discussion of the results is done at the farm type level, as well as a comparison of results among the different farms types of the region.

Work in agriculture is paid less than the minimum wage in all farms types in Lezhë region. The situation is slightly different only for livestock farms, where earnings from agriculture are about 57 % of the minimum wage, but in the other four types in this region payment for work in agriculture is much lower than the minimum wage.

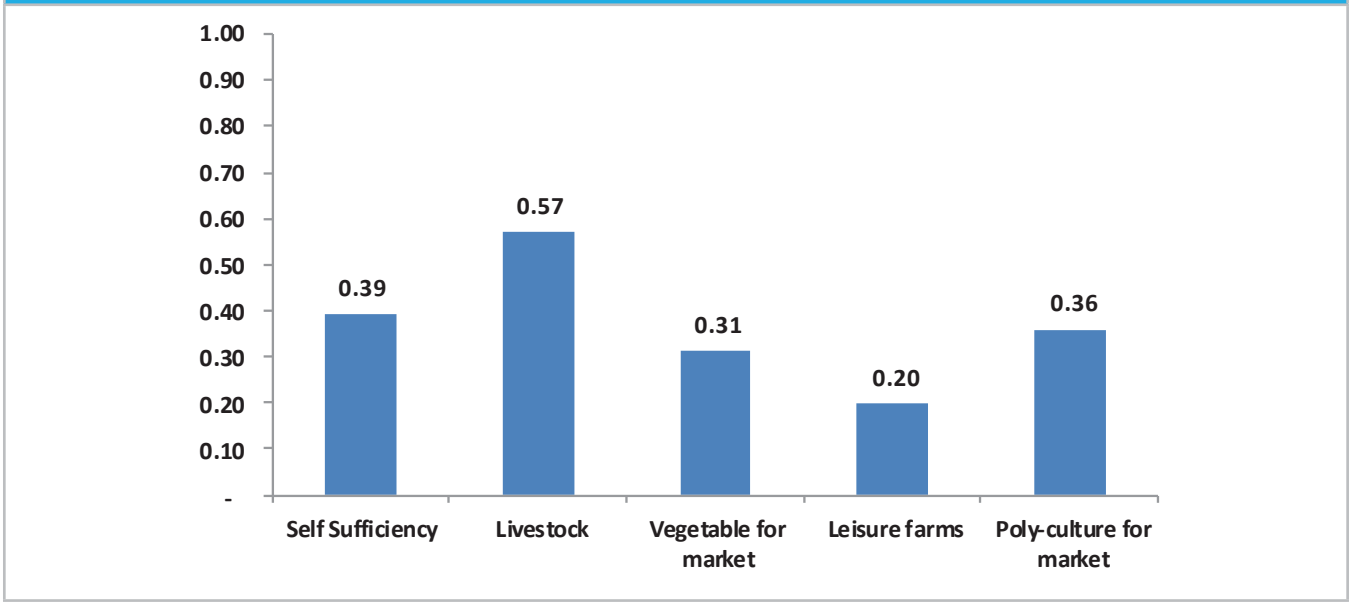
The extreme poverty line

The importance of non-farm incomes in Albanian rural areas makes it necessary to perform the analysis not only for the FNI but also for the THI.

If we refer to the incomes received from agriculture, we see that it is only on livestock farms that the members of the family live above the extreme poverty line (Figure 75). In all other farm types, family members live below the extreme poverty line or on the extreme poverty line, because the values are very close to 1. This is not the case for leisure farms: for these farms agriculture is not the main source of income.

If we take the THI into the analysis, we can see that in all farm types, the family members live above the extreme poverty line, excluding farms growing vegetables for market. It would be true to say that the majority of the family income on farms in Lezhë region comes from off-farm activities.

Figure 74: Farm net income per AWU as a proportion of the minimum wage

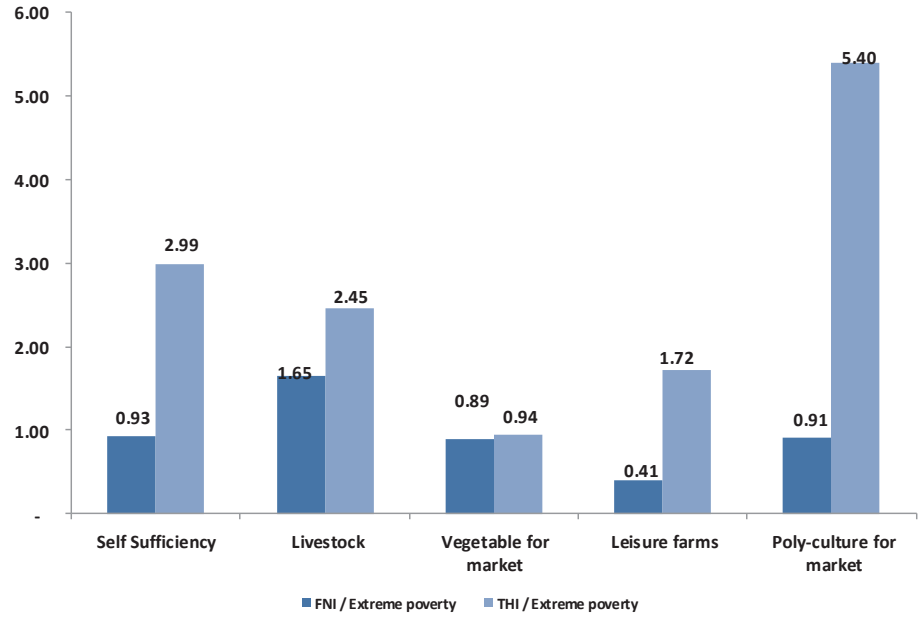


Source: calculations based on the survey.

16 For administrative reasons, the Albanian government fixes the level of the minimum wage. In 2014 the minimum monthly wage amounts to ALL 22 000 (EUR 156.6).

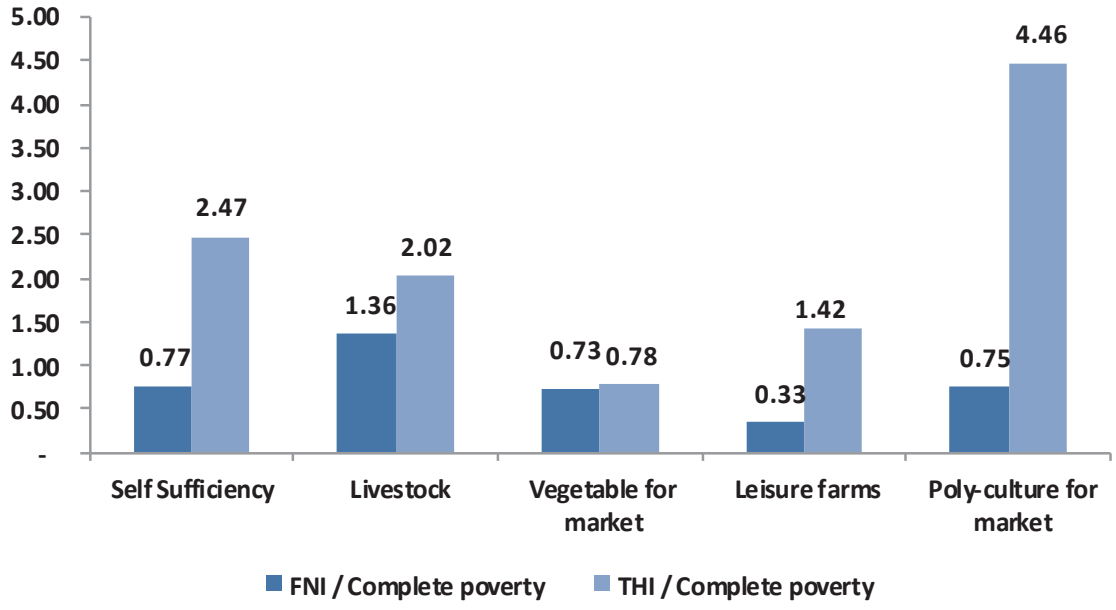
17 According to the Institute of Statistics of Albania (INSTAT), an inhabitant is in extreme poverty if his or her monthly income does not exceed ALL 4 037 (EUR 28.7) and is in complete poverty if the monthly income does not exceed ALL 4891 (EUR 34.8).

Figure 75: Farm net income and total household income per household member as a share of extreme poverty level



Source: calculations based on the survey.

Figure 76: Farm net income and total household income per household member as a share of full poverty level



Source: calculations based on the survey.

The same is true the case of complete poverty if we look at FNI (Figure 76). Only on the livestock farms do members of the family live above the complete poverty line.

If we take into consideration THI, family members from poly-culture for market, self-sufficient and livestock farms live pretty far above the complete poverty line. However, on vegetables for market farms the members of the family live below the complete poverty line, because the off-farm income as a proportion of total income on these farms is very small (2.22 %).

Productivity analysis

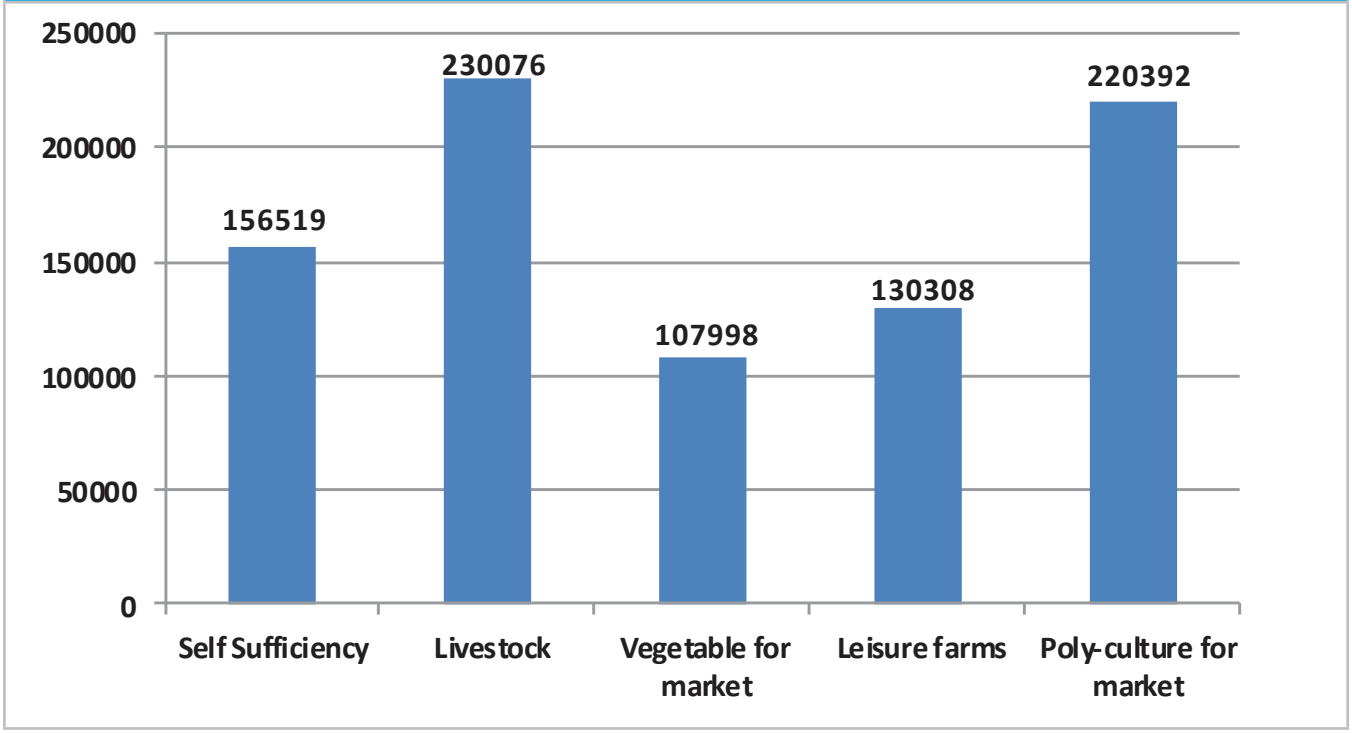
The second step in analysing farm type economic performance is to look at the farm type productivity. Productivity indicators of work ($\frac{FNI}{WU}$) and land ($\frac{FNI}{UAA}$) can be calculated for each farm type. A comparison of these indicators will show which farm type perform better in terms of work, land and capital. However, owing to a lack of data, the productivity of capital has not been calculated.

Farm net income per work unit

As we can see from Figure 77, labour productivity is higher on livestock farms and poly-culture for market farms. This is because one of the advantages of diversifying production and livestock activities is making full use of labour. Although the FNI per work unit on livestock farms is high, they do not repay the workforce at a level above the minimum wage.

Figure 77 shows the productivity of the UAA for each farm type in Lezhë region. This is higher on livestock farms and vegetables for market farms because vegetables and livestock products are outputs with high added value. However, the productivity of the UAA on the poly-culture farms is very low.

Figure 77: Farm net income per utilised agricultural area (in ALL)



Source: calculations based on the survey.

10. Conclusions

Twenty years since the start of de-collectivisation, agricultural farming systems in Albania still remain small, highly fragmented low-input systems that lack strong links to the market for agricultural products.

Agriculture generally does not offer enough work for the workforce in rural areas. Non-agricultural employment seems to be an obligatory strategy in order to increase the efficiency of the household labour and to diversify the income sources.

The farms that are specialised in agricultural activities (e.g. fruit tree farms) generally have a lower FNI than the other farm types that aim to have agriculture as their main economic activity (poly-culture for market). On the other hand, specialisation needs significant non-agricultural income that can be used for agricultural day-to-day expenses and household expenses. The lack of credit facilities drives farmers towards specialisation strategies that do not need significant investment, that supply a steady income throughout the whole year and that are diversified (not linked with only one type of crop or livestock). In this regard, farming strategies are not driving farming systems towards high-input agriculture in which the negative effects of small and highly fragmented agricultural structures can be reduced by significant use of inputs and greater land and labour productivity.

The average repayment for farm-type labour in rural areas is lower than the minimum wage in Albania.

Labour productivity is higher on poly-culture for market, fruit trees diversified, arable crops for market and livestock farms, although these farms also have a greater number of workers. It is known that one of the advantages of diversification of production and livestock activities is making full use of the available labour. Labour productivity is lower on subsistence farms and specialised farms.

This lower labour productivity may lead to the conclusion that rural migration towards urban areas or abroad will continue into the future.

The productivity of the land follows the trend for labour. It is higher in the poly-culture for market farm type and on livestock farms. This is the consequence of the fact that vegetables and livestock products are outputs with high added value. Land productivity is lower for subsistence farms, leisure farms and specialised fruit farms. Poly-culture for market and livestock farms will require financial support from government in future.

On farms that have agriculture as the main source of income of the household, family members are living above the extreme poverty line (poly-culture for market, livestock and arable crops for market farm types). This analysis leads to the conclusion that the more diversified a farm is, the more efficient it will be. Regarding the living standard of household members for each farm type, considering the FNI, it can be concluded that household members of farm types such as poly-culture for market, livestock, fruit trees and arable crops for market are living above the complete poverty line. In contrast to this, household members of farm types such as self-sufficient, leisure and specialised fruit trees are living below the complete poverty line. Calculating the poverty level based on THI shows that family members are living above complete poverty on all types of farms. In conclusion, non-agricultural incomes in Albanian rural areas are not only extra income for the family household but in some cases the main income that provides for the needs of the family. This co-existence of agricultural and non-agricultural incomes provides, on the one hand, greater resilience for farm households but, on the other hand, less interest in and potential for farmers to invest in agriculture and to improve existing farming systems.

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12. Annexes

12.1 Annexes 1 Farm household questionnaire

No	Region	District	Municipality	Village	Interviewer

QUESTIONNAIRE
on farm households Albania

All the collected information is strictly confidential and will be used only for statistical purposes.

Name of the farmer: .....

Region of farm location: .....

District of farm location: .....

Mail address:

Municipality: .....

Village: .....

Phone number: .....

No	Region	District	Municipality	Village	Interviewer

I GENERAL INFORMATION

Q 1. Name of the farmer: _____

Q 2. Gender: male (1) female (2)

Q 3. Age of farmer: _____

Q 4. Marital Status: Single (1) married (2) divorced (3) widow (4)

Q 5. The education level _____ years

Q 6. Does the farmer have any agricultural education?

Yes (1) No (2)

Q 7. Number of families living on the farm _____

Q 8. Total number of family members living on the farm _____ (q81); in age of work_____(q82); working in the farm_____(q83); working out of the farm but living in the farm_____(q84); working and living out of farm but financially contributing on the farm _____(q85);

II. LABOUR INPUT

Q 9. Labour allocation & off-farm income

N° q91	**Type of labour supply** Men in working age (1) Women in working age (2) Men aged more than 64 years old (3) Women aged more than 64 years old (4) Child of less than 14 years old (5) Not working family member (illness) (6) Family member working outside of the farm but contributing financially (or in kind) (7) *(2)(q92)*	**Type of farm labour** Working full time on the farm (1) Working part time on the farm (2) Not working (3) *(3)(q93)*	**Total amount of work in the farm (in %)** 100 if q93=1 0 if q93= 3 et 1–99 if q93=3 *(4) (q94)*	**Extra farm activity** Agriculture=1 Trade/services =2 Construction =3 Industry =4 Public sector =5 Retirement pension =6 Remittances =7 Other =8 (Please specify) *(5) (q95)*	**Net Salary/ day (ALL)** *(6) (q96)*	**Days/year** *(7) (q97)*	**Total income (year)** *(8=6*7)* *(q98)*
Q911							
Q912							
Q913							
Q914							

Q915							
Q916							
Q917							
Q918							
Q919							
Q920							
Q921							
Q922							
Q923							
Q924							
Q925							

Q 10. Do you hire labour? Yes (1) No (2)

If NO go directly to **Q 12**

Q 11. If yes please specify the number of days

	Jan. (1)	Feb. (2)	Mar. (3)	Apr. (4)	Mai (5)	Jun. (6)	Jul. (7)	Aug. (8)	Sep. (9)	Oct. (10)	Nov. (11)	Dec. (12)	Total
Number of days (Q111)													
Salary/days (Q112)													
Total expenses /month (Q113)													

Q 12. Monthly labour supply on the farm (number of days)

	Labour type	Jan. (1)	Feb. (2)	Mar.(3)	Apr. (4)	Mai (5)	Jun. (6)	Jul. (7)	Aug (8)	Sep. (9)	Oct. (10)	Nov. (11)	Dec. (12)	Total
Family labour	1													
	2													
	3													
	4													
	5													
Hired labour														
Total														

Q 13. Does the family have any other income? Yes No

Q 14. If Yes, what type of income (the contractor should provide an exhaustive list of aids that are applied on the rural area (in kind, cash or other forms) (food aid, governmental aid, NGO aid, poverty aid, etc.)

	Type of aid Q141	Cash=1 In kind=2 (only food products) Q142	Code of production (see annex Table 25, Table 2 a.) Q143	Quantity Q144
Q1401	Alimentary aid			
Q1402	Governmental production support			
Q1403	NGO support			
Q1404	Poverty aid			
Q1405	Other (please specify)			

III FARM INFORMATION

Q 15. Access to the farm: easy difficult

Q 16. Total UAA: _____ dyn.;

IF UAA=0
END OF QUESTIONNAIRE

Q 17. Owned UAA:_____dyn.

Q 18. Rented in UAA: _____ dyn. (q181) Price/dyn. _____; (q182)

Q 19. Rented out UAA: ___ dyn. (q191) Price/dyn. _____ (q192)

Q 20. Area under shelter: _____ dyn.

Q 21. UAA taken in sharecropping: _____ dyn.

Q 22. UAA given in sharecropping: ___ dyn.

Q 23. Rangeland: _____ dyn. ; Q 24. Wood surface (woods/bushes): ____dyn. ;

Q 25. Number of planted plots _____

Q 26. Distance between the farm/plots and the market: Unit of surface _____ (see annexe Table 24)

(Plots are defined as contiguous parcels of land and should not be misunderstood with the cadastral plots)

N° of plot	Surface Q2710	Farm centre (km) Q2711	Market (collection point) (km) Q2713	N°	Surface Q2710	Farm centre (km) Q2711	Market (collection point) (km) Q2713
Q261				Q266			
Q262				Q267			
Q263				Q268			
Q264				Q269			
Q265				Q2610			

Q 27. Do you use irrigation on your farm? Yes No

IF NO PLEASE GO TO Q30

Q 28. If Yes, what part: _____dyn.

Q 29. What type of irrigation do you use? (please select at least one of the following possibilities)

Gravity irrigation (irrigation gates)____ dyn.; (q291) Irrigation pump____ dyn.; (q292)

Manual wells _____ dyn.; (q293) Drip irrigation _____ dyn.; (q294) Sprinkler irrigation_____ dyn. (295)

Others, (please specify) ____ (q296) _____ dyn. (q297) ;

Q 30. Equipment and tool inputs (choose from the attached list)

Items	Quantity Q3001	Unit cost (ALL) Q3002	Age (years) Q3003	Life expectancy (years) Q3004
Multicultivateurs (q301)				
Trailer (q302)				
Cart (q303)				
Moto-cultivator (q304)				
Tractor (q305)				
Harvester (q306)				
Sprinkler and fertilising machinery (q307)				
Other (q308)				
To be completed				

Q 31. Land use during the last year: select from the attached list: (The plots as specified Q 26 can be used more than one time during a calendar year) (The plots as specified Q 26 can be used for different crops, but at the same time, but the total surface of all crops cannot overpass the total surface of the plot)

For agricultures cultivated under shelter should be added a suffix (1) (e.g. Tomato 1, cucumber 1 etc.)

N°	Crop (name) Q3120	Plot code (Q 26)	Surface (dyn.) Q3121	Period of cultivation	
				Beginning month (Q3122)	Ending month (Q3123)
Q3101					
Q3102					
Q3103					
Q3104					
Q3105					
Q3106					
Q3107					

Q3108					
Q3109					
Q31010					
Q31011					
Q31012					
Q31013					
Q31014					
Q31015					
Q31016					
Q31017					
Q31018					
Q31019					
Q31020					
Q31021					
Q31022					
	Total				

Q 32. Land use during the last three years (dyn):

	2010–2011	2011–2012	2012–2013			
Plot (code Q26)	Crop (name)	Surface (dyn) (Q 32001)	Crop (name)	Surface (dyn) (Q 32002)	Crop (name)	Surface (dyn) (Q 32003)

Q 33. The production of the last year (please do not take into consideration lost production during harvesting, transport etc.) 1=Principal product; 2= Secondary product. Sharecropping rent (+ if the surface is given in sharecropping, - if the surface is taken in sharecropping)

Crop (name) (1)	Q3310 Surface (dyn) (2)	Q3311 Yields (ql/dyn(3)	Q3312 Total Production 1 (4) (ql.)	Q3313 Total production 2 (5) (ql.)	Q3314 Sharecropping rent (ql.) (6)	Q3315 Seeds (ql.) (7)	Q3316 Self-consumption (ql.) (8)		Q3317 Stock (ql.) (9)		Q3318 Sold (ql.) (10)		Q3319 Price (ql.) (11) ALL/ql.(4)		Q3320 Total Income (12) 11=11*10 (ALL)
							Prod. 1(ql.) q33161	Prod. 2(ql.) q33162	Prod. 1 (ql.) q33171	Prod. 2 (ql.) q33172	Prod. 1 (ql.) q33181	Prod 2 (ql.) q33182	Prod. 1 (ql.) q33191	Prod. 2 (ql.) q33192	

Public aid

Q 34. Have you participated in the national agriculture supporting scheme during the period 2007–2013

Yes (1) No (2)

IF NO PLEASE GO TO Q38

Q 35. If yes how many times do you have participated?___

Q 36. Have you ever been selected? Yes (1) No (2)

Q 37. Please list the governmental aid you have selected for during this period?

Name of public aid scheme (please select from the list (annex)	Year of selection **Q3701**	Unit (of surface or quantity according to the applied supporting scheme) **Q3702**	Governmental aid (ALL) **Q3703**	Total investment (ALL) **Q3704**

Q 38. Technical data sheet for crop activities

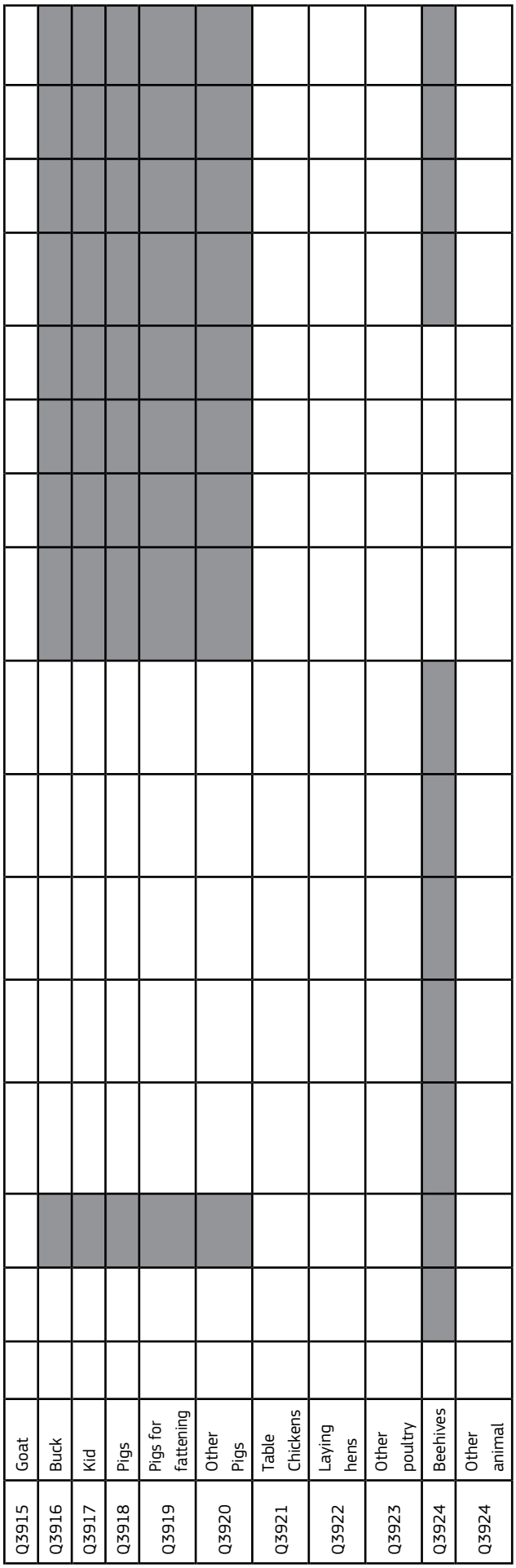
Crop list (Q3811);

Crop (name) Q38111	Crop Code Q38112	Type of cultivation Open field=1; Under Shelter=2 Q38113	Predecessor crop (name) Q38114	Crop Code Q38115	Surface (dyn) Q38116

IV. Livestock activity: Livestock-production –price

Q 39. Livestock number & production

		Livestock number **date 31.12** **Q3901**	Production **Q392**		Meat Use Q393					Milk use/egg/honey Q394							
			Meat (kg) **Q3921**	Milk (l)/egg (000) / honey (kg) **Q3922**	Self-consumption (kg) Q3931	Sold Q3932			Other (kg) Q3933	Self-consumption (l./kg. (000)) Q3941	Sold fresh milk(l.), Eggs (000), Honey (kg.) Q3942			Processed milked (milk equivalent) Q3943			
						Quantity (kg) (q39321)	Price (ALL/kg (q39322)	Value (ALL) (q3933)			Quantity (kg) (q39421)	Price (ALL/kg) (q39422)	Value (ALL) (q39423)	Total (**Q3922**-Q3941-q39421) (q39431)	Self-consumption (q39432)	**Sold Q40433**	
																Quantity (l.) (q404331)	Value (ALL) (q394332)
Q3901	Sheep																
Q3902	Ram																
Q3903	Yearling sheep																
Q3904	Yearling ram																
Q3905	Lamb																
Q3906	Breeding lamb																
Q3907	Cow																
Q3908	Male Calf																
Q3909	Female Calf																
Q3910	Heifer 1 year																
Q3911	Heifer 2 years																
Q3912	Beef 1 years																
Q3913	Beef 2 years																
Q3914	Bullock																


Q3915 Goat
Q3916 Buck
Q3917 Kid
Q3918 Pigs
Q3919 Pigs for fattening
Q3920 Other Pigs
Q3921 Table Chickens
Q3922 Laying hens
Q3923 Other poultry
Q3924 Beehives
Q3924 Other animal

Q40. Technical data sheet of livestock activities

	Unit Q4011	**Quantity Q4012**	**Price/unit Q4013**	**Total value Q4014**	**Stock for the next year (Unit) (quantity) (Q4015)**	**Stock for the next year (Value ALL) (Q4016)**
Q4021 Produced Hay						
Q4022 Produced Straw						
Q4023Stubble						
Q4024 Cereal grain						
Q4025 Concentrated feed						
Q4026 Other						
Q4027 Labour						
Q4028 Other expenses						
Q4029 Livestock purchase						

Q 41. Herd performance

		Opening number **Q4101**	Birth **Q4102**	Prolificity rate **Q4103**	Fertility **Q4104**	Number of smalls in a birth **Q4105**	Total number **Q4106**	Mortality **Q4107**	Purchase **Q4108**	Self-consumption **Q4109**	Sales **Q41010**	Reevaluation **Q41011**	Closing number **Q41012**
Q411	Sheep												
Q412	Ram												
Q413	Yearling sheep												
Q414	Yearling ram												
Q415	Lamb												
Q416	Breeding lamb												
Q417	Cow												
Q418	Male Calf												
Q419	Female Calf												
Q4110	Heifer 1												
Q4111	Heifer 2												
Q4112	Beef 1												
Q4113	Beef 2												
Q4114	Bullock												
Q4115	Goat												
Q4116	Buck												
Q4117	Kid												
Q4118	Pigs												
Q4119	Pigs for fattening												
Q4120	Other Pigs												

Q4121	Table Chickens												
Q4122	Laying hens												
Q4123	Other poultry												
Q4124	Beehaves												
Q4125	Other animal												

Q 42. Animal housing facilities (m²)_____

Q 43. Which is the capacity of housing you have _____ cow

Q 44. Total expenses done during the year on agricultural activity? _____ ALL from which;

Q45. Own funding _____%; Q 46.Bank loan_____%;

Q 47. Micro finance loan____%;

Q 48. Other (_____) _____ (q49) %

Q 34. Do you have difficulties to be granted a loan? Yes (1) No (2)

Q 35. Have you demanded a financing instrument, and if yes what is the amount you have been granted?

	Loan use Q5201	Date of loan approval Q5202	Loan amount Q5203	Interest rate Q5204	Financing institution Second level bank=1 Microcredit institution=2 Q5205	Loan use Q5206a	Repaid share (number of years still to be paid) Q5207	Amount of money paid during this YEAR (already paid quantity and the +expected amount to be paid till the end of the year.) Q5208
Q521								
Q522								
Q523								
Q524								
Q525								
Q56								
Q527								
Q528								
Q529								
Q5210								
Total								

Q 36. The auto financing capital is build up :

Q531. Sales of agricultural products _____% **Q532.** Agricultural subsidies _____%

Q533. Labour out of agriculture _____% **Q534.** Remittances _____%

Q536. Land rent out _____% **Q537.** Sharecropping _____%

Q538. Other (_____) _____%

Q 54. What is the amount of money you spend for the listed activities during a year (in %)

Q541. Food _____% **Q 542.** Housing _____% **Q543.** Transport _____%

Q 543. Education___% **Q 544.** Loan repaying____ ALL ___% **Q 545.** Other (_____) __ %

Annex

Definitions

Utilised Agricultural Area (UAA)

The Utilised Agricultural area means the total area used for crop production, which is exhaustively described as : Arable land including temporary grassing and fallow and green manure, permanent grassland, land under permanent crops (e.g. fruit and grapes), crops under glass and other utilised agricultural areas.

Table 24: Surface measurement units

Code	Measurement unit	Value in m^2
01	Ha	10 000
02	Dyn	1000
03	m^2	1

Table 25: Agricultural crops (Q)

	code	cultures		code	cultures		code	cultures		code	cultures
Grain cereals	01	Wheat	*Fodder plants*	18	Fodder Maiz	*Vegetables*	35	Watermelon	*Nuts*	52	Hazelnuts,
	02	Maiz		19	Alfalfa		36	Courgette		53	Almonds,
	03	Rye		20	Fodder crops, harvested green for fodder		37	Pumpkin		54	Chestnuts,
	04	Barley	*Vegetables*	21	Spinach		38	Eggplants		55	Nuts
	05	Oat		22	Leek		39	Green beans	*Berries*	56	Berries
	06	Potatoes		23	Lettuce		40	Peas	*Tropical fruit trees*	57	Kaki, kiwi
Dry pulse (all protein crop drown for their seed	07	Dried beans		24	Carrots		41	Okra	*Olive groves*	58	Olive groves (table)
	08	Peas (dried)		25	Cabbage		42	Cucumber		59	Olive groves (oil)
	09	Chick peas		26	Cauliflower		43	Pazia	*Citrus trees*	60	Oranges
	10	Bean		27	Broccoli	*Fruit trees*	44	Apple		61	Lemons
	11	Sugar beat		28	Onion (to be consumed dry)		45	Pear		62	Clementines, mandarines, Tangerines
Industrial plants	12	Tobacco		29	Spring Onions		46	Peach		63	Other citrus
	13	Medical and aromatic species, condiments and spices (camomile, jasmine, basil, lavender, parsley, dill)		30	Garlic		47	Peach (Nectarine)	*Grapes*	64	Wine grape wineyard
	14	Sunflower		31	Fresh Garlic		48	Apricot		65	Table wineyard
	15	Soya		32			49	Cherry		66	Wine grape Pergola
					Tomatoe			Plum		67	Table grapes Pergola
	16	Other oilseed (flax seed)		33	Piment		50	Fig		68	Autre (à préciser
	17	Other industrial plants		34	Bulbs		51	Pommegranade			
	18	Fodder root and brassicas		35	Melon		52	Walnuts,			

Table 2.a: Agricultural crops

Item	code	Item	code	Item	code	
Sugar	69	Pasta (all kinds)	72	To be completed		
Wheat flower	70	Vegetal oil	73			
Maize flower	71	Rise	74			

Table 3: Units of quantity (Q 33)

Code	Unit	Equivalent in Kg.
01	Kg	1
02	Quintals	100
03	Ton	1000
04	Bag de 50 Kg	50
05	Bag de 100 Kg	100

Table 4: Units of measure for inputs (Q)

Code	Unit	Equivalent in Kg
01	Kilogramme	1
02	Bag of 5 kg	5
03	Bag of 10kg	10
04	Bag of 25 kg	25
05	Bag of 50 kg	50

Table 5: List of governmental support during the period 2007–2013

	2007	2008	2009	2010	2011	2012	2013
Olive groves plantation							
Nuts trees plantation							
Vineyard plantation							
Subtropical fruit trees plantation							
Other fruit trees plantation							
Production of Extra virgin olive oil							
Fly protection in olive groves							
Organic production							
Drip Irrigation							
Production of vine pruning from local varieties							
Heating green houses							
Plastic film for solar and heating greenhouses							
Specialised Cow diary							
Specialises sheep and goat farms							

Sheep and goat Transhumance							
Breed Heifer							
Breed sheep and goat							
Reimbursement of loan interest rate (for a specified group of farm investments)							
Construction of irrigation well							
Mushroom production							
Honey production							
Snail Production							
Production of local variety vegetables							
Equine production							
Rabbit farming							
Plastic film for tunnels (melon)							
Medicinal herbs							
Chestnuts and/or blueberry harvesting							
Post harvesting famers cooperation (storage, packaging etc. facilities							

12.2 Annexes 2 Agenda and presentation of the first workshop

Workshop on "The impact of policy instruments on the farming systems in Albania"

First Part- "General overview of Albanian agriculture and methodological tools"

21st August 2013

European Commission (EC), Joint Research Centre (JRC)
Institute for Prospective Technological Studies (IPTS)
Unit "Agriculture and Life Sciences in the Economy" (AGRILIFE)
Venue: JRC-IPTS, Isla de la Cartuja, Edificio Expo, 2nd floor, Room 56, C/Inca Garcilaso 3, Seville, Spain
Contact: Fatmir Guri fatmir.guri@ec.europa.eu

AGENDA

Day 1—21st August		
9:00–9:15	Welcome	JRC-IPTS
9:15–9:30	Introduction to JRC-IPTS, AgriLife and Sustag action Objectives of the workshop	**Sergio Gomez y Paloma** JRC-IPTS
Session 1	**General overview of the Albanian agriculture and its role on the food security**	
9:30–10:20	Post communists Albanian agriculture Farming structures Main productions and their evolution Agricultural markets National food security indicators Discussion (all participants)	**Prof.as. Maksim Meço** **Agricultural University of Tiranë**
10:20–11:30	Agricultural and rural development policies The decollectivisation period The actual policy instrument applied The impact of policy instruments on the sector performance and on the food security indicators Discussion (all participants)	**Dr. Remzi Keco** **Agricultural University of Tiranë**
11:30–11:45	Coffee break	
11:45–12:45	Agricultural statistics in Albania The organization of Agricultural statistics (structure, sample, surveys etc.) The main statistical indicators The general farm holding census Discussion (all participants)	**Eneida Topulli, Statistics Service** **Ministry of Agriculture, Food and Consumer Protection**
12:45–13:45	Rural development in Albania Discussion (all participants)	**Dr. Ilir Kapaj** **Agricultural University of Tiranë**
13:45–14:45	Lunch Break	
Session 2	**Methodological instruments of policy evaluation**	

14:45–15:45	The typology the way of constructing it The method Different types of farm holdings typology Farms typology already applied in Albania Discussion (all participants)	**Fatmir Guri** **JRC-IPTS**
15:45–16:45	Fssim-Dev General description of the model Economic results Environmental results Discussion (all participants)	**Sergio Gomez y Paloma Fatmir Guri** **JRC-IPTS**
16:45–17:15	Coffee Break	
17:15–18:15	What to do list for the second workshop Who will do what The questionnaire (improvements, tests results) The sample The time table The specific responsibilities and the quality of expected deliverables Discussion (all participants)	**JRC-IPTS and Agricultural University of Tiranë**

WORKSHOP ON
"THE IMPACT OF POLICY INSTRUMENTS ON FARMING SYSTEMS IN ALBANIA"

General overview of Albanian Agriculture

Prof. as. Maksim MEÇO
Prof. Dr. Bahri MUSABELLIU
Dr. Ilir KAPAJ
Prof. as. Remzi KECO

21 August 2013
Seville, Spain

I. Background and Key Figures

- Albania has a population of more than 3 million inhabitants, and eventually the same number of Albanians who work and live abroad. It has a total land area of 28,750 km² (equivalent to 2,875,000 ha); 24% (696,000 ha) are classified as agricultural land and 76 % (2,179,000 ha) as forestry, pasture and other fond.
- Before transition there have been 550 large state farms and cooperatives in Albania. After the collapse of the system and after the land distribution, which did not took place in the north, there have been about 467,000 very small family farms whereas today just 350,654 farm households are left with an average 1.5 ha - divided up into 4 parcels. On each farm live 4.8 people so that in total 1.7 million people are involved in farming activities; about 50 % of the population lives in rural areas.

I. Background and Key Figures

- With 59 % of total labour and 21 % of GDP the agricultural sector, including also forestry, hunting and fishery, continues to be an important sector of the Albanian economy. (Source: INSTAT)
- Albanian farming is predominantly at subsistence level and most of the agricultural product is destined to home consumption. As a result only 18 % of crop production, 30 % of livestock products and a few percentages of off-farm processed products reach the market. Household income range differs between families living in mountain areas (poor) to those in the plains (less poor).

I. Background and Key Figures

Sub-sector's contribution to the agricultural added value (in lek and %)

Nr.	Description	2000	2006	2007	2008	2010
	Total million lek	126116	147306	149802	155669	171802
1	Livestock	71460	86633	90101	86882	89770
2	Field crop	42483	42226	40482	45741	53485
3	Fruit trees	12173	18446	19219	23046	28547
Nr.	%	2000	2006	2007	2008	2010
1	Livestock	57 %	59 %	60 %	56 %	52 %
2	Field crop	34 %	29 %	27 %	29 %	31 %
3	Fruit trees	10 %	13 %	13 %	15 %	17 %

(Source: MAFCP; Statistical Yearbook 2010)

Agricultural production and incomes contributes to the GDP; the major sub-group within agriculture is the livestock production with about 52 % of the total production of the sector, followed by field crops with 31 % and fruit production with 17 %. Livestock production value must be divided into milk and meat production and both represent around the same value.

II. Farming Structure

Table 2. Farm production capacities levels

No	Items	unit	Albania	PREFECTURES Berat	Elbasan	Lezha
1	Number of farms	*No*	353341	26463	32540	23592
2	Average size of farms	*Ha*	1.26	1.36	1.25	0.89
3	Avg. size of Household	*No*	4.7	4.8	4.8	4.7
4	The land per capita	*Ha*	0.27	0.28	0.24	0.19
5	Avg. Number of plots	*No*	5.0	5.0	5.3	5.6
6	Avg. size of plots	*Ha*	0.27	0.28	0.24	0.19

Source: MAFCP, Statistical Yearbook 2011

There are three main problems Albanian agriculture:

- Firstly, Albanian Agriculture is characterized by the presence of minimal size farms (1.26 ha) and the variation among prefectures is from 0.89 ha in the Prefecture of Lezha, up to 1.36 ha in the Prefecture of Berat.
- Secondly, Farm consists of many minimal size farm plots. Number of small plots cultivated by farmers varies between 1 and 9 with an average of 5 plots/per farm. Therefore, Albanian farmer is cultivating small plots whose size (0.27ha).
- Thirdly, the existence of a considerable large family (4.7 member) which needs to operate in this micro-farm on the rural development

II. Farming Structure

Table 3. Grouping of farms according to their size

No	Farm size	Year 1995 No	Year 1995 %	Year 2011 No	Year 2011 %
1	0.1-0.5 ha	152600	36.3	61459	18.0
2	0.6-1 ha	121600	28.9	84613	24.0
3	1.1-2 ha	126200	30.1	145501	41.0
4	Over 2 ha	19600	4.7	61767	17.0
	Total	420000	100	353341	100

Source: MAFCP, Statistical Yearbook (1995, 2011)

First, the total number of the farms is decreasing. So, in the year 2011 as compared with the year 1995 the number of farms has decreased by h about 16%. This results from the migration of the rural population towards the urban zones.
Secondly, there exists a trend towards the decrease in the number of the minimal size farms. During the last 16 years the number of the farms of 0.1- 0.5 ha and 0.6-1ha is decreased with about 23%.
Thirdly, the farms groups of 1.1-2 ha and 0.6-1ha are increasing 23% which also suggests a trend towards the increase of the farms size which would be a very essential factor for the future agricultural development. The land transactions have given positive effects on this trend (land market and land leasing).

II. Farming Structure

Table 4. Farms with mixed crops and Farms with crops

No	Items	unit	Albania	PREFECTURES Berat	Elbasan	Lezha
I.	Farms with mixed crops					
1	Crops and livestock	%	85.0	75.7	95.1	92.2
2	Crops without livestock	%	15.2	24.2	4.9	7.7
3	Field crops	%	98.7	97.8	99.7	100.0
4	Fruit trees	%	48.0	82.4	51.0	25.3
5	Fallow land	%	27.5	17.4	16.4	37.5
II.	Farms with crops					
1	Farms with Wheat	%	40.1	48.0	69.0	37.2
2	Farms with maize	%	52.6	63.0	62.0	53.0
3	Farms with white beans	%	41.0	40.2	38.0	46.1
4	Farms with vegetable	%	74.1	77.0	70.1	69.3
5	Farms with potatoes	%	22.2	22.2	31.7	17.1

Source: MAFCP, Statistical Yearbook 2011

- Farm production patterns include almost all crops and animals, and to a large extent this is due to the fact that farms are not market oriented, but produce mostly for family farms self consumption
- Albanian farmers' rationale behind conceptualization of production structures is based on two principal objectives: food security for the household and minimalization of economic risk.

II. Farming Structure

Table 5. Structure of field crops plantings in %

No	Items	unit	Albania	PREFECTURES Berat	Elbasan	Lezha
1	Cereals	%	36.1	45.3	45.5	26.2
2	Vegetable	%	7.5	5.7	5.3	7.4
3	Potatoes	%	2.3	0.9	2.5	1.8
4	White beans	%	3.5	1.9	3.6	3.8
5	Forages	%	49.9	46.1	41.7	59.7
6	Others	%	0.7	0.1	1.4	1.1
	Total		100.0	100.0	100.0	100.0

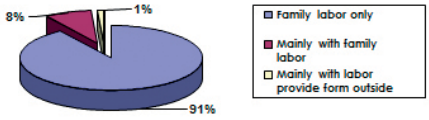
Source: MAFCP, Statistical Yearbook 2011

- Farm production systems are characterized by crop systems composed of annual and perennial crops, and by the livestock's systems, which include all types of livestock, and poultry
- The number of crops cultivated in a farm varies from 3 to 5. Farms deal with several types of livestock, and several fruit trees (generally distributed within farms). Such a "mosaic" of production aims not only to fulfill family needs for food, but also to reduce the economical risk.
- The conceptualization of such production structures has transformed the Albanian agriculture into a self-sustained part of economy
- Production for marketing has not become yet a particular objective. It represents a surplus after the completion of the two main objectives mentioned already.
- The production systems developed in farms are conditioned by the following factors: Tradition, Demand, Income, Resources.

II. Farming Structure

The main characteristic of the agricultural farms in Albania is the domination of the family labor
About 90% of the farms satisfy their job needs from their family.

Farm types according to the labour source available



Source : INSTAT, Statistics 1993-2010

II. Farming Structure

Table 6. The number and the distribution of the farms according the gross revenues

No	The revenues (leks)	Total Farms	Farms with Sale	% of farms with the Sales	Average income per farm (leks)	% of farms
1	0 – 10.000	17840	5625	31.5	1972	1.6
2	10.001-100.000	78740	78740	99.4	57680	20.0
3	100.001-400.000	182191	182191	100.0	217749	53.4
4	> 400.000	74570	74570	100.0	744045	25.0
5	Albania	353341	341126	96.5	341126	100

Source: MAFCP, Statistical Yearbook 2011

- About 21.6% of the farmers realize up to 100000 leks incomes
  - ⇒ The poorest farms (1.6%), which possess less than 0.5 ha, are located in the mountainous areas and make limited incomes with an average of 10000 leks.
- About 53.4% of the farms have big incomes varying from 100000 to 400000 leks
- Only 25% of the farms are well-managed and make big profits over 400000 leks per farm

II. Farming Structure

Table 7. The destination of the estimated production (%)

No	Description	1997	2011
1	The cash incomes	13	56.2
2	Family consumption	87	43.8
	Total	100	100

- The family farms in Albania continues to be considered as subsistence, although during the last years is noticed an increas of the revenues realized from sales. The sold production composes about 56.2% of the estimated production in 2011 compared with 13% in 1997.
- The destination of the estimated production shows that the cash incomes in farm are still low in comparison with the family consumption, although the average incomes during 1997-2011 are increased about 4.3 times.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION

Table 1. The structure of the cultivated area, (in 000/ha)

No	Items	1990	1997	2005	2011
1	Cereals	279.0	212.2	147.7	147.7
1.1	Wheat	203.0	136.0	82.4	69.2
1.2	Corn	62.0	61.0	48.4	61.2
1.3	Rye	12.0	2.3	1.5	1.5
1.4	Barley	2.0	2.6	1.5	2.8
1.5	Oats	-	10.3	13.9	12.9
2	Vegetables, watermelon	27.0	30.0	32.5	30.6
3	Potato	12.0	12.0	10.1	9.5
4	Beans	22.0	22.0	16.1	14.4
5	Tobacco	24.0	8.0	1.5	1.2
6	Sunflower	21.0	1.5	1.1	1.5
7	Soya	10.0	0.2	0.4	0.3
8	Forage	135.0	134.0	191	204
Σ	Cultivated area	574.0	421.6	401.0	409.0

Source: MAFCP, Statistical Yearbook 2011

III. MAIN PRODUCTIONS AND THEIR EVOLUTION

The planting structure shows essential changes in the planting of different crops between the two periods:

- The cultivated area in the year 2011 is reduced by about 165 thousand ha compared with the year 1990.
- The wheat area is reduced about three times (from 203 thousand ha in 1990 down to 69 thousand ha in the year 2011).
- The vegetables area is increasing steadily since the year 1970, a time at which the socialist system found the vegetables not only as a good feeding alternative but also as an important source of export.
- The crops of tobacco, sunflower and soybeans have suffered drastic decreases.
- The forage cultivated area has increased by 50%.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Wheat

The area, the yield and the wheat production (1990-2011)

Items	1990	1997	2000	2011
Area (,000 ha)	203.0	136.0	112.0	69.2
Yield (tons/ha)	2.99	2.85	3.05	4.23
Production (,000 ton)	613.0	388.4	341.1	292.8

1. In comparison with the year 1990, the wheat cultivated area is reduced by about 70% although it's still the second-ranked cultivated crop.
2. The highest yield is that of the year 2011 (4.23 ton/year).
3. The financial analysis shows that the wheat profits are low and that's why the wheat cultivation is not recommended in comparison to other crops. On average, it has a profit no more than 200 Euros per ha with a yield of 4 wheat tons/ha. Anyway, wheat does not give enough profit for a farmer's family with a small cultivated area such as the Albanian example (with about 1.2 ha/family).

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Corn

Area, yield and production of corn

Description	1990	1997	2000	2011
Area ('000 ha)	62.00	61.00	53.00	61.20
Yield (tons/ha)	3.35	2.92	3.58	5.17
Production ('000 tons)	227.00	194.80	205.70	364.40

1. The areas cultivated with corn are getting stabilized and consolidated in quick steps.
2. The yield of 5.2 ton/ha in the year 2011, although not comparable with the regional countries, is still an important step in comparison with the previous years. In the year 2011 the highest yield in this crop was reached (54% higher than 1990s).
3. Corn cultivation can be very profitable if advanced technologies are used which will increase its yield up to 10 tons/ha. This is possible under an improved irrigation system of the western field and a continuous normal irrigation of the crop.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Tobacco

Area, yield and production of tobacco

Description	1990	2000	2011
Area ('000 ha)	24.0	5.7	1.2
Yield (tons/ha)	0.58	1.09	1.6
Production('000 tons)	14.1	6.2	1.9

1. During the last 21 years, the tobacco cultivated area has been decreasing very quickly (it is reduced about 20 times).
2. The tobacco yield has been increasing (about 3 times), mainly because of its cultivation in more fertile lands.
3. The tobacco cultivation has very good profits for the farmer's families and it's the third ranked after the vegetables and the vineyards. In Albania, there are good conditions for tobacco cultivation because of the cheap labor.
4. Before the 90s, the main tobacco market has been Eastern Europe, but this market has lost its importance during the

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Sunflowers

Area, yield and production of sunflowers.

No.	Description	1990	2000	2011
1	Area ('000 ha)	21.00	1.9	1.50
2	Yield (tons/ha)	0.80	1.5	2.05
3	Production('000 tons)	16.60	6.2	3.00

1 Traditionally, sunflowers have been the most important product for the production of vegetable oils during the last 50 years.
2 The sunflower cultivated area has decreased during the last 21 years. At the beginning of the 90s, there were cultivated 21000 ha with sunflowers, in 2011 only 1500 ha or 15 time less.
3 All the sunflowers produced locally are used for consumption and not for oil production. On the other hand, regardless of the installation of the modern plants for vegetable oil processing, the raw materials for this industry are totally imported
4 The sunflowers yield has been low (1.5 till 2 ton/ha) which renders the sunflower production non-profitable because of its high cost.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Potatoes

Area, yield and production of potatoes

Description	1990	1997	2000	2011
Area ('000 ha)	12.0	12.0	11.4	9.5
Yield (tons/ha)	6.40	10.99	14.01	22.8
Production ('000 tons)	80.0	126.7	161.0	230.0

1. In comparison with the year 1990, the potatoes cultivated area is reduced by about 20%
2. Potatoes are cultivated in the districts of Korca, Dibra, Devoll, Erseka as a usual culture and in all the coastal districts as the early potato (eg. Saranda, Lushnja, Fier, Lezhe, Shkoder, etc). The production of the early potato is increased considerably because its picking up time complies with an 'emptiness' period from the usual potato.
3. Production and yield are increased about three times in the year 2011 compared to 1990s. In the year 2011, the highest yield and production has been reached during the last 21 years: 22.8 tons/ha at about 9500 ha.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Beans

Area, yield and production of beans

Description	1990	1997	2000	2011
Area ('000 ha)	22.00	22.00	22.50	14.40
Yield (tons/ha)	0.61	0.84	0.94	1.51
Production('000 tons)	14.00	20.0	25.20	25.30

1. Compared with the 90s, the bean cultivated area has decreased by about 35% during the last ten years after a temporary increase by the mid of 2000.
2. Beans are cultivated all over Albania, but they are more popular in Lushnja, Fier, Durres, Korca, Kavaja etc.
3. Their yields have been stabilized at about 1.5 tons/ha. With the new cultivating techniques, the beans yield has reached 2.7 tons/ha.
4. The production has been increased and stabilized at about 2500 tons. During the last years, priority has been given to white beans, which are highly demanded in the European market.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Forages

Area, yield and production of forages.

Description	1990	1997	2000	2011
Area ('000 ha)	141.0	134.0	165.0	204.0
Yield (tons/ha)	18.8	23.8	28.7	26.2
Production ('000 tons)	2650	3672	4730	5900

1. In comparison with the year 1990, the forages cultivated area is increased about 47%. In the year 2011 the forages cultivated area reached in 204 thousand ha which equals 50% of the total cultivated area in Albania (in 1990 it was 30%). This results from the increase of livestock and livestock production.
2. In the last ten years (2000-2011) the forages yield is about 26 tons/ha or comparable with the other Mediterranean countries.
3. The forages production is increased more as two times in the year 2011 compared to 1990s.
4. Because of being a Mediterranean country with different micro climaxes, there are many kinds of forages planted all over the Albanian territory (alfalfa, corn for forage, cabbages ect).

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Vegetables

Area yield and production of vegetables

Description	1990	1997	2000	2011
Area ('000 ha)	27.0	30.8	32.8	30.6
Yield (tons/ha)	14.0	19.7	16.7	26.6
Production ('000 tons)	393.0	605.0	620.0	890.2

Area, yield and production of greenhouses-grown vegetables

Description	1990	2000	2011
Area under greenhouses (ha)	1100.0	462.0	856.0
Yield (tons/ha)	89.1	83.5	82.9
Production('000 tons)	98.0	38.6	70.1

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Conclusions on Vegetables

- In the year 1990, the vegetables cultivated area has been about 27000 ha or about 5% of the total area, out of which 1100 ha were greenhouses and out of which, 200 ha were glass-covered or heated greenhouses. The production of this year reached 393000 tons out of which 98000 tons were produced in greenhouses
- In the year 2011, the vegetables cultivated area has been about 30600 ha or about 8% of the total area, out of which 856 ha were greenhouses and out of which, 68 ha were glass-covered or heated greenhouses. The production of this year reached 890000 tons out of which 70960 tons were produced in greenhouses.

Conclusions on Vegetables

- The potential regions for vegetables production are Lushnja, Berati, Tirana, Durresi, Kavaja, Elbasani, Shkodra, Vlora, Berati, etc, The east districts like Korca, Erseka, Devolli, Pogradeci etc practice the late vegetables cultivation.
- The most important crops are –tomato, cucumber, watermelon, paprika, legumes (fresh and dried), eggplants, carrots, onions, garlic, spinach, and lettuce. The tomato culture is the first-ranked and covers about 30% of the vegetables cultivated area. It is followed by the paprika with 15% and then, garlic, onion and eggplants with about 5% each.

Conclusions on Vegetables

- In the year 2011, the vegetables cultivated areas is increased 13%, while the production is increased about 2.3 times in comparison to 1990s and this mainly results from the yield increase.
- The average yields at the national level are about 27 tons/ha while in certain zones and districts like Lushnja dhe Berati, the yield is about 70% higher than the national average.
- Regardless of the greenhouses development, the area they cover is only 78 % of the area of 1990 while their production has exceeded 73% of the production of 1990.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Horticulture

The number of fruit, olives and cityrs trees, their yield and production

Emërtimi	1990	2000	2011
Fruit trees			
Total (000 trees)	13032	5573	11225
Producing trees (000 trees)	7498	4179	8313
Yield (kg/tree)	9.4	15.5	22.6
Production (000/tons)	71.0	64.9	188.1
Olives			
Total (000 trees)	5821	3611	7443
Producing trees (000 trees)	3402	3256	4576
Yield (kg/tree)	2.9	11.1	14.3
Production (000/tons)	10.0	36.2	65.4
Citrys			
Total (000 trees)	1084	391	916
Producing trees (000 trees)	820	305	589
Yield (kg/tree)	13.0	8.8	25.5
Production (000/tons)	10.0	2.6	15.0

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Fruit trees

- The total fruit production in 2011 is 188 thousand tons from 71 thousand tons, which was in 1990 (approximately 2.7 times the more), although the number of fruit trees in production has increased only 11% compared with 1990. This has come as a result of increased yeilds, which in 2011 increased about 2.4 times compared with 1990.

Olives

- In the year 2011, the number of the olive trees was 7.44 mill, which is a considerable increase in comparison to 1990s (28% the more).
- A quality step after the 90s is the yield increase about 5 times. The during the last 21 years, the yield is stabilized at about 14 kg/tree comparing with about 3 kg/tree that was before 1990.
- The districts that have more olive trees are Berat, Vlora, Fier, Elbasani, Saranda, and Lushnja and the highest yields are taken in Vlora, Berat and Saranda.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Citrus

- They are less cultivated than the olive and mainly in Saranda, Vlora and in smaller quanitites in Lushnja, Fier, and Elbasan. All types of citrus are cultivated: oranges, mandarins, lemons and citrus but orange is the most popular one.
- In the year 1990, there were about 1,1 million orange trees and in '90-'92, after the destruction of some blocks their number was reduced to 364 thousand trees out of which 305 thousand trees were producing.
- During the 20 years from 1992 to 2011 the number of citrus trees has increased rapidly. As a result, in 2011 the number of citrus trees is 916,000 or 85% of the number of trees to 1990.
- In the year 2011, the yield of citrus is doubled and the production have been increased about 50%, in comparison 1990s.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

Vineyards

The number of the pergola vines and vineyards area, its yield and production

1. Pergola vines	1990	2000	2011
Number of pergola in total (000 trees)	6.100	5.364	5473
Number of pergola in production (000 trees)	5.160	4.536	5208
Yield (kg/tree)	15.0	12.3	15.0
2. Vineyards			
Total vineyards Area (ha)	17.261	5.824	10073
The area in production (ha)	14.058	4.613	9077
Yeild (ton/ha)	1.8	7.05	12.34
Total grape production (000 ton)	39.5	79.3	195.2

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.1. Crop Production

- Yield of vines has increased nearly seven times during 1990-2011. This has led to total grape production in 2011 to be approximately 5 times higher than in 1990.
- Number of grape is growing rapidly approaching their number in 1990 and making a significant contribution to total production and in meeting the needs of rural families.
- Vineyards are starting to rise after 1997 becoming a source of income for farmers.
- Using technologies and new varieties has significantly improved performance in viticulture and the tendency is to achieve high yields and very high (> 18 tonnes / ha).

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

- In the year 2011 the total number of farms had been 353,341 according to official data of MAFCP. Of them 299,077 were keeping livestock.
- The value of livestock production was 89,770 million Leke in 2011, which was 52 per cent of the total value of agricultural production.
- Particularly dairy activities have a long tradition in Albania. In the plains, cattle production is dominant, while in the hills and mountains, sheep and goat production on pasture and meadows are more suitable. About 15 % of the country's total area is pasture and meadows.
- Starting from the 1990s, two phases of dairy development have been described: the first phase, until 1994, production increases were based on rising animal numbers, while in the second phase yield increases were observed. Yet the intensity of production is until now in average very low in comparison to EU-27 standard and also low in comparison to the neighbouring Balkan countries.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

III.2. Livestock Production in Albania

Development of total number of cattle, sheep and goats (in 1,000) in Albania

Species	Year							
	1992	1996	2000	2005	2006	2007	2008	2011
Cattle	616	806	728	655	634	577	541	492
Sheep	1,796	1,982	1,939	1,760	1,830	1,853	1,800	1,758
Goats	1,234	1,250	1,104	941	940	876	820	759

Source: MAFCP Statistics Yearbook of Albania for 2011

- The total number of cattle declined from 728,000 in 2000 to 492,000 in 2011 (minus 32%). The average herd size of cattle farms is 2.3 animals per farm. Only 1.6 per cent of the cattle farms own more than 5 cows. Only 15 per cent of sheep and goat farms have flocks with more than 50 heads.
- Amongst small ruminants (SR), goat numbers is declining from 1,104,000 in 2000 to 759,000 in 2011 (minus 31%); while sheep numbers appear to have stabilised at about 1,800,000 heads.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

III.2. Milk Production in Albania

Milk Production in Albania (in 1,000 tons)

Description	2000	2005	2006	2007	2008	2011
Total	948	1,076	1,102	1,016	1,040	1,101
Cow milk	807	930	956	868	895	955
Sheep milk	70	75	75	75	77	79
Goats milk	71	71	71	73	68	67

Source: MAFCP Statistics Yearbook of Albania for 2011

- In 2011 the total national milk production of Albania was 1,101,000 tons. About 86.7 % was produced from cows, 7.2 % from sheep and 6.1 % from goats.
- The majority of milk producers are semi-subsistence farming households. The commercial market (mainly cow milk) is characterized by the existence of informal (direct selling from farmers) and formal market channels (collection & distribution by dairies).

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

III.a. Milk Production in Albania

Structure of milk production in 2011

Description	cattle	sheep	goat
Farms with cattle, sheep or goat (no.)	211,454	55,329	24,494
Animals (heads)	492,000	1,758,000	759,000
Milk production per year (tons)	955,000	79,000	67,000
Average number of animals (heads/farm)	2.3	32.0	31.0
Milking animals (heads)	354,000	1,349,000	580,000
Average number of milking animals (heads/milk producing farm)	1.67	24.0	23.6
Milk yield per cow (litres/head/year)	2,696	59.2	113.4

Source: MAFCP Statistics Yearbook of Albania for 2011 and authors' calculation

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

III.2a. Milk Production in Albania

- In average are kept 2.4 heads of cattle/farm (only regarding farms that keep cattle at all), which includes calves, heifers and bulls. Thus, the number of milking cows is even smaller (1.58 per farm on average).
- The average milk yield per cow/year in Albania is with approx. 2,700 Litres currently very low in comparison with the average of the EU-27 which is more than 6,000 Litres per cow/year.
- Also sheep and goat milk production is organised mostly as capital extensive – labour intensive production system and milk yield per ewe with about 59.2 Litres/year and per doe with about 113.4 litres are also very low.
- The low capital intensity of production is resulting in low productivity, relatively high production costs and low profitability.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

III.b. Meat Production

The structure of Meat Production (in 1,000 tons)

Description	2000	2005	2010	2011
Cattle meat	63.0	68.0	69.0	68.7
Sheep &goat meat	35.0	41.0	44.0	45.3
Pig meat	10.0	15.0	16.0	16.8
Poultry meat	4.0	9.0	17.0	17.1
Total	112.0	133.0	145.0	147.9

Source: MAFCP Statistics Yearbook of Albania for 2011

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

- The meat production is increased during last ten years. In the year 2011, the total national meat production of Albania was 147,900 tons. About 46.4% was produced by cattle, 30.6% from sheep&goats, 11.3% from piglets and 11.7% from poultry.
- Over the last 10 years Albania showed an increase of 4.2 times in the poultry meat and an increase of 60% in pig meat.
- The cattle meat production is also increased during the last 10 years. The increase of the meat demand has also increased the farmer's interest for the meat production. This is also shown by their use of cows for meat which don't have only big carcasses but also high-quality meat which enables a better market supply. The type of the breeding material (artificial insemination) used by the farmers also supports this conclusion. In the year 2011 -32% of the used material is suitable for meat production in comparison with 18% used in 2005.

III. MAIN PRODUCTIONS AND THEIR EVOLUTION
III.2. Livestock Production

- As most cattle farmers are not specialized in meat production they slaughter their animals, calves, too young and before gaining sufficient weight. The average live weight of slaughtered calves is about 180 – 200 kg (150 - 170 kg), which is economically much too low. Reasons for to early slaughtering are the demand for very young animals (of all kinds) and the unavailability of cheap fodder.
- The lambs when slaughtered are between 3 and 6 months old and have a live weight between 20 and 40 kg, but mainly between 20 and 30 kg. Average live weight of lambs when slaughtered is in many cases too low but often farmers sell lambs early as prices are good before religious holidays and others want to focus more on milk and try to sell lamb as early as possible – neglecting the opportunity to feed it with something else instead of mother milk.
- Around 70 % of the piglets are produced in an extensive production system but 90 % of the pigs are grown in an intensive system. The slaughter-weights vary between 70 and 120 kg alive.

IV. Agricultural Markets

- Marketing of agricultural products and food for the country is still inadequate. Filling best market needs Albanian local products remains a priority, while increasing the level of exports is another side. Currently, the export opportunities in Albania for agricultural products are very limited due to the following factors:

1. Insufficient and low level of agricultural production and agro-processing industry.
2. Lack of marketing facilities (storage, processing, packaging products).
3. Low standards regarding health control including the veterinarian.
4. Low competitiveness of agricultural products in the Albanian market due to low quality and relatively high cost of production.

IV. Agricultural Markets

Export and import of agricultural and food products

Description	Value(Million Lek)			
	2000	2005	2006	2011
Eksport	3827	5567	6643	12098
Import	34856	42445	53190	84794
Export/Import	1:9	1:8	1:8	1 : 7

- Balance of export-import of food products is an important indicator for the performance of synthetic food industry. According to recent years, the situation of export and import is problematic, where the balance of export-import trade shows a ratio of about 1/7

IV. Agricultural Markets

- Export growth will come from government support through policies and by increasing business competitiveness by identifying themselves: what markets require from their suppliers (quality, packaging, distribution channels)?, What production levels required? and how competitors meet these requirements? etc.
- The importance of export growth is seen not only to reduce the trade balance, but also to improve product quality and increase production capabilities for the creation of new jobs, increased prosperity and overall economic development of the country.
- Increasing THE QUALITY of our products will positively affect the growth of exports and increase the degree of substitution of imports with locally produced products.

IV. Agricultural Markets

Marketing Problems

1. The place of Marketing for crop farms
- Village 14%
- Other Village 3%
- Center district 42%
- Other center districts 3%
- Local market 22%
- Road 14%
- Directly to consumer 4%

IV. Agricultural Markets

Marketing Problems

2. The place of Marketing for live animals:
- Village 21%
- Other Village 14%
- Center district 17%
- Other center districts 1%
- Local market 35%
- Road 10%
- Directly to consumer 2%

IV. Agricultural Markets

Marketing Problems

3. The place of Marketing for slaughtered animals
- Village 79%
- Other Village 2 %
- Center district 9%
- Local market 3%
- Road 4%
- Directly to consumer 3%*

IV. Agricultural Markets

Marketing Problems

4. The place of marketing for livestock products:
- Village 40%
- Other Village 1 %
- Center district 21%
- Local market 3%
- Road 27%
- Directly to consumer 9%

IV. Agricultural Markets

Marketing Problems

1. Channels of marketing for crop products
- Wholesale purchaser 50%
- Retail purchaser 30 %
- Processing enterprises 18 %
- Export 2%

2. Channels of marketing for live animals
- Wholesale purchaser 35%
- Retail purchaser 45 %
- Processing enterprises 12 %
- Export 8%

IV. Agricultural Markets

Marketing Problems

3. Channels of marketing for livestock products
- Wholesale purchaser 36%
- Retail purchaser 32 %
- Processing enterprises 32 %

IV. Agricultural Markets

Some difficulties for selling products
- lack of permanent market place
- High cost for transportation of products
- lack of processing enterprises
- lower quality of their products in comparison with the imported ones
- lack of time to go to the market

V. Food Safety

In the Albania, Food safety sector is defined by the following laws and orders:
- Law No.9863 from 28th January 2008 "Food law" which deals with the norms and general directives for hygiene and food safety and feed for animals; this law is harmonized with the EU Regulation 178/2002 and has set a 5-year transition period for the full implementation of all its provisions.
- The Milk Law No 9441, dated 11.11.2005 "On production, collection, processing and marketing of milk and milk-based products". The Milk Law is completing now with the regulations where involved the raw milk and dairy products microbiological norms.

V. Food Safety

- Law No 9308 from 4th November 2004 "For the veterinary service and inspectorate" which regulates hygienic conditions and food safety aspects;
- Law No 9135 from 11th September 2003, "For the consumer protection" which defines the consumer's right, relationship between consumers and producers, shoppers, suppliers, service providers, and institutions of the market control, and standardization. The objective of the law is protection of the health, environment, assurance of the life, and the consumer's right.
- Different internal orders and regulations from the ministry;

V. Food Safety

- The National Food Authority was established. The structure of NFA is: General directorate, 12 regional directorates, food safety inspectorate (12 food laboratories), animal health inspectorate, plant protection inspectorate, 9 border inspection post (BIP)
- In the food sector implementing legislation has been adopted mainly in the areas of import requirements for animal products (certificates), flavorings' and food for particular nutritional uses.
- Some progress can be reported on laboratory capacity, particularly as regards histamine and residues. However, legal limits for microbiological contamination of raw milk are still significantly less stringent than EU standards.

V. Food Safety

- A very limited amount of legislation was adopted in the veterinary sector. The identification of bovines is not yet finalized and deficiencies in the registration of their movements jeopardize the utility of the current database.
- The current registration of small ruminants is not used for epidemiological purposes.
- No progress can be reported in the animal welfare sector.

V. Food Safety

- The legislative framework remained substantially unchanged in the phytosanitary sector. Only a few legislative acts were adopted, mainly in the area of plant protection products. Overall, there has been little progress in the areas of food safety and veterinary and phytosanitary policy.
- The legal framework improved, but compliance with EU standards remains poor. There has been some progress in the area of fisheries. Overall, there has been progress in the area of fisheries as regards inspection, control and international cooperation. Preparations are advancing moderately.

THANKS FOR ATTENTIONS

Workshoop
The impact of policy instruments on the farming systems in Albania'

First Part- "General overview of Albanian agriculture and methodological tools"

Session 1: **General overview of the Albanian agriculture and its role on the food security**

21st August 2013
Seville, Spain

By
Ilir KAPAJ

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Outline

Agricultural and rural development policies

1. De-collectivisation period
2. National food security indicators
3. Actual policy instrument applied
4. Impact of policy instruments on the sector performance

2

1. The de-collectivisation period

- Agriculture position, importance, structure, level of competitiveness, investment level, etc. have undergone dramatic changes as result of changing economic and political system in the early '90s
- Before '90 changes, developed its activities about 160 state farms with an area of land in possession of about 170,000 ha and 492 agricultural cooperatives with a total land in possession of about 530,000 ha

3

The de-collectivisation period (cont.)

- In the 45 years of the communist regime, agriculture suffered a complete deviation from its natural way of development.
- According to the policies the state followed in that period of time, each state farm or agricultural cooperative, as well as their subsidiary organizational units, had to produce almost everything despite the natural and economic conditions

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The de-collectivisation period (cont.)

- In the year 1991 about 64% of the population lived in rural areas and about 52% of labour force worked in the agricultural sector
- It should be noted that, the orientation of production structures in the agricultural sector except applying economic principles was strongly indicated from politic orientation.

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The de-collectivisation period (cont.)

- The system changing from the centralized to market economy included the country in a rapid process of privatization
- Land law , with the number 7501 dated 19.7.1991 made possible sharing of agricultural land with state farms ownership and agricultural cooperatives, among farm families by household number and as a result of the division and privatization of agricultural land, the land shared in nearly 1,200,000 small and very small plots

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The de-collectivisation period (cont.)

- This division in the plot was based on land category (quality, irrigation and using destination: in walnut orchards, vineyards and fruit trees or pastures)
- Number of farm families that benefited from the division of land was about 467 000

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2. National food safety situation

- It is established the DCIU and the network of inspectors in all DBU and country customs. It is established also the AKU (2010) the main body dealing mainly with food safety
- In addition it is invested for building Regional Laboratories for Food Control
- Nevertheless all improvement done, there have been some flagrant actions related with quality of agro-food products in markets

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National food safety situation(cont.)

- State Control of Food quality has as priority the implementation of food legislation in force, prevention of production and trading of agro-food products, which are not in accordance with determined and declared standards
- Market and food situation, actually is faced with falsification phenomenon, which disturb the consumer and honest producers

2. National food safety situation

- It is established the DCIU and the network of inspectors in all DBU and country customs. It is established also the AKU (2010) the main body dealing mainly with food safety
- In addition it is invested for building Regional Laboratories for Food Control
- Nevertheless all improvement done, there have been some flagrant actions related with quality of agro-food products in markets

Food security overview

- Since the 1990s, the supply of many food groups has increased, particularly for dairy products, eggs, fruit and vegetables
- Presently, at national level, the dietary energy supply is largely sufficient to meet the population's energy requirements (Ministry of Health of Albania &WHO, 2008).

but still Albania continues to rely on grain imports, particularly wheat as its self-sufficiency rate does not exceed 55%

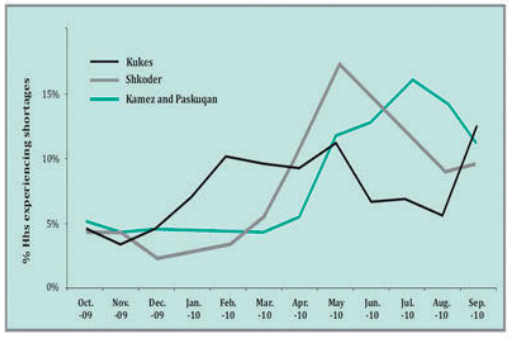
Food security overview…..

A survey conducted (Roshi and Nurja 2010) shows distribution of household % by food security level

	Food secure		Mildly food insecure		Moderately-severely food insecure		P-value
Strata	No.	%	No.	%	No.	%	
Kukes	96	57.1	52	29.8	30	13.1	0.001
Urban	46	73.2	19	14.1	10	13.6	
Rural	50	52.3	33	34.9	20	12.9	
Shkoder	287	75.6	56	13.9	41	10.5	0.001
Urban	130	82.8	17	9.3	14	7.9	
Rural	157	70.4	39	17.2	27	12.4	
Kamez & Paskuqan	539	70.7	177	23.0	49	6.3	0.001

Food security overview…..

Food shortage in three districts in 2009 (Hoxha and Nurja 2010)



MoAFCP's strategy for the restructuring of the control system of quality of foods

- Completing and improving of legal acts in accordance with EU directives.
- Compiling of agro-food legislation, based on EU document "White Paper".
- Legislation gradually would approximate with EU standards, as a precondition for membership

3. The actual policy instrument applied

- Agriculture strategy needs a clear conceptual political basis
- Agriculture needs a more explicit and systematic reformulation concerning agriculture policy concept that should be implemented in Albania
  - The new concept regarding agriculture policy consisted of important principles, as:

Cont……

- Improve the participatory character of the policy-making process in all its steps: identification, drafting, approval, implementation, monitoring and evaluation.
- Ensuring the continuity of policy circle, by avoiding pauses and fractures; so that, agriculture support is secured and continuous.
- Higher focus on the direct support in order to enable 'the hit' in critical points, in the direct developing factors, such as technology (for agriculture production enhancement and improvement of its quality).
- Making obligatory and standardized monitoring and evaluation phase, in order to identify and evaluate effects of the policies and programs, as a condition not only for increasing commitment of policy management, but also to allow for higher effectiveness of development actions.

Cont.....

- Achievements or effects of development policies should be measured against SMART indicators.
- More attention for demand-oriented policies, and agriculture trade policies. In the future, a special focus should be dedicated to policies aiming at consumer's demand management, based on effectiveness it proved in other countries, and in some cases in our country, too.
- Integration of Millennium Development Objectives. Albania has officially agreed them, especially the objective of poverty reduction. This objective although not explicit, is implicitly reflected in above-mentioned principles for the new agriculture policy objective to increase productivity and employment in rural areas.

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The actual policy instrument applied (cont.)

- Policy instruments have been applied in order to achieve the implementation of above-mentioned policies for meeting the strategic goals:

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Policy instruments applied

- Loan schemes for investments in production technologies
- Grant schemes for agricultural inputs
- Drafting platforms for rural innovation at regional scale
- Establishing parallel partnerships (marketing associations of the farmers, local action groups)
- Establishing vertical partnerships (farmers and dealers or traders who cooperate in joint schemes of input sale/buying, and production and sale of commodities)
- Setting rules and improving monitoring in order to eliminate potential monopoly in the input market

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Policy instruments applied

- Facilitate licensing and reduce tax burden for dealers to increase the market competition
- Strengthening the capacities for seeds and seedlings monitoring
- Subsidizing the interest rate (or introduce loan guarantee schemes) of private bank loans
- Sharing the local experience on production technologies, trading, and association organization
- Motivating farmers to lobby in regional and country level

20

Policy instruments applied

- Establishing local funds in order to motivate local initiatives
- Group discussions to identify ways how to foster the development of agro-tourism and organic products
- Market research to identify the *niche* markets
- Technical/financial assistance for activities that add value to farm products
- Public awareness campaigns
- Carrying out non-agriculture basic services in order to get the confidence and commitment of the community in agriculture projects

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Policy instruments applied

- Setting standards for the agriculture products
- Proposals for new projects in agriculture and agro-processing industry to ask for donor support
- Proposal changes or improvements in the legislation
- Improvement of activities for collecting, distribution, usage and publication of statistical information
- Improvements of procedures for on planning, monitoring, evaluating and publishing of policy implementation results
- Harmonization of the Albanian legislation with that of EU
- Applying the European norms and rules for food safety
- Improvement of agricultural information system

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4. The impact of policy instruments on the sector performance

- During 2007-2012 are funded 5,169 projects, with a total of 639, 211 sheep
- From this direct subsidy farmers allocated 255.548.000 ALL
- In total sheep and cows were given 635.575.000 new subsidies which are derived directly from farmers in Albania

23

The impact of policy instruments on the sector performance (cont.)

- Subsidy for medicinal plants is 200 thousand hectares
- 314 applications comprise an area of 376 hectares planted with medicinal plants

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The impact of policy instruments on the sector performance (cont.)

- More than 320 million (ALL) new subsidies are provided only in recent years for planting olive trees in Tirana region
- About 350 new acres of mandarins are planted only in the Saranda district during the last five years

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Support of the State Budget during 2012

- the orchard area increased by 2800 hectares. The surfarce of olive groves has increased by 1700 hectares
- surface with aromatic medicinal plants increased by 350 ha
- breeding was financed in 350 thousand heads of cattle
- 61 business operators were supported by interest free loan

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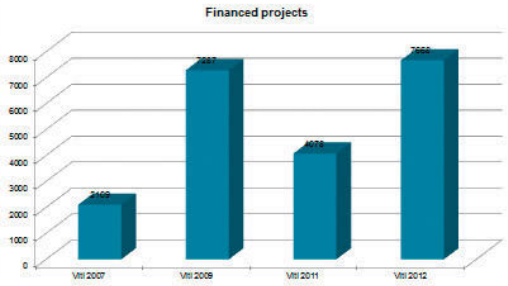
Support of the State Budget during 2012 (cont.)

- 8,000 farmers benefited from support schemes
- Over 2 billion of direct investment from the State Budget for 2012
- Interference hundred miles irrigation and drainage channels
- Irrigation ability was significantly improved in about 20 thousand hectares of agricultural land for 2012

27

Projects financed by the state budget



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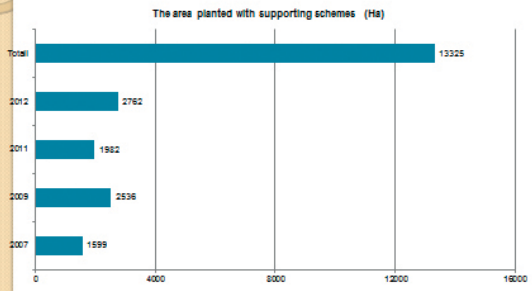
Planted area by the state support schemes



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Ipard-like supporting scheme

- The European Community, delegated to the GIZ – Deutsche Gesellschaft fuer Internationale Zusammenarbeit – the implementation of the IPA 2011 Project "Support to Agriculture and Rural Development" (SARD-IPARD) through Delegation Agreement No. 2012/295-403. The Project duration is from **07/2012 until 06/2014**

Guideline for Applicants sets out the rules for the submission, selection and implementation of investment actions under the two measures

- "Investments in agricultural Holdings" and
- "Investments in processing and marketing of agricultural products" of the "IPARD-like" Grant Scheme.

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Ipard-like supporting scheme

Measure 2 supports investments in four agro-food industry sectors: milk and dairy, slaughterhouses and meat processing, fruits and vegetable, thus complementing the interventions under measure 1 contributing to improve the situation in the basic agricultural production sector.

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Ipard-like supporting scheme

Objectives:

- To contribute to increasing competitiveness of Albanian agricultural sector and food industry by support restructuring and modernization
- To contribute to the preparation of Albanian agricultural sector and food industry for its accession to the European Union by support to alignment to Community standards;
- To support capacity-building of the Albanian structures responsible for the implementation of the IPARD programme in the future.

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Ipard-like supporting scheme

- More than 8 million Euro will be provided for Albanian farmers
  - Grants Scheme "IPARD-like" financed by the EU with EUR 6.2 million and 2.07 million Albanian Government
  - Farmers and agri-processors can get the amount of 50% of the investment after the expenditure have occurred. The range of eligible expenditures si min Euro 2,500 and max 150,000(under measure 1) and min Euro 20,000 and max 1,000,00 (under measure 2)

Grants Scheme "IPARD-like" is implemented by the **Agency of Agriculture and Rural Development and GIZ.**

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Ipard-like performance so far…

- Experts discussion reveals that application process is too complicated and the number of applications is too low comparing with expectations.
  - Burocratic procedures and lack of initial capital from farmers side for new initiative in the agricultural business.

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Thank you

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STATE OF PLAY OF AGRICULTURAL STATISTICS IN ALBANIA

BY
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Head of the Sector of Administration of Agricultural Information
Ministry of Agriculture, Food and Consumer Protection
Albania

August 21st 2013

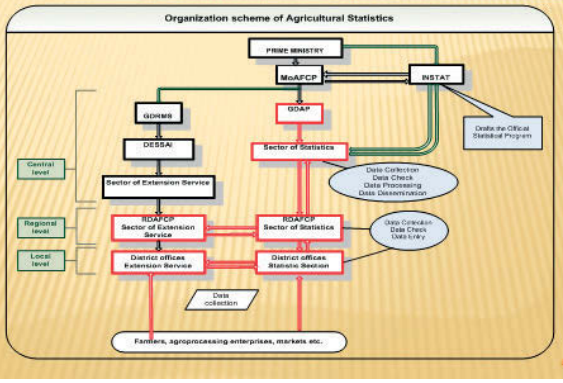
GENERAL OVERVIEW

- Agriculture contribution to GDP- about 20%
- GVA average annual growth in last 5 years is 5%
- About 350,000 farms with average area 1.2 Ha
- 97% of farms are planted with crops
- 85% of farms have mixed activity
- 45% of farms cultivate fruit trees
- More than 3000 "big farms"(more than 10 Ha, 8 cows, 150 sheep or goats, 10 sows)
- More than 5700 farms with greenhouses (total area 920 Ha, vegetable production 80,000 tons)
- Export –import ratio 1:7
- The most exported products: Canned fish, medicinal plants, raw leather, vegetables and animal stomach which occupy about 63% of total agricultural exports

POLITICAL FRAMEWORK

- Inter-sectoral Strategy for Rural Development 2007-2013, part of National Strategy for Development and Integration
- Inter-sectoral strategy for Consumer Protection and Market Supervision 2007-2013
- Sectoral Strategy for Agriculture and Food 2007-2013

ORGANIZATIONAL STRUCTURE OF AGRICULTURAL STATISTICS



THE SUPPORT FOR AGRICULTURAL STATISTICS

- USAID (methodology) during 1993-2001
- World Bank (capacity building) during 2002-2004
- Twining Project 2003-2005 " Albanian Statistics towards EU"
- GTZ project (Market Information System)

AGRICULTURAL STATISTICS ACTIVITIES

- ***Annual agricultural Survey***

  Collects data on: Number and type of agricultural households, Area of crops; numerical situation for orcharding; livestock movement; agricultural and livestock productions; sources and uses of production; production and sales of processed products; mechanical tools; income; expenditures; investments, etc.

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

ANNUAL AGRICULTURAL SURVEY

Methodology- Area Sampling Frame

The steps for the sample construction:

- Stratification
- The construction of PSU(Primary Sample Unit), their numeration and selection.
- The construction of Sample Units or Segments, their selection and their identification.
- The selection of a fixed number of farmers with activity for each selected segment.

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

ANNUAL AGRICULTURAL SURVEY

The stratification standards:

- Stratum 1. The zone with land cultivation intensity over 75%.
- Stratum 2. The zone with land cultivation intensity from 25% to 74.9%.
- Stratum 3. The zone with land cultivation intensity under 25%.
- Stratum 4. The zone with land cultivation intensity 0%.
- Stratum 5. Military zone.
- Stratum 6. Principal cities.
- Stratum 7. Waters, rivers and lakes.

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)
ANNUAL AGRICULTURAL SURVEY

The PSUs are designed for each stratums based on the predefined size boundaries:

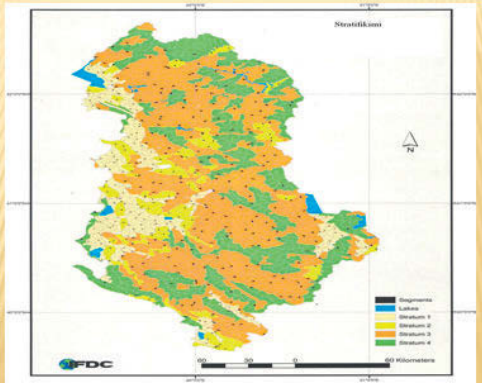
Stratum	Minimum	Desirable	Maximum
1.	800 hec	1000 hec	1200 hec
2.	800 hec	1000 hec	1200 hec
3.	1600 hec	2000 hec	2400 hec
4.	1600 hec	2000 hec	2400 hec

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)
ANNUAL AGRICULTURAL SURVEY

The segment is a confined surface of land inside
a PSU with a definite size depending on stratum,
identified absolutely at place via real physical boundaries
The surface of segments

Stratum 1	25 Ha	+/ - 10%
Stratum 2	50 Ha	+/ - 10%
Stratum 3	100 Ha	+/ - 10%
Stratum 4	100 Ha	+/ - 10%

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)
ANNUAL AGRICULTURAL SURVEY



AGRICULTURAL STATISTICS ACTIVITIES (CONT.)
ANNUAL AGRICULTURAL SURVEY

-Stratums, PSUs and Segments are designed using topographic maps and satellite images
-A total number of PSU-s is selected based on the required precision of estimates.
-The allocation of PSU-s to strata and regions is made with the proportional to size probability
-One segment is selected for each selected PSU.
-The number of selected segments (selected PSU) and their size is defined based on the sample variability, cost, problems related with identifiable boundaries, farm size, number of farms etc.
-The selection of segments is made using systematic selection with random start.
-The segments are identified and localized in maps, measured through the digitalization process, and identified in the field using maps of scale

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)
ANNUAL AGRICULTURAL SURVEY

- For each segment are listed all the farms with or without activity every year.
- From each list, segment, for the interviews are selected 6 farms with agricultural activity. The selection is casual and systematic
- The total annual sample has about 3000 farmers.
- The rotation of the farmers inside the segment is made each year, and every 5 years takes place the rotation of 10% of the sample frame.

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

- ***Semi-annual agricultural survey:***

  Methodology: Area Sampling Frame

  - Collects data on number and type of agricultural households, planted area and numerical situation of orchards, number of heads for livestock as well as milk and wheat production.
  - The sample for semi-annual and annual survey is the same in order to monitor the farm activity during the year.

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

- ***Greenhouses survey (annual)***

  Collects data on planted area on greenhouses by crops and type of greenhouse, data on productions, expenditures, investments etc.

  Methodology: List Frame

  The full list of farms with greenhouses, with respective area, is provided by the structures of MAFCP in districts. The list is updated in yearly basis.

  The first stage of sample design is the stratification

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)
GREENHOUSES SURVEY

Five stratums are defined for each prefecture :

- Stratum 1- farms with less than 500 m2
- Stratum 2- farms from 500-999 m2
- Stratum 3- farms from 1000-1499 m2
- Stratum 4- farms from 1500-4999 m2
- Stratum 5- farms with more than 5000 m2

For the first four stratum for each prefecture, the sample size is calculated with a 95% confidence level.

From stratum 5, all farms are selected.

Out of 5700 farms with greenhouses, a sample with about 700 farms is created.

AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

- ***Survey on "Big Farms" (annual)***

Collects data on planted area for crops; numerical situation for orcharding; livestock movement; agricultural and livestock productions; sources and uses of production; production and sales of processed products; mechanical tools; income; expenditures; investments etc. The questionnaire is the same as for the annual survey.

- ***Methodology- List Frame***

The list of big farms with more than 8 cows, more than 10 Ha, more than 150 small ruminants or more than 10 sows is updated annually by MAFCP structures in districts.

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AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

SURVEY ON BIG FARMS

- The farms are divided in 5 categories: by area, cow, sheep, goats, sows, and the stratification is applied for each category.
- The sample size for each stratum is calculated with a 95% confidence level.
- Every last stratum for each category is fully selected.
- A sample of about 600 farms from about 3000 in total is selected on the last year.

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AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

- ***Agro-Processing Industry Survey: (quarterly)***

Provides data on the number of subjects that operate on agro-processing industry sector by type of activity; number of employees; wage fund; productions, sales, investments and their origin; expenditures, etc.

Methodology: List frame

- The list of all agro-processing businesses with their activities and number of employees is updated on yearly basis
- The sample selection is applied on every activity for all regions . Two stratums are defined for each activity (less and more than 5 employees).
- The sample size calculation is applied in the first stratum. The second stratum is fully selected.
- About 750 businesses are selected out of 2300 in total.

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AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

- ***Market Information System (MIS)***
- Established at the MAFCP since 2004, with the support of GTZ for collection, processing and reporting of prices as follows:
- Retail prices for fruits and vegetables, beans and potatoes. (2 times per week)

The prices are collected from three random commercial units in each region. The final price is the simple average of the three prices.

- Wholesale prices for fruits and vegetables, beans and potatoes. (daily prices)

The prices are collected from five random wholesale units in preselected wholesale markets.

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AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

MIS

- Farmgate prices (weekly prices for 47 products for 36 Districts)

Collected from the Extension Service (in RDAFCP) on farms selected randomly from their contact list.

- Retail prices for food products (monthly prices for 146 food products and some inputs).
- Quarterly farmgate prices for live animals, live weight meat, milk, eggs, honey, olives and forage (For 36 Districts, from livestock markets).
- The information is distributed daily at data collectors in the districs to be placed in the market tables and to be distributed to potencial farmers through the extension service; daily distributed to a large list of contacts: traders, policymakers, researchers etc; published in agricultural websites, television, radio, newspapers etc; distributed through SMS

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AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

- ***Administrative data***
- The above mentioned surveys produce representative data at prefecture level.
- MAFCP also collects "administrative information" at district level, from extension service structures at RDAFCP. It consists of a yearly basis register with information on mechanical tools, irrigation of land, the area with crops and orcharding, the numerical situation of orcharding and livestock, as well as yield and production for each culture.
- The register is furnished by data provided from forecasts or estimates of RDAFCP's experts of extension service in cooperation with the local government agronomist, from small scale surveys with contact farmers, objective yield surveys, etc.

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AGRICULTURAL STATISTICS ACTIVITIES (CONT.)

- ***External trade information***
- The Statistical Service on MAFCP also processes quarterly basis data on international trade of agricultural and livestock products (by the latest approved Combined Nomenclature of Codes)
- The data sources are INSTAT and the General Directorate of Customs.
- The data are processed by article or group of articles, or by country or group of countries, according to the user needs.

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INDICATORS ON FARMING SYSTEM

- There is no approved definition of farming systems in Albania.

The only available data are those provided by the Annual agricultural Survey.

The questionnaire of the survey gives the possibility to collect information on size of farms with crops, number of farms grouped by activity and by size number of plots and average plot size, average working days on the farm, number of farms with income from the work outside the farm, income from sales of agricultural, livestock and processed products, expenditures for agriculture, livestock, farm mechanics etc; plowing methods, usage of fertilizers and chemical fertilizers, usage of pesticides, agricultural machineries, irrigation capability, etc.

This information is available annually and at prefecture level.

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INDICATORS ON FOOD PRODUCTION, CONSUMPTION AND SURPLUSES

- ***Food production***

  Most of the agricultural statistics are focused on production.

  Information on food production is provided by semi-annual survey, annual survey, greenhouses survey, big farms survey, agro-processing industry survey as well as from administrative sources.

  Fish production is provided by administrative sources, collected by MoE, published from INSTAT, (the latest one from 2010)

- ***Food consumption and surpluses***

  Food consumption is one of the main gaps on agricultural statistics and a big obstacle for having a clear panorama on food availability and designing and monitoring right policies in this context

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INDICATORS ON FOOD PRODUCTION, CONSUMPTION AND SURPLUSES (CONT.)

- Food consumption is measured in the Household Budget Survey, planned every three years in the Official Program of Statistics; the last data are form 2007. This survey provides data only on the expenditures for food consumption.
- MAFCP through agricultural surveys prepares some balance sheets for the main agricultural and livestock raw products, by separating inputs (the situation in the beginning of the year, the production, purchases) and uses(for animal feeding, for self consumption, for processing, sales, situation at the end of the year).

  Not possible to distinguish the real quantity for self consumption, since there is not a separation to monitor the destination of processed quantity.
- Food surpluses are not addressed in the current system of agricultural statistics in Albania. Those sporadic cases collected are considered like part of inputs for the current year and inputs are balanced with outputs throughout the year.

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INDICATORS ON RURAL DEVELOPMENT POLICIES IMPLEMENTATION

- **The main indicators, used so far to monitor the implementation of *Agriculture and Food Strategy priorities.***

Agriculture and Food Strategy priorities	List of measurable indicators	Source of information
1.Increase financial support to farms, agricultural and agro-industrial businesses with special emphasis on fruit trees, vineyards, vegetables and animal farming, as well as on the industrial processing of fruit, grapes, vegetables, milk and meat, on the basis of the advantages on the different areas of the country	•Government grants disbursed in national support schemes •Number of successful applications for subsidies •Production of strategic products	ARDA-register of national support schemes MAFCP agricultural survey
2.Improve the management, irrigation and drainage of land	•Agricultural land with rehabilitated irrigation infrastructure •Potential irrigated land •Agricultural land with rehabilitated drainage infrastructure	Frequent information from Drainage Boards (Structures of MAFCP), through evaluation and forecasting, cooperation with local government; info from private Organization of Water Administration

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INDICATORS ON RURAL DEVELOPMENT POLICIES IMPLEMENTATION (CONT.)

Agriculture and Food Strategy priorities	List of measurable indicators	Source of information
3. Improve the marketing of agricultural and agro-processing products to increase the competitiveness of domestic agriculture	•New and rehabilitated markets for agriculture and livestock products	Local governments registers and RDAFCPs
4.Improve the level and quality of technologies, information and knowledge applied by farmers and agro-processing businesses through support to Agricultural Information Centers and Agricultural Technology Transfer Centers	•Number of farmers and agricultural enterprises informed by lectures, leaflets, brochures, demonstrations, media campaign, fairs, etc.	Centers of Technology Transfer registers Agricultural University information, information from projects, etc.
5. Increase the quality and safety of agricultural and agro-processing products.	•Food business operators that have implemented safety and quality systems, HACCP and ISO standards	National Food Authority information system

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INDICATORS ON RURAL DEVELOPMENT POLICIES IMPLEMENTATION (CONT.)

Rural development strategy goals	Relevant indicators	Source of information
1.Increase the competitiveness of the agricultural and agro-food sector through farm modernization measures, as well as support for restructuring and the development of value added activities.	•This goal is addressed by all priorities of Agricultural and Food strategy	
2.Protect and enhance the environment through the sustainable management of natural resources in rural areas	•Land cover •Areas of extensive agriculture •Biodiversity •Development of forest area •Forest ecosystem health •Water quality •Water use •Areas at risk of soil erosion •Organic farming •Production of renewable energy from agriculture and forestry •UAA devoted to renewable energy	•The situation of land, water quality, erosion, forests, biodiversity is monitored by the structures of MoE and is published at an annual brochure "Report on the Situation of Environment" •Water quality is also monitored by Institute of Public Health Other indicators can be subject of studies or private research but are not always accessible (*)

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INDICATORS ON RURAL DEVELOPMENT POLICIES IMPLEMENTATION (CONT.)

Rural development strategy goals	Relevant indicators	Source of information
3.Improving the quality of life in rural areas and promoting diversification of economic activities	•Farmers with other gainful activity • Employment development of non-agricultural sector •Economic development of non-agricultural sector •Self-employment development •Tourism infrastructure in rural areas •Internet infrastructure •Internet take-up in rural areas •Development of services sector •Educational attainment etc	The first three indicators can be currently measured by agricultural surveys as well as INSTAT data on employment and economic accounts (**)
4.Developing the capacities of local institutions to effectively, manage	•Development of local action groups (Number of	(***)

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INDICATORS ON RURAL DEVELOPMENT POLICIES IMPLEMENTATION (CONT.)

(*)MAFCP for monitoring, is mainly focused on the data produces itself.

A lot of information exists separately, but there is not a coordination mechanism or an integrated information system accessible to all, useful for designing and implementing sectoral or intersectoral policies.

(**) The other indicators are often object of studies of governmental or private organisms, but a network for information exchange is inexistent.

MAFCP has established some proxy indicators to measure this priority, focusing again on its own data.

(***) This is a long term priority. It is not fully measured by MAFCP. There are some data from initiatives from international projects, civil society or NGO-s, that have implemented specific components of this priority in pilot areas.

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CREDIT MARKETS AND ACCESS TO CREDIT

- Agriculture continues to be abandoned by the credit market with only 1.2% of the total credit for the economy and 1.6% of the total credit for businesses, given by the banking system.

  Some of the reasons:
- ***Collateral*** is one of the main obstacles to access to credit. The problem of registration of properties and agricultural land is persistent in Albania;
- ***Lack of capacity*** to build business plans, ***lack of information*** and ***difficulty in preparing*** a large file of preliminary documents;
- ***Interest rate*** is high in general, and the seasonality of agricultural activity increases that burden even more;

  All banks or financial Institutions could potentially give credits to agricultural sector, of course with their own terms that change over time.

  The Bank of Albania, the only official reporting institution does not collect qualitative or quantitative information from commercial banks or second level banks on the matter.

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CREDIT MARKETS AND ACCESS TO CREDIT (CONT.)

The only available information from the Bank of Albania is the following

Agricultural Credits by Banking Sector

In million ALL	Dec-09	Dec-10	Dec-11	Dec-12
Total credit to the Economy	440,397	483,130	541,900	554,732
Total credit for businesses	291,214	330,388	389,426	401,699
Agriculture, hunting and forestry	3,060	3,983	5,586	5,655
Fishery	569	904	1,036	906
Total Agriculture	**3,629**	**4,887**	**6,622**	**6,561**
In % to total credit for businesses	**Dec-09**	**Dec-10**	**Dec-11**	**Dec-12**
Agriculture, hunting and forestry	1.1%	1.2%	1.4%	1.4%
Fishery	0.2%	0.3%	0.3%	0.2%
Total Agriculture	**1.2%**	**1.5%**	**1.7%**	**1.6%**
In % to total credit for Economy	**Dec-09**	**Dec-10**	**Dec-11**	**Dec-12**
Agriculture, hunting and forestry	0.7%	0.8%	1.0%	1.0%
Fishery	0.1%	0.2%	0.2%	0.2%
Total Agriculture	**0.8%**	**1.0%**	**1.2%**	**1.2%**

ENVIRONMENTAL INDICATORS

The environment statistics is still at an early stage of development, and the data are often sparse.

The main and only data collected by the MoE and its structures and published by INSTAT are related to the following indicators:

- Solid and inert urban waste ; Air quality- the content of atmospheric contaminants; Biodiversity; Physical-chemical data of water in lakes; Bacteriological contamination of sea water at beaches ; Imported pesticides; Offenses in forests and pastures; Soil erosion; Cadastral forest and pasture fund; Exploitation of forests and major products; Investments in the woods; Network of protected areas; Types of wild fauna in Albania etc

AGRICULTURAL CENSUS

- According to the statistical law, INSTAT is liable for agricultural census.
- The first agricultural census was conducted in 1998. The census database was never updated and it was never used as a framework for agricultural surveys.
- The next census, the last one, was conducted in 2012 , supported by the EU-project "Support for the alignment of Albanian Statistics with EU standards"
- The process started in 2009 with the establishment of the legal basis, questionnaire design, preparing the list frame, pilot census, preparing logistic and IT tools, coordination with other existing registers of farmers, field work, and

AGRICULTURAL CENSUS (CONT.)

- The list frame was build by crosschecking several sources:

  The register of Population Census of 2011, "the animal register", built by MAFCP, the cadastral register etc.
- MAFCP, as the main stakeholder, was the main partner assisting INSTAT for the questionnaire design.
- The questionnaire was built trying to be fully compliant with EU standards and recommendations.

AGRICULTURAL CENSUS (CONT.)

- The census questionnaire has 12 sections:

  Identification of the holder ; General information about the agricultural holding; Land ; Livestock ; Other gainful activities directly related to the holding ; Labour force ; Machinery used by the holding; Buildings; Destination of agricultural products; Location of land-livestock; Credit and insurance; Transfers of land
- The Agricultural Census, through the establishment of "statistical farm register", will serve as the basis for reforming agricultural statistics. Through the possibility to analyze the characteristics of the agricultural holdings, it will be a useful tool for agricultural planning and policy-making. It will also provide a baseline for monitoring the agricultural development projects.

CONCLUSIONS

- There is a wide range of quantitative information on agricultural activity during the year collected through agricultural surveys; still, statistics are missing on food consumption and food stock in order to assess the stability of food supply.
- The methodology for sample surveys, especially for annual survey of agriculture, can be the only solution at the moment but it's not the best one, since one frame with the same periodicity is impossible to be fully representative for all agricultural indicators.
- Qualitative data that can provide a deeper understanding of the impact of agricultural and rural development policies as well as monitoring food security status and how it is experienced by particular groups are not collected on a regularly bases.

CONCLUSIONS (CONT.)

- Statistics on Socio-Economic Development of Rural Areas and those on Environment are insufficient in terms of quantity, quality and time.
- There is a need for a coordination mechanism or establishment of an integrated information system, for designing and monitoring inter-sectoral policies.
- The establishment of the new statistical farm register by the agricultural census will be the basis for reforming agricultural statistics, in terms of conducting special surveys for sensitive indicators; the sample will be objective-specific; the frequency will vary according to the objective and of course the indicators will be revised to be more compliant with EU

THANK YOU!

Rural development in Albania

21 August, Seville/Spain

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Rural development....

- Rural development ... the process that aims at improving the standard of living of the people living in the rural areas.
- It is an integrated process including social, economical, political development of the poorer sections of the society- rural areas.

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Albanian Case....

The country is considered to be rich in:

- natural resources including waters, minerals, forests, medicinal plants, sufficient potentials for agricultural and livestock production.
- historical and cultural values as one of the ancient Balkans' people

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Agriculture & Rural Development indicators

Rural population (% of total population):

- Albania is recognized for its small but growing population and intensive urbanization with the system change.
- Free movement in the period '90-2000, significantly changed the map of development.
- Albania remain very rural country.

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Rural population...

- The population density is 109.7 (per km^2) while in EU 27 countries are 166.0 inhabitants (per km^2).
- In the year 1991 about 64% of the population lived in rural areas and about 52% of labour force worked in the agricultural sector.

Population	2001					2013				
	MF	M	F	Fem.M	Fem.F	MF	M	F	Fem.M	Fem.F
Urban	1,293,549	638,782	654,767	49.38%	50.62%	1,522,030	754,231	767,798	49.57%	50.43%
Rural	1,774,195	890,920	883,271	50.22%	49.78%	1,284,985	642,638	642,347	50.00%	49.98%
Total	3,067,745	1,529,702	1,538,038	49.86%	50.14%	2,797,015	1,397,470	1,390,145	50.13%	49.57%

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Rural population...

People living in rural areas are significantly poorer than those in urban areas.
This poverty has different dimensions such as:
– low or very low income levels of the poor
– higher incidence of health risks and lack of appropriate medical services;
– low educational levels
– limited access to government decision making process .

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Rural population...

- Urban poverty has declined faster than rural poverty.
  - ✓ the urban poverty headcount falling from 19.5 to 11.2 percent, between 2002 and 2008
  - ✓ the rural headcount fell from 29.6 to 24.2 percent.

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Rural population...

- Poverty levels are relatively higher in groups for which farming is the main income source.
- The internal migration may create risks to the structure of the labor force.
- Labor force migrating from rural to urban areas is characterized by a low level of education and specialisation.
- The phenomenon may cause transfer of poverty from rural to urban areas as well as the significant social problems.

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Employment in agriculture …

- Change of property relationships in the early '90, brought a great diversity regarding the employment of rural population.
- Agriculture provides the income basis for most of the population and serves as an employment safety net.
- Other employment opportunities: private activities, businesses and emigration.

Employment in agriculture …

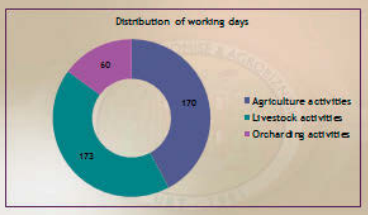
Employment	
Labor Force	1,109,207
• Employed	967,268
a) public sector	164,000
b) private non-agricultural sector	280,968
c) private agricultural sector	522,300
• Unemployment	141,939

- Employment in the agricultural sector was around 51.5 percent of total employment during the year 2012.
- The unemployment rate for the first quarter of 2013 is 12.8%.

Employment in agriculture …

- men are involved in processes related to the purchase of inputs, sales, grazing, irrigation, spraying and transportation of products,
- women are more involved in food preparation, vintage and after-activity, milking the cattle and the works with the vegetables
- structure of working days on the farm is estimated to be 73% and 27% outside it.

Employment in agriculture …



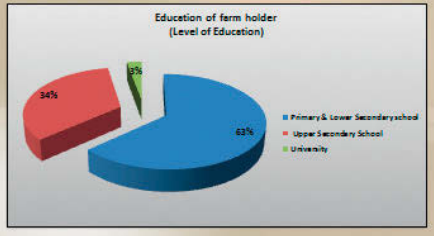
Employment in agriculture …

- The farmer is employed full time only in peak periods of production cycle (planting, picking, irrigation).
- This phenomenon becomes even more evident in the absence of other employment alternatives, emphasized especially in the distant areas far from urban markets.
- There exists an underemployment of labor force working in agricultural activities.

The age structure and education …

- more than 40% of farm family estimated to be from 25 to 54 years old.
- from 1-24 years are nearly 38% of farm family.
- 11% is aged 55-64 years
- only 11% were more than 65 years
- Gender of farm managers in 2010 male-female proportion is 93 versus 7%

The age structure and education …



The age structure and education …

- the rural population is a relatively young average age (Albanian population remains on top of European statistics in terms of the average population age).
- This fact, is considered to be an advantage in production activity of rural entities.

⚠ the ages of 16-30 years old have very limited connections with the farm and farm activities.

Land area …

- The total surface of Albania is 28.748 km² and agricultural land represents only 24 % (about 696.000 ha) of the total area of the country. Out of the total agricultural land, 44% (304.000 ha) is lowland with relatively high productivity potential.
  - 562 thousand ha have been privatized
  - 134 thousand ha, or about 20% of total agricultural land, are in state or communal ownership.

Land area …

Land Structure				
Year	1998	2003	2008	2011
Agricultural land	699	699	696	696
Agricultural land %	24	24	24	24
Forests	1026	1041	1043	1237
Forests %	36	36	36	43
Other Land	703	712	631	437
Other Land %	25	25	22	15
Grassland and pastures	445	423	505	505
Grassland and pastures %	15	15	18	18
Total of land	2875	2875	2875	2875

Land area …

Factors that promote the land purchase are:

- high fragmentation of the land and the indispensability of its consolidation;
- the need for reaching optimal parameters in the farms size (national aver. 1.21 ha, 2011);
- the tendencies of the young generation not to become involved in agricultural activities, etc.

Land area …

Factors that slow down the land purchase are:

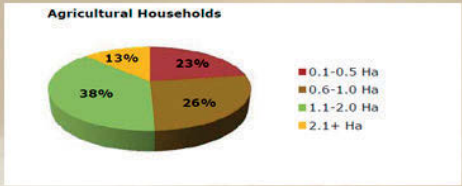
- the strong links of the peasant with land;
- the psychology of not selling the land inherited from his father,
- his disappointment from the ex-cooperatives system;
- the overpopulation of the village families,
- existence of a lot of problems linked to the ownership;
- the long-term security provided by the land,
- the market insecurities, etc.

Land area …farm size

- We have to take into consideration two main problems that Albanian farm is facing nowadays:
  - farm size
  - farm fragmentation

Indicators/Years	2000	2005	2009	2011
Average size of parcels	0.20	0.28	0.28	0.27
Farm size (353.341…2011)	1.04	1.10	1.19	1.26

Land area …farm size



These conditions decrease the using factors efficiency and forced Albanian farmers to adopt complex production systems

Land area …

- During the transition years a large area of agricultural land is urbanized, forests are damaged by harvesting and the rivers by exploiting without any criteria.
- The land market in Albania is still in first steps and a package of integrated measures is needed for its development and consolidation.
- The risk of the total degradation of the unproductive lands is clearly evident because of the lack of reforestation and the owner's denied to get hold of them.

Land area …

- The land leasing seems to be one of the main land transactions and also, one of the most important and possible alternatives for farm consolidation.
- Investments for maintenance and fertility increasing in the past 20 years have been insignificant, which has greatly damaged its productivity.

Forestry and Pastures

- Forest administration is going through a reform process in line with Albanian's overall social and economic development.
- The decentralization of forests and pastures management aims at accomplishing the transfer of state forests and pastures as well as their management competencies in use of local government units.

Agricultural irrigated land …
Water resources

- Albania is rich in water resources, such as lakes, rivers, springs, lagoons, with high quantity of available water.
- The annual water volume of 13,000 m^3 per capita.
- Although Albania is rich with water sources and the average annual rainfall of about 1,485 mm, about 20% of the total precipitation falls in the summer.
- About 5% of total surface of the country is covered by water

Agricultural irrigated land …
Water quality

Our country is characterized by the existence of:

- sufficient reserves of good quality, on one hand
- high levels of water losses, risks of pollution on the other.
- Urban and industrial wastewater continues to be discharged through canals without treatment directly into the rivers, lakes or seas. In the rural areas, waste is not collected at all and dumped uncontrolled.

Agricultural irrigated land …
Water quality

- Water standards for both drinking water and wastewater have been clearly set, but enforcement of these standards is weak.
- Albania lacks a comprehensive system of water quality monitoring, resulting in inconsistent and poor data.

Agricultural irrigated land …
Irrigation and drainage

- Albanian rural areas inherited from the previous system a satisfactory network of irrigation and drainage, system based mainly on traditional self-flow.
- In the early years of transition as a result of destruction of state enterprises, but also land privatization and fragmentation this network was severely destroyed.

Agricultural irrigated land …
Irrigation and drainage

- Farm irrigation costs in relation to total costs is estimated to be about 3.15% of total expenditure on agriculture
- Currently only 29.4% of the arable area is irrigated nationally
- The irrigation potential of today is 47.6% of the arable surface
- Recently are transferred irrigation surface from the state to water users associations (WUAs) covered about 280,000 ha, which is theoretically about 80% of potentially irrigable area in the country (360,000 ha).

Agricultural irrigated land …
Irrigation and drainage

- It is worth mentioning the governmental support for modern irrigation schemes in the recent years mainly in orchards, greenhouses and olive groves through subsidies which leads to a significant improvement.
- Inefficiency of water use obviously is conditioned by the influence of a number of complex factors.

Mechanization …

- Regardless the positive developments in this sector, it's still noticed a non-satisfactory ratio of mechanical means/ labour.
- It's noticed a considerable increase in the imports of the agricultural machinery, last years.
- According to data the number of tractors for 100 km.s is 121.9 .
- More than 50% of tractors in use in Albania have >10 years age.

Agriculture value added & economic level of rural sector...

- Agriculture sector contribution in the GDP of the country is 17 %.
- It has ranged from 27.5% of the total in 1960 to 25.1% in 1990.
- Growth rate in real terms of agricultural production over the last ten years is estimated to be about 3.6% per year

Agriculture value added & economic level of rural sector...

Value of agricultural products (in mln ALL)

Description	2000		2005		2011	
	Value	Percentage	Value	Percentage	Value	Percentage
Livestock	71460	56.7%	84276	59.3%	91837	51.8%
Field crop	42483	33.7%	42392	29.8%	55505	31.3%
Fruits	12173	9.7%	15552	10.9%	30096	17.0%
Total	126116	100%	142220	100.0%	177438	100.0%

Agriculture value added & economic level of rural sector...

- For the year 2011 the value added by agriculture is 150,788.3 million lek.
- Certainly, the level of incomes varies according to the geographical zones and within each region itself.
- Low financial capacity has been and remains one of the main obstacles in the developing of rural entities.

Agriculture value added & economic level of rural sector...

- Financing rural sector takes only 1-1.5 of the total credit portfolio of commercial banks. This fact is explained by the specifics of the agriculture sector itself but also the problems which the sector faces today.
- The main factors: low attractiveness of the sector as a result of higher risk of the activity, the lower levels of collateral from farmers (small size and fragmentation), unresolved problems with land ownership and a high level of loan interest.

Rural infrastructure ...

- Albanian regions are highly differentiated in terms of development of network infrastructures as well as accessibility to markets.
- In the recent years by government priority has been given to the construction of communal roads and the secondary road network in the country.
- Transport and thus movement of products and people play an important role on fostering rural development.

Rural Areas-concentrated main features...

Spatial typology (spatial, demographic, infrastructures and environmental aspects)	Development typology (socio-economic development and competitive aspects)
• Different location (central or/and peripheral) • Young population • Limited accessibility (internal or/and to the centre) • Low (though improving) access to services, • Intense depopulation, • Low urbanization • High fragmentation • High age dependency, • Low pollution but constant pressure to exploit natural resources.	• Least-medium developed, • RD index 75% (national average, it vary from region to region). • Low value added. • Many structural problems and high levels of poverty. • Extreme levels of depopulation. • Limited participation in the markets • Low competitiveness • Limited financing from government and financial institutions

Comparative view..

Indicators	Agricultural land			Fertilizer consumption	Agricultural employment		Agricultural machinery	
							tractors	
	% of land area		% irrigated	kilograms per hectare of arable land	% of total employment		per 100 sq. km of arable land	
	2000-02	2009-11	2009-11	2008-10	2000-02	2009-11	2000	2009
Albania	42	44	17	88.9	57.7	44.1	139.9	121.9
World	38	37	..	130.3	37.9	30.4	196	..
Low income	37	39	..	21.6	..	..	15.5	..
Middle income	45	44	..	169.8	47.9	37.4	110.4	..
Upper middle income	43	44	..	210.8	42.1	31.9	130.3	130.3
Low & middle income	43	43	..	147.7	48.5	37.5	96.9	..
High income	50	29	..	97.1	5.4	3.5	373.1	373.2

An approach to answer the questions:

Criteria of farm segmentation/typolgy on developing countries

Fatmir Guri, Eneida Topulli Sergio Gomez Y Paloma

European Commission, Joint Research Centre.
The European Commission's in-house science service
Institute for Prospective Technological Studies - Seville

Definition(s) of farm segmentation/typology

Selected major Farm typology definitions:

distribution of farm pop... "into groups that have resembling farms within the group... clearly distinguishable between each-other"...

groups of roughly homog... circumstances for whom we can r... recommendations (Byerlee et al. ...

the farm typology in a giv... systems (Castel et al. 21010)

"Typology cons... the constraints ... (Bizotega et al. ...

'Is an efficient ... intrinsic to eve...

Makes possible the elaboration of
- Research propositions (Jouve 1986);
- Agricultural policy instruments;
- Extension services tailored

Farming system is an integrated (comprehensive and multi-attribute) description of very complex agronomic, ecological and socio-economic situatios both on the farm and in the farm household (Kostrowicki, 1977 cited in Castel et al. 2010

Farm typology objec...

Draft and apply agricultural policies (Johnson 2002); To inform about the effects of agric... policies Daskal... al. 2002), (EU ...

...objectives of the research (Jo...

...stems (FS), in order to ... analyse their evolution

- Ga... highlight some sp... effects of farming

Evolution in time: following the farm type in order to highlight farming system evolution (Hurley 1965)

According to Jouve (1986) the typologies are of two different groups: i) structural (analyse the organisation) and ii) functional (analyse the technical procedures)

Comparison : the main objective is the comparison (e.g. compare the characteristics of different farms types to have more information about their production system, environmental effects etc.)

Segmentation Methods

Quantitative app... criteria, as... 1977)

Segmentation criteria should have heterogeneous values within the population, the ... values are not ...tation criteria; ... easy to collect

Quantitative approach (Iraizoz et al.2007) may be based on
A small number of variables (USDA 2000,2001) (occupation of operators and volume of sales)
Multivariate statistical technique (a greater range of variables can be employed (cluster analysis)

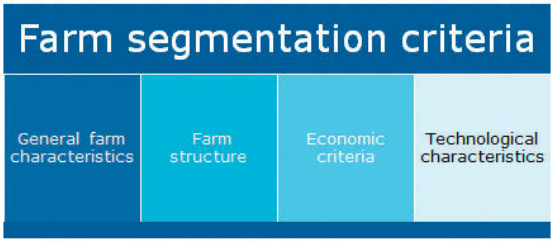
However some... ...e (e.g. aesthetic landscape ser...

Qualitative (or a priori) approach: stronglybased on expert kn... ...) (it is not very ... segmentat...

Main cons of this method (Iraizoz et al 2007)
The merit of the method depends heavily on expert knowledge (Gloy and Arkridge 1991)
The use of available data generally is not complete
There is no evidence that the groups are homogenous (Grebauer 1987)

Farm Segmentation criteria (1)

(Lamarche, Brodeur 2007)



Farm Segmentation criteria (1)

(Lamarche, Brodeur 2007)

General (major) farm characteristics :

- **Main production mix - to be combined with economic criteria of segmentation (costs structure technology etc.)**
- **Farms surface (constantly used to capture the economy of scale effects in agriculture)**
- **Socio-demographic characteristics (farmers' age, education, etc.)**
- **Geographical characteristics (altitude, regional economic and infrastructural characteristics etc.)**

Farms Segmentation criteria (2)

Organisational structure:

- **Legal form of the organisation (individual owner, association etc.)**
- **Land tenure systems (ownership, rent in, sharecropping etc.)**
- **Labour characteristics (familial labour, hired labour etc.)**

Farms Segmentation criteria (3)

Economic criteria:

- **Output destination (share of total product sold, self-consumtion, type of commercial channels etc.)**
- **Economic Income (total income or Income/ ha is highly incluenced by yields and agricultural prices)**
  - Farming system vs.Farm household
  - Income/ product (classification according to the main agricultural production
  - Input (labour fertiliznts etc.) quantity used/ ha, ton of production or unit of income
- **Sources of revenus: share of non agricultural revenus on the farm etc.**

Farms Segmentation criteria (4)

Technological charateristics:

- **Technological level (e.g. greenhouses, heating systems etc.)**
- **Environmental charatersitics (environmental footprint, positive/ negative environmental services etc.)**

FADN farm typology

Exclusively economically based

- **relative distribution of farm income among different activities (TF14) if 2/ income is issued by one activit ck)**
- **Economic size class (in ESU)**

European size Unit (ESU)=1200 € (Standard gross margin SGM)

Economic size ESU= TES/1200 total economic size (€)= sum of SGM (ha or LSU) for all farm activities

onomic clases U)	Clustered clases (in ESU)		
	0-<4	12-<16	8-<16
		16-<40	16-<40
	4-<8	40-<100	40-<100
		100-<250	>=100
		>=250	

Pros/Cons of EU-FAND Typology

Pros: *Covers in a representative way the Agricultural activity in Europe;*

Economic classification criteria make possible the comparison between farm groups (or a farm group in time), between regions within a country or between different countries (Lamarche, Brodeur 2007).

Cons *(Andersen et al. 2006): Links with social issues are very limited;*

Off farm activities are not taken into consideration;

Environmental relevance is limited;

This typology is created mainly for commercial farms.

Specificity(ies) of Farm segmentation criteria in low income economies (1)

The origin of farm diversity in low income economies is linked to the unequal resource endowment (land, water, capital, labour force) (Jouve, 1986);

In Western Africa - labour force and agricultural equipment (Jouve, 1986);

Other segmentation criteria can be : Food security, farm investment capacity (Tittonell 2011) and market participation.

Specificity(ies) of Farm segmentation criteria in low income economies (2)

Particularities of farms in developing countries needs appropriate criteria of segmentation some of them:

- **i) farmer experience;**
- **ii) additional labour;**
- **iii) farms size;**
- **iv) herd size;**
- **v) arable/available;**
- **vi) crop arable;**
- **vii) sharecropping;**
- **viii) distance from village;**
- **ix) distance from road;**
- **x) plot number;**
- **xi) value of farm equip.;**
- **xii) livestock income;**
- **xiii) off farm income;**
- **xiv) irrigation**

(Köbritch et al. 2002)

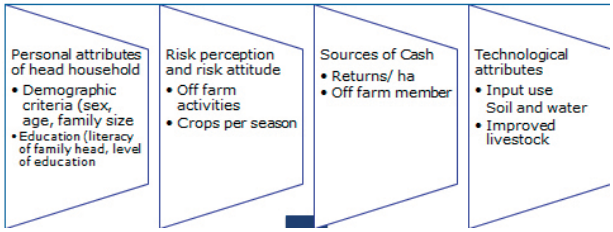
Specificity(ies) of Farm segmentation criteria in low income economies (3)

Tittonell et al. (2010) use the following criteria to segment small farm household of East Africa

i) Farm size (total area, farmed area)
ii) Cash crop area
iii) Family size
iv) Family labour
v) Family off farm employed labour
vi) Age of household head
vii) Number of years perceiving off farm income
viii) Production orientation (% production for the market)
ix) Total number of livestock etc.

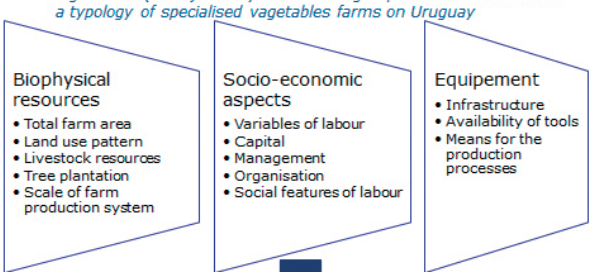
Specificity(ies) of Farm segmentation criteria in low income economies (4)

Bidogeza et al. (2007) identify the following farm segmentation criteria in Rwanda (typology objective is the adoption of new technology)



Specificity(ies) of Farm segmentation criteria in low income economies (5)

Righi et al. (2011) identify three main groups of variables to build a typology of specialised vegetables farms on Uruguay



Specificity(ies) of Farm segmentation criteria in low income economies (6)- Sierra Leone

Louhichi et al. 2013 use two types of farm typology: 1) classification of ecosystems and 2) the economic size of farms and the level of farm specialisation in Sierra Leone:

Classification of ecosystems:

	Low yield low labour	Low yield high labour	High yield low labour	High yield high labour
Upland	Y=0.21	Y=0.23	Y=0.40	Y=0.44
IVS	Y=0.27	Y=0.33	Y=0.71	Y=0.50
Boliland	Y=0.19	Y=0.20	Y=0.35	Y=0.47

Specificity(ies) of Farm segmentation criteria in low income economies (7)- Sierra Leone (economic criteria)

Farm economic size

Farm income = Price(rice) × Production(rice) − Labour costs

1 EUD (e… …es (price of 1 ton of r…

Principal … …ample is divided in…

Average rice… the Bombali… (for all types… calculated fr… survey

Average rice… production b… calculated fr… survey

Includes only cost of hired labour

1) Farms with low income standard (0.2-0.88 EUD);

2) Farms with medium income standard (0.9-2.23 EUD);

3) Farms with high income standard (more than 2.27 EUD).

Farm specialization (share of the main crop): i) rice farms, ii) mixed farms (rice and vegetable), iii) rice and perennial crop farms, iv) diversified farms.

Specificity(ies) of Farm segmentation criteria in low income economies (8)- Sierra Leone

	Small	Medium	Big
Rice farms	Rice_small	Rice_med	Rice_big
Mixed farms (rice and vegetables)	Rice_veg_small	Rice_mix_med	
Rice and perennial crops farms	Rice_per_small		Rice_per_big
Diversivied farms		Rice_per_med	Rice_mix_big

Specificity(ies) of Farm segmentation criteria in low income economies (Albanian examples)

Mainly expert based typology:

Çakalli (2012)- region of Vlora reproduction threshhold

Guri (2002)- region of Durrës: farms strategies/ land use

Biba (2001)- Region of Lezha and Korça i) market share; ii) share of agricultural income; iii) agricultural techniques

Canali et al. 1998 – region of Divjaka (Lushnjë) irrigated surface

Musabelliu, Skreli (1997) – cooperation organisation

A procedure to esta… typology

A procedure of six s…ges (Escobar and Ber…gué, 1990 cited by Köbrich et al. 2003, Iraizo…et al. 2007):

1) Setting theoretical framewo… fo…

2) Selection of variables as proxi…

3) Collection of data;

4) Varia…

5) Cluste…

6) Validation

Classification in groups
Criteria of classification (Fiegenbaum and Thomas 1993 cited by Iraizoz et al. 2003):
a) The % of intra group variance explained by grouping should be higher than 50% of total variance;
b) The extra variance explained by adding an extra group is not higher than 5 %
The number of groups is fixed at a point where these two criteria are satisfied.

The theoretical framework defines the purpose of classification and establish the hypotheses to guide the process

Cluster analysis is an adapted method due to its strength in defining homogeneous groups of farms (Iraizoz 2007)

…at do not … be discarded

…liminated
Uncompleted observations should be completed or discarded

A procedure to establish a Farm typology (2)

According to Duveroy (2000) , the farm typology procedure accounts 4 steps:

1) Delimitation of area for which the typology is valid (typologies constructed from national surveys are generally scares, and lack of precision

2) Construction of sample farms representing the farm diversity (the sample may be statistical based or based on geographical stratification)

3) Data on these sample are collected through surveys or farming direct interview

4) Farm types identification (multivariate analysis and clustering techniques)

Thank you for your attention

FSSIM-Dev

Kamel Louhichi, Fatmir Guri, Sergio Gomez Y Paloma

European Commission, Joint Research Centre,
The European Commission's in-house science service
Institute for Prospective Technological Studies - Seville

Why farm level:
- first decision making unit in Agriculture
- *One among the drivers of innovation*
- *Objective of agricultural and agri-environmental policies*

eveloping countries

In **Supply models**, the main decision problem is the allocation of resources among production activities.
In **Farm household** models the main decision problem

o-economic farm

BEFM is a model that links farmers resource management decisions (land, labour, etc.) with current and alternative production possibilities (crop or livestock activities) in order to achieve certain economic outputs (income or utility maximization, risk

Why **BEFM**:
- Environmental externalities can be computed.
- New activities/technologies can be simulated.

compare at a farm level the different policy alternatives.

Positive approach is more suitable for predicting the impact of policy change and technological innovation since it is calibrated/validated to an observed situation.

Model/reproduce exact observed situation assuming rational farm behaviour.

decision

The objective function

The utility function tend to maximise the expected income minus risk

Expected income (from agricultural activities)
- sales of agricultural products
+
- Compensation payments (subsidies)
-
- total variable costs from crop and animal production (fertilizer, irrigation water, crop protection, seed and plant material, animal feed, hired labour, unaccounted costs due to management and machinery (quadratic term of cost function))

Risk component
- risk aversion coefficient
- standard deviation of income (due to price and yield variation) calculated over states of nature using a normal distribution function

Architecture Of FSSIM-DEV

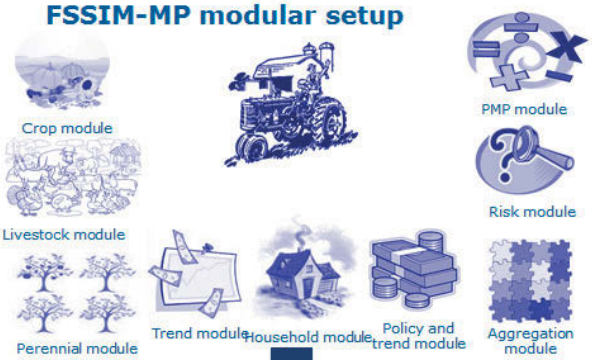
FSSIM-AM
Agricultural management module

FSSIM-MP

Questionnaires
Database on farm resource endowments

- **Per farm-type**
*Production per product
*Input use (water, nitrogen, pesticides etc.)
*etc.
- **Economic indicators**
*farm income
*labour use and employment
* etc.
- **Environmental indicators**
*nitrate leaching
*soil erosion
*pesticide leaching
*etc.

FSSIM-MP modular setup



FSSIM-DEV

An activity is a coherent set of operations with corresponding inputs and outputs, it is characterised by a set of technical coefficients (or input-output coefficients)

An activity based model- a product can be produced by different activities, and each activity can produce several productions

FSSIM-DEV

Crop rotation does not mean the cultivation of different crops during the same year but the cultivation of crops in the same plot on successive years.

A static programming model – a model optimizing the objective function only for one period

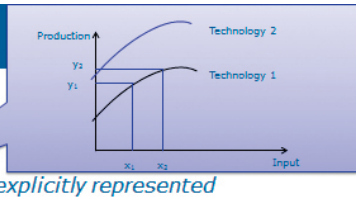
- **FSSIM-DEV takes into account some temporal effects using 'crop rotation' and 'dressed animal' principles.**

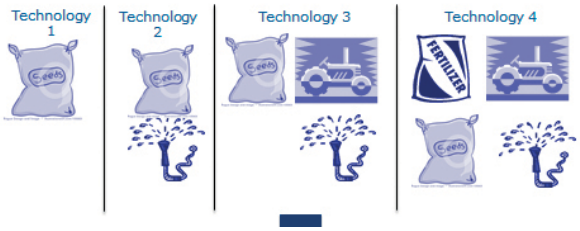
Farm situation

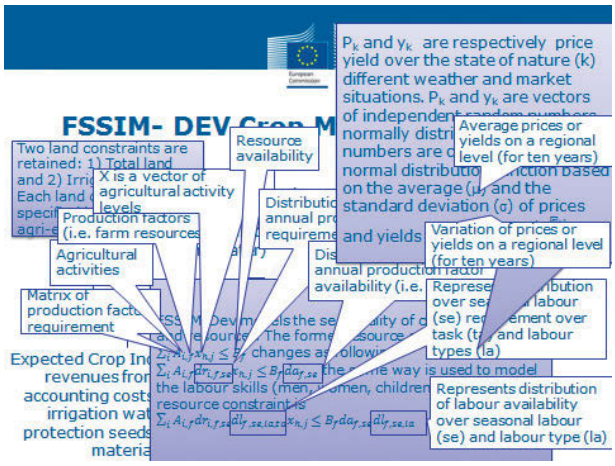
Model representation

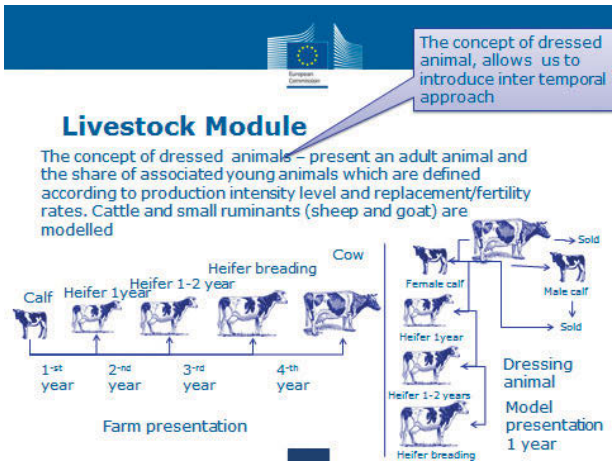
FSSIM-DEV

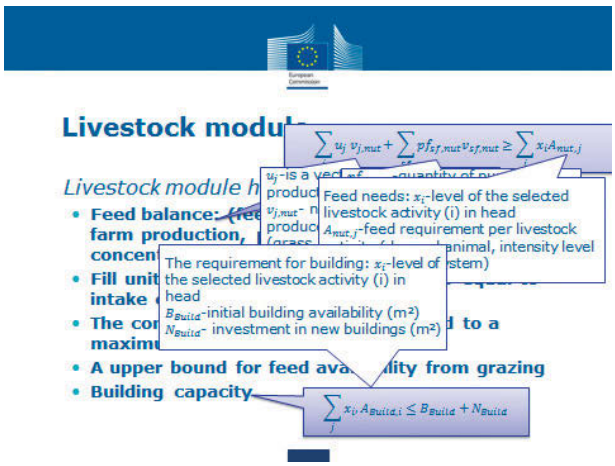
The technology is explicitly represented

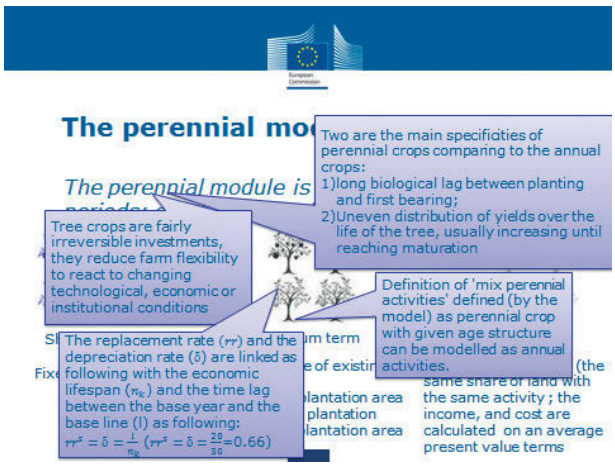


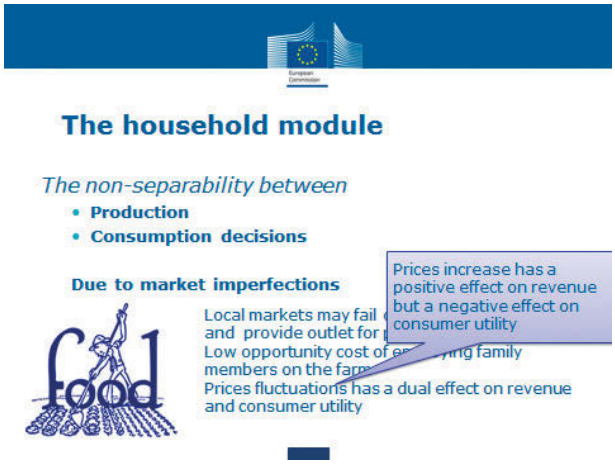


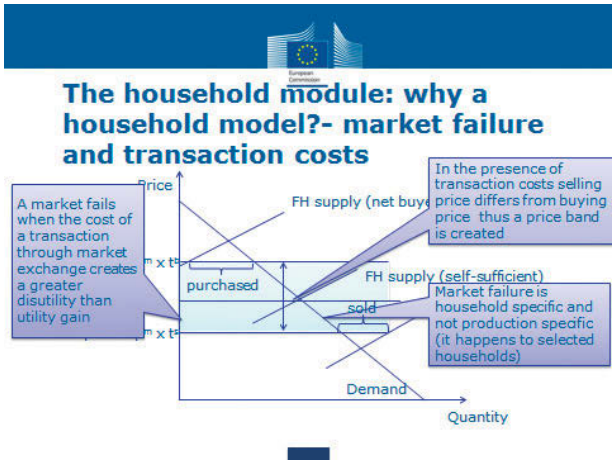

FSSIM- DEV Crop M
Two land constraints are retained: 1) Total land and 2) Irri
Each land
speci
agri-
X is a vector of agricultural activity levels
Resource availability
Production factors (i.e. farm resources
Agricultural activities
Matrix of production facto requirement
Distributi annual pr requireme
Dis annual productio availability (i.e.
Expected Crop In revenues fro accounting costs irrigation wat protection seeds materia
Pk and yk are respectively price yield over the state of nature (k) different weather and market situations. Pk and yk are vectors of independent random numbers normally distri numbers are d normal distributio duction based on the average (μy) and the standard deviation (σ) of prices and yields
Average prices or yields on a regional level (for ten years)
Variation of prices or yields on a regional level (for ten years)
Represe bution over se labour (se) re ement over task (t and labour types (la)
the same way is used to model
Represents distribution of labour availability over seasonal labour (se) and labour type (la)

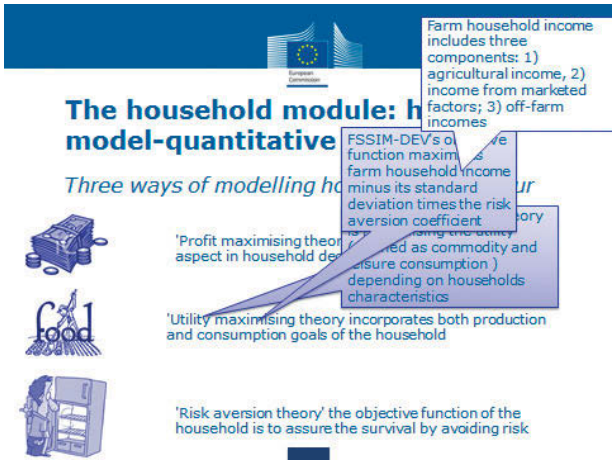

The concept of dressed animal, allows us to introduce inter temporal approach
Livestock Module
The concept of dressed animals – present an adult animal and the share of associated young animals which are defined according to production intensity level and replacement/fertility rates. Cattle and small ruminants (sheep and goat) are modelled
Calf
Heifer 1year
Heifer 1-2 year
Heifer breading
Cow
1-st year
2-nd year
3-rd year
4-th year
Farm presentation
Female calf
Male calf
Sold
Sold
Heifer 1year
Heifer 1-2 years
Heifer breading
Dressing animal
Model presentation 1 year

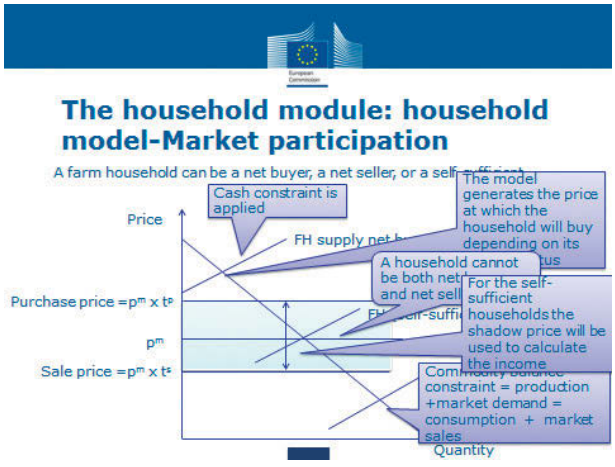

Livestock modu
Livestock module h
Feed balance: (free
farm production,
concen
Fill unit
intake
The cor
maximu
A upper bound for feed ava lity from grazing
Building capacity
Feed needs: x_i-level of the selected livestock activity (i) in head
$A_{nut,j}$-feed requirement per livestock
animal, intensity level
The requirement for building: x_i-level of the selected livestock activity (i) in head
B_{Build}-initial building availability (m²)
N_{Build}- investment in new buildings (m²)
$\sum_j x_{i,} A_{Build,i} \leq B_{Build} + N_{Build}$


The perennial mo
The perennial module is
Two are the main specifities of perennial crops comparing to the annual crops:
1)long biological lag between planting and first bearing;
2)Uneven distribution of yields over the life of the tree, usually increasing until reaching maturation
Tree crops are fairly irreversible investments, they reduce farm flexibility to react to changing technological, economic or institutional conditions
Definition of 'mix perennial activities' defined (by the model) as perennial crop with given age structure can be modelled as annual activities.
The replacement rate (rr) and the depreciation rate (δ) are linked as following with the economic lifespan (n_k) and the time lag between the base year and the base line (l) as following:
$rr^s = \delta = \frac{1}{n_k}$ ($rr^s = \delta = \frac{20}{30}$=0.66)
plantation area
plantation
lantation area
(the same share of land with the same activity ; the income, and cost are calculated on an average present value terms


The household module
The non-separability between
Production
Consumption decisions
Due to market imperfections
Local markets may fail
and provide outlet for
Low opportunity cost of e ing family members on the far
Prices fluctuations has a dual effect on revenue and consumer utility
Prices increase has a positive effect on revenue but a negative effect on consumer utility


The household module: why a household model?- market failure and transaction costs
A market fails when the cost of a transaction through market exchange creates a greater disutility than utility gain
Price
FH supply (net buy
In the presence of transaction costs selling price differs from buying price thus a price band is created
purchased
FH supply (self-sufficient)
sold
Market failure is household specific and not production specific (it happens to selected households)
Demand
Quantity


The household module: h
model-quantitative
Three ways of modelling ho ur
Farm household income includes three components: 1) agricultural income, 2) income from marketed factors; 3) off-farm incomes
FSSIM-DEVs o e function maxim s farm household income minus its standard deviation times the risk aversion coefficient
'Profit maximising theor aspect in household de
ory
ed as commodity and
isure consumption)
depending on households characteristics
'Utility maximising theory incorporates both production and consumption goals of the household
'Risk aversion theory' the objective function of the household is to assure the survival by avoiding risk


The household module: household model-Market participation
A farm household can be a net buyer, a net seller, or a self-
Cash constraint is applied
Price
FH supply net
The model generates the price at which the household will buy depending on its
A household cannot be both net and net sell
Purchase price =pm x t
FH self-suffi
For the self-sufficient households the shadow price will be used to calculate the income
pm
Sale price =pm x t
Commodity balance constraint = production +market demand = consumption + market sales
Quantity

Trend and policy modules

Trend Module

Inflation

Price projections and yield growth

Farm structure change

Policy Module

Market price change

Transaction cost changes

Technological change

Water tariffing Policies

Exogenous information

Aggregation module

To limit the aggregation errors, the model should be modified on the following way:

- **Simultaneous optimisation of farm level models (solve several farm models reproducing the behaviour farm types) (three dimensions are added Ms (Country or region), RE (region or sub region) and FT (farm type).**
- **Modelling possible exchanges of tradable factors (the resource constraint take into account the rent-in, rent-out of treatable resources)**

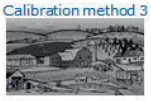
Calibration module (risk and PMP)

An exact calibrated model, reproduce exactly the real situation of the modelled farms

Real Situation

Calibration method 1

Calibration method 3



Calibration method 2

Exact calibrated model

The main assumption of this method is that the non-correspondence between the simulated and observed results is due to one of these two factors
1)Omission of important variables;
2)Inadequate specification of crops riskiness and farmers risk aversion (Hazell and Norton 1986)
Lack of specific and rich data, is overpassed by the parameterization of model for different risk levels, and to use the parameter which results fits the most with observed data

es FSSIM-DEV

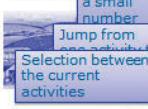
Risk calibrates the mod

Issues:

The main assumption of this method is that the divergence between the model's predictions and observed farmers behaviour is due to technical constrains and cost specifications that are not taken into account

Real Situation

Exact calibr



Reduces the number of activities into a small number

Jump from

Selection between the current activities

- **Over specialisation,**
- **Jumpy behaviour**
- **Self-selection**

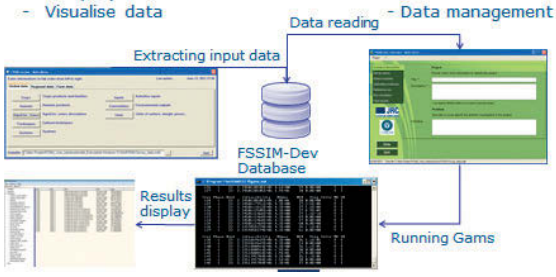
PMP method

The PMP main assumption: the observed production activity allocation of a farm, or in a region is the consequence of profit maximising behaviour

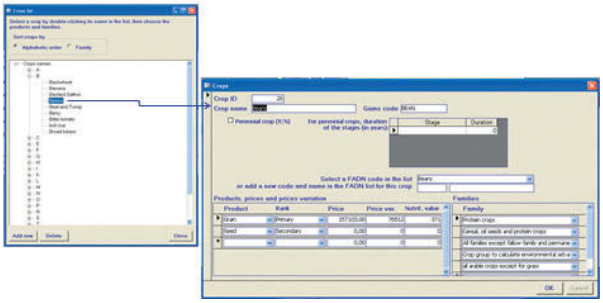
- **The method uses the observable average costs to derive unobservable costs which are compressed into parameters of a nonlinear cost of optimization model**
- **At the end we will have a cost function that behaves exactly the same with that of the observed farm.**

FSSIM-Dev Electronic survey (1)

Developed with MS-Access and Visual Basic for Applications
- Entry input data into FSSIM database
- Visualise data



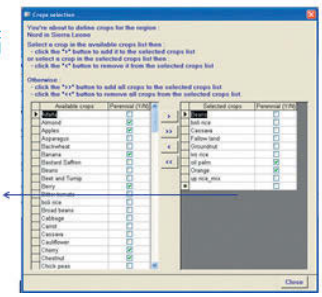
FSSIM-Dev Electronic survey (2) (crop list)



FSSIM-Dev Electronic survey (3) (crop selection)

For each selected region a short-list of crops is created. These crops will be used to define the set of activities linked to the region

The list will appear on GUI, and it is specific to each region (or country)



FSSIM-Dev Electronic survey (4) (Activities

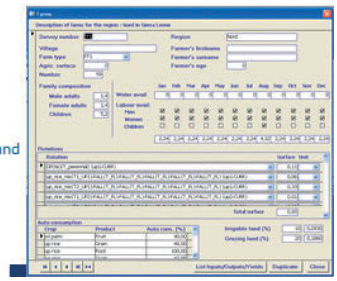
Set input-output data for each crop within the activity

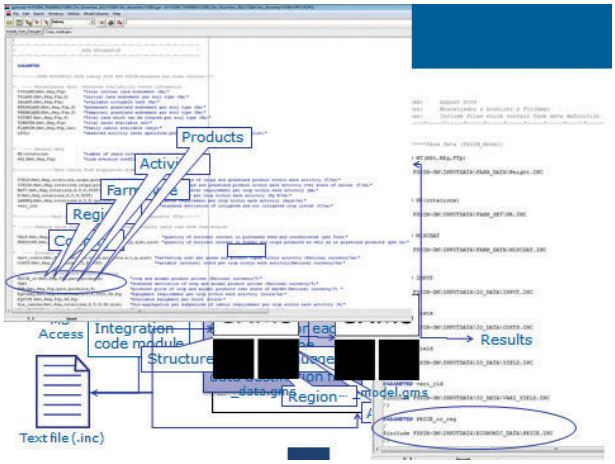
- choose the agro- alternative)
- define the corres
- specify for each production techn

If the activity is current one the information comes from the survey, if it is an alternative one, it comes from the biophysical model, or expert knowledge.

FSSIM-Dev Electronic survey (5) (Farm Data)

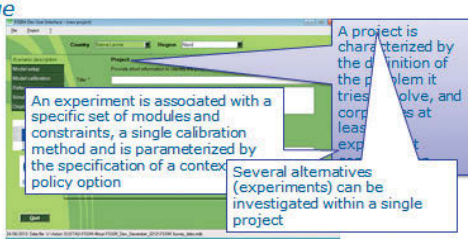
For each farm type:
- Family composition
- Water availability (by month)
- Labour availability (by month)
- Land availability = sum of observed activity level
- Share of self-consumption in total production (by crop product)
- Share of irrigable land and grazing land in total land
-...



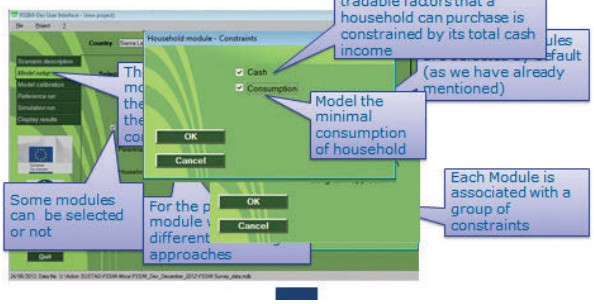


FSSIM-Dev Graphical user interface (GUI) (1) Scenario description

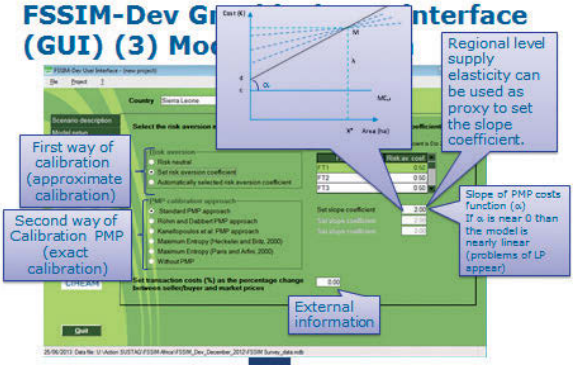
Makes possible the use of FSSIM-Dev without having a good knowledge of GAMS programming language



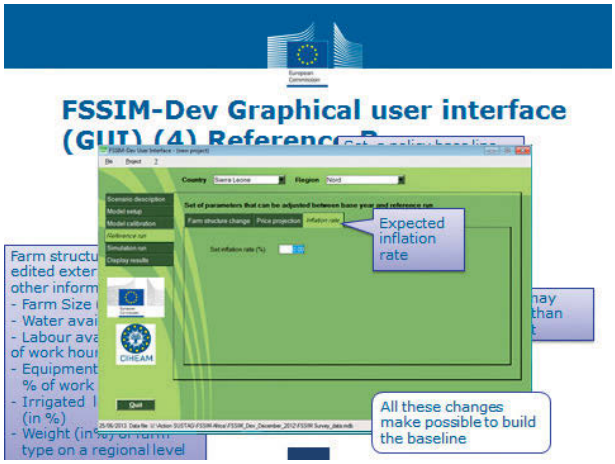
FSSIM-Dev Graphical user interface (GUI) (2) Model Set



FSSIM-Dev Gr... (GUI) (3) Mo...nterface

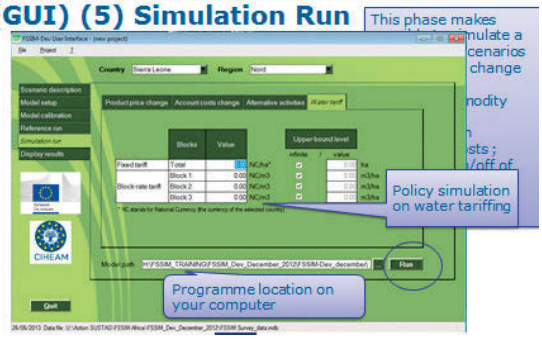


FSSIM-Dev Graphical user interface (GUI) (4) Referenc...

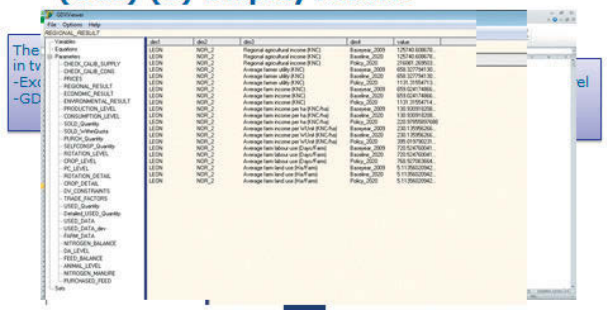


FSSIM-Dev Graphical user interface (GUI) (5) Simulation Run

This phase makes ...mulate a ...cenarios change ...modity ...sts ; ...off of



FSSIM-Dev Graphical user interface (GUI) (5) Display results



Thank you for your attention

12.3 Annexes 3 Agenda and presentations of the second workshop

Workshop on "The impact of policy instruments on the farming systems in Albania"

Second Part- "Characteristics of the Albanian farming households and the effects of policy instruments"

31st March 2014

Agricultural University of Tiranë
Faculty of Economy and Agri-business

European Commission (EC), Joint Research Centre (JRC)
Institute for Prospective Technological Studies (IPTS)
Unit "Agriculture and Life Sciences in the Economy" (AGRILIFE)

Venue: Hotel Tiranë International Tiranë, Albania

Contact: Ilir Kapaj ikapaj@ubt.edu.al
Fatmir Guri fatmir.guri@ec.europa.eu

AGENDA

Day 1—31st March		
Opening Session		**Moderator Dr. Sergio Gomez Y Paloma**
9:00–9:30	Registration	
9:30–9:45	Welcome address of the Rector of Agricultural University of Tiranë	**Prof. Dr. Fatos Harizaj**
09:45–10:00	Address of Minister of Agriculture, Rural Development and Water Management	**Prof. Dr. Edmond Panariti**
10:00–10:15	Address of EU presence in Albania	**-**
10:15–10:30	Workshop rationale	**Sergio Gomez y Paloma JRC-IPTS**
10.30–10.45	Key findings	**Prof.Dr. Bahri Musabelliu AUT**
10.45–11.15	Coffee Break	
Session 2	**Farming systems in Albania, general overview and methodological issues**	**Moderator Prof.Dr.Bahri Musabelliu**
11:15–11:45	Methodological issues of farms system analysis Discussion	**Ms. Eneida Topulli Ministry of Agriculture, Rural Development and water management**

11:45–12:15	Farm typology construction and the importance of the geographic level of analysis Discussion	**Dr. Fatmir Guri** **JRC-IPTS**
12:15–12:45	Analysis of farming systems in the region of Berat Discussion	**Prof. Dr. Natasha Hodaj** **Agricultural University of Tiranë**
12:45–13:15	Analysis of farming systems viability in the region of Berat Discussion	**Prof/Assoc. Maksim Meço** **Agricultural University of Tiranë**
13:15–14:15	Lunch Break	
Session 3	**Farming systems in Albania regional analysis**	**Prof. Dr. Natasha Hodaj**
14:15–14:45	Analysis of farming systems in the region of Elbasan Discussion	**Dr. Remzi Keco** **Agricultural University of Tiranë**
14:45–15:15	Analysis of farming systems viability in the region of Elbasan Discussion	**Shpresim Domi** **Agricultural University of Tiranë**
15:15–15:45	Analysis of farming systems in the region of Lezhë Discussion	**Dr. Ilir Kapaj** **Agricultural University of Tiranë**
15:45–16:15	Analysis of farming systems viability in the region of Lezhë Discussion	**Gentjan Mehmeti** **Agricultural University of Tiranë**
16:15–16.30	Preliminary information about the effect of the policy instruments in the farming systems viability	**Dr. Fatmir Guri** **JRC-IPTS**
16:30- 16:45	Conclusions	**Sergio Gomez y Paloma (TBC)** **JRC-IPTS**
16:45–17:15	Wrap-up and follow up meeting	**Team Members (Agricultural University of Tiranë, JRC-IPTS)**

JOINT RESEARCH CENTRE
Institute for Prospective Technological Studies (IPTS)

"THE IMPACT OF POLICY INSTRUMENTS ON THE FARMING SYSTEMS IN ALBANIA"

"SOME FINDINGS AND RECOMMENDATIONS ABOUT THE STUDY"

The Research Group
B. Musabelliu, N. Hodaj, M. Meço,
R. Keco, I. Kapaj

Contents:

1. What Does the Area Under Study Cover?

No	Item	Mesu-rement	Zones Under Study/ Count.
1	Total Land	%	23.4
2	Agricultural Land	%	23.1
3	Total Farms	%	23.9
4	Farm Size	Ha	
5	Areas with Greenhouse	Ha	31.2
6	Fruit trees	%	23.1
7	Olives	%	34.5
8	Vineyard	%	26.3
9	Cows	%	24.6
10	Sheep	%	21.0
11	Goat	%	31.9
12	Poultry	%	21.2

Indicators & Clusters_Berat district:

No	CLUSTERS / INDICATORS	Poli Cultu re for Mark et	Self Suff-ciency	Lives -tock	Fruit Trees Divers. Farms	Leisur e Farms	Arable Crop Market	Specia list Fruit Trees
		1	2	3	4	5	6	7
1	%of production sold / total production.	69.9	26.3	50.8	74.8	74.4	41.2	44.8
2	%irrigated surface / surface total	20.8	4.9	45.6	15.8	42.2	12.2	0.0
3	%of livestock production / total production.	24.6	24.9	50.3	7.0	0.7	29.5	3.9
4	%of agricultural product / total agricultural production.	33.3	72.7	89.5	16.4	82.5	78.1	23.0
5	%of product orchards / total agricultural production.	47.1	24.8	5.0	82.1	9.8	17.4	76.4
6	expenditures / production	0.4	0.5	0.4	0.4	0.6	0.5	0.3
7	%surface with plant / surface total	99.7	84.7	98.1	92.8	97.1	98.6	53.0
8	outside the farm income / total income.	10.8	4.9	14.9	65.8	79.0	63.1	17.2

Legend: The highest level; Of the second level higher; The second level from the bottom; Level lower

Cont…

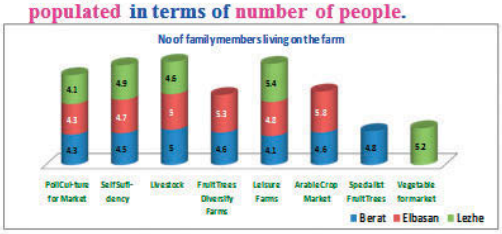
Referred to above clusters, we can conclude:

- It is difficult to talk about farm clusters clear shape. There are three main reasons, judged appropriate to explain this fact:
  - In all cases, eight indicators were selected for identification of clusters, but at max only three of them are significant.
  - Resulting typology of farms can be considered as intense, but their performance is not as such.
  - Farms are characterized by limited availability of productive capacities (land, animals etc).

2.1. Farm Family Structure & Education Level

Referring to analysis of the clusters/typology identified, we draw the following conclusions:

- Firstly, the farm household continues to be over-populated in terms of number of people.

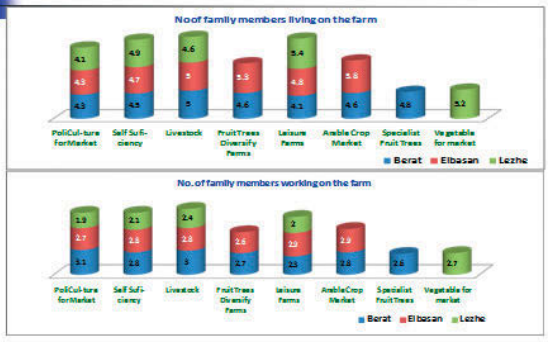


Cont..

- Secondly, the farm household continues to be over-populated in terms of labor force.

No	No of Farms with:	Prefecture	Clusters (in %) Poli Cult. for Market	Self Sufi-cien cy	Live-stock	Fruit Trees Divers. Farms	Leis-ure Farm	Arabl. Crop Mark.	Spec. Fruit Trees	Veget. for market
	Farms	Berat	7	32	4	54	71	6	38	
	with	Elbasan	11	28	36	5	8	13		
1	<=1	Lezhe	76	46	44		64			20
	Farms	Berat	45	44	53	34	17	61	46	
	with >1	Elbasan	8	32	40	5	6	10		
2	and <=2	Lezhe	20	39	38		36			37
	Farms	Berat	40	21	26	10	4	23	15	
	with >2	Elbasan	12	28	37	1	8	15		
3	and <=3	Lezhe	2	9	9		0			37
		Berat	7	3	17	2	8	10	0	
	Farms	Elbasan	9	35	36	4	7	9		
4	with >3	Lezhe	2	6	9		0			7

Cont..

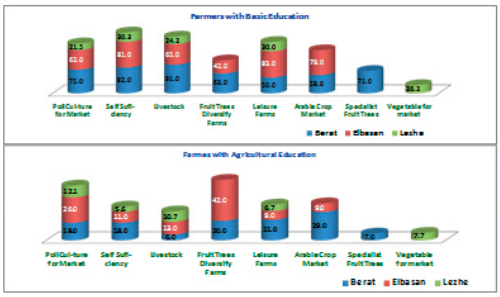


Cont..

- **Fourthly**, the current situation offers little opportunity for full-time employment on the farm.
- **Fifthly**, existence of a new generation (in rural areas) which is not quite keen on engaging in agricultural activities and this is attributable to a number of reasons……

Cont..

- **Lastly**, poor level of farmers' education.



Cont.. (Recommendations)

In view of this situation, we would like to bring to your close attention the need for:

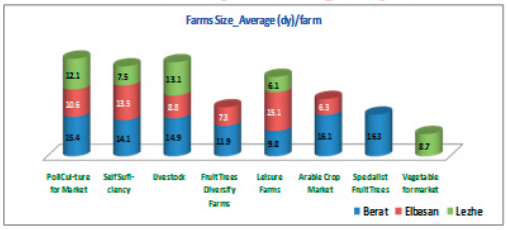
- Increasing the labor productivity in agriculture, as the only alternative which would help enhance the interest to start considering farming activity as a viable option.
- Strategy of regionalization of production.
- Increase in the level of utilization of inputs /intensification.
- Cooperation in marketing and planning.

Cont.. (Recommendations)

- Much bigger focus on development of other related activities outside agriculture
- Stimulating private-public partnership in business;
- Intensive training of farmers.
- New stage in the establishment of secondary agricultural education.
- Increased efficiency and effectiveness in the extension services.
- Perhaps the cutting out of a new professional figure (Extensions Agrarian Economist) must be provided in this area.

2.2. Land Structure, Farm Size, Fragmentation

Firstly, the area under study represents the situation at national level, but the variation between different typologies is significantly large, from 0.98 ha to 1.63 ha of land. Small farms are prevalent high scope.

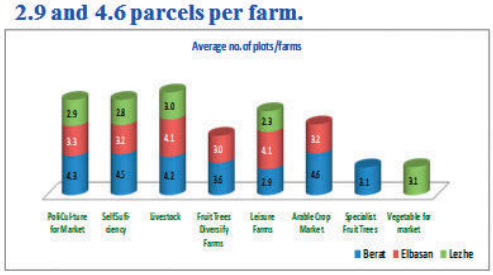


Cont.. (farms size by clusters)

Number of Farms with:	Terri-tory	Poli Cult. for Market	Self Suffi-ciency	Live-stock	Fruit Trees Divers. Farms	Leis-ure Farms	Arable Crop Market	Spec. Fruit Trees	Vegetab for market
		Clusters (in %)							
<=5 dyn	Berat	0	3	2	12	25	3	0	
	Elbasan	21	7	26	53	11	38		
	Lezhe	17	51	10		57			47
>5-10 dyn	Berat	18	32	36	37	33	19	29	
	Elbasan	36	34	47	37	29	48		
	Lezhe	21	13	31		14			23
>10-20 dyn	Berat	62	50	42	40	33	61	50	
	Elbasan	36	45	25	5	31	14		
	Lezhe	55	28	47		29			23
>20 dyn	Berat	20	15	21	12	8	16	21	
	Elbasan	6	15	3	5	29	0		
	Lezhe	6	8	12		0			7

Cont..

- **Secondly**, extreme fragmentation of farms, measuring on average somewhere between 2.9 and 4.6 parcels per farm.



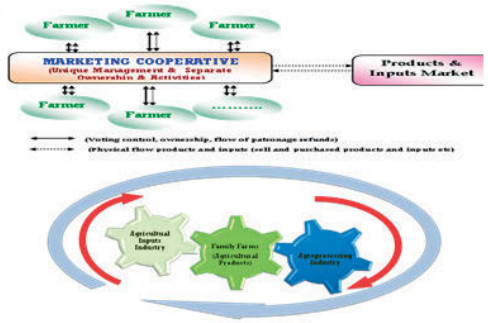
Cont.. (Recommendations)

We recommend that:

In front of such a situation four major problems are to be closely considered:

- Orientation of farm activities towards intensive activities.
- Support for farm inputs.
- Horizontal integration.
- Support of the others actors in the value chain (vertical integration).

Cont.. (Recommendations)

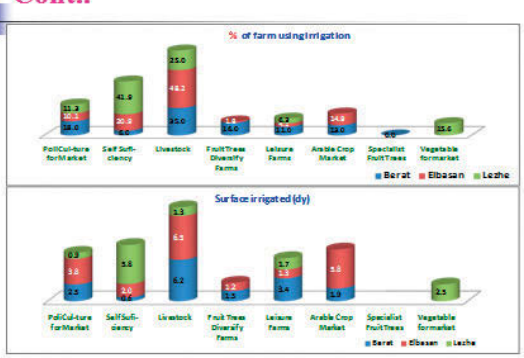


2.3. Irrigation

Given the wide range of issues faced by agriculture in the study area concerning irrigation, two main problems are worth taking notice of:

- Firstly, lack of irrigation.
- Secondly, inadequacy of water.

Cont..



Cont. (Recommendations)

As far as this goes, we recommend:

Of utmost importance remains:

- Investment intended to increase the area under water.
- Investment to improve irrigation (increasing the amount of water).

2.4. Equipment and Inputs

The outcomes of the study indicate that:

- Firstly, an inefficient structure of farm machinery is a reality that farming sector faced with. (In the district of Berat, for instance, there are just 14 tractors, but there is only one seeding machine available!).
- Secondly, the level of utilization of agricultural machinery is far from full capacity.
  - As of today, the majority of the work on the farm is still done by labour and by animals.

Cont.. (Recommendations)

Faced with this situation, we would draw to your attention the need for:

- A more rational distribution of farm machinery.
- Fully equipping farms with all necessary aggregates.
- Promoting the organization and functioning of joint ventures in the utilization of agricultural machinery.

2.5. Farms, Agriculture_Production Structure

As for the issues raised above, we should emphasize:

- Firstly, the tendencies of poly-culture in the farm activities is overwhelming.
- Secondly, lack of production regionalization.
- Thirdly, low level of utilization of production capacities (land etc.).
- Fourthly, manufacturing industry still remains away from the domestic production.

Cont.
(% of farms that sell by clusters for each district)

Item	PoliCul-ture for Market	Self Sufi-ciency	Lives-tock	Fruit Trees Divers. Farms	Leisure Farms	Arable Crop Market	Spec. Fruit Trees	Veget. For market
Berat. Farms with sales:								
Crops	22.0	11.3	22.0	13.1	13.1	14.3	4.2	
Vegetable	9.1	6.5	40.3	14.3	13.0	15.6	1.3	
Greenhouse	92.9			7.1				
Fruits	26.5	13.8	7.1	30.6	4.6	10.2	7.1	
Elbasan. Farms with sales:								
Crops	6.9	39.1	31.8		10.4	9.0	2.8	
Vegetable	9.0	28.8	49.5		3.0	9.6	0.5	
Greenhouse	12.5		37.5			50.0		
Fruits	26.7	33.3	14.8		8.1	4.4	12.6	
Lezhe. Farms with sales:								
Crops	27.3	18.7	44.0		2.0			8.0
Vegetable	4.9	37.1	26.8		4.9			31.7
Greenhouse	12.5		7.5			50.0		
Fruits	32.4	2.9	35.3		2.9			26.5

Cont.. (Recommendations)

- Poly culture farm is able to provide several positive effects, but this is highly unlikely to be a long term strategy for agricultural development.
- In this contents, production regionalization and promoting specialization are indispensable.
- The tendency on the rise for a certain approach to market should be closely considered and supported through the promotion of steering farms towards establishment of marketing cooperatives.
- To promote the processing industry which should be focused on domestic production.

2.6. Livestock_ Production Structure

(the average no. animals breading by species & clusters)

No	Cluster/ kind of animals	Polyculture for market	Self-Sufficiency	Livestock	Fruit Tress Divers. Farms	Leisure Farms	Arable Crop for Markets	Spec. Fruit Trees	Vegetab. for markets
	Berat								
1	Cow	1.5	1.0	1.8	1.3	0.0	1.3	1.0	
2	Milked sheep	9.8	43.3	37.6	3.0	3.0	13.6		
3	Milked goat	3.3	14.7	40.7	2.0		14.0	1.0	
4	Pigs								
5	Poultry	22.6	22.8	24.6	20.6	18.9	27.0	26.5	
	Elbasan								
1	Cow	1.3	1.2	1.2		1.2	1.1		
2	Milked Sheep		15.7	27.1		11.4	10.9		
3	Milked Goat	100	29.1						
4	Pigs								
5	Poltry	81.8	46.2	68.1		32	29.4	38	
	Lezhe								
1	Cow	1.2	1.3	1.5		1.2			1.2
2	Milked Sheep	5	6	25.5		18			10
3	Milked Goat		8.2	30.5					8.3
4	Pigs	1.9	2.5	2.7		1.2			2.3
5	Poltry	50.2	37.7	55.5		26.6			43.6

Cont..

With reference to the abovementioned issues, must be emphasized:

- Firstly, the number of animals reared on average on the farm is extremely low.
- Secondly, moreover, this number of animals is beyond the potential opportunities existing in the area for all farms falling under the typology of the farms examined, especially for ruminants.
- Thirdly, the production of milk is the main destination of breeding animals, but this not very likely to be viable and very efficient.

Cont.. (Recommendations)

Faced with this situation, we would like to bring to your attention:

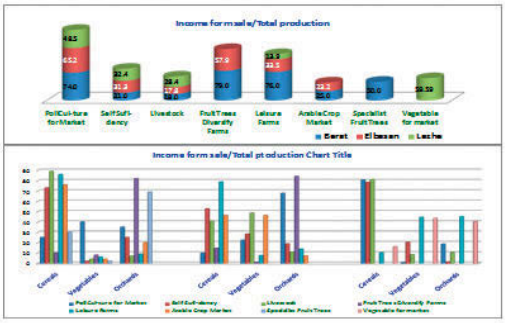
- Development of livestock should be considered and rated as a long term objective of development of the entire district.
- Examination of the above typologies of farms would serve as a very good guidebook with relation to drafting specific policies and strategies.
- Aiming farmer's income increase, the orientation of the farms towards meat production should not be overlooked.

2.7. Income Farms Structure

As for the issues dealt with above, we should emphasize that:

- Firstly, the area at the focus of this study provides huge potentials to increase the weight of the revenues obtained from the sale.
- Secondly, we estimate that the insignificant share of incomes arrived at from livestock is constrained by a number of factors, among which, we could enlist the following:
  - Limited number of animals which are bred on the farm.
  - The rearing and breeding of cattle does not yet constitute a genuine production line.
  - Steering the production primarily towards cattle and goats (milk), at a time when a shift on a better focus in terms of meat production would be far more beneficial.

Cont..



Cont.. (Recommendations)

To your attention:

- The orientation of farm activities and attaching importance to the greenhouses and fruit-tree growing (horticulture). This in turn should be at the basis of the so called long-term strategies and objectives of development of farm activities.
- From this point of view the opportunities and potential should be examined and evaluated in order to increase the specific weight of livestock production on the farm, with the focus being on cattle and ruminants.

2.8. Production Value

With reference to the issues raised above, we should emphasize that:

- Firstly, the data provide the false impression that there is a high level of sales/selling activities on the farm.
  - But be careful. This happens mainly because the level of total income is pretty low and under the circumstances of mere survival the farm households are trying to sell their surplus.
- Secondly, the farmers purchase a few inputs for production and the effectiveness of their utilization is very low.

Cont..

We think, there should be a thorough consideration of the issues including:

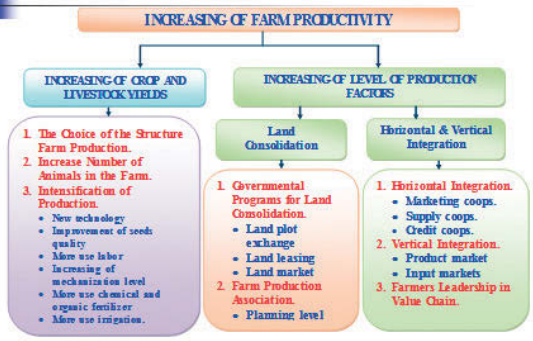
- Quantities of purchased inputs,
- Prices,
- Quality of inputs,
- The availability of cash flows,
- Lack of contracts with the processing industry and the contributions of the latter with support to the farms etc.

Cont. (Recommendations)

Faced with this situation, we will bring to your attention:

☞ Orientation of farm activities towards more value added activities, regionalization and intensification of production would act compelling conditions for boosting production and productivity on the farm.

Increased Productivity of Production in Agriculture



thankYou

Methodological Issues of Farms System Analysis

BY

MSC. Eneida TOPULLI

March 31st 2014

1

- Selection of three representative Regions
- Sample Design
- Data entry and data processing
- Farm typology construction

2

Selection of three representative Regions

- Selection of three representative regions is made by ranking all the regions based on four socio- economic indicators:

  a)Gross Value Added of Agriculture in MALL
  b)Propensity to market (sales/total production (in value)
  c)Farm resource productivity(Workers/MALL of production)
  d)Land productivity(ALL/ha).

- Taking into consideration the characteristics of Albanian farming systems (small and very fragmented farms, producing mainly for self consumption, with an important use of annual working unit (AWU)), these four indicators will enclose in a representative way the multitude of farming systems in Albania.
- The choice of indicators was driven as well by the data availability.

3

Selection of three representative Regions

Regional Ranking

Region	Indicator 1 GVA in agriculture		Indicator 2 ALL from sales/ ALL produced		Indicator 3 Workers/MALL produced		Indicator 4 ALL Produced from crops/Ha		Average Rank	National classification
	MALL	Rank		Rank		Rank	000 ALL/Ha	Rank		
Korcë	16,894.40	7	0.34	4	2.46	8	173.7	9	7.0	8
Dibër	12,217.00	4	0.39	7	2.84	11	186.2	7	7.3	7
Durrës	15,329.00	5	0.55	11	2.54	5	152.2	4	6.3	9
Elbasan	24,709.00	11	0.34	5	3.15	12	159.0	6	8.0	4
Fier	45,507.00	12	0.36	5	2.43	7	186.4	10	8.3	5
Gjirokastër	7,722.70	2	0.59	6	2.32	4	95.9	1	3.3	10
Kortë	20,477.90	10	0.43	9	2.71	10	156.9	5	8.3	2
Kukës	7,142.00	1	0.25	1	1.49	2	155.6	3	1.6	12
Lezhë	10,643.00	3	0.27	2	2.39	6	109.1	2	3.3	11
Shkodër	15,794.00	9	0.40	6	2.16	3	188.0	11	7.6	6
Tiranë	16,024.00	6	0.48	10	2.56	9	169.6	8	8.6	1
Vlorë	19,[illegible]	8	0.34	12	1.08	1	252.1	12	7.6	5

Source: INSTAT 2010 and MAFCP 2010

4

Selection of three representative Regions

- The selected indicators are used to rank the Albanian regions according to their share.
- Ranking is done by a user defined function with the main goal of ensuring the sustainability of sums. Considering each indicator equally valid, for the final ranking it is used the average ranking of all indicators.
- The regions sorted by rank, are divided into three non-overlapping strata of size 4.
- The selection of representative region in each layer is done by making a similar ranking process again, taking into account the diversity of production.
- It is made the average ranking for each layer, using as indicators crops production, livestock production and orchard production, in value. For each layer it was chosen the region whose ranking approaches the most to the layer average.

The main rationale behind region selection methodology is not only to have representative regions on a country level, but to have as well the larger representation possible of agricultural systems in each group of regions.

5

Selection of three representative Regions

Region Selection

	Arable crop (MALL)	Rank	Orchards (MALL)	Rank	Livestock (MALL)	Rank	Average ranking
Korce	7414	2	2659	2	10732	2	2
Elbasan	7771	3	3556	3	13964	3	3
Fier	17138	4	5304	4	19405	4	4
Tirane	5655	1	2216	1	10012	1	1
Average							2.5
Shkoder	5755	4	1702	2	11109	4	3.5
Vlore	2941	1	3460	3	9767	3	2.5
Berat	5174	3	4197	4	7459	2	3.0
Diber	3969	2	1245	1	6561	1	1.5
Average							2.5
Durres	4405	4	1751	4	5877	4	4.0
Lezhe	2997	3	937	2	6269	3	2.7
Gjirokaster	1795	2	1180	3	4684	1	2.0
Kukes	1755	1	650	1	5679	2	1.5
Average							2.5

Source: MAFCP 2010, Author [illegible]ation

6

- Selection of three representative Regions
- Sample Design
- Data entry and data processing
- Farm typology construction

7

Sample design

The multistage sampling "Area Sampling Frame", is applied in absence of an up-to-date list frame.

The steps for sample design:

- Stratification
- The construction of Primary Sampling Unit(PSUs), their numeration and selection
- The construction of Sample Units called Segments, their selection and identification
- The selection of a fixed number of farms with activity for each selected segment

Each stratum, selected PSU and selected segment is digitalized and measured using GIS.

8

Sample design

The stratification standards:

- Stratum 1. The zone with land cultivation intensity over 75%(coastal and low land with intensive agriculture).
- Stratum 2. The zone with land cultivation intensity from 25% to 74.9%(river valleys and hill's lower areas with intensive agriculture)
- Stratum 3. The zone with land cultivation intensity under 25%(hills with variable agriculture)
- Stratum 4. The zone with land cultivation intensity 0%(mountainous areas with limited agriculture).
- Stratum 5. Military zone.
- Stratum 6. Principal cities.
- Stratum 7. Waters, rivers and lakes.

The first four stratums are agricultural ones, and are components of surveys.

9

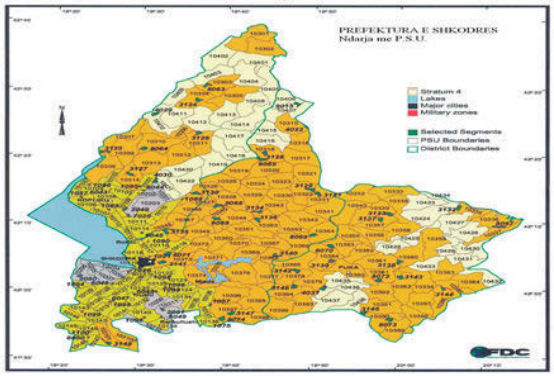
Sample design

The Primary Sampling Units are designed for each stratums based on the predefined size boundaries:

Stratum	Minimum	Desirable	Maximum
1.	800 Ha	1000 Ha	1200 Ha
2.	800 Ha	1000 Ha	1200 Ha
3.	1600 Ha	2000 Ha	2400 Ha
4.	1600 Ha	2000 Ha	2400 Ha

10

PSU-s in a prefecture



11

Sample design

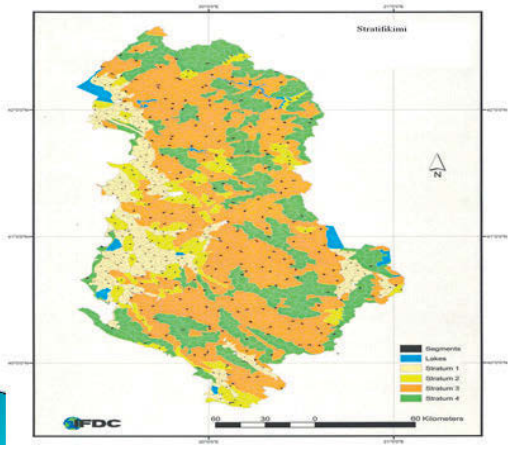
- The construction of segments

The segment is a confined surface of land inside a PSU with a definite size depending on stratum, absolutely identified in land via real physical boundaries

- The surface of segments

Stratum 1	25 Ha	+ - 10%
Stratum 2	50 Ha	+ - 10%
Stratum 3	100 Ha	+ - 10%
Stratum 4	100 Ha	+ - 10%
Total number of segments	41 513	

12



13

Sample design

- The number of selected segments (selected PSU) and their size is defined based on the sample variability, cost, problems related with identifiable boundaries, farm size, number of farms etc.
- To improve the level of precision, estimations are made for different agricultural products(wheat, maize, white beans, alfalfa and cattle, goats, sheep and pigs), in terms of variance between segments with those inside the segment.
- The number of selected segments for the Country is 600 out of 41,513
- The list of the farms with or without activity, together with the total land, land inside and outside the segment, for each segment is updated by structures of MA in Regions in annual basis.

14

Sample design

This sample can provide good results, representative at country and regional level with limited budget and human capacities. Among others this method has the following advantages:

- The possibilities of using are unlimited- it can be used to collect representative data on the area planted with crops, orchards, on livestock and agricultural production as well as socio-economic data.
- The statistical validity- guaranteed by the method used to design the frame where no piece of land is excluded, and by procedures used for selecting the PSU/sample segments

15

Sample design

- The number of selected segments for each selected region:

Berat	30
Elbasan	56
Lezhe	30

- From each segment, for the interviews are selected **10 farms** with agricultural activity. The selection is casual and systematic.

The total number of selected farms:

Berat	276
Elbasan	505
Lezhe	255
Total	**1036 farms**

16

- Selection of three representative Regions
- Sample Design
- **Data entry and data processing**
- Farm typology construction

17

Data entry and data processing

- After the finalization of the study questionnaire, the database and user interface for data entry are designed using Microsoft Access 2007 with VBA(Visual Basic for Applications)
- For data check is used the prevention strategy using the philosophy of the identification of outliers, that is, defining during the software design the data boundaries or data correlations.
- After farm interviews and data entry process, run by Agriculture University team, another data cleaning process is applied especially for questions that could not be restricted during interface design.
- Indicators at regional, sample and farm level, were processed using MS Access and SPSS

18

- Selection of three representative Regions
- Sample Design
- Data entry and data processing
- **Farm typology construction**

19

Farm Typology Construction

To determine the topology of the farm will be used the quantitative approach. FA (Factor Analysis) and CA (Cluster Analysis) are the multivariate methods selected to determine the groups.

Steps for farm typology construction:
- Selection of variables
- Factor Analysis
- Cluster Analysis

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Farm Typology Construction

Selection of variables
- To construct the farming systems typology we have selected a bunch of eleven variables dealing with the socio-economic characteristics of farms. We have done two typologies one for the whole sample (three regions) and a second one for each region.
- The literature recommends selecting variables that explain farm characteristics among other: farm size, capital, labour, production pattern, soil quality, managerial ability etc. (Köbrich, Rehman et al. 2003) (Riveiro, Marey et al. 2008)
- Other authors classify variables in three main groups:
  1) biophysical resources (farm area, land use patterns, livestock resources, fruit trees etc.), 2)socio-economic aspects (labour, capital etc.) and 3) equipment (availability in tools equipment etc.) (Righi, Dogliotti et al. 2011).

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Farm Typology Construction

Selection of variables (cont..)

In the case of Albanian farm typology five groups of variables are selected. In both typologies we have used the same group of variables:

1)The physical characteristics of the farm:
- a) total surface of the farm;
- b) share of rented in land;
- c) share of irrigated land.

This group of variables helps us to cluster the farms according the physical characteristics (total surface), the agriculture infrastructure (irrigation) and the intensity of farming system the household wants to apply in the farm (share of rented in land)

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Farm Typology Construction

Selection of variables (cont..)

2) The agricultural pattern:
- a) the share of livestock production value over the total production value;
- b) the share of crop value production over the total agricultural production.

This second variable is constructed by three main categories of crop productions i) arable crops, ii) vegetables and potatoes, and iii)fruit trees.

The agricultural mix is one of the main structural characteristics of farming systems that heavily shape the strategies of the farming systems.

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Farm Typology Construction

Selection of variables (cont..)

3) Capital structure:
- a) agricultural capital/ agricultural production
- b) total expenses/ agricultural production.
- c) AWU/agricultural production.

These two variables are used as a proxy of farming systems diversification according the capital intensification.

*4)The fourth group of variables tries to differentiate the farming systems according **the propensity they have to participate in agricultural markets.***

*5)The last variable tries to group the farming systems by **the share of non-agricultural income in the total income.***

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Farm Typology Construction

Selection of variables (cont..)

To construct the typology of farming systems in the regions all the variables already mentioned are jointly used.

The final variables used to construct the typology of farming systems:

1) Farm structure (Total farm area; Cultivated area/total area Irrigated area/total area)
2) Agricultural crops(Share of livestock production ; Structure of the agricultural production: 1) arable crops; 2) Vegetables and potatoes; 3) fruit trees)
3) Intensification strategies(Expenses/ value of agricultural production ; AWU/value of agricultural production (1 AWU=1800 working hours = 225 days of work))
4) Agricultural farms propensity to market(Share of agricultural sales value over the value of total agricultural production)
5) Share of non-agricultural income in the total income .

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Farm Typology Construction

1)Factor Analysis

- Is used to analyse the nature of interrelationships among variables by defining a set of common underlying dimensions (factors).
- For the factor analysis in our case, the principal component analysis (PCA) with Varimax rotation was adopted, as suggested by Solano et al. (2003) and Thapa and Rasul (2005). This method avoids the problem of multi-collinearity between the variables used in the cluster analysis.

2)Cluster Analysis performed in two stages:

- Hierarchical clustering to define the most appropriate number of clusters and
- Non-hierarchical cluster to define the clusters of the sample and the characteristics of each type.

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Farm Typology Construction

1)Factor Analysis

Two tests applied widely in the literature were used to test the validity of the data and selecting variables for Factor Analysis: Kaiser-Meyer-Olkin (KMO) (1970) and Bartlett's test of Sphericity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.603
Bartlett's Test of Sphericity	Approx. Chi-Square	2412.089
	df	45
	Sig.	.000

- Kaiser-Meyer-Olkin (KMO) is used to measure the relationship between variables. The Kaiser-Meyer-Olkin measure of sampling adequacy greater than 0.5 indicates that the selected variables have sufficient correlation to apply the Factor analysis.
- Bartlett's test of Sphericity, statistically significant at 1% level, is used to test the Null hypothesis that the correlation matrix is an index matrix

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Farm Typology Construction

Factor Loadings (Rotated Component Matrix)

	Factors			
	1	2	3	4
Crops/Agriculture-tot value	0.919	-0.027	0.068	0.093
Orcharding/Agriculture_tot value	-0.895	0.095	0.138	-0.012
Sales/Production	-0.471	0.034	0.396	0.455
Livestock Prod /Total Prod	0.456	-0.555	-0.083	0.080
Irrigated/Total_UAA	0.241	-0.123	-0.733	0.103
Expenditures/Total Production	0.092	0.823	0.177	-0.113
Planted area/ Total area	0.121	0.026	-0.234	0.825
Total_UAA	0.089	-0.031	0.836	-0.043
AWU/ 000ALL produced	-0.063	0.519	-0.393	-0.463
Income_out_farm/Total Income	-0.099	0.661	-0.061	0.161

The factor loadings are the correlation coefficients between the specific factor and the original variables (Field, 2009).

Variables associated to each factor are highlighted.

Stevens (2002) suggests highlighting loading greater than 0.4.

This is widely applied to PCA analysis for easier analysis of results (Field, 2009).

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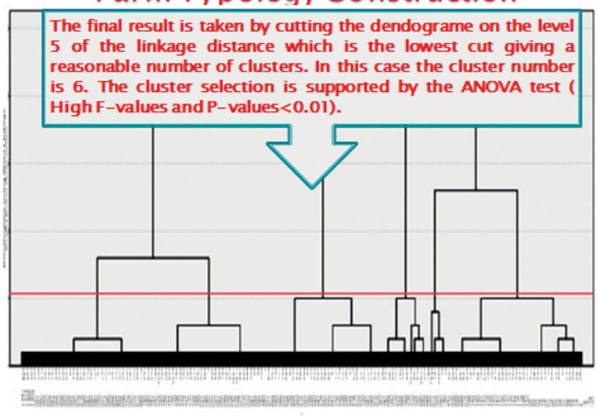
Farm Typology Construction



Farm Typology Construction

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	F-Value	P-Value
Number of farms	131	113	151	104	234	289		
Sales/Production	64.07	29.32	50.34	63.89	44.21	37.63	48.13	0.000
Irrigated/Total_UAA	20.91	90.93	11.19	15.21	10.37	75.46	573.33	0.000
Livestock Prod /Total Prod	22.01	35.26	32.18	9.00	36.67	41.42	43.92	0.000
Crops/Agriculture-tot value	30.70	74.40	87.73	18.14	82.24	78.67	318.08	0.000
Orcharding/Agriculture_tot value	54.75	4.14	5.93	76.77	8.96	4.82	587.10	0.000
Expenditures/Total Production	0.36	0.40	0.48	0.42	0.36	0.26	16.34	0.000
Planted area/ Total area	90.62	96.95	92.86	91.94	93.49	98.59	7.31	0.000
Total_UAA	13.55	6.89	13.74	10.67	14.31	8.99	31.90	0.000
AWU/ 000ALL produced	0.0046	0.0069	0.0038	0.0055	0.0042	0.0046	4.81	0.000
Income_out_farm/Total Income	8.28	69.19	67.57	70.80	4.69	6.13	822.18	0.000

Typology Construction for Region of Berat

The same set of variables described above is used to construct the farm typology for each region. The variables with sufficient variability for region of Berat are:

- Cultivated area/total area
- Irrigated area/total area
- Share of livestock production
- Structure of the agricultural production: arable crops; fruit trees
- Expenses/ value of agricultural production
- AWU/value of agricultural production
- Share of agricultural sales value over the value of total agricultural production.
- Share of non-agricultural income.

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Typology Construction for Region of Berat

Following the same procedure, seven farm groups where identified for the Region of Berat

Clusters with variable means

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	Cluster7	P-value	F-Value
Number of farms	55	34	59	60	34	31	14		
Sales.Production	69.95	39.31	50.79	74.84	74.43	41.16	44.82	0.000	32.936
Irrigated/Total_UAA	30.75	4.80	45.59	15.77	43.20	12.19	0.00	0.000	15.557
Livestock/Total Prod	34.69	34.92	30.36	7.09	0.71	39.49	3.88	0.000	49.079
Crops.Agricul. TotProd	39.92	72.74	89.53	10.36	80.48	79.06	33.09	0.000	174.399
Orcharding.Agric.TotProd	47.10	34.79	5.00	65.09	9.82	17.45	76.44	0.000	134.929
Expend.Production	0.36	0.51	0.35	0.40	0.58	0.49	0.31	0.001	3.819
CultivarTotal_area	99.69	94.74	99.13	92.90	97.09	99.59	51.01	0.000	34.790
Non_agr.Income/ Total_Income	10.94	4.93	14.91	65.84	79.85	60.07	17.19	0.000	99.491
AWU/000_ALL_Produced	0.0037	0.0094	0.0043	0.0042	0.0092	0.0049	0.0131	0.000	6.893

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Typology Construction for Region of Elbasan

The variables with sufficient variability for region of Elbasan are:

- Total area
- Irrigated area/total area
- Share of livestock production
- Structure of the agricultural production: arable crops; fruit trees
- Expenses/ value of agricultural production
- AWU/value of agricultural production
- Share of agricultural sales value over the value of total agricultural production.
- Share of non-agricultural income.

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Typology Construction for Region of Elbasan

Six farm groups where identified for the Region of Elbasan

Clusters with variable means

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	F-value	P-value
Number of farms	47	187	35	19	58	151		
Sales/Production	69.91	34.12	42.64	52.51	27.16	43.93	30.2	0.000
Irrigated/Total area	41.66	79.58	12.22	20.35	94.76	17.52	232.7	0.000
Livestock_prod/Total_prod	23.32	42.23	20.27	0.72	35.41	32.06	24.3	0.000
Crops/Agric_Total_Prod	27.21	81.80	85.02	17.69	74.87	80.21	111.3	0.000
Orcharding/Agric_Total_Prod	51.75	3.67	9.81	77.96	5.68	10.62	177.0	0.000
Expenditures/Production	0.29	0.23	0.56	0.52	0.34	0.33	19.0	0.000
Total area	10.59	8.83	15.11	7.35	6.26	13.50	16.6	0.000
Non-agric-Income/Total Income	3.84	4.32	68.58	73.36	63.80	2.97	458.1	0.000
AWU/000_ALL_Produced	0.0051	0.0045	0.0054	0.0121	0.0079	0.0038	11.4	0.000

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Typology Construction for Region of Lezha

The variables with sufficient variability for region of Lezha are:

- Planted area/Total area
- Irrigated area/total area
- Share of livestock production
- Structure of the agricultural production: arable crops; vegetables
- Share of agricultural sales value over the value of total agricultural production.
- Share of non-agricultural income.
- Total area
- Hired labour/Total labour

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Typology Construction for Region of Lezha

Five farm groups where identified for the Region of Lezha

Clusters with variable means

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	F-value	P-value
Number of farms	67	96	30	14	47		
Sales/Production	30.02	50.20	44.34	16.65	59.35	16.579	0.000
Irrigated/Total_area	87.48	10.76	33.68	31.09	6.96	190.711	0.000
Livestock Prod/ Total Prod	44.56	46.87	32.09	39.47	21.42	13.130	0.000
Vegetables/ Total Agric Prod	22.83	5.35	39.91	50.99	3.04	54.839	0.000
Crops/ Total_agric_prod	75.66	88.97	41.12	30.66	75.17	43.916	0.000
Planted/Total_Area	95.69	94.65	77.89	57.79	96.41	20.022	0.000
Total_Area	7.47	13.07	8.74	6.14	12.13	10.047	0.000
Hired_labour/Total_labour	0.00	2.55	0.00	7.14	25.91	66.996	0.000
Non Agric Income/Total Income	53.78	24.82	2.22	82.11	76.26	15.022	0.000

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Thank you!

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Criteria of farm segmentation/typolgy on developing countries

Fatmir Guri, Eneida Topulli Sergio Gomez Y Paloma

European Commission, Joint Research Centre,
The European Commission's in-house science service
Institute for Prospective Technological Studies - Seville

Farm typology objec

Evolution in time: following the farm type in order to highlight farming system evolution (Hurley 1965)

Draft and apply agricultural policies (Johnson 2002);
To inform about the effects of agric policies Daskal al. 2002), (EU 1

objectives of the research (Jo

According to Jouve (1986) the typologies are of two different groups: i) structural (analyse the organisation) and ii) functional (analyse the technical procedures)

stems (FS), in orde to analyse their evolution

- Ga
  highlight some sp
  effects of farming

Comparison : the main objective is the comparison (e.g. compare the characteristics of different farms types to have more information about their production system, environmental effects etc.)

Segmentation Methods

Segmentation criteria should have heterogeneous values within the population, the values are not tation criteria; easy to collect

Quantitative app
criteria, d
1977)

Quantitative approach (Iraizoz et al.2007) may be based on
A small number of variables (USDA 2000,2001) (occupation of operators and volume of sales)
Multivariate statistical technique (a greater range of variables can be employed (cluster analysis)

However some *ve (e.g. aesthetic landscape ser*

Qualitative (or a priori) approach: stronglybased on expert kn *) (it is not very segmentat*

Main cons of this method (Iraizoz et al 2007)
The merit of the method depends heavily on expert knowledge (Gloy and Arkridge 1991)
The use of available data generally is not complete
There is no evidence that the groups are homogenous (Grebauer 1987)

The segmentation criteria used

The physical characterises of the farm

total surface of the farm
share of rented in land
share of irrigated land

The crop pattern

the share of livestock production value over the total production value
the share of crop value production

Capital structure

agricultural capital/ agricultural production
total expenses/ agricultural production

The segmentation criteria used

The propensity to participate in agricultural markets

the share of non-agricultural income in the total income

Segmentation procedure

factor analysis procedure - to eliminate the interrelation among the variables a Principal factor procedure is performed

Cluster analysis- 1.identification of cluster number - hierarchical cluster using Ward's minimum variance, 2. non-hierarchical clustering method

Sample farms are clustered in 6 groups

Sample clusters

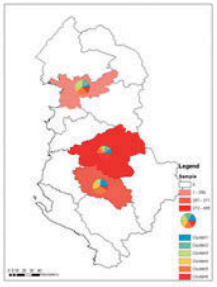
		Cluster 1	Cluster	Cluster	Cluster	Cluster	Cluster
1	Sales/ production						
2	Irrigated/Total UAA						
3	Livestock production/ total production						
4	Arable crops/agricultural production						
5	Fruit trees/ agricultural production value						
6	Expenses/ total production						
7	Cultivated area/Arable area						
8	Arable area	13.55	6.89				
9	AWU/000 production value	0.0046	0.0069				
10	Income off-farm/ Total Income	8.28	69.19	67.57	70.80	4.69	6.13

Livestock
Lower quantity of sales
Limited arable land
Necessity of extra land surfaces
Limited use of mechanics
Excessively use of working force

Little possibilities of diversification
low possibilities to intensify

Lower AWU and higher mechanics

Regional representation of farm typology



Lezha- Arable crops and self-sufficient-survival

Elbasan- Leisure farms and self-sufficient , survival

Berat- Poly culture mainly for market and fruit-trees

Indicator			Value	Note
Reproduction Threshold	Minimal Wage	$\frac{FNI}{WU \times 12 \times MW}$	>1	The work in agriculture is paid more than the minimal wage (MW)
			=1	The Work in Agriculture is paid as much as the minimal wage (MW)
			<1	The work in agriculture is paid less than the minimal wage
	Poverty line Extreme poverty	$\frac{FNI}{HM \times 12 \times 4037ALL}$	>1	The members of the family live above the extreme poverty line,
			=1	The members of the family live on the extreme poverty line
			<1	The family members live below the extreme poverty line
	Poverty line Complete poverty	$\frac{FNI}{HM \times 12 \times 4891ALL}$	>1	The members of the family live above the complete poverty line,
			=1	The members of the family live on the complete poverty line
			<1	The family members live below the complete poverty line

Farm viability indicators 2

Poverty analysis for the Total Household income –THI

Analysis of farm type efficiency by using productivity indicators of work ($\frac{FNI}{WU}$), land ($\frac{FNI}{UAA}$), and capital ($\frac{FNI}{C}$

The Survey and the questionnaire

The questionnaire will contain the following information:

- **Work force (family and not)**
- **Land, irrigation, agricultural equipment,**
- **Crop production and rotation (three previous years) in a plot level**

The Survey and the questionnaire

- **Harvest destination (sales, household consumption, etc.)**
- **Participation in the public supporting schemes**

A detailed data sheet for each crop and livestock present in the farm.(costs)

Information about the cash flow of the household and of non-agricultural (food related) expenses.

Thank you for your attention

Berati Region

Analysis of farming systems in the region of Berat

Prof. Dr. Natasha HODAJ

1

Berati Region

- Is in central Albania
- 179 793 ha of 52 919 (29%) is agricultural land
- Divided in three districts, Berat, Kucova and Skrapari
- Has 5 municipalities and 20 communes
- In total 243 villages

2

Distribution of land fund for Berat region (ha)

Land fund
- Flat, hilly and mountainous terrain
- Indicators of land use are similar to those at the national level

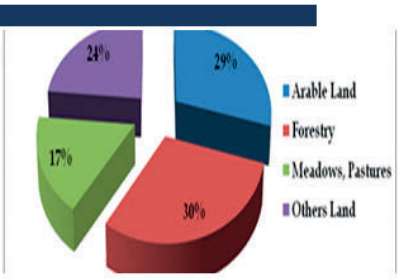
No.	Districts / Region	Total Land	From these Arable Land	From : Arable Land: Divided by Farmers	From : Arable Land: Not Divided	Forestry	Meadows, pastures	Other Land
1	Berat	93888	35324	28861	6463	28251	8183	22130
2	Kucove	8410	5500	4594	906	1082	129	1699
3	Skrapari	77495	12095	7122	4973	24500	22160	18740
	Region	179793	52919	40577	12342	53833	30472	42569

Source:Department of agriculture

3

Structure of land in the Berat region

- 70% of the land planted with crops
- 21% olives
- 6% fruit trees
- 3% vineyards



Source:Department of agriculture

4

Economic situation

- GDP per capita is approximately the national average
- The economy of the region is closed, infrastructures is weak, agricultural and industrial productivity is low
- Agriculture accounts for 32% of GDP, while at national level stands at around 18%
- Agricultural activity is characterized by a variety of products
- Poverty is present, but the depth and severity of poverty are slightly lower than national average

Item	%	Depth	Severity
Berat Prefecture	12.7	2.4	0.7
Albania	14.3	2.9	1.0

Source: INSTAT 2012

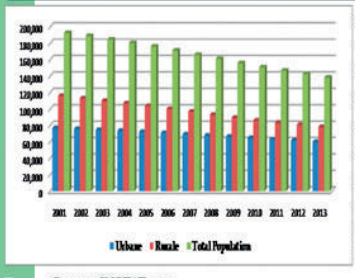
5

Agricultural activities

No.	Item	Estimated Production 000 leke	in %
I	The crops	9499100	42.7
	Cereals	2556000	26.9
	Vegetables, potatoes, beans	3859300	40.6
	Fodder	3068000	32.3
	Tobacco, sunflower etc.	15800	0.2
II	Arboriculture	4344000	19.5
	Fruits	1040000	24
	Grapes	998400	23
	Olives	2200000	50.6
	Citrus	105600	2.4
III	Livestock	8403400	37.8
	Milk	3423000	40.7
	Meat	3936600	46.8
	Eggs	853400	10.2
	Honey	175200	2.1
	Fur	14400	0.2
	Others	800	0.0
	Total (I+II+III)	22246500	100

6

The Population



- Berati region has approximately 138484 inhabitants
- 54% live in rural areas
- 46% live in urban areas
- In recent years the population has decreased about 27%, from migration movements

Source: INSTAT 2013

7

The study collected and processed information on:

- Population, labor force and education
- income and respective source
- Land, size of farm and other productive resources
- Structure of agriculture production and marketing
- Costs

8

Types of farms (clusters) identified in Berat region:

- Poli-culture for market
- Self sufficiency
- Livestock
- Fruit trees diversified farms
- Leisure farms
- Arable crop market
- Specialized on fruit trees

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Indicators used for identification of farm types:

- % of production sell / total production
- % irrigated land / total land
- % livestock production / total production
- % agricultural production / total production
- % production of orchards / total production
- costs / production
- % cultivated land/total land
- income outside the farm / total income

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Some of the basic characteristics of clusters

No	CLUSTERS /INDIKATORET	PoliCulture for Market 1	Self Sufficiency 2	Livestock 3	Fruit Trees Diversif. Farms 4	Leisure Farms 5	Arable Crop Market 6	Specialist Fruit Trees 7
1	% of production shitur / total production.	69.9	26.3	50.8	74.8	74.4	41.2	44.8
2	% irrigated surfaces / total surface	20.8	4.9	45.6	15.8	42.2	12.2	0.0
3	% of livestock production / Total production	24.6	24.9	50.3	7.0	0.7	39.5	3.9
4	% f agricultural production / total production	33.3	72.7	89.5	10.4	82.5	78.1	22.0
5	% of production orchards / total production	47.1	24.8	5.0	85.1	9.8	17.4	76.4
6	costs / production	0.4	0.5	0.4	0.4	0.6	0.5	0.3
7	% area planted / total	99.7	84.7	98.1	92.8	97.1	98.6	51.0
8	outside the farm income / total ncome	10.8	4.9	14.9	65.8	79.0	63.1	17.2
9	(AWU/000 lek produced	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Legend: Highest level; The second level; The third level; The lowest level

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Characterization of the farm typology according to all criteria

Integrated data on farm typology (Berati)

No	Main Indicators	Sub-Indicators	Measu-re-ment unit	1 PoliCu l-ture for Market	2 Self Suffi-ciency	3 Lives-tock	4 Fruit Trees Divers. Farms	5 Leisure Farms	6 Arable Crop Market	7 Specialist Fruit Trees
1	Farm family structure	No. of family members living on the farm	Aver.	4.3	4.5	5	4.6	4.1	4.6	4.8
		No. of family members working in the farm	Aver.	3.1	2.8	3	2.7	2.3	2.8	2.6
2	The education level	Basic education	%/tot	75	82	91	63	50	58	71
		Upper Secondary	%/tot	25	18	9	30	33	32	29
		Higher eduaction	%/tot	0	0	0	7	17	10	0
		Agricultural Education	%/tot	18	18	6	20	21	29	7
3	Farms According Labour Force	Farms with <=1	%/Cl.no	7	32	4	54	71	6	38
		Farms with >1 and <=2	%/Cl.no	45	44	53	34	17	61	46
		Farms with >2 and <=3	%/Cl.no	40	21	26	10	4	23	15
		Farms with >3	%/Cl.no	7	3	17	2	8	10	0
4	Type of farm labour	Working full time on the farm	%/Cl.no	36.2	25.9	47.9	13.6	15.6	32.9	18
		Working part time on the farm	%/Cl.no	40.6	42.2	25.8	40.9	39.6	28.7	37.7
		Working outside of the farm	%/Cl.no	23.2	31.9	26.3	45.5	44.8	38.5	44.3
	No. of farms with extra farm activiy	No. of farms with extra farm activiy	No.	24	13	26	59	24	31	10

12

No	Main Indicators	Sub-Indicators	Unit	1	2	3	4	5	6	7
6	No. of farms hiring labour force	No. of farms hiring labour force	No.	2	3	2	12	3		
7	Type of extra farm incomes	Governmental aid	%/tot	3.6	8.8	1.9	1.7			
		Social assistance	%/tot	1.8		3.8	5		3.2	
8	Land structure	Surface	Av./farm	15.4	14.1	14.9	11.9	9.8	16.1	16.3
		Greenhouse Surface	Av./farm	0.6	0.0	0.0	0.1	0.0	0.0	0.0
		Plots number	Av/.farm	4.3	4.5	4.2	3.6	2.9	4.6	3.1
9	Farm size	<=5 dyn	%/Cl.no	0	3	2	12	25	3	0
		>5-10 dyn	%/Cl.no	18	32	36	37	33	19	29
		>10-20 dyn	%/Cl.no	62	50	42	40	33	61	50
		>20 dyn	%/Cl.no	20	15	21	12	8	16	21
10	Irrigation	Number of farm using irrig.	%/Cl.no	18	6	35	16	11	13	0
		Irrigated Surface	Av.Sur	2.5	0.6	6.2	1.5	3.4	1.9	
11	Equipment & tool inputs	Farms that possess machinery	No.	13	2	23	29	0	7	0
12	Farms with Agricultural Activities	The farms with crops	%/Cl.no	23.2	14.3	22.4	12.7	10.1	13.1	4.2
		The farms with Vegetable	%/Cl.no	9.1	6.5	40.3	14.3	13.0	15.6	1.3
		The farms with greenhouse	%/Cl.no	86.7	0.0	0.0	6.7	0.0	6.7	0
		The farms with fruits	%/Cl.no	26.5	13.8	7.1	30.6	4.6	10.2	7.1

13

No	Main Indicators	Sub-Indicators	Unit	1	2	3	4	5	6	7
13	Farms with Sales Agricultural Activities	The farms with crops sales	%/Cl.no	22.0	11.3	22.0	13.1	13.1	14.3	4.2
		The farms with Vegetable Sales	%/Cl.no	9.1	6.5	40.3	14.3	13.0	15.6	1.3
		The farms with greenh. Sales	%/Cl.no	92.9	0.0	0.0	7.1	0.0	0.0	0
		The farms with fruits sales	%/Cl.no	26.5	13.8	7.1	30.6	4.6	10.2	7.1
14	Farms with Livestock Activities	Cattle	%/Cl.no	27	14	34	5	0	19	1
		Cow	%/Cl.no	27	14	34	5	0	19	1
		Sheep	%/Cl.no	12	7	49	7	2	22	0
		Milked sheep	%/Cl.no	12	7	49	7	2	22	0
		Goats	%/Cl.no	11	15	26	26	0	19	4
		Milked goat	%/Cl.no	12	12	27	27	0	19	4
		Poultry	%/Cl.no	20	15	26	16	6	16	2
15	Farms with sell livestock (meat)	Beef	%/Cl.no	87.0	73.0	61.0	44.0	0.0	65.0	0
		Goats	%/Cl.no	6.0	18.0	11.0	33.0	0.0	16.0	100
		Lamb	%/Cl.no	6.0	9.0	28.0	22.0	0.0	19.0	0
16	Farms with milk sell	Cows Milk	%/Cl.no	70.0	51.0	78.0	74.0	0.0	60.0	35
		Sheep Milk	%/Cl.no	80.0	70.0	89.0	0.0	0.0	81.0	0
		Goats Milk	%/Cl.no	0.0	89.0	93.0	76.0	0.0	77.0	50
17	Production Value	Income from sale/Tot.prod.	%	74	21	18	79	76	25	50
		Cereals	%	25	73	89	10	86	76	30
		Vegetables	%	40	2	4	8	6	4	2
		Orchards	%	35	25	7	82	9	20	69
18	Input Expenditures	Seed	%	16	11	12	8	13	9	6
		Nitrogen fertilizers	%	44	27	27	36	34	25	36
		Plowing	%	3	9	8	4	8	8	7
19	Expenses structure	Education	%/tot. Exp	3.3	4.3	4.5	6.5	5.2	3.2	2.3
		Food	%/tot. Exp	63.2	68.4	59.5	59.7	63.3	53.5	67.7
20	Incomes type	Net farm incomes		777,370	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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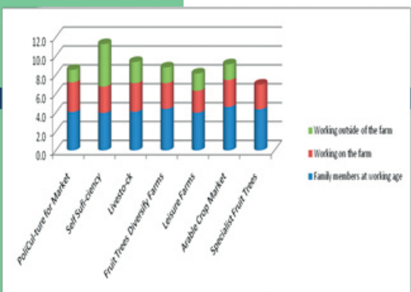
Farm Family Structure



- Activities on the farm does not offer opportunities for increasing the level of employment,
- Family members see as an alternative employment outside the farm

	PoliCul-ture for Market	Self Suffi-ciency	Livesto-ck	Fruit Trees Diversify Farms	Leisure Farms	Arable Crop Market	Specialist Fruit Trees
Family members at working age	4.1	4.0	4.1	4.4	4.0	4.6	4.4
Working on the farm	3.1	2.8	3.0	2.7	2.3	2.8	2.6
Working outside of the farm	1.3	4.0	2.3	1.7	1.8	1.7	

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Farms According Labor Force

No	Clusters	Number of Farms with: <=1	>1 and <=2	>2 and <=3	>3
1	Poli Culture for Market	7	45	40	7
2	Self Sufficiency	32	44	21	3
3	Livestock	4	53	26	17
4	Fruit Trees Diversified Farms	54	34	10	2
5	Leisure Farms	71	17	4	8
6	Arable Crop Market	6	61	23	10
7	Specialist Fruit Trees	38	46	15	0

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Percentage of farms by number of employee occupational

Have from 2 to 3 labor force:

- 85% of Poli Culture for Market farms
- 45% of farms Self Sufficiency
- 79% of Livestock farms
- 44% of Fruit Trees Diversified farms
- 71% of Leisure farms
- 84% of Arable Crop Market farms

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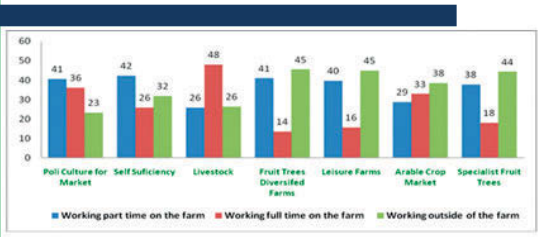
Type of Farm Labor

% of employment in the farm



Full-time employment varies from 14% to 48%

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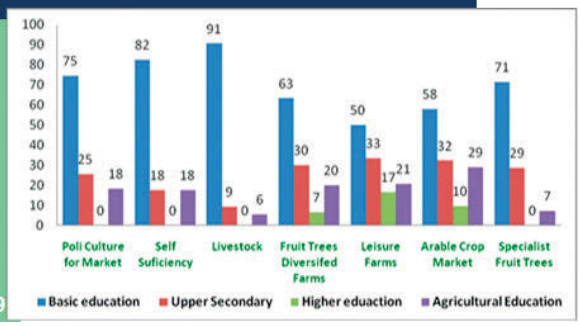
The Education Level

Education levels of farmers in patterns



19

Education levels of farmers in patterns

- 50-91% of the farmers have basic level of education, it is related to the age of farmers
- Number of farmers with agriculture education is very small, from 7-29%
- For four types of clusters(Poli Market for Culture, Self Sufficiency, Livestock, Fruit Trees Specialist) farmers do not have university degrees
- The younger generation is much less interested in engaging in agricultural activities

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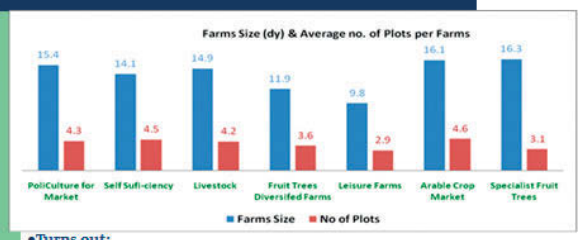
Land Structure and Farms Size

Average farm size and average number of plots



- Turns out:
- Bigger farms are Fruit Trees Farms with 1.63 ha/farm
- Smaller farms are Leisure Farms only 0.98 ha/farm
- Farms are extremely parceled, with from 2.9 to 4.6 plots per farm

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According to the study:

- Poli Culture for Market, about 80% of farms have over 1 ha and 20% over 2 ha.
- Self Suficiency, about 50% of farms have over 1 ha and 15% over 2 ha.
- Livestock, about 42% of farms have over 1 ha and 21% over 2 ha.
- Fruit Trees Diversifed Farms, about 40% of farms have over 1 ha and 12% over 2 ha.
- Leisure Farms, about 33% of farms have over 1 ha and 8% over 2 ha.
- Arable Crop Marke, about 61% of farms have over 1 ha and 16% over 2 ha.
- Specialist Fruit Trees, about 50% of farms have over 1 ha and 21% over 2 ha.

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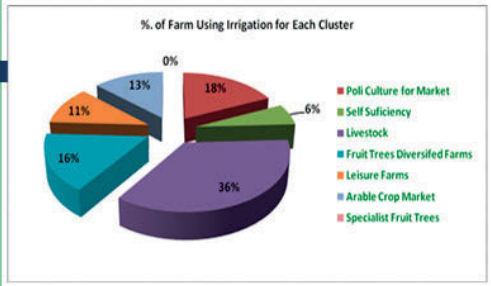
Irrigation



- The use of irrigation is limited (20%)
- Livestock Farms use more irrigation

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Equipment and Tool Inputs

Possession of agro-machines

No	Item	Poli Culture for Market	Self Sufi-ciency	Live-stock	Fruit Trees Divers. Farms	Leisure Farms	Arable Crop Market	Specialist Fruit Trees	Total
1	Multicultivateur				1				1
2	Trailer	1	1	2	2		2		8
3	Cart								0
4	Moto-cultivator	1		1	3		1		6
5	Tractor		1	5	7		1		14
6	Harvester			2					2
7	Spraying machine	1			1				2
8	fertilizing machine								0
9	Sower machine			1					1
10	Plug			4	5		1		10
11	Disk			1	1				2
12	Drills	1		6	6		1		14
13	Others	9		1	3		1		14

- Low level of mechanization
- Inefficient structure of assets
- Absence of aggregates
- Poor management

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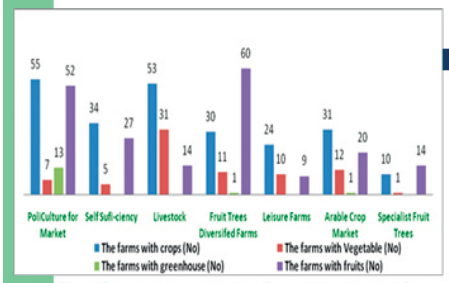
•Farms Agriculture Production Structure



Poli-cultura remains a phenomenon of the structure of production on the farm

- Reduced area planted with cereals
- Increased area planted with forages
- Increased area planted with fruit trees, vineyards, olive

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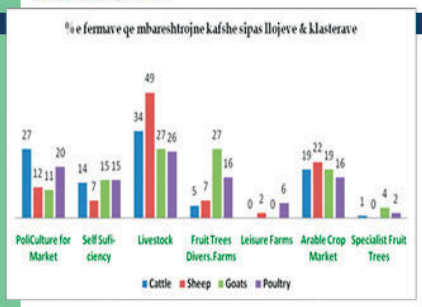
Farms Livestock Production Structure



- 58% raises cattle
- 16% raises sheep
- 10.8% raises goats
- Nobody raise swine
- 71.6% raise poultry

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The estimated agricultural production farm

No	Clusters	Area	Agricultural Product	Agricultural Product Sold	% Product Sold	Income/Farms Total	Income/Farms by sell
1	Poli Culture for Market	All	40647800	29923900	73.6	739051	544071
2	Self Suficiency	All	8264100	1701400	20.6	248062	50041
3	Livestock	All	18670460	3306700	17.7	352273	62391
4	Fruit Trees Diver.Farms	All	20780150	16429040	79.1	346336	273817
5	Leisure Farms	All	4633796	3528500	76.1	189075	147021
6	Arable Crop Market	All	10725600	2728700	25.4	345987	88023
7	Specialist Fruit Trees	All	2817510	1422500	50.5	201251	101607
	TOTAL	ALL	106539416	59040740	55.4	393134	217863

- On average, 55.4% of farm production is sold

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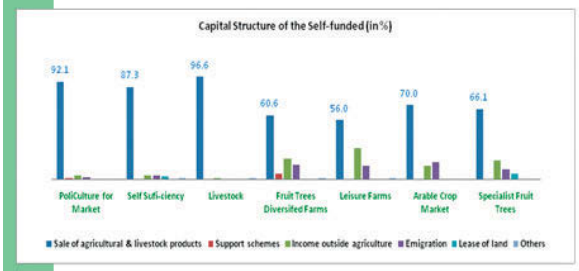
Expenses Structure



- •Financing from own resources represents over 95%
- •Funding from other sources is not significant.

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By the study we would find:

Farmers must confront a number of

- The Berat Region population density, climatic conditions, economic level, educational level, and indicators of land use are approximately at the national average
- Decline of the trade of basic products
- Low level of technology
- Economic dependency of agriculture processing businesses
- Exposure to risk and insecurity
- Dependency on the economic resources outside the farm

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Fermat characterized by

- Small area of land and extreme parceling
- Farms' lots offer no possibility for increasing the level of employment
- Insufficient water for irrigation
- Few resources and inefficient structure of mechanisation
- Reduction area cultivated with cereals
- Increased area cultivated with forage crops.
- Increased cultivations of olives, fruit trees, vineyards and citrus
- Poli-culture still significant in the production structure

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Connclusions:

- Poli-culture may offer some positive effects but can not serve to the development of agriculture in a long term prospective
- Addressing of production and increase of specialisation is needed
- Processing industry should be more focused on local production
- Cattle and small livestock breeding should be encouraged
- Support should be offered to vegetable and fruit trees cultivation and to building of green houses
- Encouraging farmers to intensive cultivation
- Support should be offered to use of qualitative inputs and technology

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THE IMPACT OF POLICY INSTRUMENTS ON THE FARMING SYSTEMS IN ALBANIA

Assessing farm's performance – The case of Berat

Assoc. Prof. Maksim MEÇO

Contents

Introduction

- Farms continues to be over-populated in terms of household members
- The farm household continues to be over-populated in terms of labor forces
- Current situation offers little opportunity for full-time employment on the farm.
- The farm size variation between different typologies from 0.98 ha to 1.63 ha of land.

Table 1. Farm Size By Typologies

Farm Typologies	No of Farms	%	Farm Size (Dyn)	No of Family Members	No of Family Members working in the farm
Poly Culture for Market	41	21.0	15.4	4.3	3.1
Self Sufficiency	28	14.4	14.1	4.5	2.8
Livestock	48	24.6	14.9	5.0	3.0
Fruit Trees Diversified Farms	38	19.5	11.9	4.6	2.7
Leisure Farms	12	6.2	9.8	4.1	2.3
Arable Crop Market	18	9.2	16.1	4.6	2.8
Specialist Fruit Trees	10	5.1	16.3	4.8	2.6

Introduction

- The farm serves as the main source of income for Household, especially at the farms that producing vegetables (poly Culture for market) and livestock farms.

Table 2: Income Structure By Farm Typologies

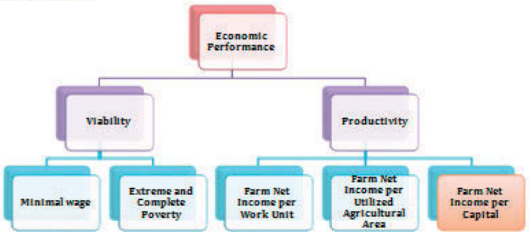
Farm Typologies	Net Income per farm(FNI)	Off Farm Income per farm	Household net income	% of farm income
1	4	5	6=4+5	7=4/6
Poly Culture for Market	777370	105066	882436	88
Self Sufficiency	244476	25928	270404	90
Livestock	599111	107642	706753	85
Fruit Trees Diversified Farms	406981	963210	1370191	30
Leisure Farms	217858	1181738	1399596	16
Arable Crop Market	543797	910967	1454764	37
Specialist Fruit Trees	214128	123700	337828	63

Methodology

This study will assess performance in terms of Reproduction threshold:

1. Productivity
   - Labor Productivity
   - Land Productivity
   - Capital Productivity
2. Viability
   - Minimal wage
   - Extreme poverty
   - Complete poverty

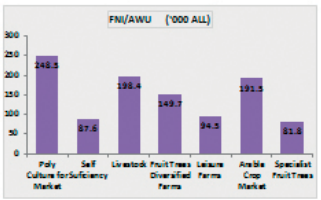
Methodology...



Discussions and Results-Productivity

Farm Net Income per Annual Work Unit

- Labor productivity is higher in clusters; Poli Culture for Market, Fruit Trees diversified, Farms Arable Crop Market and livestock farms. Because it is a known the fact that one of the advantages of production diversification and livestock is the full using of labor.
- Labor productivity is lower in subsistence farms and specialized farms. A single activity should be more profitable to justify the unused labor and production resources in certain parts of the year

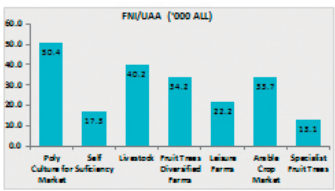


Discussions and Results-Productivity

Farm Net Income per Utilized Agricultural Area

- The land using effectiveness is higher in diversified farms and livestock farms.

This is the consequence of the fact that vegetables and livestock products are part of the activities with high added value



Discussions and Results-Viability

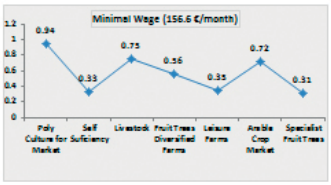
	Indicator		Value	Note
Viability	Minimal Wage	$\frac{FNI}{WU \times 12 \times MW}$	>1	The work in agriculture is paid more than the minimal wage (mw)
			=1	The Work in Agriculture is paid as much as the minimal wage (mw)
			<1	The work in agriculture is paid less than the minimal wage
	Poverty line Extreme poverty	$\frac{FNI}{HM \times 12 \times 4037ALL}$	>1	The members of the family live above the extreme poverty line;
			=1	The members of the family live on the extreme poverty line
			<1	The family members live below the extreme poverty line
	Poverty line Complete poverty	$\frac{FNI}{HM \times 12 \times 4891ALL}$	>1	The members of the family live above the complete poverty line;
			=1	The members of the family live on the complete poverty line
			<1	The family members live below the complete poverty line

Discussions and Results-Viability

Minimal Wage: $\frac{FNI}{WU \times 12 \times MW}$

▶The wage for an employee working on the farm is less than the minimum wage in all farm typologies.

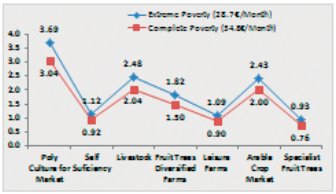
▶The effectiveness of labor force in agriculture is very low.



Discussions and Results-Viability

❖Complete poverty: $\frac{FNI}{HM \times 12 \times 4891ALL}$ ❖Extreme poverty: $\frac{FNI}{HM \times 12 \times 4037ALL}$

▶Only at subsistence farms the income received by farms are on extreme poverty and under complete poverty.



Conclusions

•Poly culture in agriculture is able to provide several positive effects, but this is highly unlikely to be a long term strategy for agricultural development.

•The Supporting of farms that are producing vegetables in greenhouses and fruit production would affect the growth of agricultural productivity and increasing farm income.

•Development of livestock, particularly cattle and small ruminants, should be considered and evaluated as a long-term strategy of agriculture developing in Berat district.

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'THE IMPACT OF POLICY INSTRUMENTS ON THE FARMING SYSTEMS IN ALBANIA'

Farm Typology Characteristics
Elbasani District

March 31, 2014
Tirana International Hotel
Tirana/Albania

JOINT RESEARCH CENTRE
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'THE IMPACT OF POLICY INSTRUMENTS ON THE FARMING SYSTEMS IN ALBANIA'

Farm Typology Characteristics
Elbasani District

March 31, 2014
Tirana International Hotel
Tirana/ Albania

Prof.As.Dr.Remzi KECO

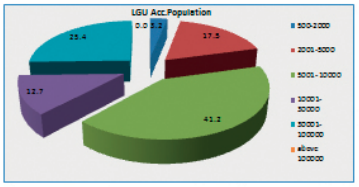
Content

- Elbasani district structure and main socio-demografic indicators
- Farm cluster/typology
- Family structure
- Type of Farm Labor
- Land Structure and Farm Size
- Production structure (agriculture and livestock)
- Production value
- Input expenditure structure
- Farm incomes

Elbasani district structure…

- Four main cities, 7 municipalities and 43 communes .
- Elbasani district has in total four regions:
  1. Elbasan
  2. Librazhd
  3. Peqin
  4. Gramsh
- Elbasani district population comprise 11% of the Albania total population , 66% of total population are from 15-54 years.
- Total surface 3 199 km^2, population density 92 (inhabitants/km2)

Elbasani district structure…



- It is estimated that about 21% of the administrative units have a population of less than 5000 inhabitants.
- The average number of residents for each administrative unit is about 78% of the national average
- The ratio of population living in urban areas with rural areas is 38% and 62%.

Elbasani district structure…

- Agriculture land area 72.872 ha (10.4% count.), non agricultural land (forestry, pasture & others 253992 ha.
- Irrigated area 21493ha, 61 % of potentially irrigation area.
- Total number of farms 32.439 and total.
- Average farm size 4.9 persons.

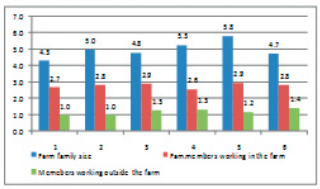
Farm cluster/Typology
Elbasani District

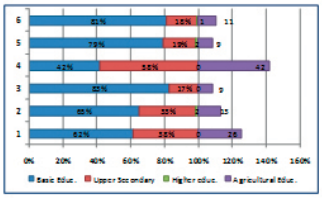
No.	Clusters/Indicators	Poly-culture for market	Livestock	Leisure farms	Fruit trees	Arable crop farm	Self Sufficiency
		Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster0
1	Sales / Total Production %	69.91	34.12	42.64	82.81	27.16	43.93
2	Irrigated / Total UAA %	41.66	79.88	52.22	20.38	94.76	17.82
3	Livestock / Total Production %	23.32	42.23	20.27	0.72	38.41	32.06
4	Field Crops /Agriculture tot. %	27.21	81.80	88.02	17.69	74.87	80.21
5	Cash crop / Agriculture tot. %	81.78	3.67	9.81	77.96	3.68	10.62
6	Expenses /production value	0.29	0.13	0.56	0.82	0.34	0.33
7	Total Land	10.59	8.83	15.12	7.38	6.26	13.90
8	Off farm income/Total income	3.84	4.32	68.58	73.36	63.80	2.97
9	AWU/000 lek Produced	0.0091	0.00485	0.00543	0.01231	0.0079	0.00

The number of clusters identified by using the above mentioned indicators
1. Poly-culture for market
2. Livestock
3. Leisure farms
4. Fruit trees
5. Arable crop farm
6. Self Sufficiency

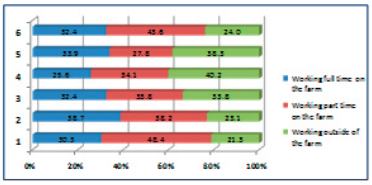
Family structure

- Family size farm in the district of is approximately five persons and it turns out to be the same even according to the regional data.
- The number of persons employed in the farm is two to three people, values from one cluster to another reflect insignificant changes.
- For all farm typologies there is a predominance of farmers with elementary school education from 42%-83%.



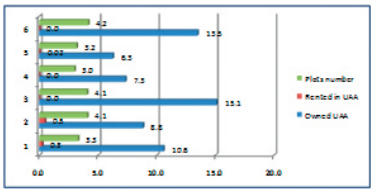


Type of Farm Labor



- The number of full-time employees ranges from 25.6% for fruit trees typology to 38.7% for farms in typology livestock farms.
- The number of part-time employees ranges from 27.8% for arable crop farms typology to 48.4% for farms typology of polyculture for market.
- The weight of labor force engaged outside the farm ranges from 21.3% in the market for polyculture typology to 40.2 % for the typology of fruit trees farms.

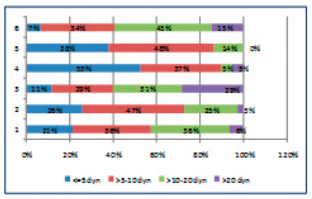
Land Structure and Farm Size



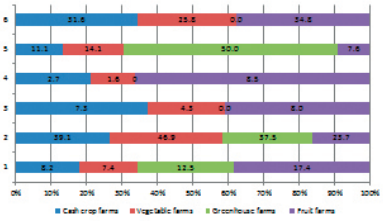
- It is noted that farms typology of arable crop farm are found to be the smallest with an average area of 0.6 ha / farm.
- Clusters 3 & 6 -leisure farms & self sufficiency farms result in an area of about 1.5 ha / farm .
- Farms with livestock orientation as well as the fruit tree farms result with a size of about 0.8 ha / farm, which can question the efficiency of their operations.

Land Structure and Farm Size…

- Poly-culture for market : farms with 5-10 and 10-20 dyn constitute from 36% of the total farms of this cluster.
- Fruit trees: over 53% of them prove to have a size less than 5 dyn and farms of 10-20 and >20 dyn size result to have an indicator value of just 5% of the total.
- Arable crop farm: dominate farms of up to 10 dyn with over 86% of the total farms his cluster.
- Self sufficiency: dominate farms with 10 -20 dyn with about 45% of the total farm this cluster.

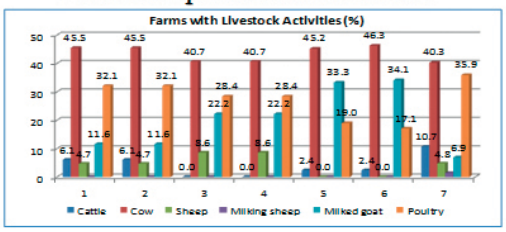


Agricultural production structure



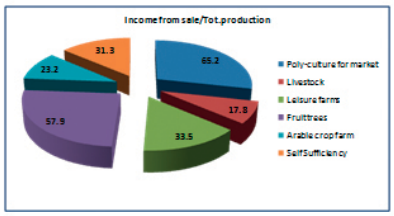
- Cluster five (arable crop farms) is characterized by predominance of greenhouse production whereas, cluster number three and four (leisure and fruit trees farms) are characterized by predominance of fruit trees production as main activity.
- As for the other clusters the production structure are relatively balanced.

Livestock production structure



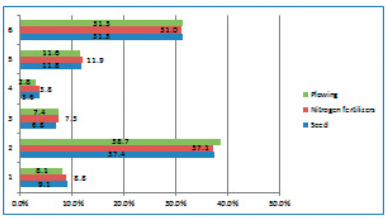
- Despite the high percentage of farms that raise animal cows in their farms, the average number of cows per farm in all clusters does not exceed 2 heads.
- The number of farms that sell is high but the quantity sold per farm is very low.

Production Value



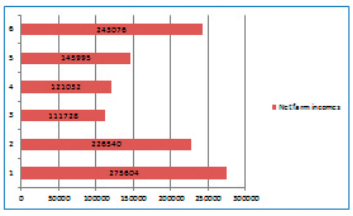
- It is noted that there is a very low level of this indicator in the second cluster of farms (livestock farms) and the fifth (arable crop farms) with respectively 17.8% and 23.2%

Input expenditures structure



- The percentage of farms that buy inputs in relation to total number of farms for each cluster ranges from 85-95%, but this index is not significant if we take into consideration the extent of their use.

Farm incomes



- Referring this indicator cluster 3 has the lowest income level (111728 All) and the cluster 1 has the highest one with a value 275604 All.

Conclusions

- Encouraging secondary vocational education with agricultural profile would be a good support for the commercialization of farms.
- Despite the typologies the commitment of labor forces indicates a relatively limited opportunity to engage in farm balanced calendar the workforce and consequently reinforces the underemployment of labor in rural areas.
- It should be brought into attention the fact that leasing the land results in negligible values, what creates a problem that regards the intensification also increasing of farm size and specialization.

Conclusions…

- The number of farms that sell is high but the quantity sold per farm is very low.
- What can be said with certainty (despite the support provided by support schemes in recent years) is a very low average of the number of farms that use irrigation for the whole sample obtained in the study, with a value of 16.6%.
- It is thus evident that the main destination of breeding animals is not meat production but milk production, therefore the indicator of production and sales for this product is in quite high levels.

Thank you for your attention!

JOINT RESEARCH CENTRE
Institute for Prospective Technological Studies (IPTS)

THE IMPACT OF POLICY INSTRUMENTS ON THE FARMING SYSTEMS IN ALBANIA

Assessing farm's performance – The case of Elbasan

Shpresim Domi, PhD Candidate

Contents

Introduction

Elbasan district comprises 13.4 % of total Economic Agricultural Units in Albania (INSTAT, 2014).

.....76.63 % of Farms are engaged with livestock activities

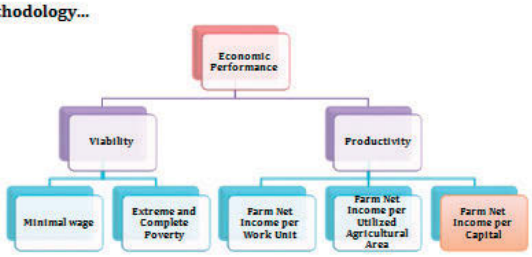
Methodology

Existing literature frequently divides business performance measures into financial performance, which includes factors such as revenues, profit, or stock prices, and non-financial performance measures such as reputation, loyalty, or customer satisfaction (Gupta and Zeitham, 2006)

As Louhichi et al. (2013) approach, this study will assess performance in terms of:

1. Viability (Minimal wage, extreme and complete poverty)
2. Productivity ($\frac{FNI}{WU}, \frac{FNI}{UAA}, \frac{FNI}{C}$)

Methodology...



Discussions and Results-Productivity

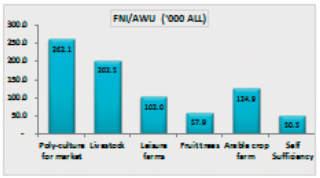
♦ Farm Net Income per Annual Work Unit

❖ Cluster 1; the highest value on sales 69.91%

❖ Cluster 2; the highest value on livestock production 42.2%

❖ Cluster 4; the highest value on out of farm incomes 73.36 %

❖ Cluster 5; the lowest value on sales 27.16%

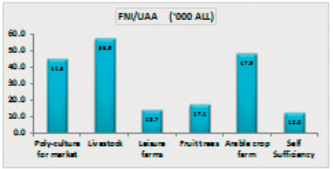


Discussions and Results-Productivity

♦ Farm Net Income per Utilized Agricultural Area

❖ Clusters 1, 2 and 5 are reaching high Net Incomes per Utilized Agricultural Area...

❖ Clusters 3 and 4 are having highest incomes out of farm (respectively 68.58 % and 73.36 %)...



Discussions and Results-Viability

	Indicator		Value	Note
Viability	Minimal Wage	$\frac{FNI}{WU \times 12 \times MW}$	>1	The work in agriculture is paid more than the minimal wage (MW)
			=1	The Work in Agriculture is paid as much as the minimal wage (MW)
			<1	The work in agriculture is paid less than the minimal wage
	Poverty line Extreme poverty	$\frac{FNI}{HM \times 12 \times 4037ALL}$	>1	The members of the family live above the extreme poverty line,
			=1	The members of the family live on the extreme poverty line
			<1	The family members live below the extreme poverty line
	Poverty line Complete poverty	$\frac{FNI}{HM \times 12 \times 4091ALL}$	>1	The members of the family live above the complete poverty line,
			=1	The members of the family live on the complete poverty line
			<1	The family members live below the complete poverty line

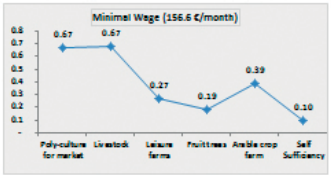
Discussions and Results-Viability

- Minimal Wage: $\frac{FNI}{WU \times 12 \times MW}$

➢ Within all clusters the Work Unit is paid less then Minimal Wage…

➢ This trend is close related to the FNI/AWU results…

➢ Again… the efficacy at agricultural farms is to low (High cost, lack of cooperation, no vertical integrated etc.,)…

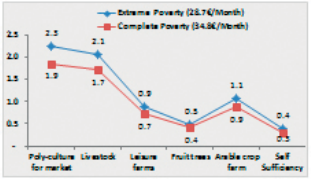


Discussions and Results-Viability

- Extreme poverty: $\frac{FNI}{HM \times 12 \times 403TALL}$
- Complete poverty: $\frac{FNI}{HM \times 12 \times 489LALL}$

➢ Regarding the Agricultural incomes Cluster1, 2 and 5 are living above extreme poverty in contrast with cluster 3, 4 and 6…

➢ …Cluster 1, 2, are living above complete poverty in contrast with cluster 3, 4, 5 and 6…



Conclusions

- Clusters of Poly-culture for market, Livestock and arable crop farm are positively performing in terms of productivity…
- Clusters of Poly-culture for market, Livestock and arable crop farm are positively performing in terms of viability (Extreme and Complete poverty)
- All clusters pay labor force less than minimal wage……..close related to the cost issues, vertical integration, cooperation etc,.
- …It is suggested that Poly-Culture farms, Livestock and arable crop farm are more productive and viable, thus policymakers must consider and address them…

Thank You for your attention

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Institute for Prospective Technological Studies (IPTS)

'THE IMPACT OF POLICY INSTRUMENTS ON THE FARMING SYSTEMS IN ALBANIA'

Farm Typology Characteristics
Lezha District

March 31, 2014
Tirana International Hotel
Tirana/Albania

Content

- Lezha district structure and main socio-demographic indicators
- Farm cluster/typology
- Family structure and farm structure
- Production structure (agriculture and livestock)
- Production structure in value
- Expenditure structure
- Income structure

Lezha district structure

- Three main cities, 5 municipalities and 16 communes.
- Lezha district has in total 9 cities and 170 villages
- Lezha district population comprise nearly 5% of the Albania total population: rural population share count for 46% of the district total population
  - 25% 0-14 years old
  - 67% between 15-64 years old
- Total surface 1 620 km^{2,} population density 83 inhabitants per square km(INSTAT, 2011)

Lezha district structure

- Agriculture land area 34 258 ha, forestry 92 510 ha, pasture 34 258ha.
  - (in percentage 22% agricul. 56% forestry)
- Irrigated area 5 382 ha, potentially irrigation area 17 779 ha.
- Total number of farms 14.312 and total number of household 32.236

Farm cluster/Typology

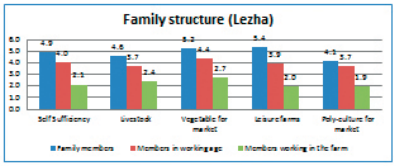
Lezha region

	Self-Sufficiency	Livestock	Vegetable for market	Leisure Farms	Poly-culture for market	F-value	P-value
(Sales/PROD)%	30.02	50.20	44.34	16.65	59.35	16.58	.000
(Irrigated/Total UAA)%	87.48	10.76	33.68	31.09	6.96	190.71	.000
(Livestock/Prodtotal)%	44.56	46.87	32.09	39.47	21.42	13.13	.000
(Vegetable/Agriculture tot.)%	22.83	5.35	39.91	50.99	3.04	54.84	.000
(Cash crop/ Agriculture tot.)%	75.66	88.97	41.12	30.66	75.17	43.92	.000
(Planted area/TOT area)%	95.69	94.65	77.89	57.79	96.41	20.02	.000
(Total land area)	7.47	13.07	8.74	6.14	12.13	10.05	.000
(Peyed labour/total labour)%	0.00	2.55	0.00	7.14	25.91	67.00	.000
Off farm income/ Total income	53.78	24.82	2.22	82.11	76.26	15.02	.000
Cases	67.00	96.00	30.00	14.00	47.00		

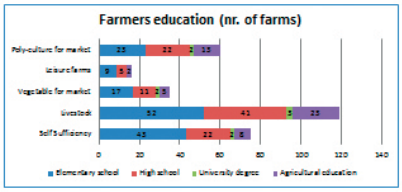
The number of clusters identified by using the above mentioned indicators
1) Self Sufficiency
2) Livestock
3) Vegetable for market
4) Leisure farms
5) Poly-culture for market

Family structure

- Leisure farms show the highest average numbers of family memebers (5,4)
- Vegetable for market represent the higher number of members in working age (4,4) and aslo the higher number of members Working in the farm (2,7)



For all clusters/typology farms There is a predominance of farmers with elementary school education

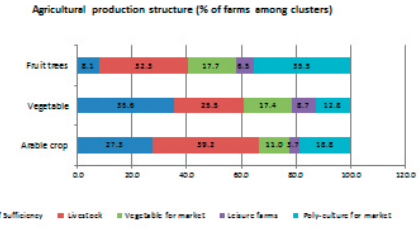


Farm structure (land)

Indicators/Clusters	Self-Sufficiency	Livestock	Vegetable for market	Leisure Farms	Poly-culture for market
Average farm area (dyn)	7.5	13.1	8.7	6.1	12.1
Irrigated area (dyn)	5.8	1.3	2.5	1.7	0.9
Plot number (dyn)	2.8	3.0	3.1	2.3	2.9
% of sold product/Total production	32.36	28.35	59.59	13.94	48.49
Average rented land per farm (dyn)	0	0.1	0.3	1.3	0.7
Greenhouse area (dyn)	0	0	0.1	0	0
Pasture (dyn)	0	0.1	2.1	0.7	0.1
Average distance from house (km)	1.2	1.7	1	0.7	1.6
Average distance from market (km)	9.5	8.1	14.9	11.2	10.1

- Polyculture for market and livestock clusters have the higher average surface of land.
- Irrigated area, small percentage of the total area for all clusters
- Greenhouse area almost absent, exeption "Vegetables for Market" cluster
- Relatively high distance from market

Agricultural production structure

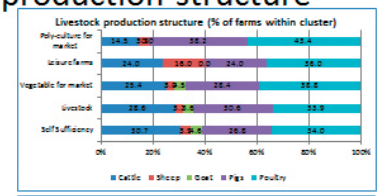


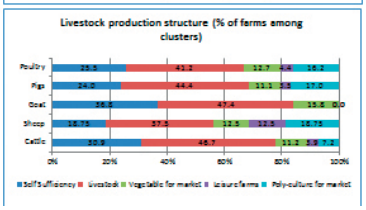
- Fruit trees are more cultivated in the Livestock (32.3%) and Poly-culture (35.5%) clusters.
- Vegetables are more cultivated in Self Sufficiency (35.6%) cluster.
- Arable crops are more cultivated in Livestock (39.2%) cluster.
- In Leisure farms we can see that the cultivation is very low.

Livestock production structure

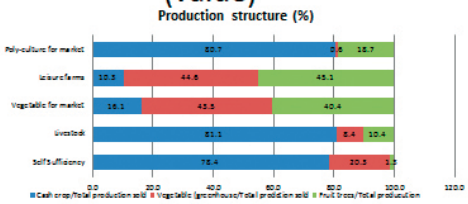
Poly-culture for market dominated by pigs and poultry
Leisure farms mostly poultry
Pig farms have a quite equal distribution among clusters together with poultry

In vegetable for market, leisure farms and poly-culture for markets there is low predominance of livestock





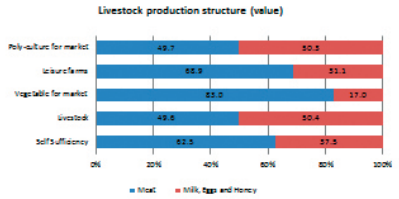
Agricultural production structure (value)



-Cash crop/Total production sold takes the majority in the production structure for three of the clusters, respectively 80.7% in Poly-culture in markets, 81.1% in Livestock and 78.4% in Self sufficiency cluster.

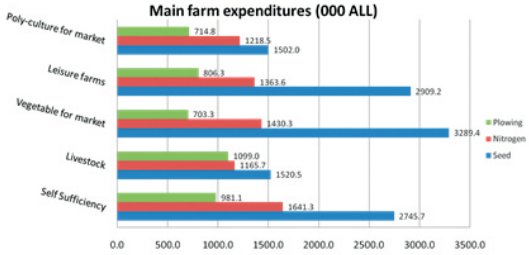
- In Leisure farms and Vegetable markets the majority of the production structure is divided between Vegetable greenhouse/total production sold and Fruit trees/total production sold.

Livestock production structure (value)



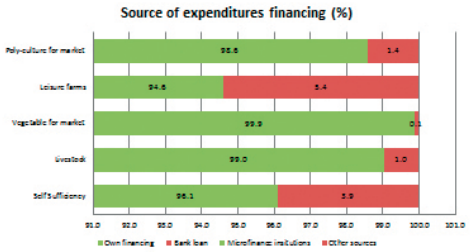
- The livestock production structure is divided in: first group is Meat and second group is Milk, eggs and honey.
- Meat takes the majority of the livestock production in Leisure farms (68.9%), Vegetable for market (83%) and Self sufficiency (62.5%) clusters.
- Whereas in the two other clusters, Poly-culture for market and Livestock, they are divided quite the same.

Expenditure structure



- In all clusters the majority of the farm expenditures goes for the seed.
- Whereas, less expenditures goes for the plowing.

Expenditure structure contin....



Mainly self financing and other sources (remittances...)
Absence of banking system and microfinance institution in the farming system in Lezha region

Thank you for your attention

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"THE IMPACT OF POLICY INSTRUMENTS ON THE FARMING SYSTEMS IN ALBANIA"

Assessing economic performance of farms in Lezha District

March 31, 2014
Tirana International Hotel
Tirana/Albania

Gentjan MEHMETI, PhD Cand.

Content

Introduction

Farm Size By Typologies					
Farm Typologies	No. of farms	%	Farm size (Dyn)	No. of family members	No. of family members working in the farm
Self Sufficiency	67	26.3	7.5	4.9	2.1
Livestock	96	37.8	13.1	4.6	2.4
Vegetable for market	30	11.9	8.7	5.2	2.7
Leisure farms	14	5.5	6.1	5.4	2.0
Poly-culture for market	47	18.5	12.1	4.1	1.9

- Leisure farms show the highest average numbers of family memebers (5,4).
- Vegetable for market represent the higher number of members working in the farm (2,7).

Introduction

Off farm income/ Total income ratio	
Farm Typologies	Off farm income/ Total income (%)
1	2
Self Sufficiency	53.78
Livestock	24.82
Vegetable for market	2.22
Leisure farms	82.11
Poly-culture for market	76.26

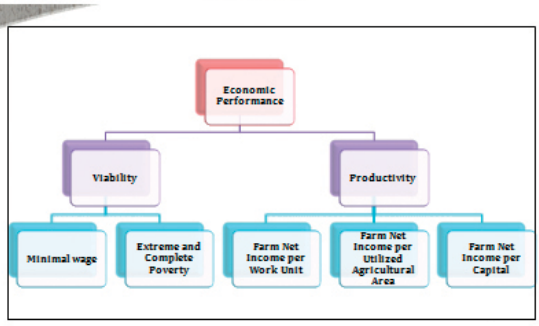
- The farm serves as the main source of income for vegetable for market and livestock farms.

Methodology

The economic performance of each farm type is evaluated by calculating their:

1. Productivity
   - Labor Productivity ($\frac{FNI}{WU}$)
   - Land Productivity ($\frac{FNI}{UAA}$)
   - Capital Productivity ($\frac{FNI}{C}$)
2. Viability
   - Minimal wage
   - Extreme and Complete poverty

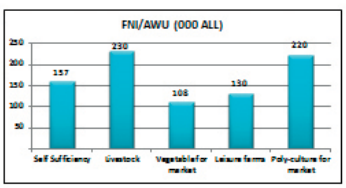
Methodology



Discussions and Results - Productivity

1. Farm Net Income per Work Unit

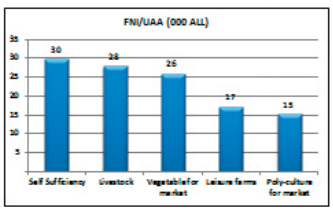
•Labor productivity is higher in **livestock farms** *and* **diversified farms** (*poly-culture for market*), because one of the advantages of production diversification and livestock is **the full use of labor.**



Discussions and Results-Productivity

2. Farm Net Income per Utilized Agricultural Area

•The land use effectiveness is higher in **livestock farms** and **diversified farms** (*vegetables for market*), because the vegetables and livestock products are part of the activities with high added value.



Discussions and Results-Viability

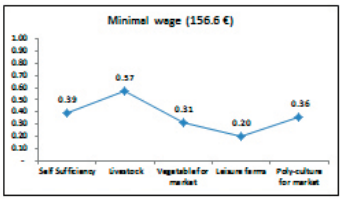
Indicator			Value	Note
Viability	Minimal Wage	$\frac{FNI}{WU \times 12 \times MW}$	>1	The work in agriculture is paid more than the minimal wage (MW)
			=1	The Work in Agriculture is paid as much as the minimal wage (MW)
			<1	The work in agriculture is paid less than the minimal wage
	Poverty line Extreme poverty	$\frac{FNI}{HM \times 12 \times 4037ALL}$	>1	The members of the family live above the extreme poverty line;
			=1	The members of the family live on the extreme poverty line
			<1	The family members live below the extreme poverty line
	Poverty line Complete poverty	$\frac{FNI}{HM \times 12 \times 4891ALL}$	>1	The members of the family live above the complete poverty line;
			=1	The members of the family live on the complete poverty line
			<1	The family members live below the complete poverty line

Discussions and Results-Viability

Minimal Wage: $\frac{FNI}{WU \times 12 \times MW}$

➢ The work in agriculture **is paid less** than the minimal wage in all farms typologies.

➢ The effectiveness of labor force in agriculture **is very low.**

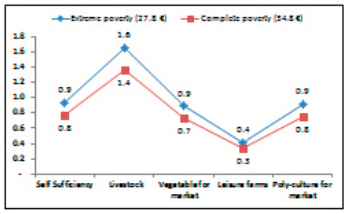


Discussions and Results-Viability

❖**Extreme poverty:** $\frac{FNI}{HM \times 12 \times 4037ALL}$

❖**Complete poverty:** $\frac{FNI}{HM \times 12 \times 4891ALL}$

➢ Only at **livestock farms** the members of the family live above the extreme and complete poverty line.



Conclusions

✓Livestock farms and diversified farms are positively performing in terms of ***productivity***.

✓The work in agriculture ***is paid less*** than the minimal wage in all farms typologies.

✓Only at **livestock farms** the members of the family live above the extreme and complete poverty line.

➢ It is suggested that **livestock farms** and **diversified farms** (*poly-culture for market and vegetables for market*) should be considered in a long-term strategy for agriculture development in Lezha District.

Thank you for your attention

Effect of policy instruments on farming systems in Albania ex-post analysis

Fatmir Guri, Sergio Gomez Y Paloma

European Commission, Joint Research Centre.
The European Commission's in-house science service
Institute for Prospective Technological Studies - Seville

Introduction

Albania is applying from 2007 direct support for agricultural sector

Main supported activities are fruit trees, technological improvement, livestock and agro-processing sector.

There is an information gap on the distribution, farms characteristics and the effects of these supporting schemes

Supported farms

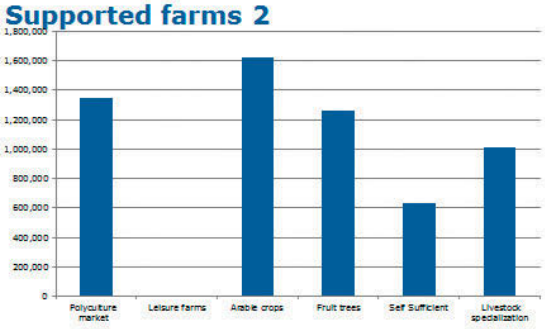
Less than 5% -45 farms- of the surveyed farms have been selected from the supporting schemes

The supporting schemes have financed more than 60% of the total investments

There is not a clear difference of support distribution among the farm types –with exception of leisure farms -11, 1, 9, 9, 7, 8

The sample allows us to have only limited information

Supported farms 2



Main supported activities

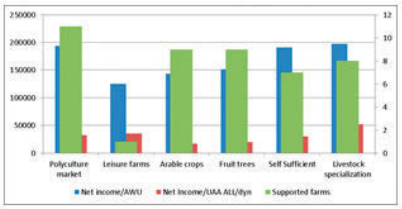
Nearly half of the supported farms have planted olive groves for 38% of total supported amount

Other supported activities are fruit trees and wine yards.

The activities are nearly distributed among the farm types

Main supported farms

Are the most productive farms the most supported ones



Conclusions

The supported farms number is limited

The support tend to be equally distributed among the farms types

Not always the most productive farms are the most supported ones

The information collected can be used to model the effect of future support schemes on an ex-ante basis

Thank you for your attention

European Commission
EUR 27260 EN – Joint Research Centre – Institute for Prospective Technological Studies

Title: Characteristics of farming systems in Albania

Authors: Fatmir Guri, Ilir Kapaj, Bahri Musabelliu, Maksim Meço, Eneida Topulli, Remzi Keco, Natasha Hodaj, Shpresim Domi, Gentjan Mehmeti, Sergio Gomez y Paloma

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Abstract

This report is based on information collected from a face-to-face survey of more than 1 000 farmers from three regions of Albania (namely Berat, Elbasan and Lezhë). To identify a representative sample of Albanian farming systems, a three-step sample design was used. A group of 11 variables dealing with the socio-economic characteristics of farms was selected to build up the farming system typology. Two typologies are used: one for the whole sample (three regions) and a second one for each region. The differences between the two typologies are considered to be a proxy indicator of different characteristics of farming systems in each region. The farm types identified are (1) poly-culture, mainly for the market; (2) leisure farms; (3) arable crops; (4) fruit trees; (5) self-sufficient; and (6) livestock. The farm typology is slightly different for the regions of Berat and Lezhë.
The farm types' strategies are constructed according to the land, infrastructure facilities and the investment availability of farms. Non-agricultural incomes (remittances, income from the construction, trade, pensions, etc.) appear to provide an important economic support for the farm household.
Farming structures in rural areas are characterised by the use of more labour and lower inputs. The farm types that tend to specialise in one activity are not always those that make the best use of labour and land.
Farming does not provide enough income to repay the work put in at the official minimum wage level. Non-agricultural work is better paid. Albanian farms provide at least a minimal income that is enough to keep the household members above the threshold of extreme poverty.
The farm types that base their incomes on agricultural activities are poorer than those that base their income on non-agricultural activities. Income structures and the low incomes generated by work in agriculture suggests that rural migration towards urban areas and abroad is a phenomenon that will persist into the future.

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