



JRC MARS Bulletin

Crop monitoring in Europe

October 2017

Wet conditions delay winter sowing

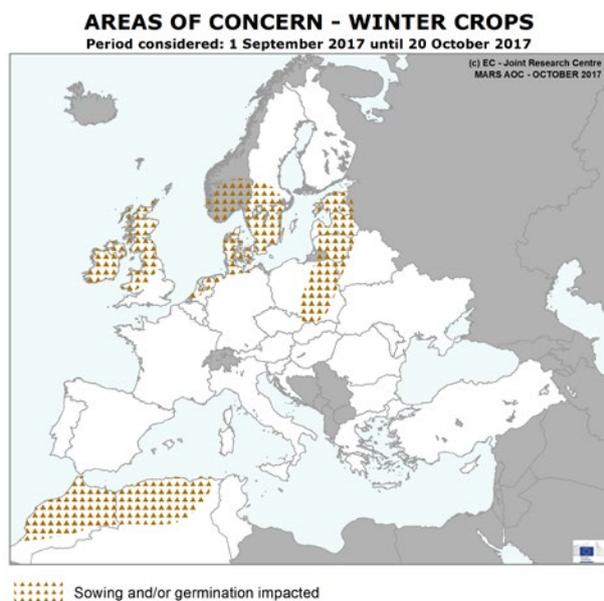
Continued dry conditions in Mediterranean regions

Major parts of central and western Europe benefited from favourable end-of-season conditions to advance the harvesting of summer crops and sowing of winter crops. However, in Mediterranean regions, low precipitation levels continued, while northern countries experienced excessive precipitation.

In large parts of northern Europe, the sowing of winter crops, already delayed by the late harvesting, was further hampered by excessively wet conditions. In the Baltic countries and Finland, excessive rain also compromised the harvesting of spring crops.

In contrast, the drought continues in the Iberian peninsula, and rain is needed in the coming weeks to raise soil moisture levels, to allow seedbed preparation and

to create favourable conditions for the germination and emergence of newly sown crops. Winter cereal sowing is already delayed in Morocco and Algeria, where rainfall in September and October was also very low. A significant rain deficit also exists in southern France, western Italy and Greece, where sowing activities usually start in November.



| Crop | Yield (t/ha) | | | | |
|----------------------|--------------|--------------------|---------------------|----------------|------------------|
| | Avg 5yrs | September Bulletin | MARS 2017 forecasts | % Diff 17/5yrs | % Diff September |
| TOTAL CEREALS | 5.30 | 5.30 | 5.33 | + 0.6 | + 0.6 |
| Total Wheat | 5.60 | 5.62 | 5.70 | + 1.7 | + 1.4 |
| <i>soft wheat</i> | 5.84 | 5.86 | 5.94 | + 1.8 | + 1.4 |
| <i>durum wheat</i> | 3.33 | 3.44 | 3.51 | + 5.2 | + 2.0 |
| Total Barley | 4.83 | 4.74 | 4.73 | - 2.1 | + 0.0 |
| <i>spring barley</i> | 4.22 | 3.95 | 3.94 | - 6.6 | - 0.3 |
| <i>winter barley</i> | 5.68 | 5.73 | 5.76 | + 1.4 | + 0.5 |
| Grain maize | 6.89 | 6.99 | 6.91 | + 0.2 | - 1.1 |
| Rye | 3.89 | 3.83 | 3.84 | - 1.3 | + 0.3 |
| Triticale | 4.20 | 4.19 | 4.18 | - 0.5 | - 0.2 |
| Rape and turnip rape | 3.25 | 3.25 | 3.25 | - 0.2 | + 0.0 |
| Potato | 32.6 | 33.4 | 33.7 | + 3.3 | + 0.8 |
| Sugar beet | 72.2 | 76.9 | 76.7 | + 6.3 | - 0.2 |
| Sunflower | 1.94 | 2.11 | 2.08 | + 7.5 | - 1.4 |

Issued: 20 October 2017

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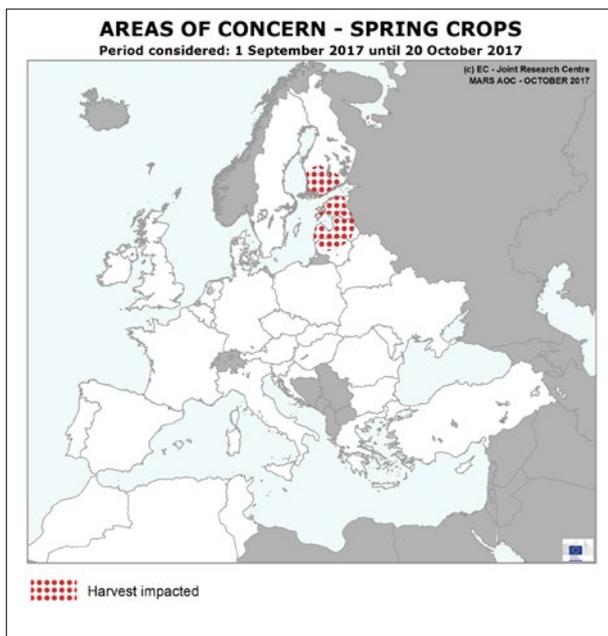
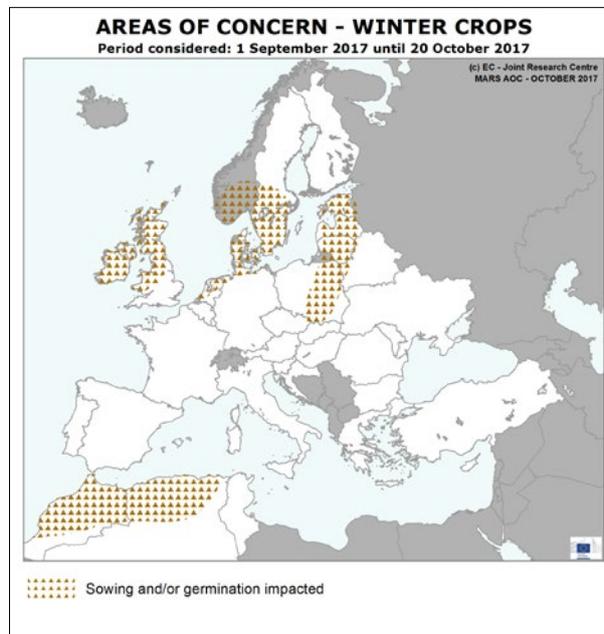
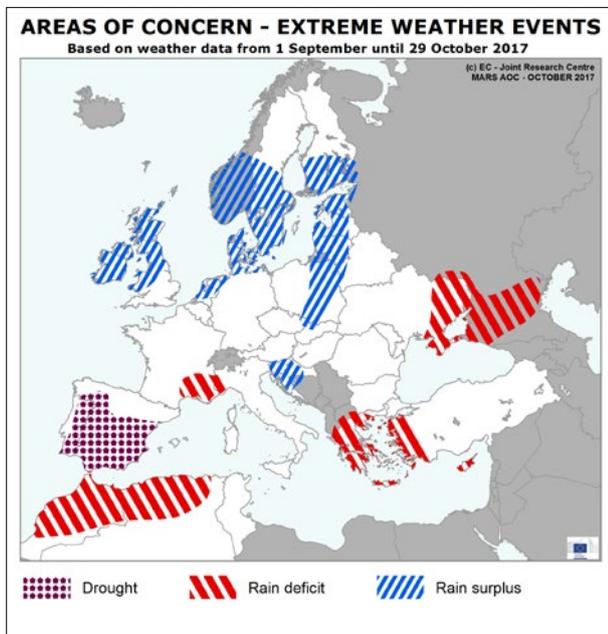
Pasture monitoring

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Atlas

1. Agro-meteorological overview

1.1. Areas of concern



The drought in the **Iberian peninsula** is still ongoing. Rain is needed in the coming weeks to raise soil moisture levels, to allow seedbed preparation and to create favourable conditions for the germination and emergence of newly sown crops. A significant rain deficit also exists in **southern France, western Italy and Greece**, where sowing activities usually start in November. Rain-fall in September and October was also very low in **Morocco and Algeria**, where winter cereal sowing is delayed.

In the **United Kingdom, Ireland, the Netherlands, Denmark and Sweden**, the sowing of winter crops, already delayed in several regions by the late harvest, was further suspended because of the excessively wet conditions. In the **Baltic countries and Finland**, excessive rains compromised and delayed the harvest of spring crops and hampered the sowing of new winter crops, which only started in October. Emergence of late-sown crops could occur under unfavourable conditions if there are significant temperature drops in the coming days, as forecast.

The dry conditions in eastern **Ukraine**, southern **Russia** and western **Turkey** have only marginal consequences for agricultural activities.

In Mediterranean regions, low precipitation continued, while northern countries experienced excessive precipitation, as shown in the areas-of-concern maps.

1.2. Meteorological review (1 September–15 October)

Warmer-than-usual weather conditions prevailed in the Iberian peninsula, eastern Bulgaria and Romania, the Baltic countries and a considerable part of Scandinavia, as well as in Turkey, Ukraine, southern and western Russia, Belarus, Morocco and western Algeria. Mean temperature anomalies in these regions remained mostly between 0.5 °C and 4 °C. In the eastern half of Europe (except the most northern areas), the second dekad of September was much warmer than usual (by up to 9 °C). In several regions of southern Russia and Turkey, this was the hottest second dekad of September in our records (i.e. since 1975), with maximum temperatures reaching 32–36 °C on the hottest days. For the review period as a whole, the number of hot days ($T_{max} > 30$ °C) was six to fifteen days more than the seasonal average in the wider Black Sea region. This number was also exceptionally high in Portugal, south-western Spain and Morocco, where it exceeded the seasonal average by twelve to thirty days.

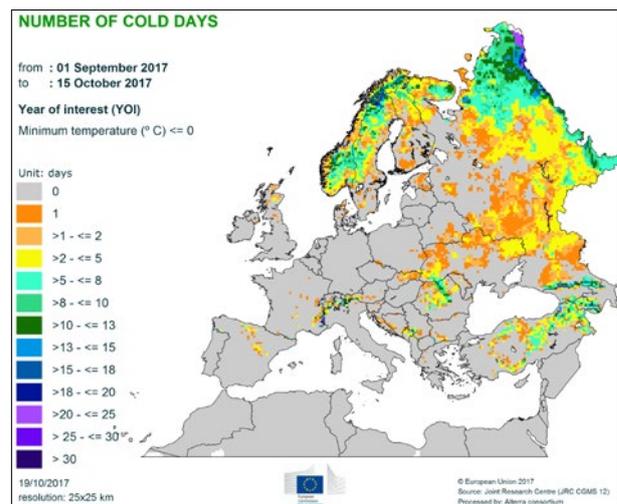
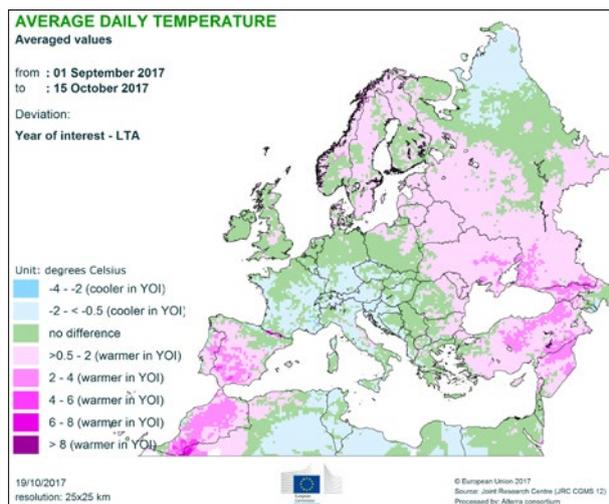
Colder-than-usual weather conditions (with relatively moderate negative thermal anomalies of between - 2 °C and - 0.5 °C for the review period as a whole) prevailed in southern France, the Alpine region, northern and central Italy, southern Germany, along the north-western coastline of the Balkan peninsula and large parts of Algeria, Libya and north-eastern Russia. Considering arable land regions only, frost events occurred in Scotland, Scandinavia, Estonia, eastern Slovakia, the northern half of Romania and eastern Poland, as well as in Belarus, Ukraine, eastern

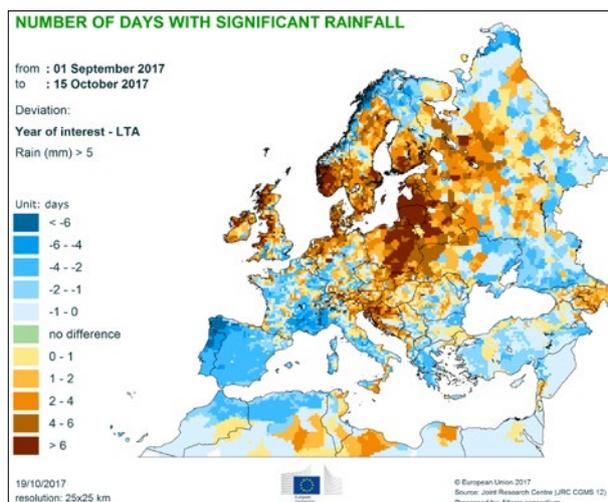
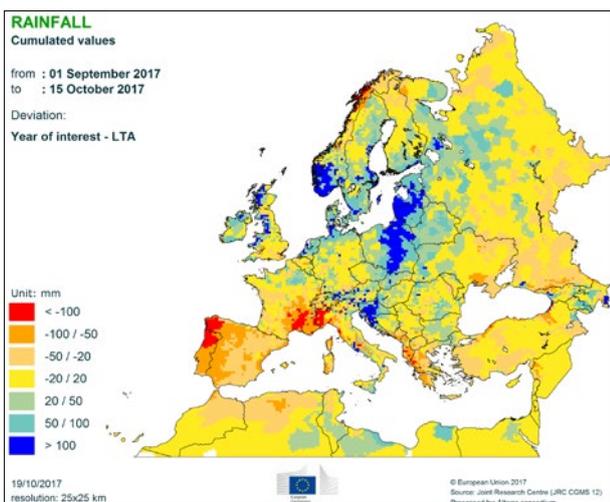
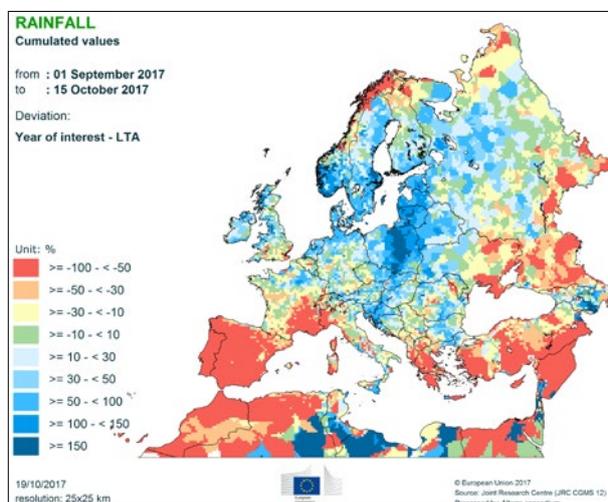
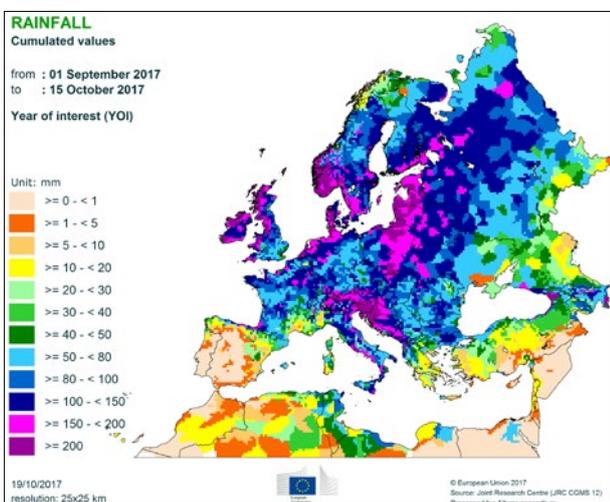
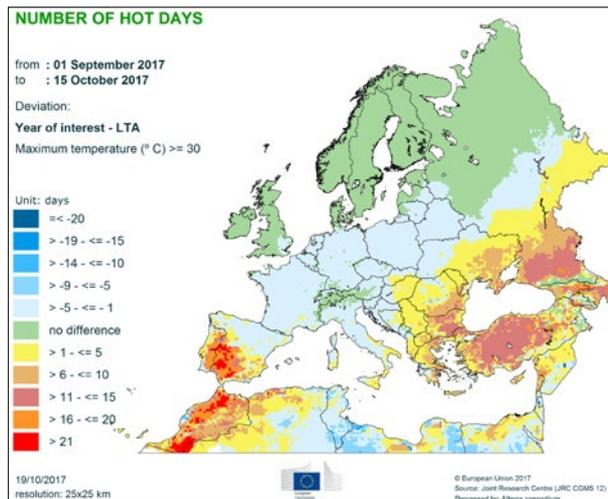
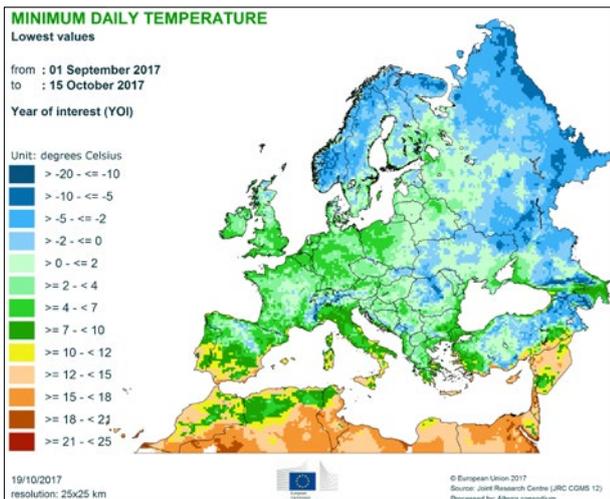
Turkey and large parts of Russia. More than five days with frost events were recorded in northern Europe and in the eastern part of European Russia. Minimum temperatures during the coldest days in these regions mostly ranged between - 1 °C and - 6 °C.

Drier-than-usual weather conditions, with cumulative precipitation between 0 % and 50 % of the long-term average, occurred in the Iberian peninsula, south-eastern France, north-western Italy, Greece, Turkey, eastern Ukraine, southern Russia and most of Morocco and Algeria. The driest conditions (< 10 mm of precipitation) occurred in Portugal, western and southern Spain, the regions surrounding the Aegean Sea, southern Turkey and the western half of the Maghreb region.

Wetter-than-usual conditions (with rainfall > 50 % above the seasonal average) prevailed along the western coastline of Great Britain and in southern Scandinavia, the Netherlands and northern Germany, as well as in a south–north belt that extended from the Adriatic Sea across Croatia, Slovenia, Hungary, the Czech Republic, Slovakia, Poland and the Baltic countries to some areas in Finland and north-western Russia. The wettest areas were in Poland, where rainfall totals were up to 2.5 times higher than usual.

Rainfall totals > 150 mm were recorded in Ireland, the western United Kingdom, the Netherlands, southern Scandinavia, the Alpine region, the north-western Balkan region, Poland and the Baltic countries, as well as in some parts of France, Italy, Germany, western Ukraine, Belarus and northern Russia.





2. Country analysis

2.1. Sowing conditions

Winter cereals (soft wheat, winter barley, rye)

Wet conditions delay sowing activities in large parts of Europe

In France, Belgium, the Czech Republic, Austria, Slovenia and Croatia, the sowing campaign started with a slight delay due to wet conditions. In the United Kingdom, Ireland, Sweden, Denmark, coastal areas of the Netherlands and northern Germany, wet conditions delayed the sowing of winter cereals more substantially. In the rest of Germany, and in Poland, Belarus and Slovakia, sowing has made good progress and is nearly complete. In the Baltic countries, sowing activities started in August but have progressed slowly, with frequent interruptions due to persistent rainfall in September and October. In Bulgaria, the sowing of winter cereals has started, but overly wet soil conditions are hampering field accessibility. In Hungary and Romania, sowing is progressing without particular constraints. In general, despite the problems mentioned, sowing has advanced in all these countries and might be completed on time. In the Baltic countries, however, it might be difficult to complete the campaign in the coming weeks if wet conditions continue and temperatures decrease, impeding emergence.

In Italy, sowing is progressing well, with optimal temperatures, but dry conditions in the north are unfavourable for emergence.

In Ukraine, the dry conditions in September hampered sowing activities in the most important regions of winter cereal production (eastern Ukraine). Rainfall since the beginning of October has created favourable soil moisture conditions for sowing and for the germination and emergence of winter cereals.

In Spain and Portugal, sowing usually starts by mid October, and the current dry conditions may delay the sowing of winter crops if rainfall continues to be scarce in the coming weeks. In Greece, sowing activities usually start in November. Soil moisture levels are currently below average, and significant rain is needed to favour seedbed preparation.

For durum wheat, it is still early for sowing in all the EU producing countries. The first sowing operations will start during the last week of October.

Winter rapeseed

Very wet conditions around sowing in most of Europe

The sowing of winter rapeseed in France, the EU's largest or second-largest producer, occurred earlier than usual and without encountering major difficulties. In almost all other significant producing countries, however, rapeseed sowing was hampered. In many of these regions, the initial delays occurred because of this year's late harvest of winter and spring cereals, caused by wet conditions in July and August. In addition, the conditions in September were marked by abundant rainfall. Exceptionally wet conditions were recorded along the Dutch, German and Danish North Sea coasts, and in southern Germany, the Czech Republic, Poland and the Baltic countries. In those regions, rainfall during the usual sowing period often exceeded the long-term aver-

age by 50 mm or more, and was evenly distributed, with only a few dry days. The normal sowing period in the United Kingdom was also wetter than usual. In eastern Germany and Slovakia, rainfall was less abundant but came in frequent events. Slightly drier conditions prevailed in Hungary, offering longer suitable dry windows. The only important rapeseed area in the EU that faced drier-than-usual conditions was eastern Romania, but this did not have a significant impact on sowing. Conditions for emergence have generally been favourable. The young stands in France and south-western Germany are reported to be 'in a good state'. Some areas in northern Germany and Poland were not sown in time and will have to be used for other crops.

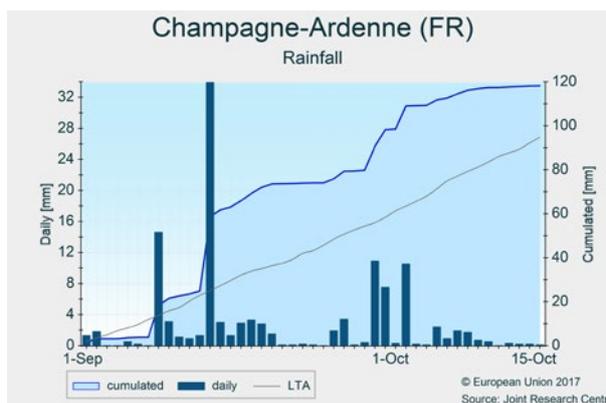
2.2. European Union

France

A relatively good year despite challenging conditions

Temperatures presented strong fluctuations around seasonal values, with two warmer-than-usual periods at the end of September and in mid October. Central-eastern and south-eastern regions received below-average rainfall. The rain deficit was particularly pronounced in *Rhône-Alpes*, *Provence-Alpes-Côte d'Azur* and *Languedoc-Roussillon*. In contrast, *Picardie*, *Champagne-Ardennes*, *Île de France* and *Lorraine* received above-average rainfall. Summer crop yield forecasts remain unchanged, above the 5-year average, but only modestly, because of the water deficit in early spring, the heatwave in June and subsequent irrigation restrictions observed this summer. Early potato and late sunflower harvests were delayed by the rainfall in mid September, with limited impact. The harvest of sugar beet is making good progress. The grain-maize harvest started at the end of September. Winter rapeseed sowing was completed under favourable conditions (mainly in August). However, the rain

surplus observed in the north-east caused a slight delay to the start of winter wheat and barley sowing in *Champagne-Ardennes* and *Bourgogne*. Conditions have been favourable for emergence because of warm weather at the end of September and in mid October.

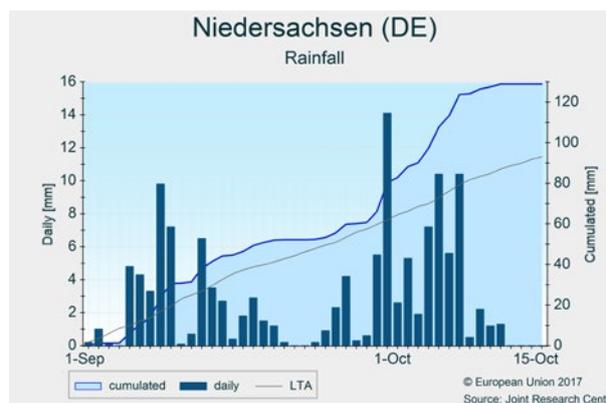


Germany

Difficult sowing and harvesting conditions

The temperature regime was around average in the northern half of the country and 1-2 °C below average in the southern part. Rainfall was abundant in *Niedersachsen*, *Mecklenburg-Vorpommern* and, in particular (> 90 % above average), *Schleswig-Holstein*. Rainfall in the rest of the country was in line with the long-term average, but with an exceptionally high frequency until 10 or 11 October. This was particularly the case in northern regions, and to a lesser extent in southern regions (*Niedersachsen*, *Schleswig-Holstein* and *Nordrhein-Westfalen*), while central regions had more dry days. The wet conditions hampered the sowing of winter cereals and rapeseed and the harvesting of the remaining field crops, such as potatoes, maize and sugar beet, posing serious problems to harvesting machinery and logistics. Locally, maize fields were reported to have been hit heavily by storms. Despite

the problems mentioned, the yield forecast for sugar beet remains exceptionally high, and the forecasts for potato and maize are also above the 5-year average.

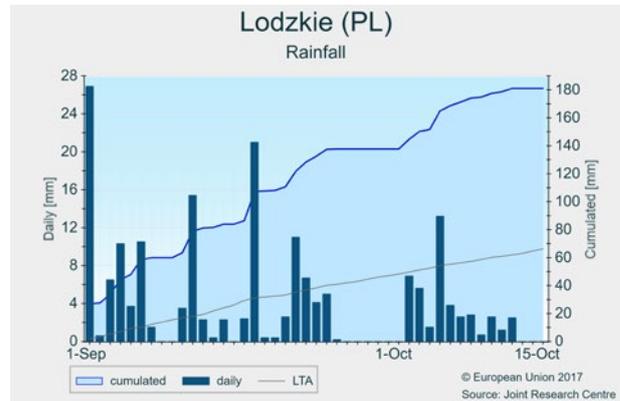


Poland

Wet start to grain-maize harvesting campaign

The wet conditions observed almost continuously since the beginning of the grain-maize cropping season continued in September and October. With the exception of the last week of September, it rained almost every day. Cumulative rainfall during the review period was up to three times higher than the long-term average. Temperatures generally oscillated around the long-term average. The generally wet soil conditions created problems for the harvesting of sugar beet and potatoes. In the case of sugar beet, these conditions will keep the final yield well below last year's level (but still above the 5-year average). The wet conditions may have caused the rotting of potatoes in some areas, and our negative forecast is maintained. Grain-maize harvesting operations have just started. The wetter-than-usual conditions are hampering operations and

the drying down of maize kernels. Our yield forecast remains slightly below the 5-year average.



United Kingdom and Ireland

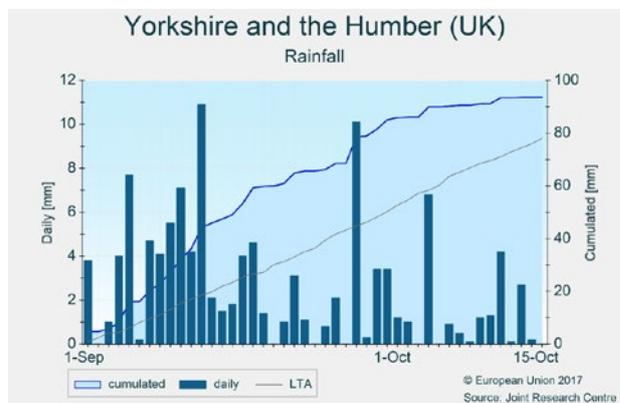
Continued wet conditions

In both countries, temperatures remained close to average, except for a cold snap during the second dekad of September. In the United Kingdom only, warmer-than-usual temperatures occurred during the last week of September. Rainfall was generally above average, except in Wales and southern England, which showed close-to-average values. In south-eastern England, precipitation has been below average since the beginning of October.

Cereal harvesting was completed in early October. The harvesting of sugar beet and potatoes is under way and production is expected to be good. The harvesting of green maize has also started. The yield forecast for sugar beet and potato remains practically unaltered compared with the previous bulletin.

The autumn sowing campaign has started, with limited planting opportunities due to the late harvesting of winter and spring cereals, and continued wet conditions since

then. In the important cropland regions of south-eastern England, the October conditions were favourable for the sowing of winter cereals.



Spain and Portugal

Continued dry conditions

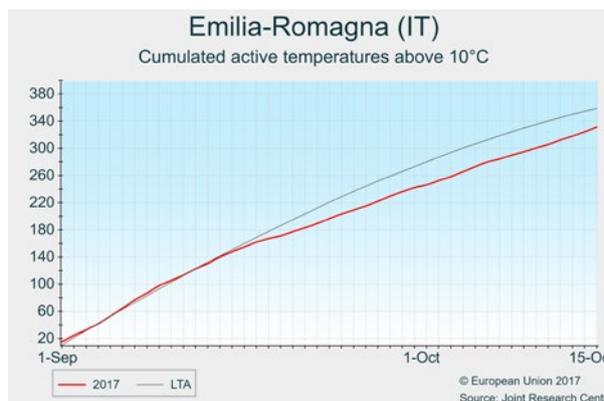
Weather conditions continued to be exceptionally dry across the Iberian peninsula, with no significant rainfall registered in September and the first half of October. Temperatures during this period were substantially higher than usual, especially in the southern half of the peninsula (*Alentejo, Centro, Extremadura* and *Andalucía*). These weather conditions have favoured the rapid progress of grain-maize harvesting, which is practically complete across the peninsula. Yield expectations for maize are slightly below the 5-year average, as irrigation was restricted at the end of the growing season in the north-west. The current dry conditions may delay the sowing of winter crops, particularly in *Castilla y León*, where it usually starts by mid October



Italy

Grain-maize harvesting campaign almost complete, with below-average yield outlook

The second and third dekads of September were colder than usual, with maximum temperature anomalies around $-2\text{ }^{\circ}\text{C}$ (reaching $-4\text{ }^{\circ}\text{C}$ in some central and northern regions) compared with the long-term average. Rainfall during the first two dekads of September was above average, except in the western provinces of Piemonte, which were drier than usual. Since then, precipitation has been lower than usual. Winter wheat sowing has started. The grain-maize harvesting campaign has almost been completed; only a few late-sown fields remain to be harvested. The yield forecast for grain maize remains below the 5-year average due to the cold spell at the beginning of the season and the dry and hot conditions during the rest of the growth cycle, which stressed the crop all over the country.



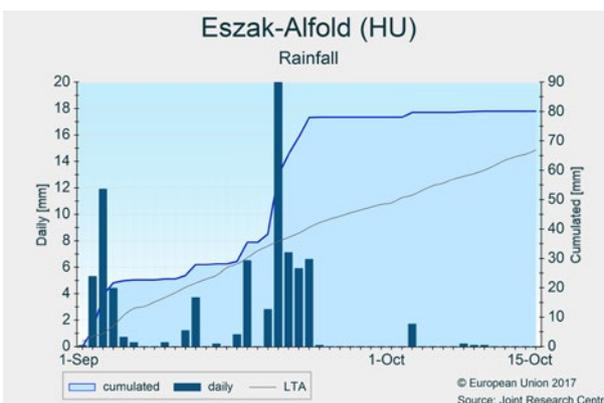
Hungary

Hampered harvest in September

Near-normal thermal conditions prevailed in Hungary during the review period (1 September-15 October). Cumulative rainfall reached 50-150 mm in the first two dekads of September, exceeding the long-term average by 50-300%. Abundant precipitation caused a delay in the harvesting of summer crops and temporarily suspended the sowing campaign for winter crops. However, it favoured the sprouting and emergence of rapeseed that had already been sown, and it improved the topsoil moisture levels, thus providing better conditions for seedbed preparation. In the third dekad of September, precipitation decreased, and the dry weather conditions that have prevailed since then have allowed harvesting and sowing activities to speed up.

Our yield forecast for sunflower and grain maize has been maintained, while the forecast for potatoes and

sugar beet has been slightly revised upwards, taking into account the wet weather conditions of early September.

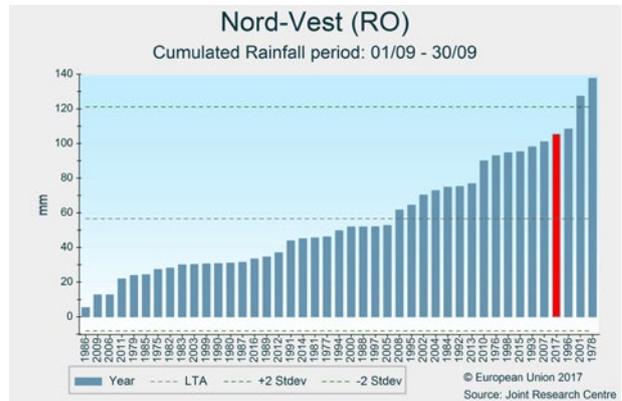


Romania

Abundant rains caused delays in harvesting and sowing

During the first two dekads of September, daily mean temperatures exceeded the long-term average by 2-4 °C, and the south-eastern regions experienced an exceptionally high number (five to fifteen) of hot days (Tmax > 30 °C). Around 20 September, a sharp drop in temperature occurred. Since then, temperatures have mostly fluctuated at 1-2 °C below the average. Precipitation in September was abundant in western and central Romania, and hampered the sowing of winter rapeseed and the harvesting of sunflower and maize. The eastern part remained dry and free of such problems. In October, the situation was reversed. Field operations in the western areas were able to catch up, but abundant rain in the eastern and south-eastern regions resulted in delays to the harvesting of grain maize and the early phase of winter cereal sowing. Our yield forecast for grain maize has been revised downwards but

remains well above the 5-year average and last year's level. The forecasts for potatoes and sugar beet have been revised upwards.

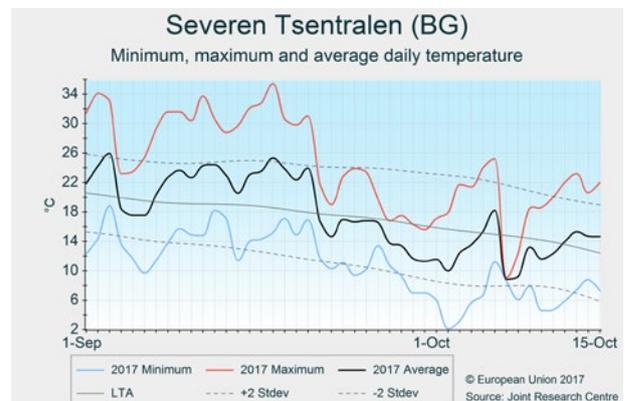


Bulgaria

Above-average yield outlook for summer crops

Until 20 September, daily maximum temperatures mostly approached or exceeded 30 °C, and the average thermal anomaly reached 2-5 °C during this period. Since then, near- or below-average thermal conditions have prevailed. The temperature drop around 20 September also marked the transition to a more frequent and abundant rainfall pattern, which resulted in precipitation totals of 50-120 mm for the review period as a whole. Although alternating with dry periods lasting several days, the prevailing wet weather conditions (in several cases with excessive rainfall events) after the second dekad of September hampered the harvesting of summer crops, and also hampered the sowing of winter cereals. The yield forecast for grain maize has been further revised slightly downwards, taking account of prevailing hot and dry conditions during summer, but remains above the 5-year

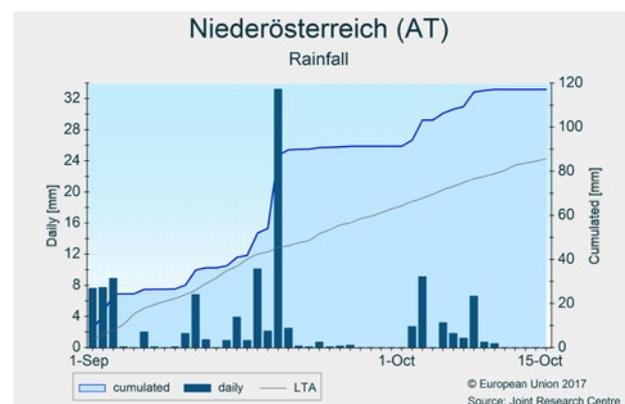
average. The yield outlook for sunflowers, which are more drought tolerant, has been maintained.



Austria, Slovakia and the Czech Republic

Summer crop yield outlook below last year's

Air temperatures were close to the long-term average during the review period. Rainfall was well above seasonal levels in the eastern half of the Czech Republic, most of Slovakia and north-eastern Austria, where cumulative rainfall between 100 mm and 150 mm was recorded. The rainfall eased or eliminated the soil moisture deficit that had prevailed since early spring in many of these regions. The summer crop harvesting campaign, which started in the second half of September, was interrupted by frequent rainfall events during the second dekad of September and the beginning of October. The yield forecasts for summer crops generally remain well below last year's levels because of frequent heatwaves and drought in the southern part of the Czech Republic, western Slovakia and eastern Austria.



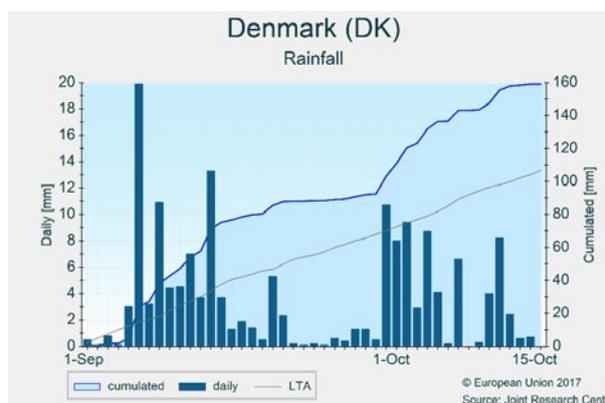
Denmark and Sweden

Average yield outlook for summer crops

In both countries, warmer-than-usual temperatures prevailed, with higher-than-average cumulative temperatures (Temperature base = 0 °C), particularly in central and northern Sweden. Rainfall was significantly above average. Global radiation was well below average in Sweden, but close to average in Denmark.

The cereal harvest was completed in September. Exceptionally wet conditions delayed the start of the sowing campaign in both countries.

The harvesting of potatoes and sugar beet is under way. The yield forecasts for sugar beet and potato remain practically unaltered compared with the previous bulletin, and close to the 5-year average.

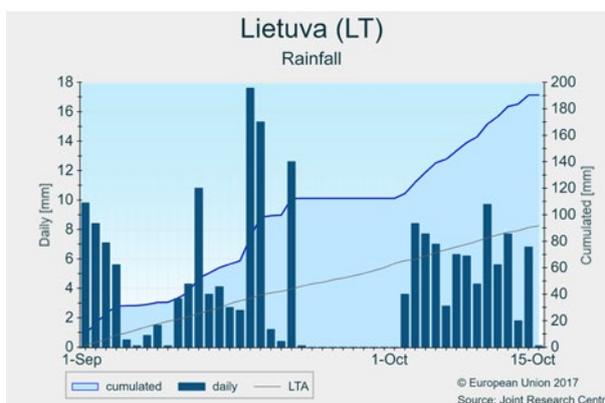


Finland, Lithuania, Latvia and Estonia

Difficult end of season because of exceptionally wet conditions

The period was marked by an exceptionally wet spell, especially in the Baltic countries, where persistent and heavy rains since the first of September have brought cumulative rainfall to > 90 mm above the long-term average. The waterlogged soils were almost inaccessible and the frequent rains hampered field work to complete harvesting and to conduct sowing activities. Persistent humid conditions also resulted in a decrease in grain quality. In central parts of Finland, many crops have not yet reached maturity because of below-average temperatures during most of the cycle, above-average precipitation and low radiation. Where maturation has been reached, abundant rains have also complicated harvesting. Consequently, parts of the crops will not be harvested in Finland. Despite the difficult end to the season, yield expectations for harvested crops in

Finland and the Baltic countries are forecast to be close to the 5-year average for most crops.

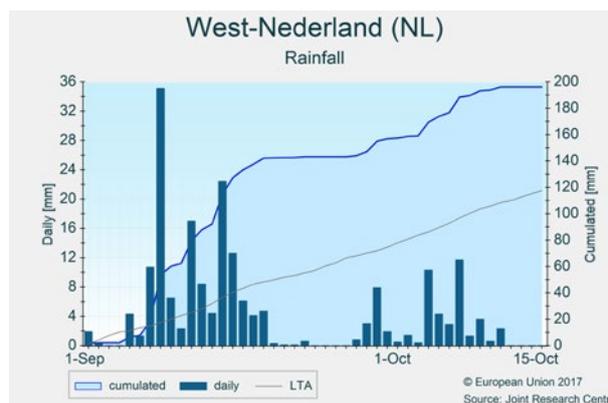


Belgium, the Netherlands and Luxembourg

Favourable outlook despite challenges caused by abundant rain

The period from 5 to 20 September was particularly wet, with practically daily rain events, often abundant. The western and northern parts of the Netherlands were most markedly affected. For the period as a whole, rainfall exceeded the average by 50-100 % in these regions; in other parts of the Netherlands, however, and in Belgium and Luxembourg, rainfall totals were close to the long-term average. Temperatures were predominantly below average in September and above average in October. Radiation levels were close to average. Wet conditions interrupted field operations and locally caused damage to potato crops. In general, however, there were sufficient periods without rain to advance harvesting and sowing to within a normal or near-normal window. The yield outlook for summer crops is positive,

especially for sugar beet, for which the forecast is close to a record-high level.

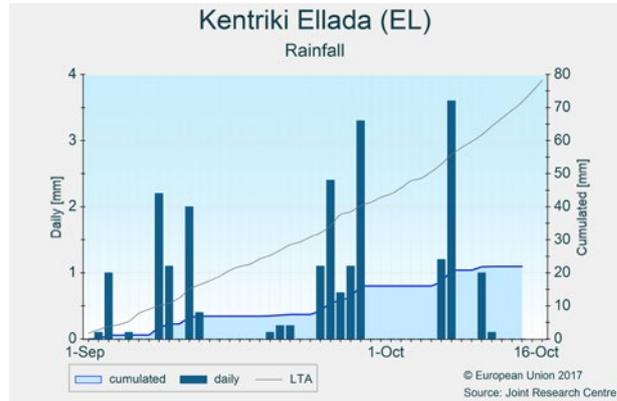


Greece and Cyprus

Sowing time is approaching but rain is needed

In eastern and northern Greece, September was hotter than usual, with maximum temperatures above 30 °C for ten to fifteen days. However, after mid September, temperatures slowly decreased to seasonal or below-seasonal values. In October, maximum temperatures oscillated between 16 °C and 27 °C, compared with a seasonal average of 24 °C. September was generally dry, with 20 mm of precipitation or less in the main agricultural regions, except in the north-eastern parts, which received 40-80 mm of rain. October presented little (< 10 mm) or no precipitation. In southern and western regions, cumulative precipitation since August has been the lowest since 1985. The summer crop season ended in late September with the harvesting of grain maize. The sowing window for winter crops is opening, but some rain is needed before sowing

activities can take place. Weather conditions in Cyprus were still hot (Tmax around 30 °C) and dry, but it is still early for the sowing of winter crops.



Slovenia and Croatia

Wet September concludes unfavourable growing season for summer crops

Air temperatures during the review period were close to or slightly below the long-term average. Rainfall, with the exception of the easternmost part of Croatia and southern Dalmatia, exceeded the seasonal levels, delaying the harvesting campaign of summer crops. September was the wettest in our records in large regions of southern and eastern Slovenia, and in western and north-western Croatia. In southern Slovenia and parts of *Jadranska Hrvatska* in western Croatia, cumulative rainfall during the review period exceeded 300 mm. In *Zadarska Zupanija* and *Licko-Senjska Zupanija*, rainfall on 11 September locally exceeded 100 mm. The harvesting campaign for summer crops is finishing. Because of unfavourable summer weather conditions, the yield forecasts remain well below last year's levels.



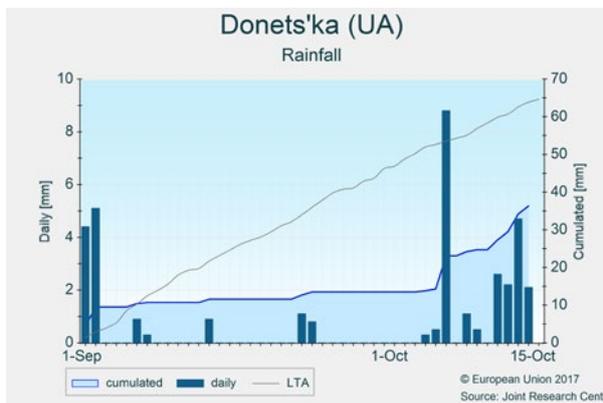
2.3. Black Sea area

Ukraine

Sowing of winter cereals hampered by lack of rain

While *Chernihivs'ka*, *Kyyivs'ka*, *Vynnyts'ka*, *Odes'ka* and all westernmost oblasts received levels of rainfall close to the average for the period under review, dry conditions continued to prevail in the eastern and southern oblasts, which received 10-70 % less rainfall than the seasonal average. The greatest deficit was observed in *Khersons'ka*, *Kharkivs'ka*, *Donets'ka*, *Mykolayivs'ka* and *Luhans'ka*. The rain deficit hampered the sowing of winter cereals and delayed their emergence. At the end of September and beginning of October, substantial rainfall was observed in all regions, allowing farmers to resume sowing and favouring emergence. Temperatures were substantially higher than usual until the end of September (thus reinforcing the dry conditions), and have dropped to seasonal values since the beginning of October. As a result of the dry conditions observed

this summer, the grain-maize yield forecast has been revised downwards

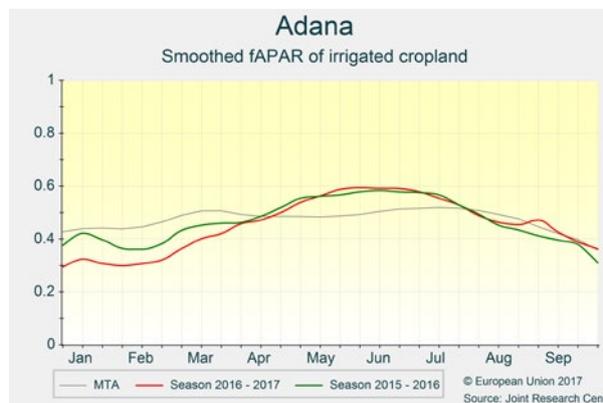


Turkey

High temperatures in September

In the western Aegean and Anatolian regions, and in Adana, daily maximum temperatures during the first half of September were much higher than usual, exceeding 30 °C. Around 20 September, maximum temperatures dropped by 10 °C, and oscillated below the long-term average (between 20 °C and 25 °C) during the following weeks. Cumulative precipitation from 1 September to 15 October was 30-60 % below the long-term average. Maize matured around mid September, and harvesting activities were completed at the beginning of October. In south-eastern regions, hot temperatures ($T_{max} > 30$ °C) lasted until the end of September before dropping to seasonal values ($T_{max} < 25$ °C). In these regions, no significant rain was recorded during the analysis period. Maize grain filling occurred during September, and ripening started in early October. Maize yield expectations remain in line

with the historical trend, above the 5-year average, both for the abovementioned regions and at country level.



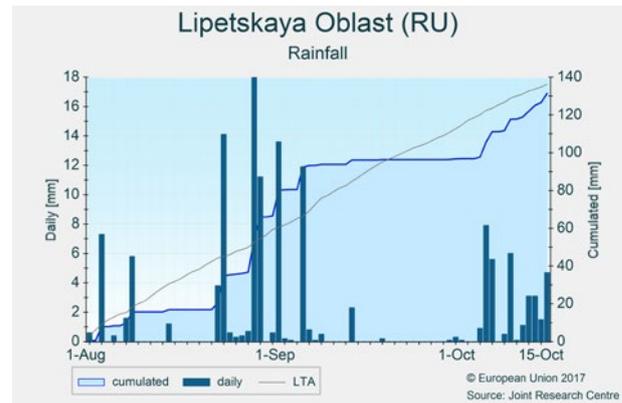
2.4. European Russia and Belarus

European Russia

Delayed winter wheat sowing

Near-normal thermal conditions characterised most of Russia during the review period. Southern Russia was warmer than usual, mainly because of extremely warm conditions during the second dekad of September, when daily average temperatures exceeded the long-term average by 4-8 °C. Frequent and abundant rain in late August and early September significantly delayed the autumn sowing campaign in the *Chernozem* region (Central Okrug) and in the western part of the Volga Okrug. In late September, the situation improved and the pace of sowing increased, but the first half of October again seems to have been troublesome. Late sowing can result in retarded growth and crop development of winter wheat before the dormancy period and lead to increased risk of frost damage from harsh winter conditions. In contrast, in southern Russia, winter wheat sowing has progressed in a timely manner so

far; however, in several regions, topsoil moisture levels are below optimal for adequate germination and early crop growth.

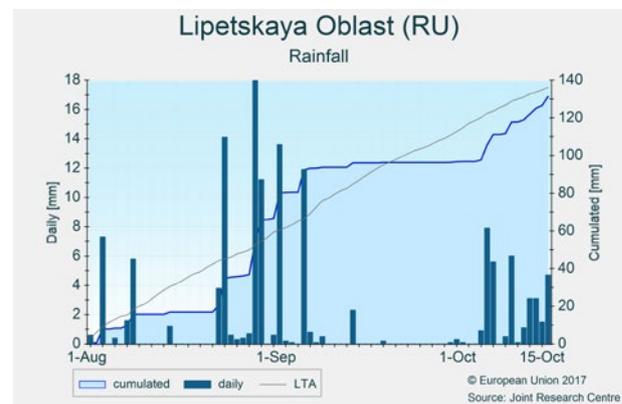


Belarus

Grain-maize harvesting campaign progressing well, with average yield expectations

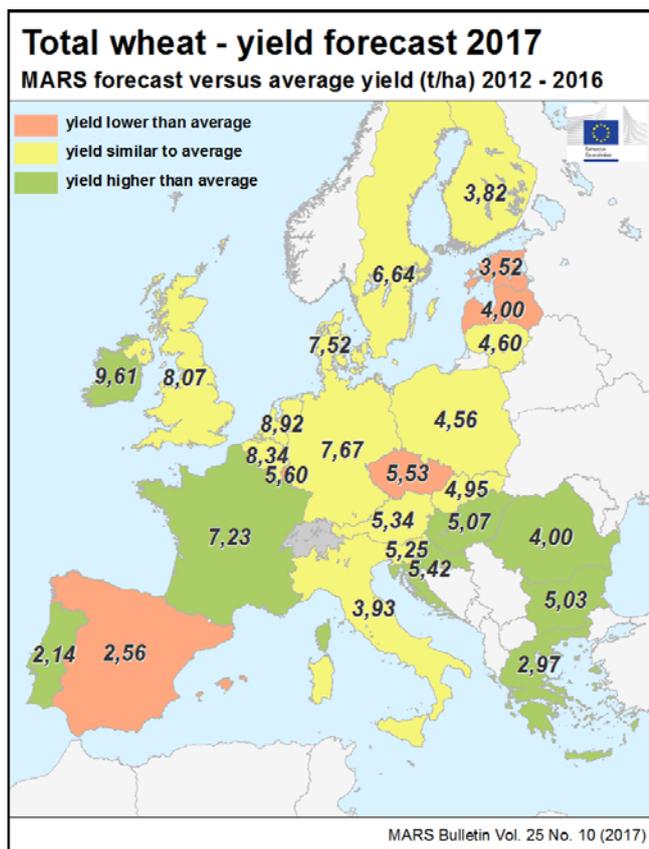
September 2017 was one of the warmest in our records. Warmer-than-usual temperatures prevailed in all regions during the period under consideration (1 September-15 October), and most markedly during the second week of September, when temperature anomalies reached between 6 °C (Brest and Grodno) and 8 °C (central and eastern regions). Temperatures decreased during the last week of September, dropping below the long-term average during the first week of October. Rainfall has been above the long-term average, especially due to the abundant precipitation that occurred during the first two dekads of September and the first dekad of October. The grain-maize harvesting campaign is in full swing, with some local problems due to the abundant rainfall. Our previous

forecast remains slightly below the long-term trend and 5-year average.

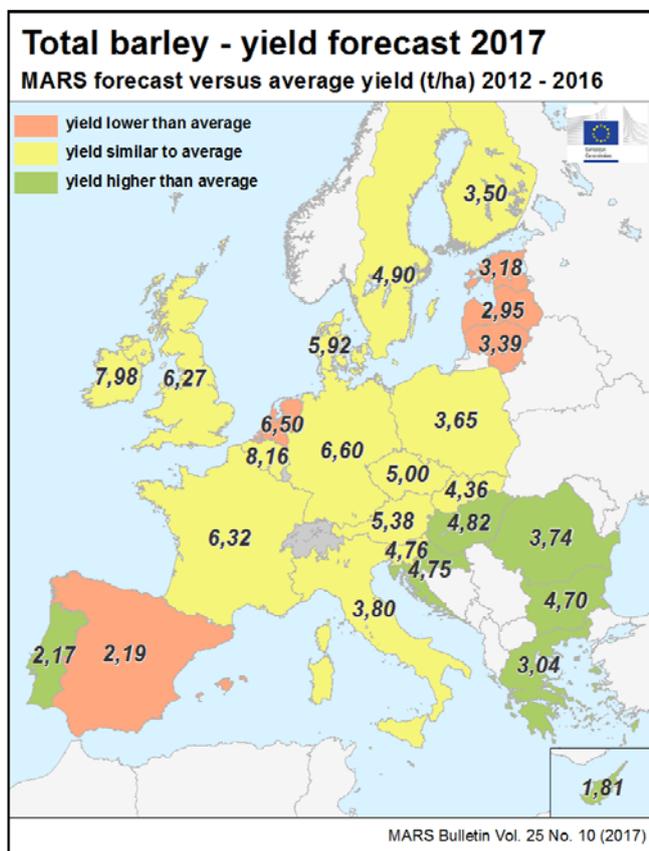


3. Crop yield forecasts

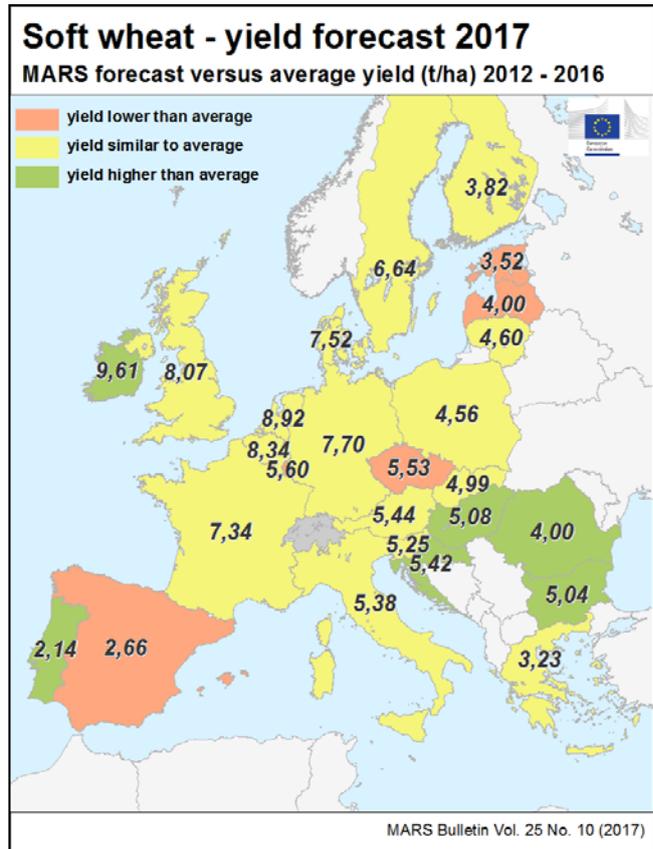
| Country | TOTAL WHEAT (t/ha) | | | | |
|---------|--------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 5.60 | 5.35 | 5.70 | + 1.7 | + 6.6 |
| AT | 5.48 | 6.22 | 5.34 | - 2.5 | - 14 |
| BE | 8.53 | 6.71 | 8.34 | - 2.3 | + 24 |
| BG | 4.28 | 4.75 | 5.03 | + 18 | + 6.0 |
| CY | - | - | - | - | - |
| CZ | 5.88 | 6.50 | 5.53 | - 6.0 | - 15 |
| DE | 7.94 | 7.64 | 7.67 | - 3.4 | + 0.4 |
| DK | 7.54 | 7.21 | 7.52 | - 0.3 | + 4.3 |
| EE | 3.77 | 2.77 | 3.52 | - 6.7 | + 27 |
| ES | 3.07 | 3.53 | 2.56 | - 16 | - 27 |
| FI | 3.89 | 3.77 | 3.82 | - 1.9 | + 1.3 |
| FR | 6.94 | 5.29 | 7.23 | + 4.1 | + 37 |
| GR | 2.83 | 2.35 | 2.97 | + 5.0 | + 26 |
| HR | 5.01 | 5.50 | 5.42 | + 8.1 | - 1.4 |
| HU | 4.72 | 5.38 | 5.07 | + 7.4 | - 5.6 |
| IE | 9.11 | 9.54 | 9.61 | + 5.5 | + 0.8 |
| IT | 3.96 | 4.20 | 3.93 | - 0.9 | - 6.5 |
| LT | 4.66 | 4.36 | 4.60 | - 1.2 | + 5.5 |
| LU | 5.95 | 5.07 | 5.60 | - 6.0 | + 10 |
| LV | 4.20 | 4.30 | 4.00 | - 4.7 | - 7.1 |
| MT | - | - | - | - | - |
| NL | 8.89 | 8.01 | 8.92 | + 0.4 | + 11 |
| PL | 4.53 | 4.54 | 4.56 | + 0.7 | + 0.4 |
| PT | 1.82 | 2.31 | 2.14 | + 18 | - 7.6 |
| RO | 3.50 | 3.93 | 4.00 | + 15 | + 1.7 |
| SE | 6.53 | 6.32 | 6.64 | + 1.6 | + 5.0 |
| SI | 5.08 | 5.19 | 5.25 | + 3.3 | + 1.1 |
| SK | 4.95 | 5.92 | 4.95 | + 0.2 | - 16 |
| UK | 7.87 | 7.89 | 8.07 | + 2.6 | + 2.3 |



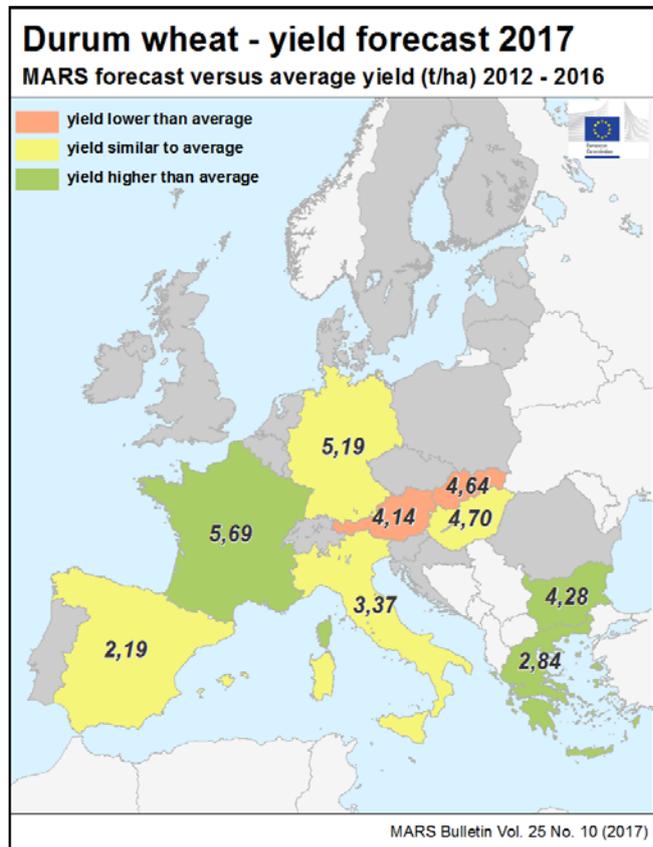
| Country | TOTAL BARLEY (t/ha) | | | | |
|---------|---------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 4.83 | 4.87 | 4.73 | - 2.1 | - 2.8 |
| AT | 5.39 | 6.12 | 5.38 | - 0.2 | - 12 |
| BE | 8.21 | 6.34 | 8.16 | - 0.7 | + 29 |
| BG | 3.90 | 4.32 | 4.70 | + 21 | + 8.7 |
| CY | 1.72 | 0.70 | 1.81 | + 5.8 | + 159 |
| CZ | 5.08 | 5.66 | 5.00 | - 1.5 | - 12 |
| DE | 6.79 | 6.69 | 6.60 | - 2.8 | - 1.3 |
| DK | 5.78 | 5.59 | 5.92 | + 2.4 | + 5.9 |
| EE | 3.39 | 2.64 | 3.18 | - 6.4 | + 20 |
| ES | 2.91 | 3.62 | 2.19 | - 25 | - 39 |
| FI | 3.57 | 3.59 | 3.50 | - 2.0 | - 2.4 |
| FR | 6.45 | 5.44 | 6.32 | - 2.0 | + 16 |
| GR | 2.79 | 2.31 | 3.04 | + 9.0 | + 32 |
| HR | 4.46 | 4.72 | 4.75 | + 6.3 | + 0.6 |
| HU | 4.43 | 5.14 | 4.82 | + 8.9 | - 6.3 |
| IE | 7.71 | 7.82 | 7.98 | + 3.5 | + 2.0 |
| IT | 3.81 | 4.13 | 3.80 | - 0.2 | - 8.0 |
| LT | 3.55 | 3.13 | 3.39 | - 4.4 | + 8.2 |
| LU | - | - | - | - | - |
| LV | 3.22 | 2.96 | 2.95 | - 8.5 | - 0.3 |
| MT | - | - | - | - | - |
| NL | 6.77 | 6.53 | 6.50 | - 4.0 | - 0.5 |
| PL | 3.71 | 3.72 | 3.65 | - 1.6 | - 1.7 |
| PT | 2.04 | 2.62 | 2.17 | + 6.3 | - 17 |
| RO | 3.23 | 3.80 | 3.74 | + 16 | - 1.5 |
| SE | 4.89 | 4.80 | 4.90 | + 0.4 | + 2.1 |
| SI | 4.61 | 4.78 | 4.76 | + 3.3 | - 0.4 |
| SK | 4.31 | 5.13 | 4.36 | + 1.1 | - 15 |
| UK | 6.10 | 5.93 | 6.27 | + 2.8 | + 5.7 |



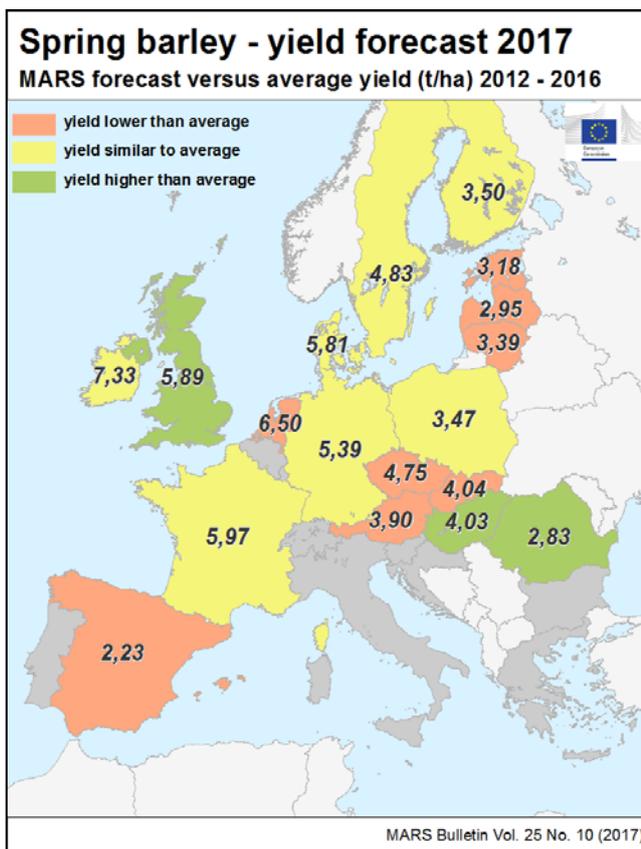
| Country | SOFT WHEAT (t/ha) | | | | |
|---------|-------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 5.84 | 5.56 | 5.94 | + 1.8 | + 6.9 |
| AT | 5.52 | 6.29 | 5.44 | - 1.5 | - 14 |
| BE | 8.53 | 6.71 | 8.34 | - 2.3 | + 24 |
| BG | 4.29 | 4.75 | 5.04 | + 17 | + 6.0 |
| CY | - | - | - | - | - |
| CZ | 5.88 | 6.50 | 5.53 | - 6.0 | - 15 |
| DE | 7.96 | 7.66 | 7.70 | - 3.3 | + 0.5 |
| DK | 7.54 | 7.21 | 7.52 | - 0.3 | + 4.3 |
| EE | 3.77 | 2.77 | 3.52 | - 6.7 | + 27 |
| ES | 3.25 | 3.84 | 2.66 | - 18 | - 31 |
| FI | 3.89 | 3.77 | 3.82 | - 1.9 | + 1.3 |
| FR | 7.07 | 5.37 | 7.34 | + 3.8 | + 37 |
| GR | 3.10 | 2.33 | 3.23 | + 4.0 | + 39 |
| HR | 5.01 | 5.50 | 5.42 | + 8.1 | - 1.4 |
| HU | 4.72 | 5.39 | 5.08 | + 7.6 | - 5.7 |
| IE | 9.11 | 9.54 | 9.61 | + 5.5 | + 0.8 |
| IT | 5.51 | 5.65 | 5.38 | - 2.4 | - 4.8 |
| LT | 4.66 | 4.36 | 4.60 | - 1.2 | + 5.5 |
| LU | 5.95 | 5.07 | 5.60 | - 6.0 | + 10 |
| LV | 4.20 | 4.30 | 4.00 | - 4.7 | - 7.1 |
| MT | - | - | - | - | - |
| NL | 8.89 | 8.01 | 8.92 | + 0.4 | + 11 |
| PL | 4.53 | 4.54 | 4.56 | + 0.7 | + 0.4 |
| PT | 1.82 | 2.31 | 2.14 | + 18 | - 7.6 |
| RO | 3.50 | 3.93 | 4.00 | + 15 | + 1.7 |
| SE | 6.53 | 6.32 | 6.64 | + 1.6 | + 5.0 |
| SI | 5.08 | 5.19 | 5.25 | + 3.3 | + 1.1 |
| SK | 4.95 | 5.94 | 4.99 | + 0.9 | - 16 |
| UK | 7.87 | 7.89 | 8.07 | + 2.6 | + 2.3 |



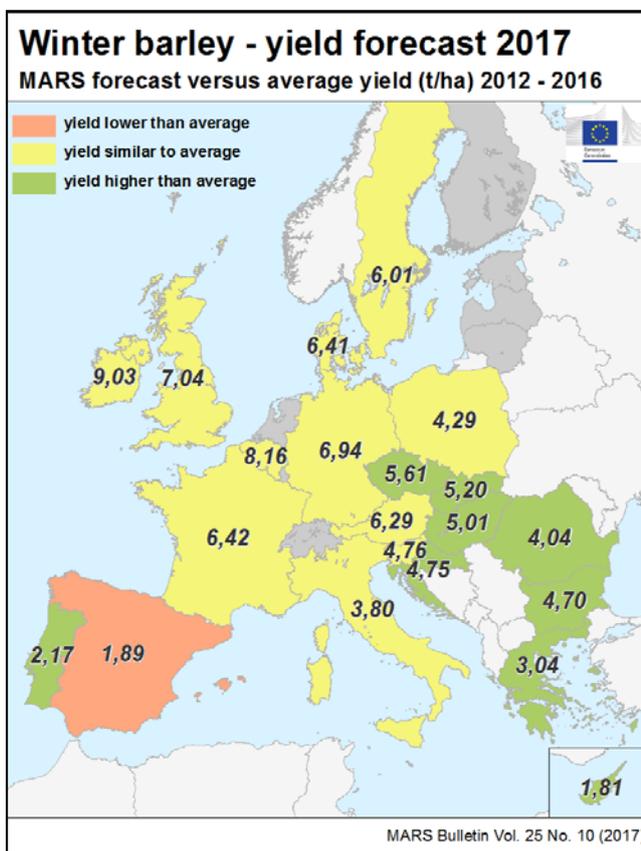
| Country | DURUM WHEAT (t/ha) | | | | |
|---------|--------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 3.33 | 3.43 | 3.51 | + 5.2 | + 2.3 |
| AT | 4.65 | 5.33 | 4.14 | - 11 | - 22 |
| BE | - | - | - | - | - |
| BG | 3.28 | 4.03 | 4.28 | + 30 | + 6.1 |
| CY | - | - | - | - | - |
| CZ | - | - | - | - | - |
| DE | 5.36 | 5.32 | 5.19 | - 3.2 | - 2.4 |
| DK | - | - | - | - | - |
| EE | - | - | - | - | - |
| ES | 2.16 | 2.29 | 2.19 | + 1.4 | - 6 |
| FI | - | - | - | - | - |
| FR | 5.12 | 4.22 | 5.69 | + 11 | + 35 |
| GR | 2.70 | 2.36 | 2.84 | + 5.4 | + 21 |
| HR | - | - | - | - | - |
| HU | 4.64 | 4.97 | 4.70 | + 1.1 | - 5.6 |
| IE | - | - | - | - | - |
| IT | 3.28 | 3.65 | 3.37 | + 2.9 | - 7.5 |
| LT | - | - | - | - | - |
| LU | - | - | - | - | - |
| LV | - | - | - | - | - |
| MT | - | - | - | - | - |
| NL | - | - | - | - | - |
| PL | - | - | - | - | - |
| PT | - | - | - | - | - |
| RO | - | - | - | - | - |
| SE | - | - | - | - | - |
| SI | - | - | - | - | - |
| SK | 4.87 | 5.70 | 4.64 | - 4.7 | - 19 |
| UK | - | - | - | - | - |



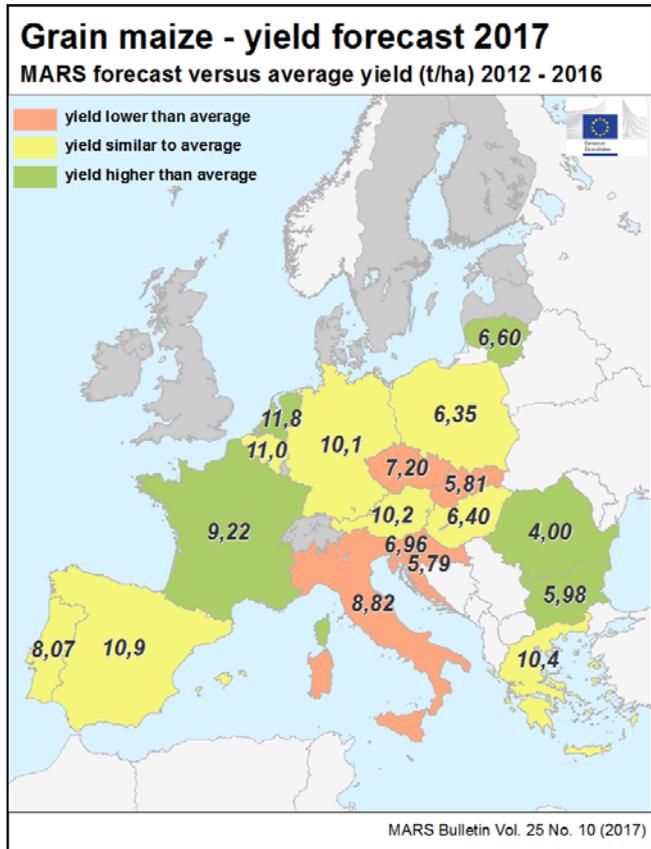
| Country | SPRING BARLEY (t/ha) | | | | |
|---------|----------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 4.22 | 4.33 | 3.94 | -6.6 | -9.0 |
| AT | 4.49 | 5.31 | 3.90 | -13 | -27 |
| BE | - | - | - | - | - |
| BG | - | - | - | - | - |
| CY | - | - | - | - | - |
| CZ | 5.05 | 5.45 | 4.75 | -5.9 | -13 |
| DE | 5.55 | 5.24 | 5.39 | -2.9 | +2.8 |
| DK | 5.64 | 5.48 | 5.81 | +2.9 | +5.9 |
| EE | 3.39 | 2.64 | 3.18 | -6.4 | +20 |
| ES | 3.00 | 3.74 | 2.23 | -26 | -40 |
| FI | 3.57 | 3.59 | 3.50 | -2.0 | -2.4 |
| FR | 6.16 | 4.98 | 5.97 | -3.1 | +20 |
| GR | - | - | - | - | - |
| HR | - | - | - | - | - |
| HU | 3.55 | 4.18 | 4.03 | +14 | -3.5 |
| IE | 7.17 | 7.29 | 7.33 | +2.3 | +0.5 |
| IT | - | - | - | - | - |
| LT | 3.55 | 3.13 | 3.39 | -4.4 | +8.2 |
| LU | - | - | - | - | - |
| LV | 3.22 | 2.96 | 2.95 | -8.5 | -0.3 |
| MT | - | - | - | - | - |
| NL | 6.77 | 6.53 | 6.50 | -4.0 | -0.5 |
| PL | 3.59 | 3.58 | 3.47 | -3.2 | -3.1 |
| PT | - | - | - | - | - |
| RO | 2.44 | 2.80 | 2.83 | +16 | +1.2 |
| SE | 4.83 | 4.74 | 4.83 | -0.1 | +1.9 |
| SI | - | - | - | - | - |
| SK | 4.21 | 5.03 | 4.04 | -4.0 | -20 |
| UK | 5.66 | 5.61 | 5.89 | +4.1 | +5.0 |



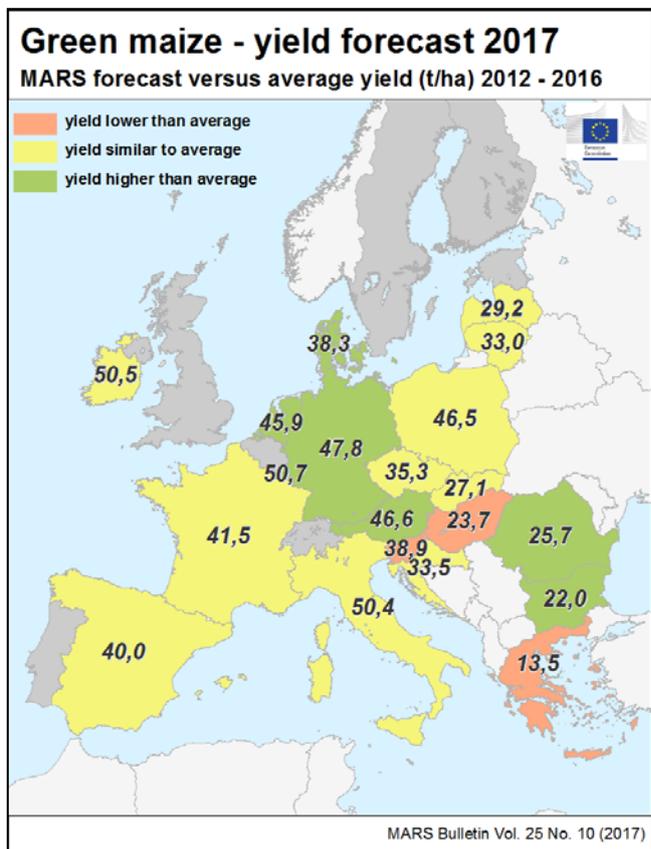
| Country | WINTER BARLEY (t/ha) | | | | |
|---------|----------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 5.68 | 5.55 | 5.76 | +1.4 | +3.8 |
| AT | 6.08 | 6.59 | 6.29 | +3.5 | -4.5 |
| BE | 8.21 | 6.34 | 8.16 | -0.7 | +29 |
| BG | 3.90 | 4.32 | 4.70 | +21 | +8.7 |
| CY | 1.72 | 0.70 | 1.81 | +5.8 | +159 |
| CZ | 5.17 | 6.13 | 5.61 | +8.7 | -8.4 |
| DE | 7.20 | 7.07 | 6.94 | -3.7 | -1.9 |
| DK | 6.46 | 6.17 | 6.41 | -0.8 | +3.9 |
| EE | - | - | - | - | - |
| ES | 2.37 | 2.66 | 1.89 | -20 | -29 |
| FI | - | - | - | - | - |
| FR | 6.56 | 5.57 | 6.42 | -2.1 | +15 |
| GR | 2.79 | 2.31 | 3.04 | +9.0 | +32 |
| HR | 4.46 | 4.72 | 4.75 | +6.3 | +0.6 |
| HU | 4.74 | 5.31 | 5.01 | +5.6 | -5.7 |
| IE | 9.16 | 8.64 | 9.03 | -1.3 | +4.6 |
| IT | 3.81 | 4.13 | 3.80 | -0.2 | -8.0 |
| LT | - | - | - | - | - |
| LU | - | - | - | - | - |
| LV | - | - | - | - | - |
| MT | - | - | - | - | - |
| NL | - | - | - | - | - |
| PL | 4.23 | 4.46 | 4.29 | +1.2 | -3.9 |
| PT | 2.04 | 2.62 | 2.17 | +6.3 | -1.7 |
| RO | 3.52 | 4.13 | 4.04 | +1.5 | -2.1 |
| SE | 6.09 | 5.77 | 6.01 | -1.4 | +4.1 |
| SI | 4.61 | 4.78 | 4.76 | +3.3 | -0.4 |
| SK | 4.73 | 5.37 | 5.20 | +10 | -3.1 |
| UK | 6.88 | 6.43 | 7.04 | +2.4 | +10 |



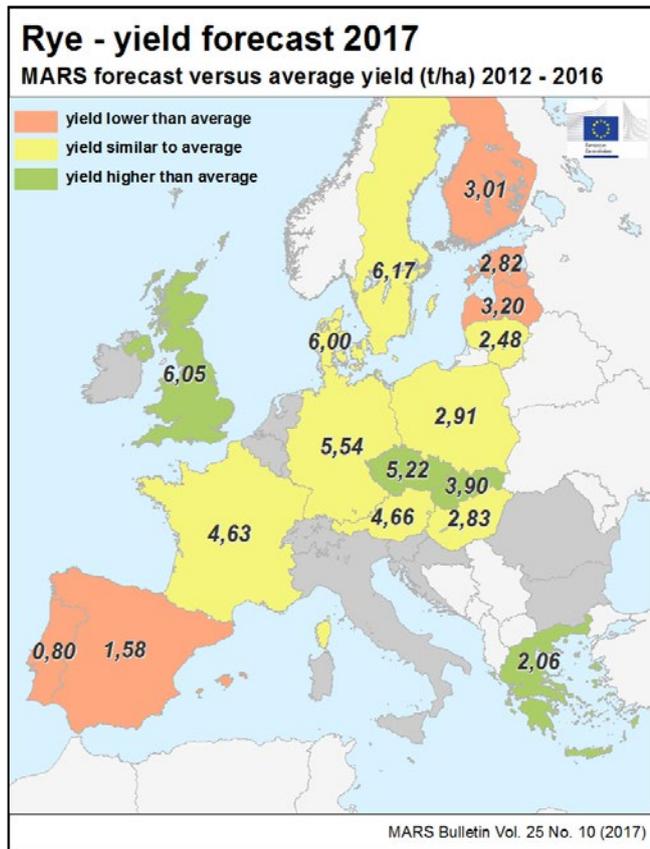
| Country | GRAIN MAIZE (t/ha) | | | | |
|---------|--------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 6.89 | 7.14 | 6.91 | + 0.2 | - 3.3 |
| AT | 9.92 | 11.2 | 10.2 | + 2.8 | - 8.6 |
| BE | 10.6 | 9.23 | 11.0 | + 3.0 | + 19 |
| BG | 5.66 | 5.45 | 5.98 | + 5.6 | + 10 |
| CY | - | - | - | - | - |
| CZ | 7.74 | 9.79 | 7.20 | - 6.9 | - 26 |
| DE | 9.77 | 9.65 | 10.1 | + 3.8 | + 5.1 |
| DK | - | - | - | - | - |
| EE | - | - | - | - | - |
| ES | 11.1 | 11.1 | 10.9 | - 2.2 | - 2.4 |
| FI | - | - | - | - | - |
| FR | 8.83 | 8.19 | 9.22 | + 4.5 | + 13 |
| GR | 10.8 | 10.1 | 10.4 | - 3.5 | + 3.0 |
| HR | 6.46 | 8.41 | 5.79 | - 10 | - 31 |
| HU | 6.15 | 8.61 | 6.40 | + 3.9 | - 26 |
| IE | - | - | - | - | - |
| IT | 9.45 | 10.4 | 8.82 | - 6.7 | - 15 |
| LT | 6.32 | 6.91 | 6.60 | + 4.4 | - 4.4 |
| LU | - | - | - | - | - |
| LV | - | - | - | - | - |
| MT | - | - | - | - | - |
| NL | 10.2 | 7.84 | 11.8 | + 15 | + 51 |
| PL | 6.35 | 7.29 | 6.35 | - 0.1 | - 13 |
| PT | 8.28 | 8.03 | 8.07 | - 2.6 | + 0.5 |
| RO | 3.65 | 3.49 | 4.00 | + 10 | + 15 |
| SE | - | - | - | - | - |
| SI | 8.00 | 9.54 | 6.96 | - 13 | - 27 |
| SK | 6.44 | 8.53 | 5.81 | - 10 | - 32 |
| UK | - | - | - | - | - |



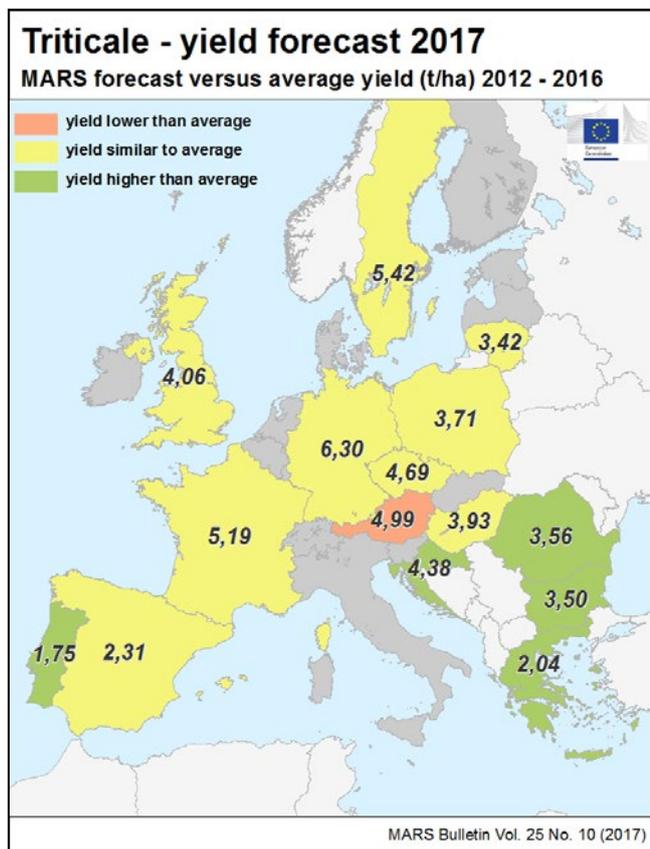
| Country | GREEN MAIZE (t/ha) | | | | |
|---------|--------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU* | 41.9 | 41.2 | 44.0 | + 5.2 | + 6.9 |
| AT | 44.7 | 49.3 | 46.6 | + 4.3 | - 5.5 |
| BE | - | - | - | - | - |
| BG | 20.2 | 24.0 | 22.0 | + 8.5 | - 8.5 |
| CY | - | - | - | - | - |
| CZ | 36.5 | 40.7 | 35.3 | - 3.5 | - 13 |
| DE | 43.5 | 43.1 | 47.8 | + 10 | + 11 |
| DK | 36.0 | 30.6 | 38.3 | + 6.4 | + 25 |
| EE | - | - | - | - | - |
| ES | 41.3 | 40.8 | 40.0 | - 3.2 | - 2.1 |
| FI | - | - | - | - | - |
| FR | 41.2 | 35.6 | 41.5 | + 0.8 | + 17 |
| GR | 15.2 | 11.0 | 13.5 | - 11 | + 23 |
| HR | 34.4 | 42.3 | 33.5 | - 2.6 | - 21 |
| HU | 25.7 | 32.5 | 23.7 | - 7.6 | - 27 |
| IE | 50.5 | 49.5 | 50.5 | + 0.1 | + 2.1 |
| IT | 51.0 | 53.4 | 50.4 | - 1.1 | - 5.5 |
| LT | 32.0 | 32.7 | 33.0 | + 3.1 | + 0.7 |
| LU | 45.6 | 42.3 | 50.7 | + 11 | + 20 |
| LV | 29.5 | 33.1 | 29.2 | - 0.9 | - 12 |
| MT | - | - | - | - | - |
| NL | 42.2 | 40.9 | 45.9 | + 8.7 | + 12 |
| PL | 45.2 | 49.3 | 46.5 | + 2.8 | - 5.8 |
| PT | - | - | - | - | - |
| RO | 23.9 | 24.5 | 25.7 | + 7.2 | + 4.8 |
| SE | - | - | - | - | - |
| SI | 42.8 | 48.7 | 38.9 | - 8.9 | - 20 |
| SK | 28.1 | 34.9 | 27.1 | - 3.8 | - 22 |
| UK | - | - | - | - | - |



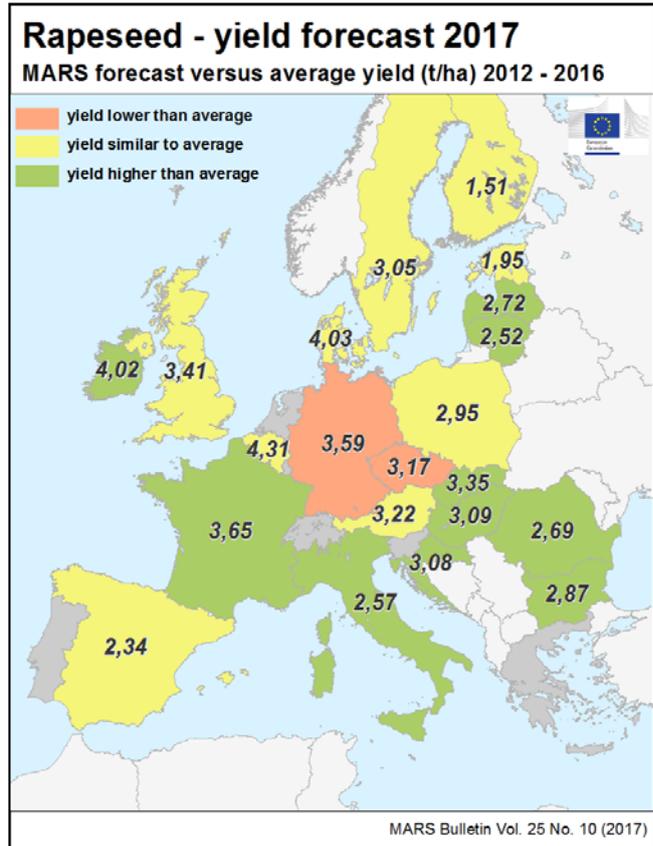
| Country | RYE (t/ha) | | | | |
|---------|------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 3.89 | 3.90 | 3.84 | - 1.3 | - 1.5 |
| AT | 4.49 | 5.05 | 4.66 | + 3.7 | - 7.8 |
| BE | - | - | - | - | - |
| BG | - | - | - | - | - |
| CY | - | - | - | - | - |
| CZ | 4.88 | 4.98 | 5.22 | + 7.0 | + 4.8 |
| DE | 5.71 | 5.56 | 5.54 | - 3.0 | - 0.4 |
| DK | 5.97 | 5.80 | 6.00 | + 0.3 | + 3.4 |
| EE | 3.06 | 2.61 | 2.82 | - 7.9 | + 7.8 |
| ES | 2.01 | 2.50 | 1.58 | - 22 | - 37 |
| FI | 3.19 | 3.38 | 3.01 | - 5.7 | - 11 |
| FR | 4.75 | 3.97 | 4.63 | - 2.7 | + 16 |
| GR | 1.87 | 1.48 | 2.06 | + 9.9 | + 39 |
| HR | - | - | - | - | - |
| HU | 2.77 | 3.03 | 2.83 | + 1.9 | - 6.6 |
| IE | - | - | - | - | - |
| IT | - | - | - | - | - |
| LT | 2.44 | 2.38 | 2.48 | + 1.8 | + 4.2 |
| LU | - | - | - | - | - |
| LV | 3.48 | 3.94 | 3.20 | - 7.9 | - 19 |
| MT | - | - | - | - | - |
| NL | - | - | - | - | - |
| PL | 2.91 | 2.89 | 2.91 | - 0.1 | + 0.6 |
| PT | 0.85 | 0.90 | 0.80 | - 5.5 | - 11 |
| RO | - | - | - | - | - |
| SE | 6.19 | 6.12 | 6.17 | - 0.4 | + 0.8 |
| SI | - | - | - | - | - |
| SK | 3.70 | 3.78 | 3.90 | + 5.6 | + 3.4 |
| UK | 3.48 | 1.88 | 6.05 | + 74 | + 221 |



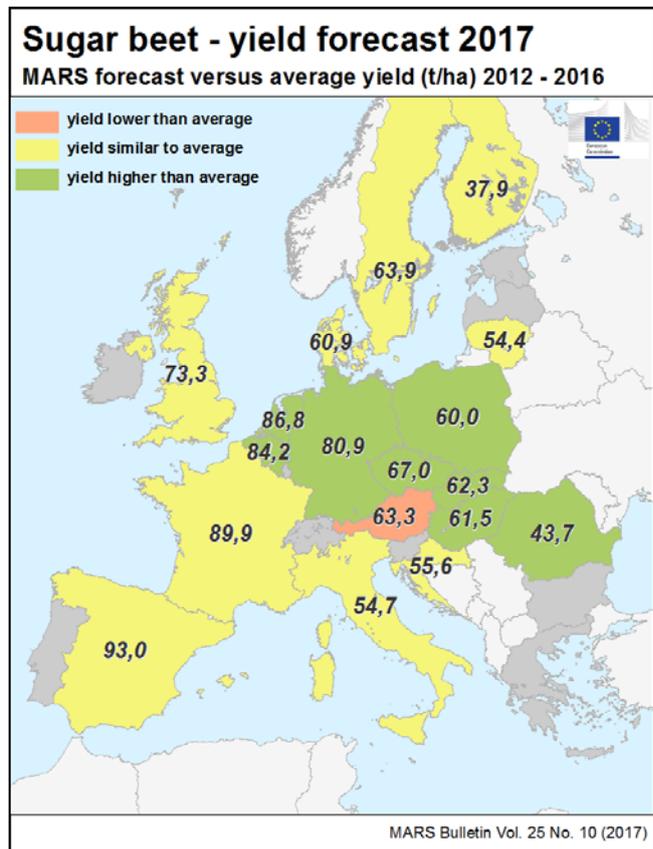
| Country | TRITICALE (t/ha) | | | | |
|---------|------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 4.20 | 3.98 | 4.18 | - 0.5 | + 5.0 |
| AT | 5.44 | 5.88 | 4.99 | - 8.3 | - 15 |
| BE | - | - | - | - | - |
| BG | 2.95 | 3.06 | 3.50 | + 18 | + 14 |
| CY | - | - | - | - | - |
| CZ | 4.70 | 4.88 | 4.69 | - 0.3 | - 3.9 |
| DE | 6.49 | 6.05 | 6.30 | - 3.0 | + 4.0 |
| DK | - | - | - | - | - |
| EE | - | - | - | - | - |
| ES | 2.25 | 2.41 | 2.31 | + 2.9 | - 4.3 |
| FI | - | - | - | - | - |
| FR | 5.17 | 4.28 | 5.19 | + 0.4 | + 21 |
| GR | 1.75 | 1.75 | 2.04 | + 17 | + 16 |
| HR | 4.01 | 4.10 | 4.38 | + 9.1 | + 6.9 |
| HU | 3.86 | 4.14 | 3.93 | + 1.6 | - 5.1 |
| IE | - | - | - | - | - |
| IT | - | - | - | - | - |
| LT | 3.43 | 3.28 | 3.42 | - 0.4 | + 4.2 |
| LU | - | - | - | - | - |
| LV | - | - | - | - | - |
| MT | - | - | - | - | - |
| NL | - | - | - | - | - |
| PL | 3.64 | 3.64 | 3.71 | + 2.0 | + 2.0 |
| PT | 1.53 | 1.95 | 1.75 | + 14 | - 10 |
| RO | 3.24 | 2.90 | 3.56 | + 10 | + 23 |
| SE | 5.61 | 5.23 | 5.42 | - 3.3 | + 3.6 |
| SI | - | - | - | - | - |
| SK | - | - | - | - | - |
| UK | 4.08 | 3.91 | 4.06 | - 0.5 | + 3.9 |



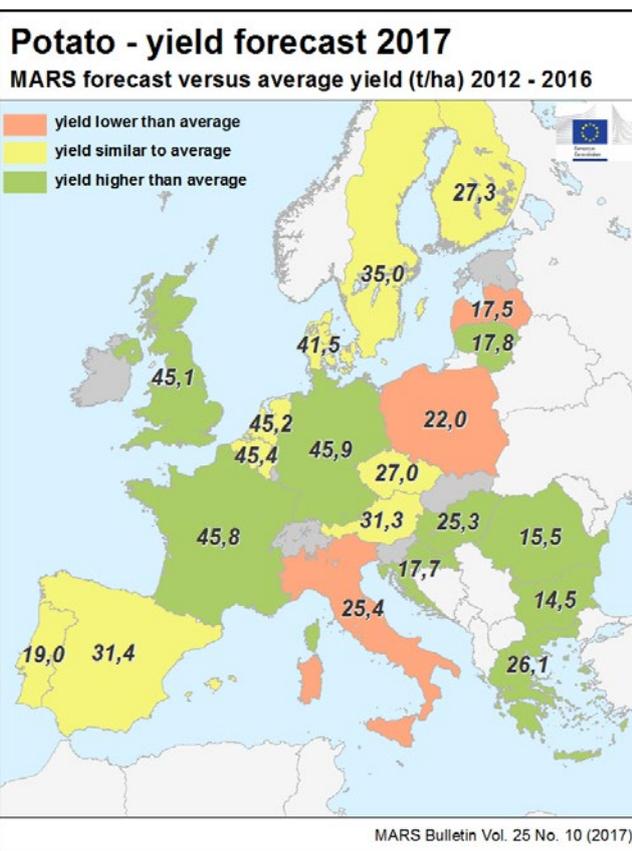
| Country | RAPE AND TURNIP RAPE (t/ha) | | | | |
|---------|-----------------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 3.25 | 3.07 | 3.25 | - 0.2 | + 5.9 |
| AT | 3.26 | 3.58 | 3.22 | - 1.4 | - 10 |
| BE | 4.15 | 3.44 | 4.31 | + 3.9 | + 25 |
| BG | 2.58 | 2.95 | 2.87 | + 11 | - 2.9 |
| CY | - | - | - | - | - |
| CZ | 3.41 | 3.46 | 3.17 | - 6.9 | - 8.3 |
| DE | 3.90 | 3.45 | 3.59 | - 8.1 | + 3.8 |
| DK | 3.88 | 3.10 | 4.03 | + 4.0 | + 30 |
| EE | 2.02 | 1.46 | 1.95 | - 3.6 | + 33 |
| ES | 2.36 | 2.58 | 2.34 | - 0.7 | - 9.1 |
| FI | 1.49 | 1.54 | 1.51 | + 1.5 | - 2.0 |
| FR | 3.35 | 3.06 | 3.65 | + 8.8 | + 19 |
| GR | - | - | - | - | - |
| HR | 2.88 | 3.11 | 3.08 | + 6.9 | - 0.9 |
| HU | 2.95 | 3.44 | 3.09 | + 4.9 | - 10 |
| IE | 3.64 | 3.46 | 4.02 | + 11 | + 16 |
| IT | 2.37 | 2.57 | 2.57 | + 8.4 | + 0.0 |
| LT | 2.39 | 2.60 | 2.52 | + 5.3 | - 3.1 |
| LU | - | - | - | - | - |
| LV | 2.61 | 2.83 | 2.72 | + 4.3 | - 3.9 |
| MT | - | - | - | - | - |
| NL | - | - | - | - | - |
| PL | 2.88 | 2.68 | 2.95 | + 2.3 | + 10 |
| PT | - | - | - | - | - |
| RO | 2.54 | 2.84 | 2.69 | + 5.6 | - 5.4 |
| SE | 3.10 | 2.89 | 3.05 | - 1.5 | + 5.5 |
| SI | - | - | - | - | - |
| SK | 2.88 | 3.46 | 3.35 | + 16 | - 3.2 |
| UK | 3.40 | 3.07 | 3.41 | + 0.3 | + 11 |



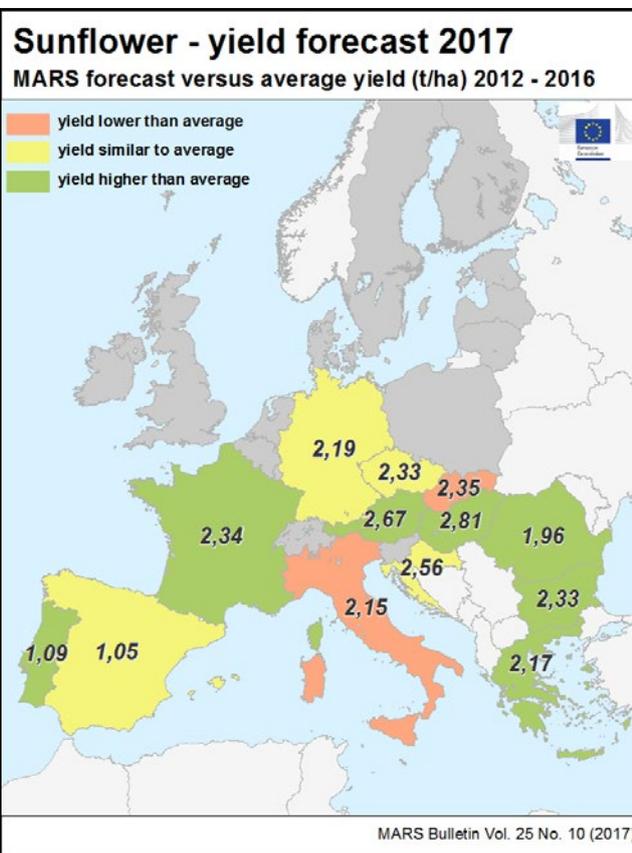
| Country | SUGAR BEETS (t/ha) | | | | |
|---------|--------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 72.2 | 74.5 | 76.7 | + 6.3 | + 3.0 |
| AT | 71.8 | 81.3 | 63.3 | - 12 | - 22 |
| BE | 77.2 | 72.5 | 84.2 | + 9.0 | + 16 |
| BG | - | - | - | - | - |
| CY | - | - | - | - | - |
| CZ | 64.2 | 67.8 | 67.0 | + 4.3 | - 1.3 |
| DE | 72.1 | 76.2 | 80.9 | + 12 | + 6.1 |
| DK | 60.9 | 51.3 | 60.9 | - 0.1 | + 19 |
| EE | - | - | - | - | - |
| ES | 91.8 | 91.7 | 93.0 | + 1.3 | + 1.4 |
| FI | 38.1 | 37.3 | 37.9 | - 0.6 | + 1.5 |
| FR | 87.7 | 85.5 | 89.9 | + 2.6 | + 5.2 |
| GR | - | - | - | - | - |
| HR | 55.9 | 75.5 | 55.6 | - 0.5 | - 26 |
| HU | 57.2 | 67.5 | 61.5 | + 7.6 | - 8.8 |
| IE | - | - | - | - | - |
| IT | 56.8 | 63.4 | 54.7 | - 3.7 | - 14 |
| LT | 54.1 | 61.3 | 54.4 | + 0.5 | - 11 |
| LU | - | - | - | - | - |
| LV | - | - | - | - | - |
| MT | - | - | - | - | - |
| NL | 80.6 | 77.8 | 86.8 | + 7.7 | + 12 |
| PL | 55.9 | 65.8 | 60.0 | + 7.2 | - 8.8 |
| PT | - | - | - | - | - |
| RO | 37.6 | 40.6 | 43.7 | + 16 | + 7.6 |
| SE | 63.9 | 65.0 | 63.9 | + 0.0 | - 1.7 |
| SI | - | - | - | - | - |
| SK | 56.8 | 70.2 | 62.3 | + 9.7 | - 11 |
| UK | 71.0 | 66.0 | 73.3 | + 3.1 | + 11 |



| Country | POTATO (t/ha) | | | | |
|---------|---------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 32.6 | 33.8 | 33.7 | + 3.3 | - 0.3 |
| AT | 31.4 | 36.2 | 31.3 | - 0.2 | - 13 |
| BE | 45.9 | 38.2 | 45.4 | - 1.2 | + 19 |
| BG | 13.3 | 13.6 | 14.5 | + 8.8 | + 6.6 |
| CY | - | - | - | - | - |
| CZ | 26.5 | 29.9 | 27.0 | + 1.9 | - 10 |
| DE | 44.1 | 44.4 | 45.9 | + 4.1 | + 3.2 |
| DK | 41.8 | 42.4 | 41.5 | - 0.9 | - 2.2 |
| EE | - | - | - | - | - |
| ES | 31.0 | 31.1 | 31.4 | + 1.6 | + 1.0 |
| FI | 26.6 | 27.1 | 27.3 | + 2.8 | + 0.7 |
| FR | 42.7 | 38.9 | 45.8 | + 7.1 | + 18 |
| GR | 25.0 | 27.5 | 26.1 | + 4.2 | - 5.0 |
| HR | 16.6 | 19.7 | 17.7 | + 6.9 | - 10 |
| HU | 24.1 | 24.6 | 25.3 | + 5.1 | + 2.8 |
| IE | - | - | - | - | - |
| IT | 26.6 | 28.3 | 25.4 | - 4.6 | - 10 |
| LT | 16.8 | 16.0 | 17.8 | + 5.7 | + 11 |
| LU | - | - | - | - | - |
| LV | 18.6 | 18.8 | 17.5 | - 5.9 | - 6.7 |
| MT | - | - | - | - | - |
| NL | 43.4 | 42.9 | 45.2 | + 4.0 | + 5.4 |
| PL | 23.8 | 28.5 | 22.0 | - 7.4 | - 23 |
| PT | 18.7 | 18.8 | 19.0 | + 1.7 | + 0.9 |
| RO | 14.4 | 14.4 | 15.5 | + 7.8 | + 7.2 |
| SE | 34.2 | 35.6 | 35.0 | + 2.3 | - 1.6 |
| SI | - | - | - | - | - |
| SK | - | - | - | - | - |
| UK | 42.1 | 45.0 | 45.1 | + 7.2 | + 0.2 |



| Country | SUNFLOWER (t/ha) | | | | |
|---------|------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| EU | 1.94 | 2.04 | 2.08 | + 7.5 | + 2.2 |
| AT | 2.53 | 3.29 | 2.67 | + 5.9 | - 19 |
| BE | - | - | - | - | - |
| BG | 2.15 | 2.20 | 2.33 | + 8.2 | + 5.6 |
| CY | - | - | - | - | - |
| CZ | 2.32 | 2.85 | 2.33 | + 0.3 | - 18 |
| DE | 2.18 | 2.14 | 2.19 | + 0.4 | + 2.6 |
| DK | - | - | - | - | - |
| EE | - | - | - | - | - |
| ES | 1.05 | 0.99 | 1.05 | - 0.4 | + 5.3 |
| FI | - | - | - | - | - |
| FR | 2.15 | 1.99 | 2.34 | + 8.5 | + 18 |
| GR | 1.95 | 2.11 | 2.17 | + 12 | + 3.0 |
| HR | 2.55 | 2.81 | 2.56 | + 0.3 | - 8.9 |
| HU | 2.55 | 2.95 | 2.81 | + 10 | - 4.9 |
| IE | - | - | - | - | - |
| IT | 2.26 | 2.42 | 2.15 | - 8 | - 1 |
| LT | - | - | - | - | - |
| LU | - | - | - | - | - |
| LV | - | - | - | - | - |
| MT | - | - | - | - | - |
| NL | - | - | - | - | - |
| PL | - | - | - | - | - |
| PT | 0.93 | 1.30 | 1.09 | + 18 | - 16 |
| RO | 1.83 | 1.92 | 1.96 | + 6.9 | + 1.8 |
| SE | - | - | - | - | - |
| SI | - | - | - | - | - |
| SK | 2.47 | 2.94 | 2.35 | - 5.0 | - 20 |
| UK | - | - | - | - | - |



| Country | WHEAT (t/ha) | | | | |
|---------|--------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| BY | 3.66 | 3.71 | 3.69 | + 1.0 | - 0.4 |
| TR | 2.69 | 2.71 | 2.85 | + 5.8 | + 5.1 |
| UA | 3.69 | 4.21 | 4.01 | + 8.6 | - 4.8 |

| Country | BARLEY (t/ha) | | | | |
|---------|---------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| BY | 3.44 | 3.50 | 3.61 | + 5.0 | + 3.1 |
| TR | 2.63 | 2.48 | 2.69 | + 2.3 | + 8.3 |
| UA | 2.73 | 3.30 | 3.33 | + 22 | + 0.8 |

| Country | GRAIN MAIZE (t/ha) | | | | |
|---------|--------------------|------|---------------------|----------|--------|
| | Avg 5yrs | 2016 | MARS 2017 forecasts | %17/5yrs | %17/16 |
| BY | 5.26 | 5.33 | 5.04 | - 4.0 | - 5.4 |
| TR | 8.83 | 9.42 | 9.81 | + 1 | + 4.2 |
| UA | 5.84 | 6.60 | 5.53 | - 5.4 | - 16 |

Note: Yields are forecast for crops with more than 10 000 ha per country (for rice more than 1 000 ha per country).

Sources: 2017 yields come from the Mars Crop Yield Forecasting System (output up to 20.10.2017).

For EU Member States the reported humidity levels are generally between 65 % and 70 %.

* The EU figures do not include green-maize forecasts for Belgium, Portugal, Sweden and the United Kingdom since recent data on yields were not available.

EU. 2012-2017 data come from DG Agriculture and Rural Development short-term outlook data (dated September 2017, received on 29.9.2017), Eurostat Eurobase (last update: 10.10.2017) and EES (last update: 14.9.2017).

Non-EU. 2012-2016 data come from USDA, Turkish Statistical Institute (TurkStat), Eurostat Eurobase (last update: 10.10.2017), State Statistics Service of Ukraine, FAO and PSD online.

Potato and sugar beet: the 2016 yields for Croatia and Italy come from the National Institute of Statistics.

A 2017 yield value as reported by the Member State is published and made available by Eurostat for the rows in italic.

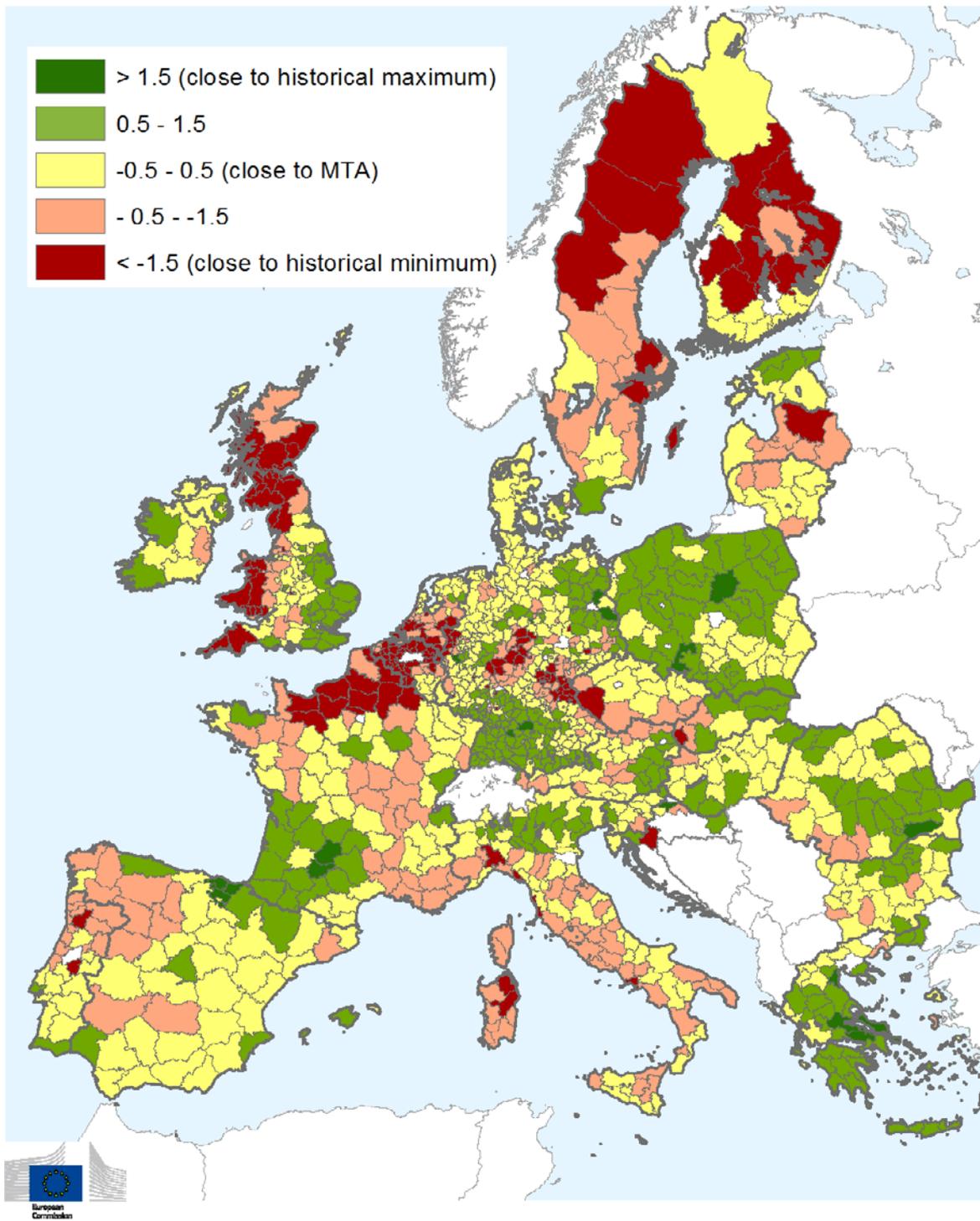
4. Pasture monitoring

Relative index of pasture productivity

Period of analysis: 1 July - 10 October 2017

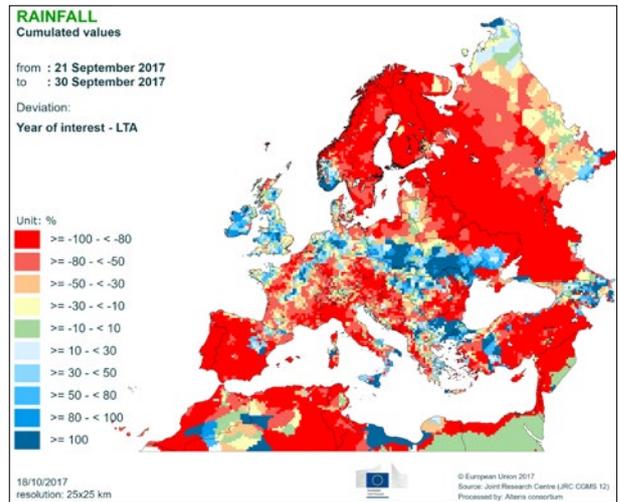
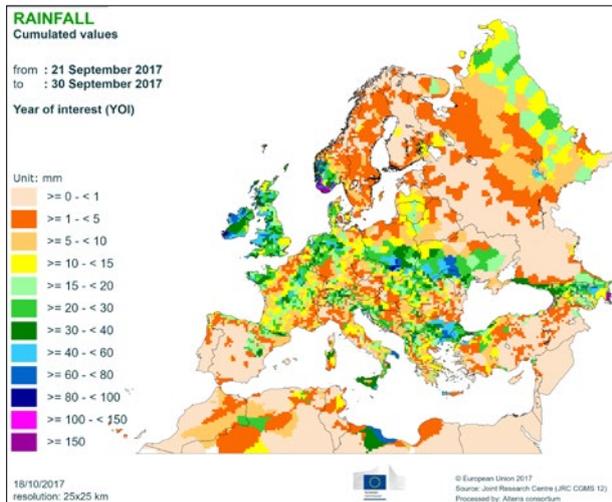
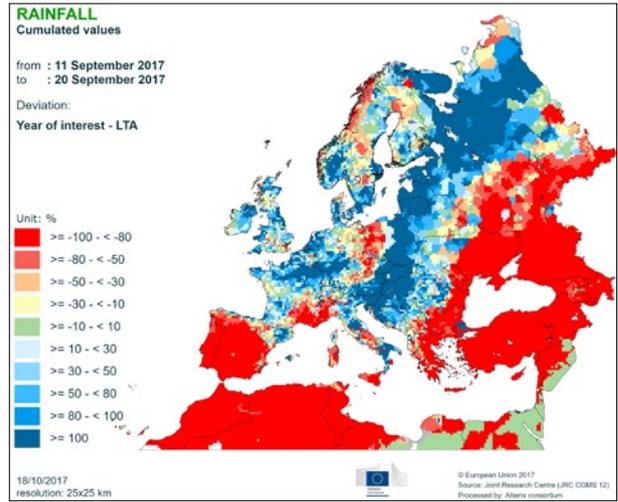
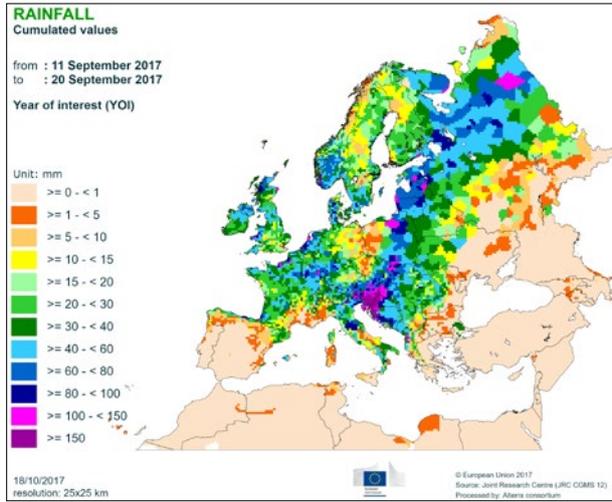
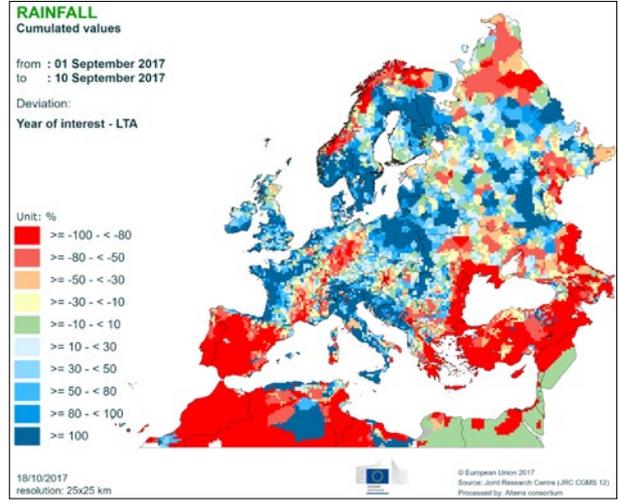
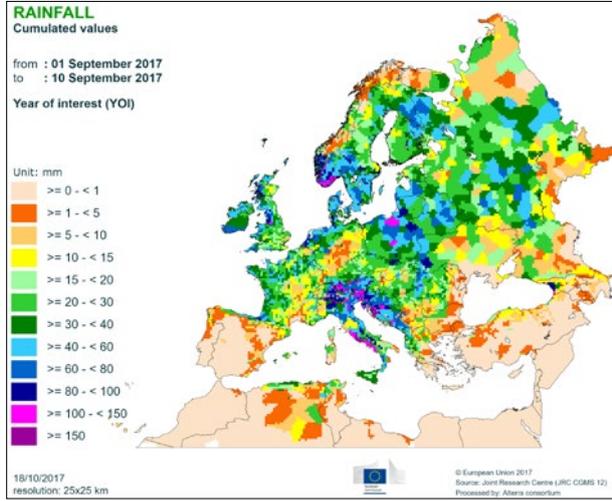
Index based on METOP-AVHRR smoothed fAPAR10-day product.

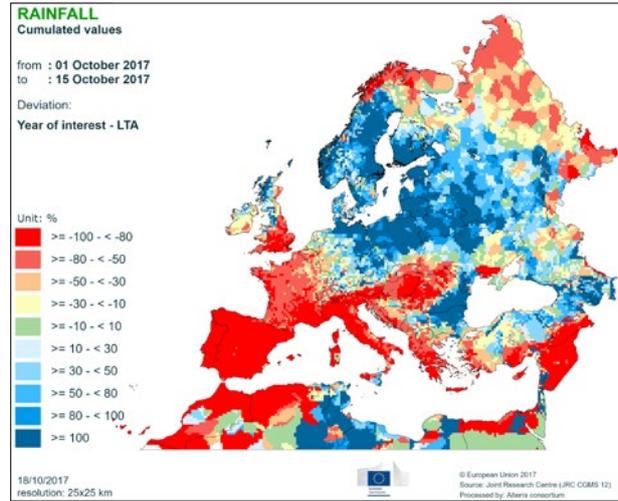
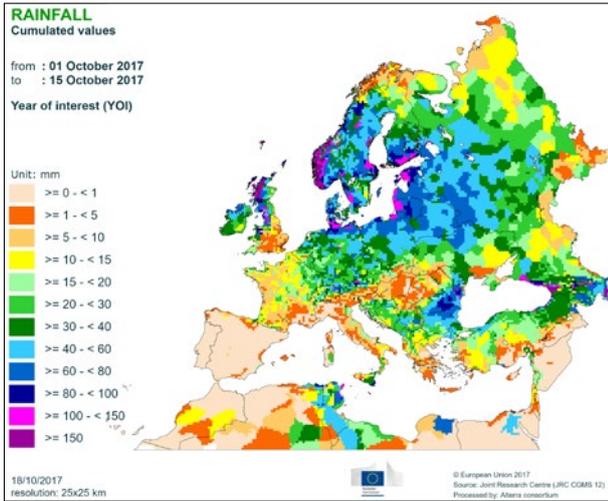
Historical archive (MTA) from 2008 to 2017



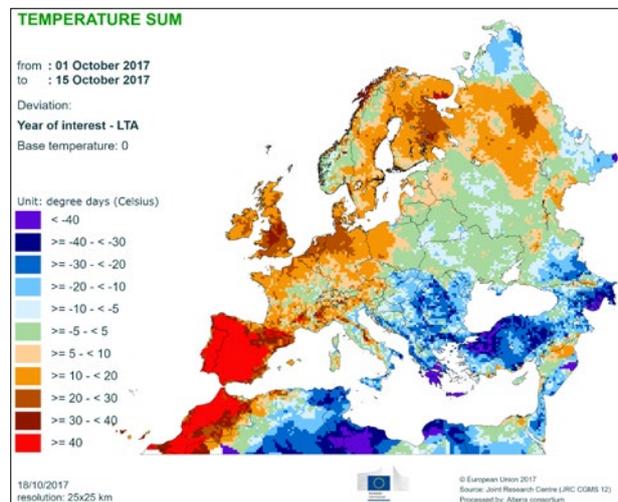
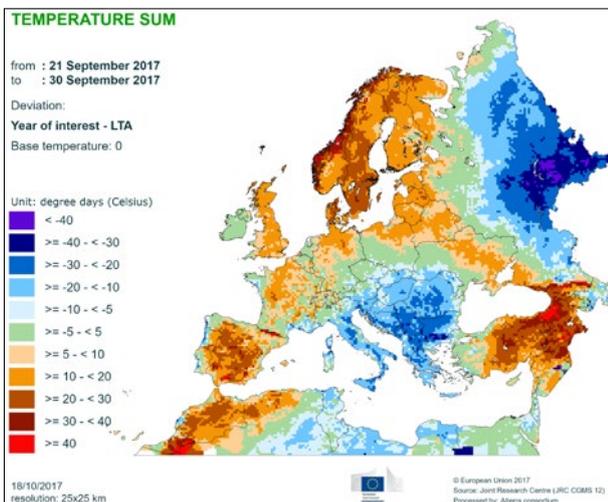
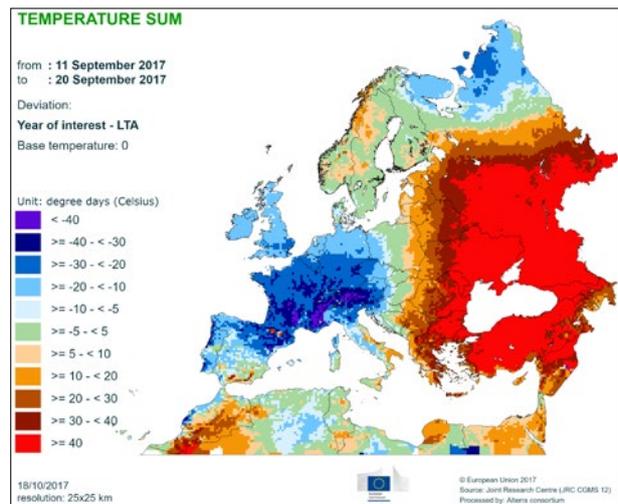
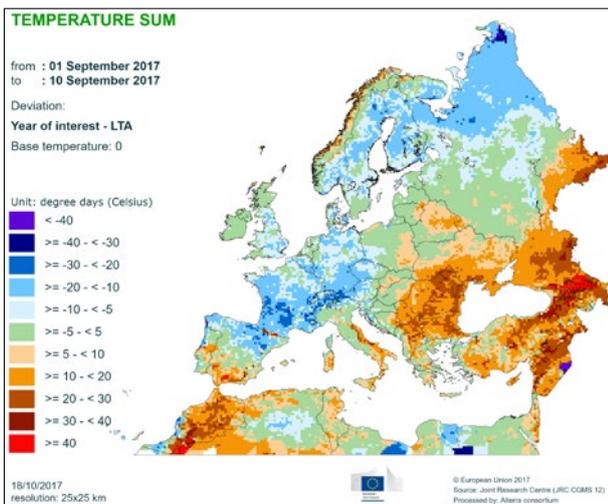
5. Atlas

Precipitation

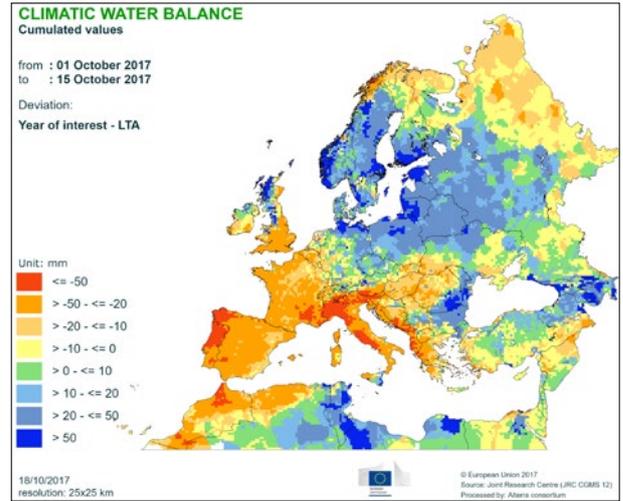
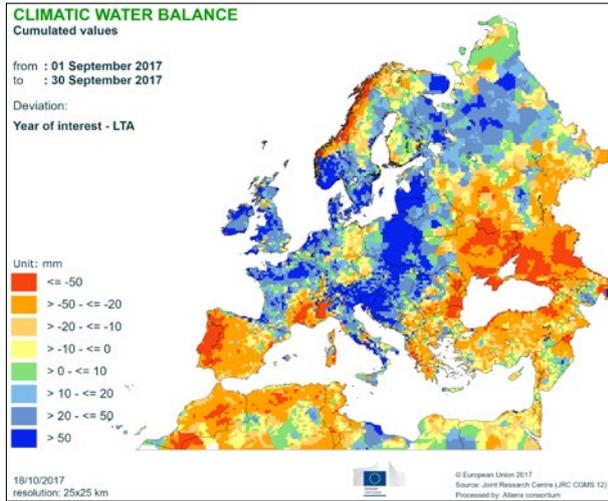




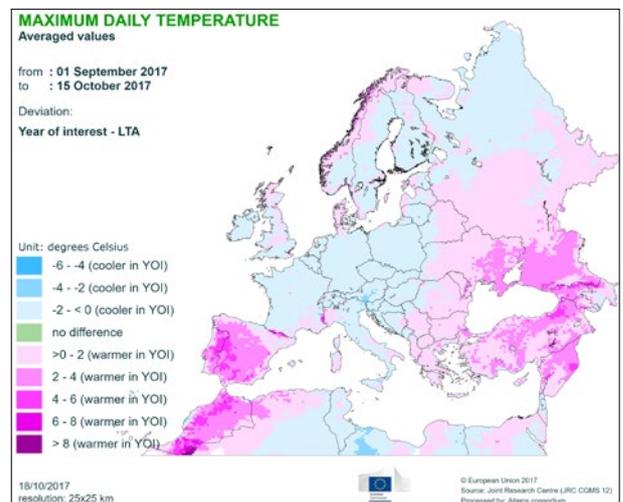
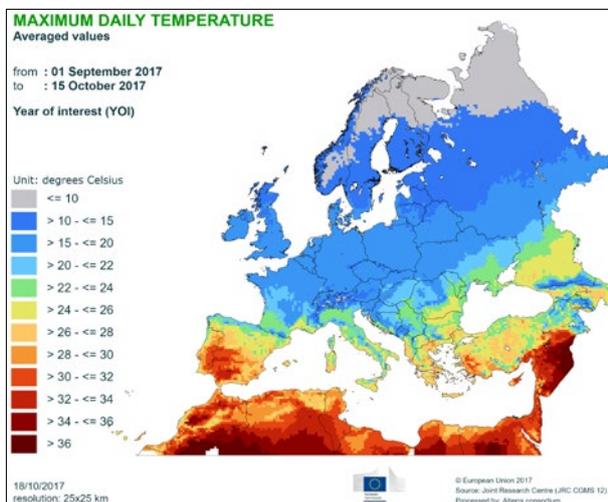
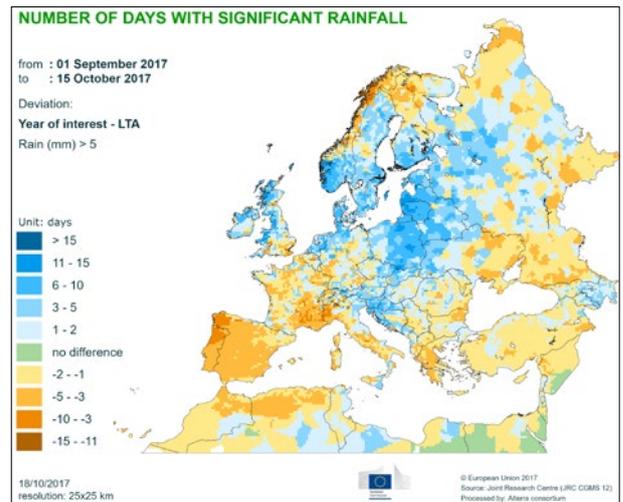
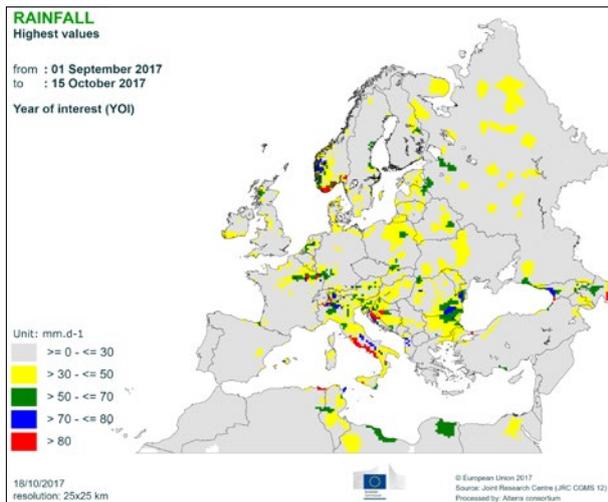
Temperature regime

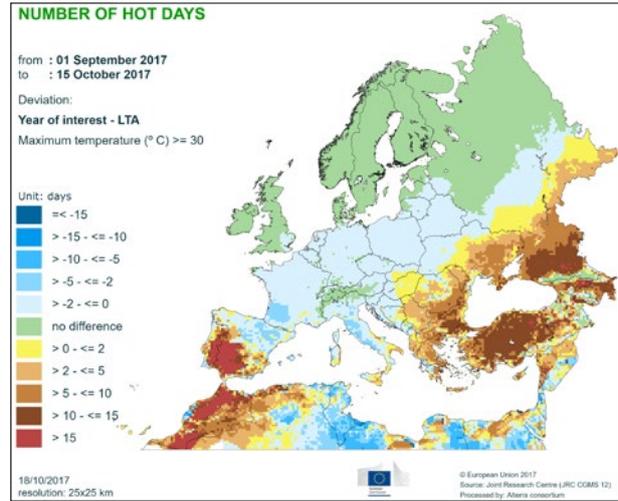
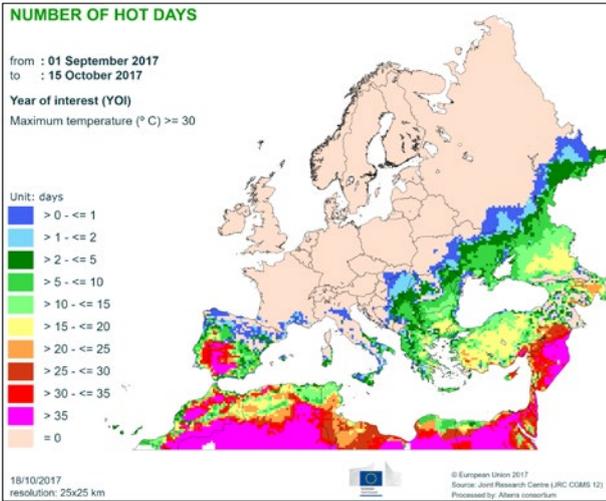


Climatic water balance

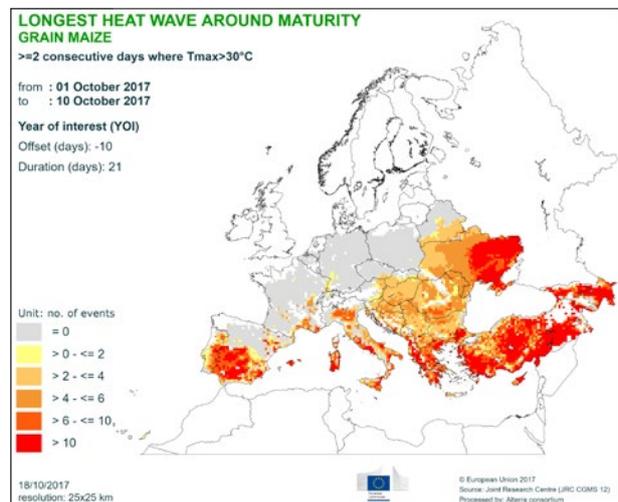
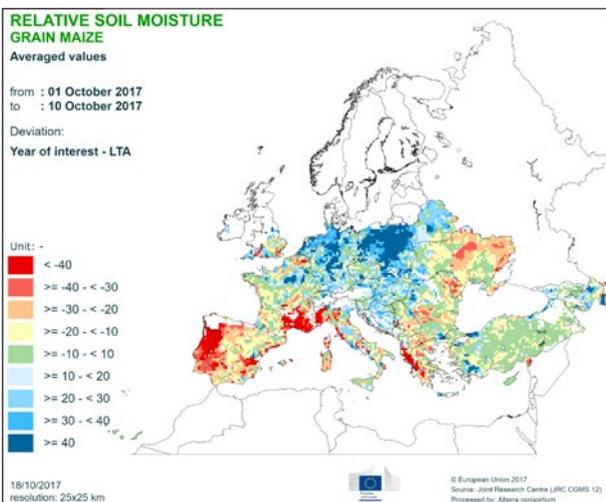
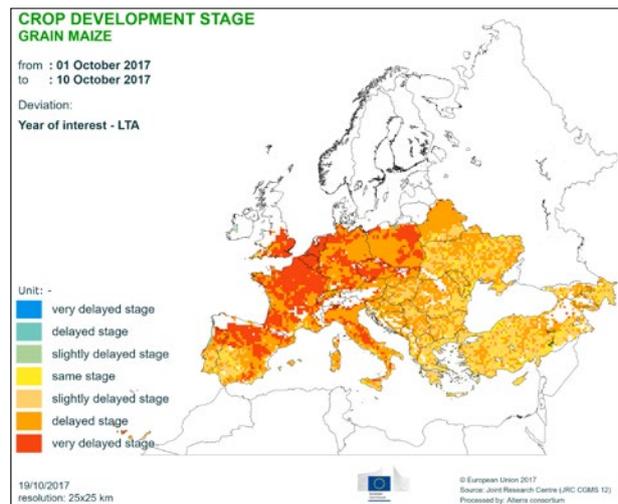
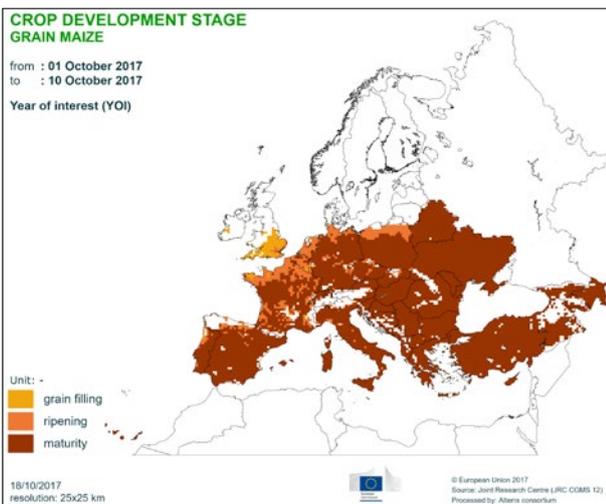


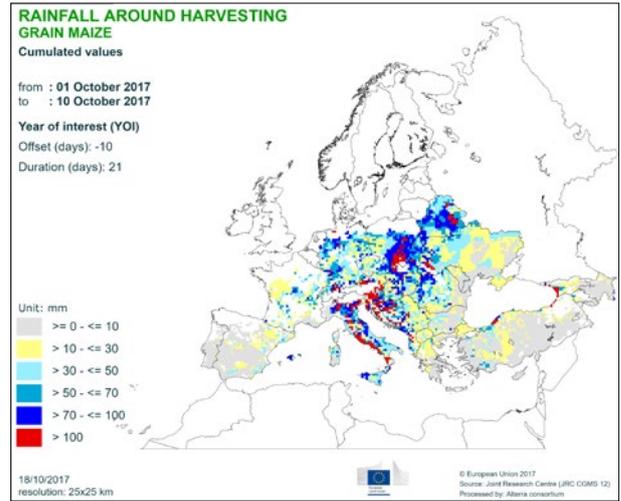
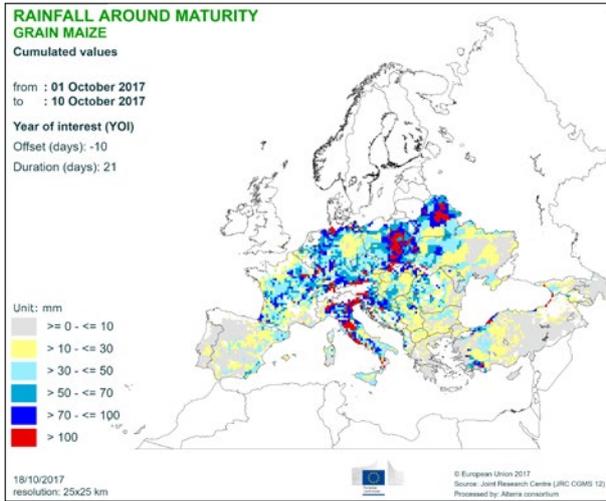
Weather events



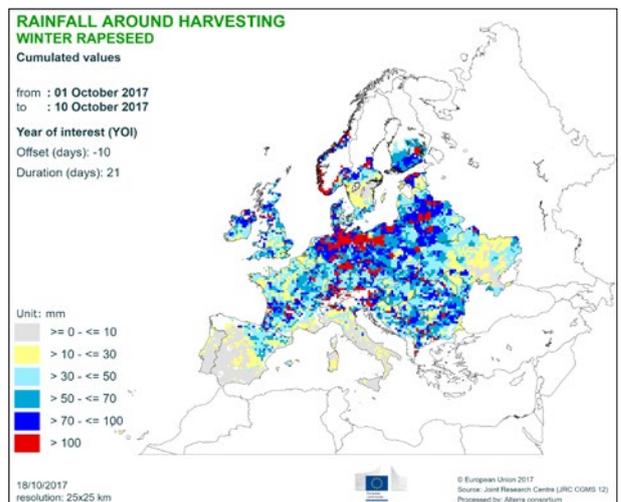
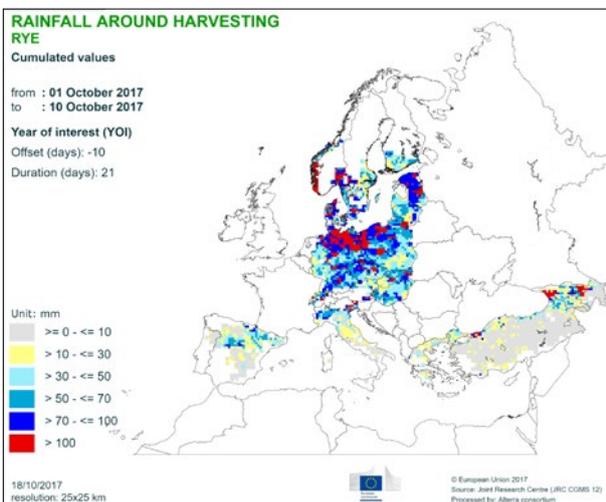
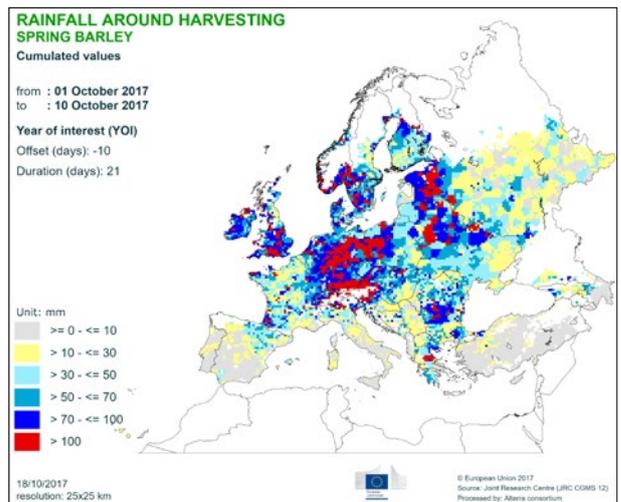
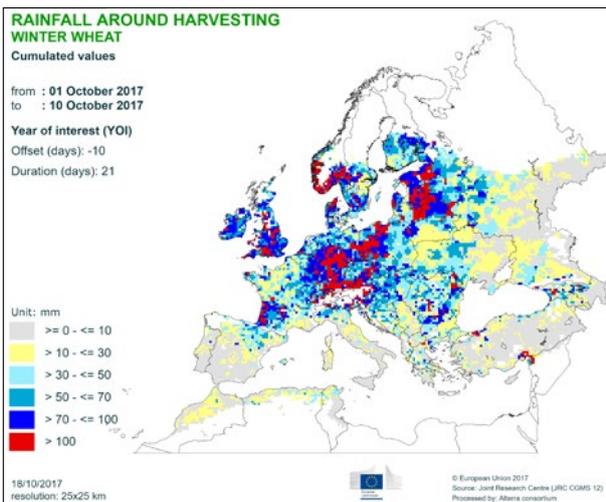


Maize





Rainfall around harvesting



JRC MARS Bulletins 2017

| Date | Publication | Reference |
|--------|--------------------------------------------------------------------------------------------|---------------|
| 23 Jan | Agromet analysis | Vol. 25 No 1 |
| 20 Feb | Agromet analysis | Vol. 25 No 2 |
| 27 Mar | Agromet analysis and yield forecast | Vol. 25 No 3 |
| 24 Apr | Agromet analysis, remote sensing, yield forecast and sowing conditions | Vol. 25 No 4 |
| 22 May | Agromet analysis, remote sensing, yield forecast and pasture analysis and pasture analysis | Vol. 25 No 5 |
| 26 Jun | Agromet analysis, remote sensing, yield forecast, pasture update and rice analysis | Vol. 25 No 6 |
| 24 Jul | Agromet analysis, remote sensing, yield forecast and pasture update | Vol. 25 No 7 |
| 21 Aug | Agromet analysis, remote sensing, yield forecast and pasture update | Vol. 25 No 8 |
| 18 Sep | Agromet analysis, rice analysis and yield forecast | Vol. 25 No 9 |
| 23 Oct | Agromet analysis, remote sensing and yield forecast | Vol. 25 No 10 |
| 27 Nov | Agromet analysis, yield forecast and sowing conditions | Vol. 25 No 11 |
| 18 Dec | Agromet analysis | Vol. 25 No 12 |

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Analysis and reports

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*MARS stands for Monitoring Agricultural Resources

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