European Commission

Period covered: 1 September - 15 October
Issued: 21 October 2013

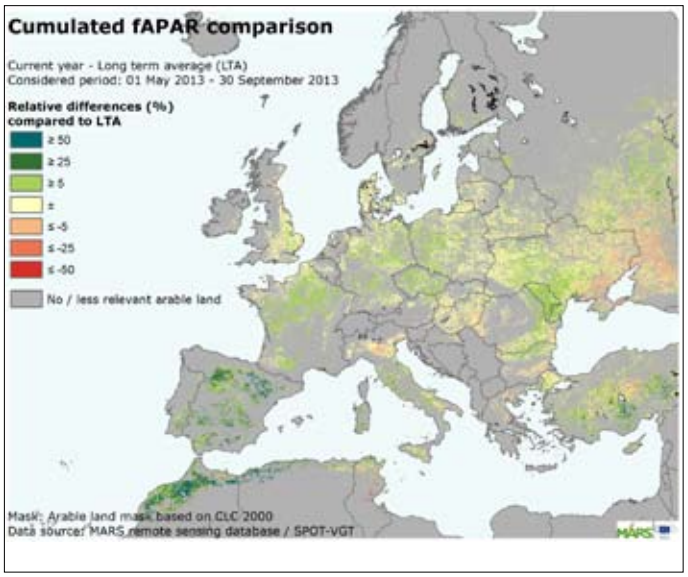
Crop Monitoring in Europe

MARS BULLETIN Vol.21 No. 10 (2013)

Satisfactory summer crop yield expectations after a troubled start to the season

The period of review from 1 September until 15 October was characterised by colder-than-average temperatures in eastern Europe and around the Black Sea. This first cold spell brought also some night frosts. Significant, locally excessive, precipitation was observed towards the end of the review period in central and eastern Europe as well as in the Benelux countries and Germany.

Crop senescence is almost complete all over Europe and the grain maize harvest is in full swing or already finished. Seasonal accumulation of biomass since 1 May varies from very positive anomalies in the Iberian Peninsula to negative anomalies in northern Italy, which is reflected in our yield forecasts. On balance, the EU-28 forecast for grain maize remains unaltered from the last bulletin, being slightly below the five-year average, but still clearly above last year's yield. The grain maize yield has been lowered compared to our last bulletin for Germany, but increased for Hungary. The forecast for sugar beet remains unaltered for the EU-28 as a whole. The forecast for potatoes has been increased at EU-28 level, even though poor conditions at the end of the cycle led to a decrease in yield forecasts for Germany and Poland.



Crop	Yield t/ha				
	2012	MARS 2013 forecasts	Avg 5yrs	%13/12	%13/5yrs
TOTAL CEREALS	4.82	**5.30**	5.05	+9.9	+4.9
Total Wheat	5.18	**5.50**	5.37	+6.2	+2.3
soft wheat	5.41	**5.74**	5.63	+6.1	+2.0
durum wheat	3.13	**3.30**	3.20	+5.4	+3.1
Total Barley	4.39	**4.84**	4.39	+10.1	+10.1
spring barley	3.93	**4.40**	3.83	+12.0	+15.0
winter barley	5.20	**5.49**	5.25	+5.5	+4.5
Grain maize	6.05	**6.88**	6.98	+13.7	-1.5
Rye	2.42	**3.71**	3.05	+53.5	+21.7
Triticale	4.17	**4.23**	4.06	+1.5	+4.3
Other cereals	3.08	**3.41**	3.08	+10.6	+10.7
Rape and turnip rape	3.11	**3.10**	3.04	-0.4	+1.8
Potato	30.55	**31.82**	30.57	+4.1	+4.1
Sugar beet	69.64	**69.86**	69.70	+0.3	+0.2
Sunflower	1.68	**1.99**	1.84	+18.8	+8.3

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Joint Research Centre

1. Agro-meteorological overview

1.1 Areas of concern

The period of review, from 1 September until 15 October, was characterised by colder-than-usual thermal conditions in eastern Europe and around the Black Sea. This first cold spell also brought some night frosts. Higher-than-usual temperatures recorded in parts of Ireland and in the Iberian Peninsula contributed to an increased temperature sum. Significant precipitation was observed in central and eastern Europe as well as in the Benelux countries and Germany.
No areas of concern with widespread, strong impact on the harvesting of summer crops are reported for this period.

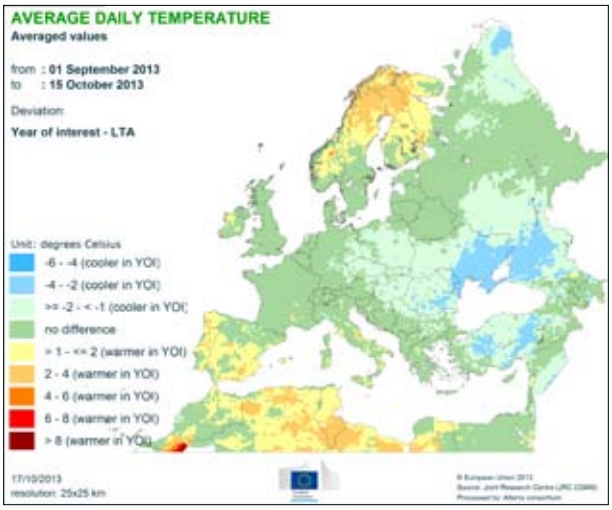
1.2 Agro-meteorological overview (1 September – 15 October)

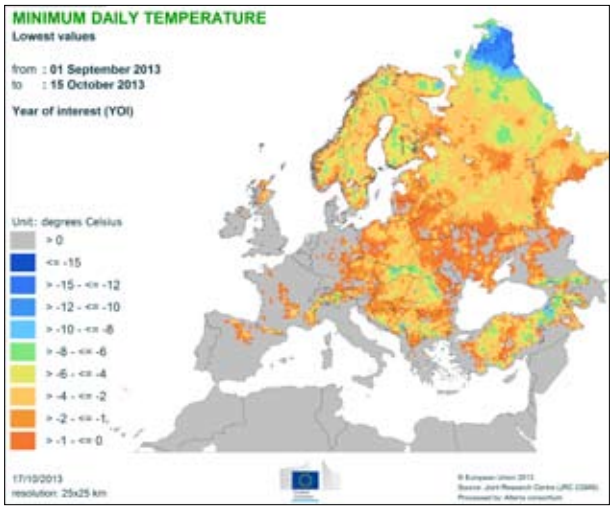
Observed temperatures

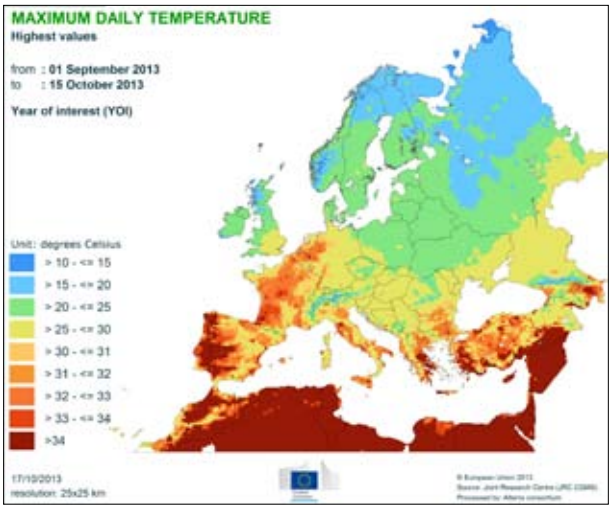
The period of analysis as a whole, showed air temperatures close to average conditions throughout the European agricultural regions except for the Black Sea region that remained colder than average.
The first half of September was characterised by normal thermal conditions over Europe, with the exception of the Scandinavian Peninsula, Italy and Greece, where air temperatures higher than the long-term average (LTA) were recorded. Colder-than-usual conditions prevailed in central and eastern Europe during the second half of September, with average temperatures 2-4°C below average in southern Russia, Ukraine, Romania, Poland, the Czech Republic and the eastern part of Germany. By contrast, positive average temperature anomalies in the range of +2 - +4°C were recorded over the Iberian Peninsula, France, Ireland and Finland. During September daily maximum temperatures reached 34°C in Portugal and southern Spain. Maximum temperatures above 30°C were also recorded in France, Benelux Countries, Italy, Greece, and Turkey.
During the first half of October Europe was divided in two parts; warmer thermal conditions prevailed in the west, while conditions were colder than LTA in central and eastern Europe. Here negative average temperature anomalies in the range of -2 to -6°C were recorded, with minimum daily temperatures of around 0°C. By contrast, daily air temperatures exceeded the average by 2-4°C in the southern part of the Iberian Peninsula, Scandinavia and southern Italy; and by 1-2°C over the British Isles.

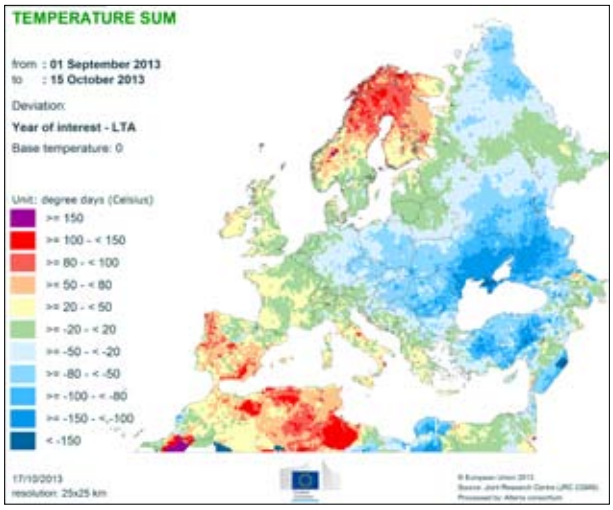
Observed rainfall

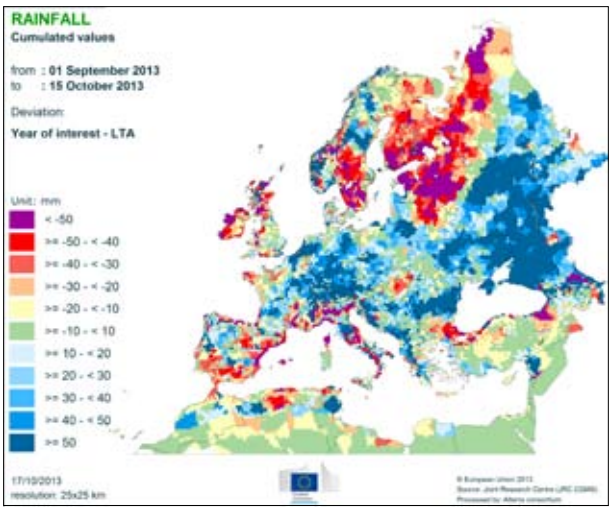
September was wetter than LTA in east and central Europe, but drier than LTA in the south and south-west. Cumulated rainfall recorded in September exceeded the long-term average by more than 50 mm in Ukraine, central and southern Russia, southern Romania, Poland, the Baltic countries, Austria, Slovenia, Croatia, Denmark, the Benelux Countries and some areas of southern Germany. Lower-than-average precipitation was recorded during this period in northern and central Italy, southern France, the eastern coast of Spain, Ireland and southern Sweden.
1 to 15 October was a dry period in most of Europe with rainfall being scarce or absent over the central part of European Russia, Belarus, Ukraine, the Baltic countries, Poland, Slovakia and Bulgaria. During this period, precipitation rates below LTA were also observed in Denmark, the Iberian Peninsula, Scandinavia, Croatia and Slovenia. By contrast, rainfall above LTA was recorded in the eastern part of Ukraine, southern Russia, southern Romania, central Germany, the Benelux countries, eastern France, Italy and the coast of the Balkan region.

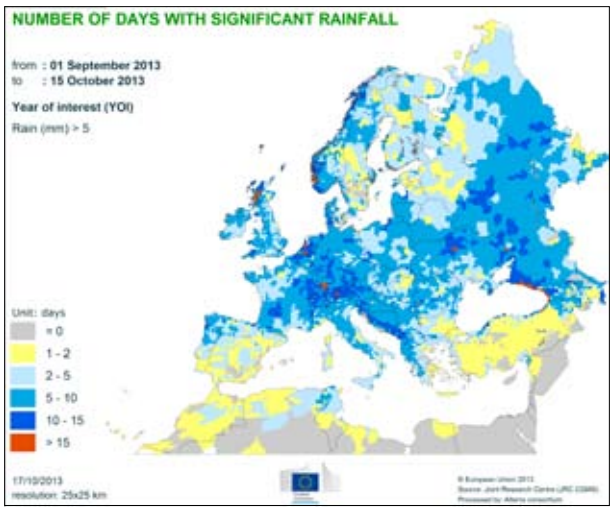

AVERAGE DAILY TEMPERATURE
Averaged values
from : 01 September 2013
to : 15 October 2013
Deviation:
Year of interest - LTA
Unit: degrees Celsius
-6 - -4 (cooler in YOI)
-4 - -2 (cooler in YOI)
>= -2 - < -1 (cooler in YOI)
no difference
> 1 - <= 2 (warmer in YOI)
2 - 4 (warmer in YOI)
4 - 6 (warmer in YOI)
6 - 8 (warmer in YOI)
> 8 (warmer in YOI)
17/10/2013
resolution: 25x25 km


MINIMUM DAILY TEMPERATURE
Lowest values
from : 01 September 2013
to : 15 October 2013
Year of interest (YOI)
Unit: degrees Celsius
> 0
<= -15
> -15 - <= -12
> -12 - <= -10
> -10 - <= -8
> -8 - <= -6
> -6 - <= -4
> -4 - <= -2
> -2 - <= -1
> -1 - <= 0
17/10/2013
resolution: 25x25 km

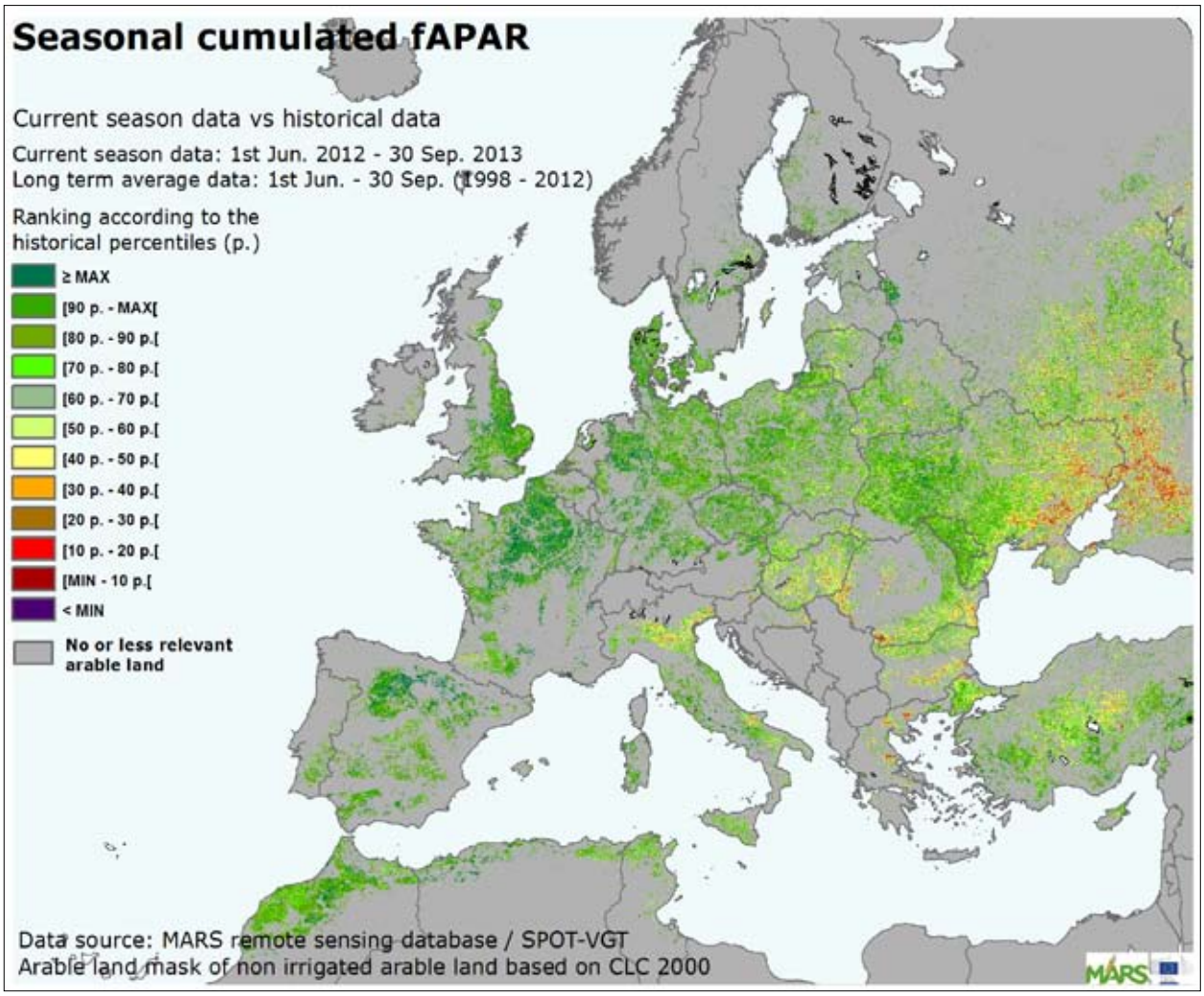

MAXIMUM DAILY TEMPERATURE
Highest values
from : 01 September 2013
to : 15 October 2013
Year of interest (YOI)
Unit: degrees Celsius
> 10 - <= 15
> 15 - <= 20
> 20 - <= 25
> 25 - <= 30
> 30 - <= 31
> 31 - <= 32
> 32 - <= 33
> 33 - <= 34
>34
17/10/2013
resolution: 25x25 km


TEMPERATURE SUM
from : 01 September 2013
to : 15 October 2013
Deviation:
Year of interest - LTA
Base temperature: 0
Unit: degree days (Celsius)
>= 150
>= 100 - < 150
>= 80 - < 100
>= 50 - < 80
>= 20 - < 50
>= -20 - < 20
>= -50 - < -20
>= -80 - < -50
>= -100 - < -80
>= -150 - <-100
< -150
17/10/2013
resolution: 25x25 km


RAINFALL
Cumulated values
from : 01 September 2013
to : 15 October 2013
Deviation:
Year of interest - LTA
Unit: mm
< -50
>= -50 - < -40
>= -40 - < -30
>= -30 - < -20
>= -20 - < -10
>= -10 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 50
>= 50
17/10/2013
resolution: 25x25 km


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 September 2013
to : 15 October 2013
Year of interest (YOI)
Rain (mm) > 5
Unit: days
= 0
1 - 2
2 - 5
5 - 10
10 - 15
> 15
17/10/2013
resolution: 25x25 km

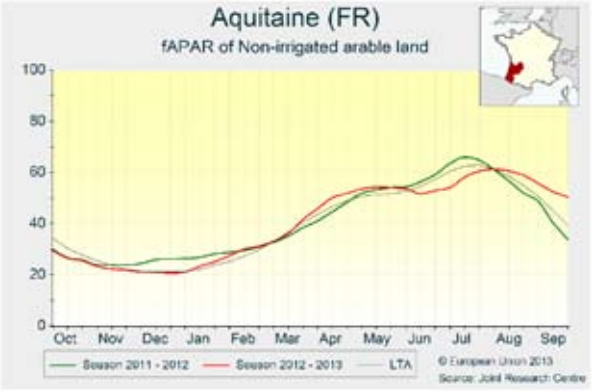
2. Remote Sensing analysis – observed canopy conditions

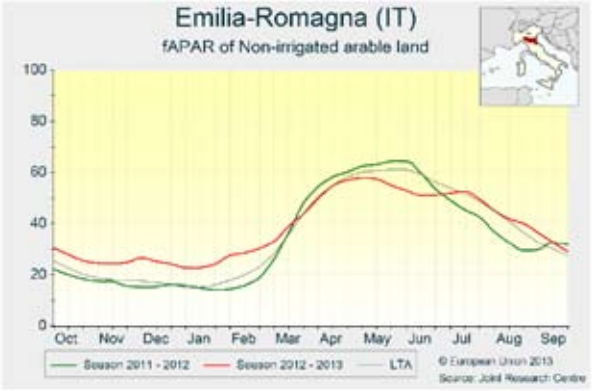


The map reflects green biomass accumulation over Europe, inferred from satellite images, from June 2013 to the end of September 2013, as compared to past years. It indicates whether the ongoing summer season is close to normal or deviates from normal conditions. In general, cropland in western Europe showed above average biomass accumulation over the period concerned. These positive anomalies are often related, however, to delayed sowing and crop development, as reflected for example in the fAPAR profiles of *East Anglia* in the **United Kingdom** (see figure next page). In the **Iberian Peninsula**, on the other hand, the summer crop season was very good indeed.

The harvesting of summer crops is almost finished in all the southern and western regions of **France** (e.g. *Aquitaine*), even though the harvest may have been slowed down by the rain at the end of September. In the *Po valley*, in **Italy**, the warm temperatures at the end of September determined a recovery of the overall biomass accumulation and good harvesting conditions (e.g. *Emilia Romagna*), but in October harvesting conditions were sub-optimal due to persistent precipitation. In **Germany** (e.g. *Oberbayern*), the summer crop harvest started in early October, but was soon interrupted by rainfall.

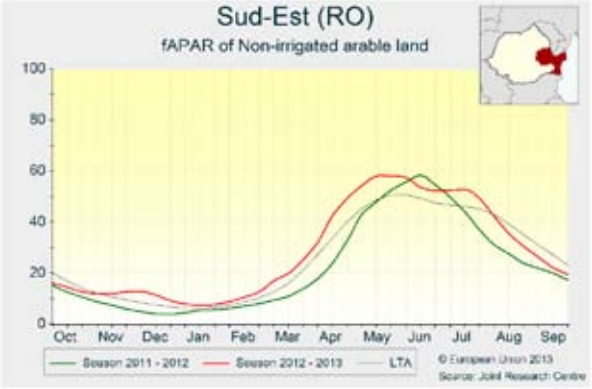
Similar conditions prevailed in the **Baltic countries** where the major maize region experienced very humid conditions that could have hampered the harvest and reduced grain quality. Low air temperatures early in the season in the Danube lowlands along the border of **Romania** (e.g. *Sud Est*) and **Bulgaria** did not significantly affect crops, but intensive rainfall interrupted the ongoing summer crop harvest. In **Ukraine**, the harvesting of summer crops is almost finished. In these regions, the lack of biomass accumulation shown on the map is mainly due to a shortening of the summer crop cycle that occurred in August due to high air temperatures. Similar conditions are present in south western **Russia**. In **Turkey**, high biomass accumulation suggests a very positive maize season in the eastern and southern regions.


Aquitaine (FR)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Emilia-Romagna (IT)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre

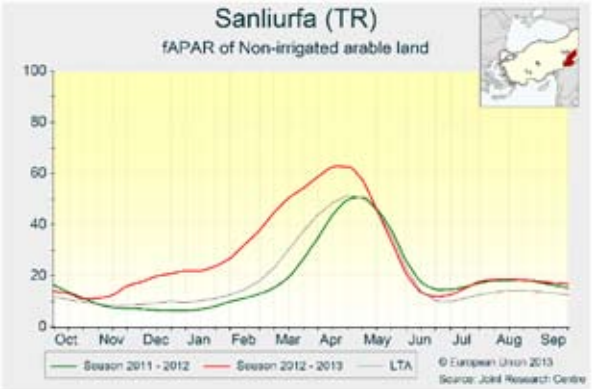

East Anglia (UK)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Oberbayern (DE)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Sud-Est (RO)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Zaporiz'ka (Ukraine)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Rostovskaya Oblast (Russian Federation)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Sanliurfa (TR)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre

3. Country analysis

3.1 European Union

France, Spain, Portugal, Italy and Slovenia

Positive outlook for summer crops in Spain and Portugal. Forecasts remain below average for Italy, Slovenia and France

During the first two dekads of September, temperatures were close to average in **Portugal**, **Spain** and **France**, whereas the last dekad of September and the first dekad of October were warmer than the long-term average (LTA). In contrast, in **Italy** and **Slovenia**, average temperatures dropped 2-4 °C below LTA in October, mainly in northeastern Italy and Slovenia.

Above-average precipitation was recorded in **Slovenia**. In **France**, **Spain** and **Portugal**, rainfall was near-average or slightly above-average for the review period as a whole. The last dekad of September, however, was marked by dry and sunny conditions. In **Italy**, drier-than-average conditions prevailed during September, mainly in the north. During the first decade of October significant rainfall occurred in northwestern and central Italy, mainly concentrated on 6 and 7 October.

In **France**, **Italy** and **Slovenia**, the harvest of grain maize is ongoing with a significant delay due to unfavourable conditions around the sowing period, with one to two dekads in **France** and up to one month in **Italy** and **Slovenia**. Strong spatial differences in the phenological stages and in the growth conditions of crops are still observed. For **France**, **Italy** and **Slovenia**, the yield forecast for maize remains unaltered below average due to the late sowing and to the dry and hot conditions recorded during summer, especially in Italy and Slovenia. Furthermore, abundant rainfall recorded in the beginning of October will have hampered the harvest locally and affected the grain quality. The outlook for **Spain** and **Portugal** is positive, however; the harvest of grain maize is proceeding normally, albeit slightly delayed in the south of Spain as a consequence of the rainfall in early October.

The sunflower harvest has already finished with estimated near-average yields in **Italy** and slightly above-average yields in **Spain** and **Portugal**. In **France**, the development of sunflowers, that was delayed because of late sowing, benefited from the favourable weather conditions during the last dekad of September and first dekad of October. Current below-average temperatures, however, accompanied by frequent rainfall are making harvesting difficult in places where crops have reached maturity, whereas ripening is negatively affected where maturity has not yet been reached. Thus, sunflower yields in **France** are forecast to be slightly below average.

Germany, Poland, Austria, the Czech Republic and Slovakia

Above-average rainfall in September, maize harvest started

Since September accumulated precipitation is generally above average in Germany, Poland and Austria, the Czech Republic and Slovakia. In the south of **Germany** (*Baden Wuerttemberg* and to a lesser extent *Bayern*) a surplus of more than 50 mm was observed on average, whereas only a moderate surplus was recorded in central-northern Germany - with the exception of *Schleswig-Holstein* where normal conditions persisted. Rainfall occurred mainly during the period 6-18 September. Heavy rainfall from 4 October onwards interrupted the start of maize harvesting. **Poland** experienced a particularly wet period from 12-26 September, with the highest anomaly of 84 mm above average recorded in *Podlaskie*. Only *Zachodniopomorskie* experienced below-average precipitation. As for **Austria**, the **Czech Republic** and **Slovakia** precipitation was above average in *Niederösterreich*, *Oberösterreich*, *Jihovychod* and *Severovychod*. The highest rates of rainfall were recorded in those regions between 11-20 September, locally exceeding LTA by more than 50 mm.

The temperature accumulation in **Germany** was around average in September, with a warmer first half and a colder second half, but October saw the first onset of winter with light night frosts. The same pattern occurred in **Austria**, the **Czech Republic**, **Slovakia** and **Poland**, but with more pronounced night frosts. This may have affected the yield and quality of grain maize, especially in areas where physiological maturity has not been reached.

The maize harvest got underway in countries that experienced good conditions towards the end of September. In **Germany**, the harvest was interrupted by precipitation in October, and maize has not yet matured throughout the country. The forecast for Germany has been revised downwards due to unfavourable growing conditions in *Nordrhein-Westfalen* where low storage organ weights are simulated by our models. The grain maize yield forecast is close to the five-year average in the **Czech Republic** and **Austria**, whereas a below-average yield is expected in **Slovakia** due to unfavourable summer conditions. Grain maize and potato forecasts for **Poland** were revised downwards as a result of the cold and wet weather in the last part of the season.

Belgium, the Netherlands, Luxembourg, the United Kingdom, Ireland and Denmark

Summer crops continue on a normal trajectory

In the **UK**, **Ireland**, **Denmark**, and the **Benelux** countries, temperatures during the reporting period as a whole were around average. However, the first dekad of September was unusually warm in the **Benelux** countries and, to a lesser extent, in **Denmark**. In **Britain**, a mild cold spell occurred in mid-September, while a warm period was recorded in **Ireland** during the first dekad of October.

Precipitation was above-average in the **Benelux** countries, but the third dekad of September was marked by dry period. In **Denmark**, cumulated rainfall was around average whereas in the **UK** and **Ireland**, precipitation has been lower than average, but without cause for concern.

Conditions in **Denmark**, the **UK** and **Ireland** suggest that summer crops are following a normal trajectory, and yields are thus expected to be around the five-year average. For the **Benelux** countries, the weather conditions reported improved our expectations of the previous bulletin, when summer crops were reported to having trouble exploiting beneficial radiation and temperatures due to lack of rain. This is now expected to result in slightly better yields than previously forecasted for sugarbeet, potatoes and maize crops. Still, the estimates remain below the yields of previous years. Final yields could still be significantly affected, depending on the weather conditions over the coming weeks, especially in those regions which received excessive rainfall around the end of the reporting period, such as Oost- and West-Vlaanderen in **Belgium**, and Zeeland in the **Netherlands**.

Bulgaria, Hungary, Romania, Greece and Cyprus

Positive outlook for summer crops, except in Hungary

The countries experienced normal thermal conditions in September, but temperatures decreased significantly during the first days of October and a notable cold spell was recorded with minimum temperatures between -3 and -6°C in **Bulgaria**, **Hungary** and **Romania**. In **Greece**, the cold spell did not result in negative temperatures. Mild weather returned after 10 October, but the whole period is characterised by a below-average temperature accumulation.

Rainfall patterns and amounts for the period under review vary for the different countries. **Bulgaria** experienced scarce precipitation until the last days of September, but then abundant rainfall was recorded in the north, without negative effects on maize and sunflower in their late development stages. However, due to the rain, the harvesting of maize was delayed in these areas, and there is a risk of increased costs caused by the probably required drying of maize and sunflower seeds. September was wetter than LTA in **Romania**. At the end of September and beginning of October, very intensive and abundant precipitation was recorded in the southern half of Romania, where the precipitation sum for three days exceeded 50 mm and even reached 100-150 mm in some districts. These torrential rains delayed the harvest of maize and sunflower due to overly wet soil conditions interrupting field activities. In **Hungary**, accumulated precipitation for the period was below average, but rainfall during the second dekad and the last days of September favourably increased the soil moisture, allowing for soil preparation, timely sowing and the emergence of rapeseed. In **Greece**, rainfall was mainly below average, with the exception of Central *Macedonia* where rainfall was slightly above average. In **Cyprus**, no rain fell during September, but a couple of rainy days occurred during the first days of October.

As for the yield forecasts in **Hungary**, the expectations for maize, sugar beet and potato are below average due to the serious water deficit during summer, but there are considerable spatial differences. Sunflower crop yields are forecasted to be normal. In **Bulgaria** the yield forecast for maize and sunflower is highly above the trend, but the hot and dry summer seriously compromised the yield formation of potatoes. Maize and sunflower yield forecasts for **Romania** are also very good. As harvesting has been completed for **Greece** and **Cyprus**, forecasts remain unaltered.

Sweden, Finland and the Baltic countries

Around average yields expected for summer crops, except in Lithuania

During the period from 1 September to 10 October, normal thermal conditions were recorded in **Sweden**, with above-average cumulated global radiation, especially in southern Sweden. By contrast, in **Finland** and the **Baltic** countries, above-average temperatures prevailed until the last dekad of September, and then daily temperatures rapidly fell to below average. Minimum temperatures also fell and a substantial part of the region experienced light frosts. The cold weather conditions minimised the biomass accumulation of summer crops that were not yet harvested (maize, sugar beet and potato).

Rainfall patterns during the reporting period were diverse. In **Sweden**, **Finland** and **Estonia**, this period was significantly drier than usual. **Lithuania** and **Latvia**, on the other hand, experienced above-average rainfall, with a particularly wet second half of September. Yet, throughout the region, little rainfall occurred from end of September to early October, thus creating good conditions for harvesting.

The low temperatures and preceding wet conditions in part of the region, however, especially in **Lithuania**, had been unfavourable for the ripening of summer crops, particularly maize. These conditions would also have affected grain quality. Therefore, for Lithuania, we decreased our yield forecast for grain maize, and to a minor degree also decreased forecast yields for sugar beets. For the other countries, the forecast for summer crops remains unaltered and close to the five-year average.

3.2 Black Sea area

Turkey and Ukraine

Good conditions at the end of the season

The prevailing weather conditions in **Turkey** during the analysis period (1 September – 10 October) were characterised by below-average global solar radiation; temperatures were below LTA for October and little rainfall occurred in September and October. As grain maize is almost at maturity stage in the main producing areas (*Hatay*, *Kocaeli*, *Zonguldak*, *Samsum*, *Adana*, etc.), there should be no detrimental effect on crop yield. On the basis of meteorological information along with the analysis of simulated crop growth indicators (e.g. crop development stage, biomass of storage organs), the yield forecast is above the five-year average. However, recent rainfall may hamper the harvesting.

In **Ukraine**, temperatures remained around average for September, and some frost was observed during the first dekad of October. These exceptionally low temperatures for the season, reaching a minimum of -3°C locally, have probably delayed some sowing of winter cereals, which usually occur at the end of September and beginning of October. Events with abundant precipitation were observed in September, and cumulated rainfall since 1 September is 50 mm above average in the north-eastern regions and the *Krym* region. No impact on grain maize yields is expected, though. All other crops were already harvested under good conditions.

3.3 European Russia and Belarus

European Russia and Belarus

A rainy September and a first cold spell

In **Russia**, daily mean temperatures varied around average until 22 September, when a cold air intrusion led to considerably decreased temperatures for around 15 days. Normal or above-normal temperatures returned only in the second dekad of October. The same pattern applies for **Belarus**, which also experienced light night frosts. In September precipitation was frequent and abundant in southern Russia, exceeding the average by 30-150 mm. The wet weather conditions hampered the harvesting of summer crops and could have caused problems in soil preparation and sowing of winter cereals. This year could be among the best for maize yields. The cumulated amount of rainfall in Belarus was slightly above average by end of September due to frequent rainfall events, but no significant rain was observed since the beginning of October.

4. Crop yield forecasts and yield maps

Country	TOTAL WHEAT (t/ha)					SOFT WHEAT (t/ha)					DURUM WHEAT (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU28	5.18	**5.50**	5.37	+6.2	+2.3	5.41	**5.74**	5.63	+6.1	+2.0	3.13	**3.30**	3.20	+5.4	+3.1
AT	4.14	**5.42**	5.13	+30.9	+5.7	4.19	**5.46**	5.17	+30.2	+5.5	3.07	**4.53**	4.34	+47.9	+4.4
BE	8.45	**8.70**	8.77	+2.9	-0.9	8.45	**8.70**	8.77	+2.9	-0.9	-	-	-	-	-
BG	3.76	**4.07**	3.71	+8.2	+9.8	3.78	**4.08**	3.70	+8.0	+10.1	2.68	**3.70**	3.85	+37.7	-4.1
CY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CZ	4.32	**5.42**	5.22	+25.6	+3.9	4.32	**5.42**	5.22	+25.6	+3.9	-	-	-	-	-
DE	7.33	**7.98**	7.49	+8.9	+6.6	7.34	**7.99**	7.50	+8.8	+6.5	-	-	-	-	-
DK	7.37	**7.20**	7.27	-2.3	-1.0	7.37	**7.20**	7.27	-2.3	-1.0	-	-	-	-	-
EE	3.90	**3.35**	3.13	-14.1	+7.1	3.90	**3.35**	3.13	-14.1	+7.1	-	-	-	-	-
ES	2.35	**3.56**	2.93	+51.5	+21.3	2.64	**3.75**	3.19	+41.8	+17.5	1.08	**2.68**	2.06	+148.4	+30.3
FI	3.93	**3.84**	3.77	-2.3	+1.8	3.93	**3.84**	3.77	-2.3	+1.8	-	-	-	-	-
FR	7.15	**7.03**	7.02	-1.6	+0.2	7.30	**7.15**	7.19	-2.0	-0.5	5.45	**5.26**	5.06	-3.4	+3.9
GR	2.42	**2.64**	2.74	+8.9	-3.9	2.83	**2.71**	2.99	-4.1	-9.4	2.31	**2.62**	2.66	+13.3	-1.8
HR	5.35	**4.96**	4.86	-7.3	+2.0	5.35	**4.96**	4.86	-7.3	+2.0	-	-	-	-	-
HU	3.73	**4.54**	4.10	+21.5	+10.8	3.73	**4.54**	4.10	+21.7	+10.9	3.70	**4.07**	3.80	+9.7	+7.0
IE	6.31	**8.34**	8.39	+32.3	-0.6	6.31	**8.34**	8.39	+32.3	-0.6	-	-	-	-	-
IT	4.13	**3.86**	3.83	-6.6	+0.8	5.89	**5.28**	5.39	-10.4	-2.0	3.32	**3.21**	3.14	-3.4	+2.0
LT	4.78	**4.16**	3.99	-13.1	+4.2	4.78	**4.16**	3.99	-13.1	+4.2	-	-	-	-	-
LU	5.87	**6.19**	6.12	+5.6	+1.2	5.87	**6.19**	6.12	+5.6	+1.2	-	-	-	-	-
LV	4.37	**3.76**	3.64	-13.9	+3.3	4.37	**3.76**	3.64	-13.9	+3.3	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NL	8.52	**8.60**	8.65	+1.0	-0.5	8.52	**8.60**	8.65	+1.0	-0.5	-	-	-	-	-
PL	4.14	**4.26**	4.18	+2.8	+1.8	4.14	**4.26**	4.18	+2.8	+1.8	-	-	-	-	-
PT	1.19	**2.20**	1.55	+85.2	+42.3	1.19	**2.20**	1.55	+85.2	+42.3	-	-	-	-	-
RO	2.61	**3.43**	2.96	+31.3	+15.8	2.61	**3.43**	2.96	+31.3	+15.8	-	-	-	-	-
SE	6.26	**5.85**	5.84	-6.5	+0.1	6.26	**5.85**	5.84	-6.5	+0.1	-	-	-	-	-
SI	5.43	**4.63**	4.78	-14.9	-3.2	5.43	**4.63**	4.78	-14.9	-3.2	-	-	-	-	-
SK	3.29	**4.05**	4.04	+23.2	+0.3	3.30	**4.03**	4.03	+22.2	+0.0	2.72	**4.42**	4.13	+62.4	+7.2
UK	6.66	**7.73**	7.66	+16.1	+1.0	6.66	**7.73**	7.66	+16.1	+1.0	-	-	-	-	-

Country	TOTAL BARLEY (t/ha)					SPRING BARLEY (t/ha)					WINTER BARLEY (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU28	4.39	**4.84**	4.39	+10.1	+10.1	3.93	**4.40**	3.83	+12.0	+15.0	5.20	**5.49**	5.25	+5.5	+4.5
AT	4.40	**5.16**	4.86	+17.3	+6.3	3.44	**4.25**	4.13	+23.4	+2.8	5.29	**5.91**	5.61	+11.6	+5.4
BE	8.21	**8.40**	8.48	+2.3	-1.0	-	-	-	-	-	8.21	**8.40**	8.48	+2.3	-1.0
BG	3.47	**3.81**	3.66	+9.8	+4.2	-	-	-	-	-	3.47	**3.81**	3.66	+9.8	+4.2
CY	1.71	**1.41**	1.65	-17.5	-14.4	-	-	-	-	-	1.71	**1.41**	1.65	-17.5	-14.4
CZ	4.23	**4.37**	4.39	+3.4	-0.4	4.31	**4.32**	4.33	+0.1	-0.3	3.98	**4.49**	4.54	+12.7	-1.1
DE	6.19	**6.40**	6.11	+3.3	+4.7	5.64	**5.31**	5.09	-5.8	+4.4	6.49	**6.72**	6.48	+3.4	+3.7
DK	5.61	**5.31**	5.32	-5.3	-0.2	5.49	**5.20**	5.17	-5.2	+0.7	6.37	**5.90**	5.94	-7.5	-0.8
EE	3.13	**2.65**	2.65	-15.2	+0.2	3.13	**2.65**	2.65	-15.2	+0.2	-	-	-	-	-
ES	2.23	**3.92**	2.74	+75.5	+43.1	2.27	**3.94**	2.80	+73.2	+40.7	2.00	**3.80**	2.41	+89.9	+57.4
FI	3.48	**3.78**	3.41	+8.6	+11.0	3.48	**3.78**	3.41	+8.6	+11.0	-	-	-	-	-
FR	6.74	**6.60**	6.48	-2.1	+1.8	6.64	**6.50**	6.23	-2.2	+4.3	6.80	**6.64**	6.60	-2.3	+0.7
GR	2.48	**2.45**	2.62	-1.3	-6.5	-	-	-	-	-	2.48	**2.45**	2.62	-1.3	-6.5
HR	4.25	**4.19**	4.03	-1.4	+4.0	-	-	-	-	-	4.25	**4.19**	4.03	-1.4	+4.0
HU	3.61	**4.13**	3.71	+14.4	+11.3	3.21	**3.47**	3.31	+7.9	+4.8	3.83	**4.39**	3.96	+14.5	+10.9
IE	5.98	**7.00**	6.82	+17.1	+2.5	5.70	**6.67**	6.54	+17.1	+2.0	7.00	**8.25**	8.34	+17.8	-1.1
IT	3.77	**3.58**	3.58	-5.0	+0.0	-	-	-	-	-	3.77	**3.58**	3.58	-5.0	+0.0
LT	3.38	**3.06**	2.98	-9.6	+2.7	3.38	**3.06**	2.98	-9.6	+2.7	-	-	-	-	-
LU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LV	2.83	**2.53**	2.56	-10.6	-1.0	2.83	**2.53**	2.56	-10.6	-1.0	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NL	5.70	**5.98**	6.02	+5.0	-0.6	5.70	**5.98**	6.02	+5.0	-0.6	-	-	-	-	-
PL	3.60	**3.55**	3.30	-1.5	+7.5	3.56	**3.36**	3.15	-5.7	+6.7	3.85	**4.09**	3.98	+6.2	+2.6
PT	1.27	**2.10**	1.63	+66.0	+29.1	-	-	-	-	-	1.27	**2.10**	1.63	+66.0	+29.1
RO	2.36	**2.99**	2.70	+26.4	+10.7	1.84	**2.17**	2.01	+17.7	+7.7	2.64	**3.38**	3.09	+28.0	+9.4
SE	4.60	**4.52**	4.36	-1.7	+3.8	4.55	**4.49**	4.32	-1.3	+4.1	6.63	**5.41**	5.41	-18.4	+0.1
SI	4.72	**4.33**	4.21	-8.2	+2.9	-	-	-	-	-	4.72	**4.33**	4.21	-8.2	+2.9
SK	3.18	**3.45**	3.49	+8.4	-1.2	3.19	**3.43**	3.48	+7.6	-1.4	3.12	**3.56**	3.59	+13.8	-1.1
UK	5.51	**5.74**	5.73	+4.1	+0.1	4.97	**5.44**	5.31	+9.5	+2.5	6.38	**6.62**	6.40	+3.9	+3.5

NON CAPISCO LA CORREZIONE

Country	GRAIN MAIZE (t/ha)					RYE (t/ha)					TRITICALE (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU28	6.05	**6.88**	6.98	+13.7	-1.5	3.72	**3.71**	3.34	-0.2	-11.2	4.17	**4.23**	4.06	+1.5	+4.3
AT	10.70	**10.86**	10.68	+1.5	+1.7	4.23	**3.73**	4.02	-11.9	-7.3	5.04	**5.02**	5.06	-0.3	-0.8
BE	10.92	**11.13**	11.77	+2.0	-5.4	-	-	-	-	-	-	-	-	-	-
BG	3.68	**6.04**	4.77	+64.1	+26.5	-	-	-	-	-	2.45	**3.07**	3.11	+25.0	-1.4
CY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CZ	7.78	**7.86**	7.82	+1.1	+0.6	4.78	**4.00**	4.50	-16.2	-11.0	4.31	**4.28**	4.26	-0.6	+0.6
DE	10.48	**9.32**	9.94	-11.0	-6.2	5.47	**5.63**	4.99	+2.8	+12.8	6.18	**6.39**	5.82	+3.4	+9.9
DK	5.82	-	5.28	-	-	5.95	**5.50**	5.30	-7.6	+3.9	5.21	**5.22**	5.13	+0.2	+1.7
EE	-	-	-	-	-	3.39	**2.84**	2.65	-16.1	+7.4	-	-	-	-	-
ES	10.83	**11.14**	10.56	+2.8	+5.4	1.60	**2.21**	1.98	+38.0	+11.9	1.76	**2.56**	2.26	+45.4	+13.6
FI	-	-	-	-	-	3.18	**2.70**	2.76	-15.0	-2.3	-	-	-	-	-
FR	8.91	**9.05**	9.19	+1.6	-1.5	5.08	**4.92**	4.93	-3.2	-0.2	5.53	**5.42**	5.40	-2.1	+0.4
GR	10.61	**10.5**	10.79	-1.0	-2.7	2.11	**2.34**	2.08	+11.0	+12.5	-	-	-	-	-
HR	4.34	**6.14**	6.46	+41.6	-5.0	-	-	-	-	-	4.18	**4.03**	3.74	-3.6	+7.9
HU	3.98	**5.34**	6.17	+34.0	-13.4	2.24	**2.59**	2.20	+15.5	+17.9	3.11	**4.06**	3.27	+30.5	+24.2
IE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IT	8.36	**8.66**	9.15	+3.6	-5.4	-	-	-	-	-	-	-	-	-	-
LT	6.11	**6.64**	5.77	+8.6	+15.1	2.80	**2.55**	2.35	-8.9	+8.6	3.65	**3.06**	2.97	-16.3	+3.0
LU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	3.42	**3.07**	3.03	-10.2	+1.2	3.70	**2.76**	2.68	-25.3	+3.2
MT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NL	11.67	**11.66**	12.00	-0.1	-2.8	-	-	-	-	-	-	-	-	-	-
PL	7.35	**6.47**	6.51	-11.9	-0.6	2.80	**2.65**	2.53	-5.4	+4.5	3.38	**3.57**	3.41	+5.7	+4.6
PT	8.32	**7.87**	7.27	-5.4	+8.2	0.93	**0.99**	0.93	+6.2	+7.0	1.15	**1.69**	1.38	+47.3	+22.6
RO	2.16	**3.95**	3.53	+82.3	+11.7	-	-	-	-	-	2.93	**3.24**	3.02	+10.5	+7.0
SE	-	-	-	-	-	6.35	**5.86**	5.82	-7.8	+0.6	5.92	**4.99**	5.03	-15.7	-0.9
SI	7.01	**6.30**	7.88	-10.1	-20.1	-	-	-	-	-	-	-	-	-	-
SK	5.51	**5.26**	6.70	-4.5	-21.4	3.15	**2.76**	2.90	-12.3	-4.8	3.08	**2.75**	3.05	-10.9	-9.9
UK	-	-	-	-	-	-	-	-	-	-	3.50	**4.06**	4.02	+16.0	+1.1

Country	RAPE AND TURNIP RAPE (t/ha)					POTATO (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU28	3.11	**3.10**	3.04	-0.4	+1.8	30.55	**31.82**	30.57	+4.1	+4.1
AT	2.67	**2.58**	3.06	-3.5	-15.9	30.55	**32.52**	32.51	+6.5	+0.0
BE	3.84	**4.02**	4.08	+4.6	-1.5	41.96	**43.51**	45.04	+3.7	-3.4
BG	2.02	**2.65**	2.33	+31.2	+13.8	10.15	**13.70**	15.10	+34.9	-9.3
CY	-	-	-	-	-	-	-	-	-	-
CZ	2.76	**3.22**	2.90	+16.8	+11.1	27.98	**28.79**	27.01	+2.9	+6.6
DE	3.69	**3.80**	3.71	+2.9	+2.4	44.76	**41.69**	43.69	-6.9	-4.6
DK	3.75	**3.48**	3.64	-7.1	-4.2	42.13	**40.60**	39.98	-3.6	+1.6
EE	1.89	**1.69**	1.59	-10.4	+6.7	-	-	-	-	-
ES	1.80	**2.11**	1.81	+17.2	+16.7	30.06	**31.36**	29.71	+4.3	+5.6
FI	1.28	**1.30**	1.36	+2.0	-3.9	23.65	**27.33**	26.37	+15.5	+3.6
FR	3.41	**3.11**	3.45	-8.7	-9.7	40.87	**41.46**	43.28	+1.4	-4.2
GR	-	-	-	-	-	23.96	**26.31**	25.30	+9.8	+4.0
HR	2.67	**2.64**	2.62	-1.2	+0.6	14.73	**15.08**	16.56	+2.4	-8.9
HU	2.46	**2.69**	**2.33**	+9.4	+15.7	23.13	**24.72**	25.46	+6.9	-2.9
IE	-	-	-	-	-	-	-	-	-	-
IT	2.38	**2.32**	2.29	-2.7	+0.9	25.43	**25.00**	24.90	-1.7	+0.4
LT	2.43	**2.20**	2.05	-9.5	+7.5	17.11	**15.82**	14.95	-7.6	+5.8
LU	-	-	-	-	-	-	-	-	-	-
LV	2.65	**2.29**	2.25	-13.7	+1.9	19.57	**17.59**	17.61	-10.1	-0.1
MT	-	-	-	-	-	-	-	-	-	-
NL	-	-	-	-	-	45.11	**43.68**	45.41	-3.2	-3.8
PL	2.59	**2.98**	2.60	+15.0	+14.5	24.24	**22.51**	21.36	-7.1	+5.4
PT	-	-	-	-	-	17.79	**16.30**	15.94	-8.4	+2.2
RO	1.60	**1.96**	1.70	+22.2	+15.2	10.76	**14.79**	14.09	+37.5	+5.0
SE	2.94	**2.80**	2.80	-4.9	-0.3	32.55	**31.52**	31.58	-3.2	-0.2
SI	-	-	-	-	-	-	-	-	-	-
SK	1.99	**2.55**	2.24	+28.3	+14.1	-	-	-	-	-
UK	3.40	**3.32**	3.47	-2.2	-4.3	35.00	**41.46**	41.45	+18.4	+0.0

Country	SUGAR BEETS (t/ha)					SUNFLOWER (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
EU28	69.64	**69.86**	69.70	+0.3	+0.2	1.68	**1.99**	1.84	+18.8	+8.3
AT	63.22	**69.38**	69.88	+9.7	-0.7	2.27	**2.51**	2.69	+10.6	-6.5
BE	78.93	**77.13**	79.44	-2.3	-2.9	-	-	-	-	-
BG	-	-	-	-	-	1.78	**2.44**	1.91	+36.8	+27.6
CY	-	-	-	-	-	-	-	-	-	-
CZ	63.26	**63.80**	59.91	+0.8	+6.5	2.31	**2.38**	2.35	+2.9	+1.0
DE	68.86	**66.67**	67.47	-3.2	-1.2	2.38	**2.08**	2.13	-12.5	-2.0
DK	64.92	**62.19**	60.52	-4.2	+2.8	-	-	-	-	-
EE	-	-	-	-	-	-	-	-	-	-
ES	88.71	**93.46**	85.60	+5.4	+9.2	0.81	**1.10**	1.10	+35.7	-0.5
FI	34.67	**40.90**	38.38	+18.0	+6.6	-	-	-	-	-
FR	86.56	**87.35**	88.58	+0.9	-1.4	2.32	**2.36**	2.42	+1.9	-2.4
GR	54.02	**61.19**	63.73	+13.3	-4.0	2.59	**2.54**	1.91	-2.1	+32.6
HR	39.11	**52.86**	51.14	+35.2	+3.4	2.68	**3.22**	2.70	+20.2	+19.1
HU	43.86	**49.92**	54.52	+13.8	-8.4	2.15	**2.29**	2.29	+6.5	-0.2
IE	-	-	-	-	-	-	-	-	-	-
IT	54.92	**53.43**	56.14	-2.7	-4.8	1.66	**2.22**	2.13	+33.6	+4.2
LT	52.24	**50.66**	46.49	-3.0	+9.0	-	-	-	-	-
LU	-	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-
NL	78.56	**76.70**	76.89	-2.4	-0.2	-	-	-	-	-
PL	58.25	**56.75**	52.94	-2.6	+7.2	-	-	-	-	-
PT	-	-	-	-	-	0.53	**0.57**	0.57	+7.5	+0.4
RO	26.93	**35.10**	34.76	+30.3	+1.0	1.37	**1.82**	1.55	+32.6	+17.5
SE	55.78	**56.14**	56.99	+0.6	-1.5	-	-	-	-	-
SI	-	-	-	-	-	-	-	-	-	-
SK	45.41	**50.37**	56.35	+10.9	-10.6	2.19	**2.13**	2.21	-2.9	-3.9
UK	70.00	**69.51**	67.72	-0.7	+2.6	-	-	-	-	-

Notes: Yields are forecast for target crops with more than 10000 ha per country
Sources: 2008-2013 data come from DG AGRICULTURE short term Outlook data (dated September 2013, received on 01/10/2013), EUROSTAT Eurobase (last update: 23/09/2013) and EES (last update: 16/09/2013)
2013 yields come from MARS CROP YIELD FORECASTING SYSTEM (CGMS output up to 10/10/2013)

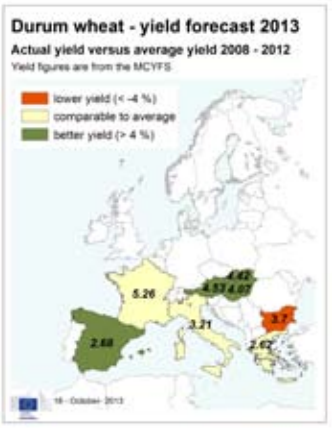
Country	WHEAT (t/ha)					BARLEY (t/ha)					GRAIN MAIZE (t/ha)				
	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs	2012	2013	Avg 5yrs	%13/12	%13/5yrs
BY	3.50	**3.59**	3.44	+2.7	+4.5	3.23	**3.31**	3.24	+2.4	+2.1	5.26	**5.92**	5.17	+12.60	+14.5
DZ	1.76	**1.72**	1.50	-2.5	+15.0	1.54	**1.65**	1.36	+7.0	+21.7	-	-	-	-	-
MA	1.24	**2.10**	1.67	+69.7	+25.2	0.63	**1.24**	1.13	+96.7	+9.5	-	-	-	-	-
TN	1.93	**1.55**	1.86	-19.5	-16.3	1.16	**0.94**	1.26	-18.6	-25.0	-	-	-	-	-
TR	2.67	**2.53**	2.52	-5.4	+0.4	2.58	**2.51**	2.42	-2.7	+3.9	7.38	**7.42**	7.23	+0.50	+2.6
UA	2.80	**3.05**	3.12	+8.9	-2.3	2.11	**2.26**	2.39	+7.1	-5.4	4.79	**5.46**	5.09	+13.90	+7.1

Notes: Yields are forecast for target crops with more than 10000 ha per country
Sources: 2008-2013 data come from FAO, PSD online, INRA Maroc, MinAGRI Tunisia and DSASIA Algeria
2013 yields come from MARS CROP YELD FORECASTING SYSTEM (CGMS output up to 10/10/2013)

Yield maps


Total wheat - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

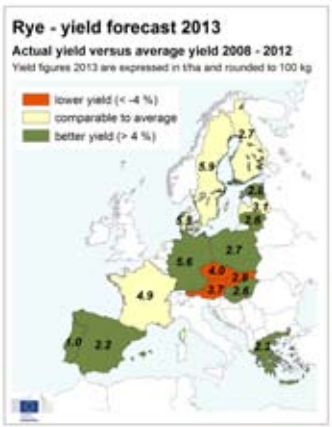

Soft wheat - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Durum wheat - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures are from the MCYFS
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Total barley - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Winter barley - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

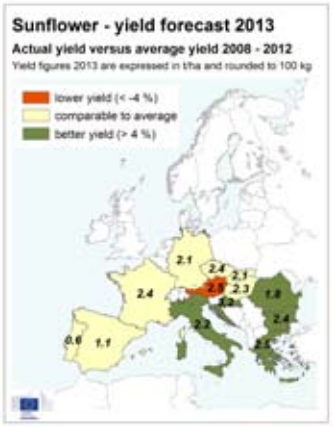

Spring barley - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

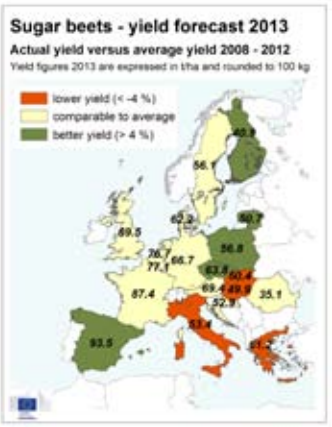

Rye - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Triticale - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Grain maize - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Rape and turnip - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures are from the MCYFS
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Sunflower - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

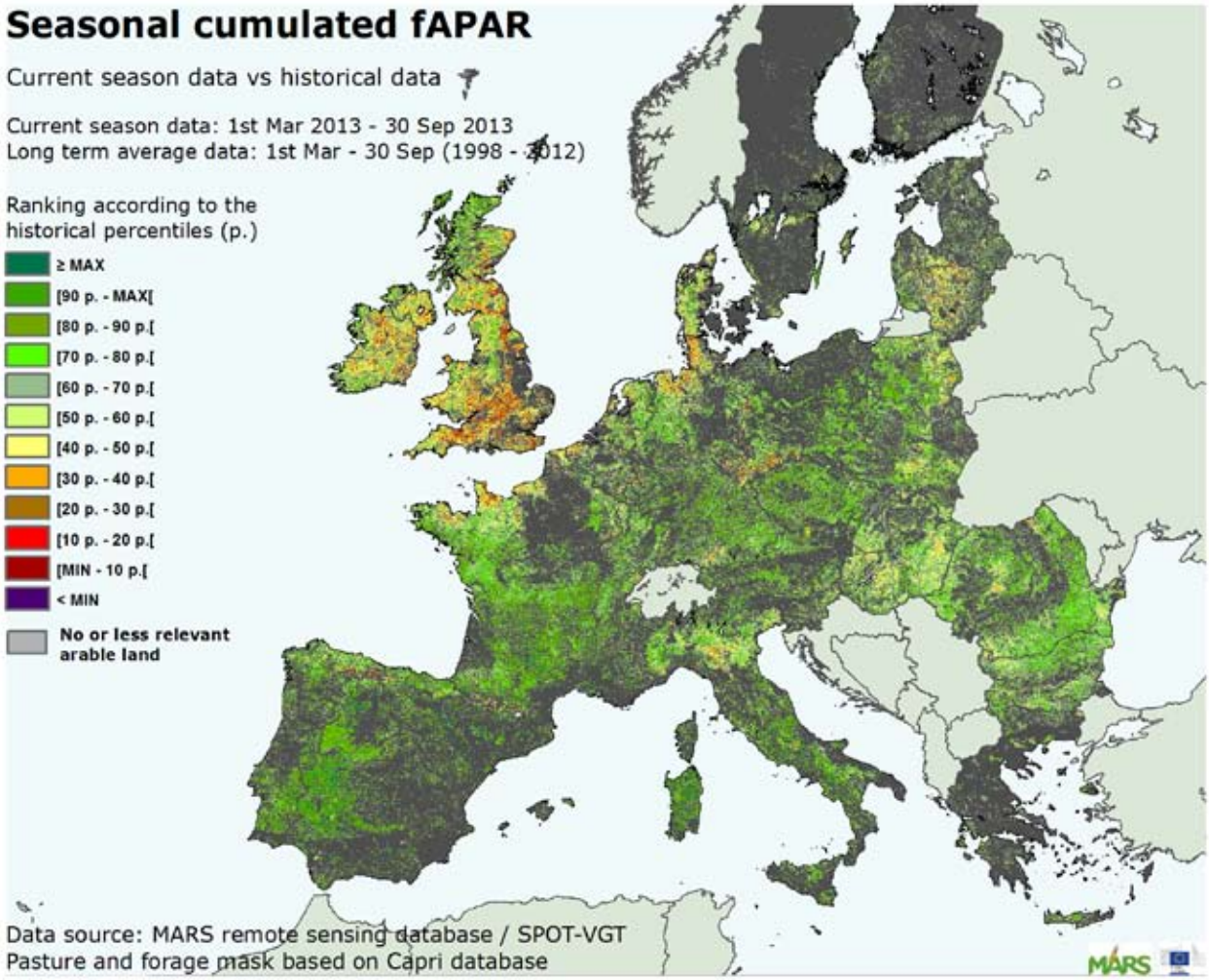

Sugar beets - yield forecast 2013
Actual yield versus average yield 2008 - 2012
Yield figures 2013 are expressed in t/ha and rounded to 100 kg
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

5. Pastures in Europe

Favourable season in central and southern Europe, but low biomass accumulation in the north

The north of Europe experienced a very cold start of the season. Air temperatures below average during March and April constrained green biomass formation in grassland regions of the UK, Ireland, the Benelux and northern France.

In central and southern Europe, by contrast, the season was quite satisfactory, thanks to abundant rainfall received during late winter and spring, boosting the growth of pastures and fodder maize.



Good biomass production levels in most Mediterranean countries

In **Spain** and **Portugal**, production levels in the *Dehesa* area (eastern Spain and Portugal) strongly benefited from intense precipitation and mild temperatures during spring. Green biomass formation, as seen from satellite imagery, reached the highest levels observed in the past 15 years. By contrast, in the Cantabrian basin of the *Asturia* region, the season was average; grassland development was delayed due to cold temperatures until spring, but the production of biomass recovered during June and July.

The season was positive in central and southern **Italy**. Pasture areas in *Toscana*, *Basilicata* and *Campania* presented high biomass production levels throughout the growing season thanks to temperatures above the long-term average (LTA) and abundant rainfall, especially at the beginning of summer. However, fodder maize areas in northern Italy (especially *Lombardia*) suffered significant delays (of up to one month) in crop development as a consequence of cold and overly wet conditions at the beginning of spring that considerably limited yield potentials.

Adverse spring weather conditions limited growth in western Europe

Cold temperatures in March and April determined low biomass production levels in the **UK** and **Ireland** during the current season. These adverse weather conditions led to a significant delay in crop development (more than three weeks) compared to an average year, strongly limiting biomass formation at the beginning of the growing season. The situation improved considerably during summer, with a general increase of temperatures from July, permitting a partial recovery of grasslands. Similar conditions were observed in the **Benelux** and northern France in the regions of *Bretagne* and *Normandie*, where the overall results for the 2013 season are slightly below average. In the rest of France, by contrast, the biomass accumulation was substantially above that of an average year. Most of the main producing regions (*Rhone-Alpes*, *Midi-Pyrenees*, *Auvergne*, *Limousin*) exhibit very high production levels from June onwards, favoured by abundant rainfall, and temperatures that were close to the long term average.

Favourable season in central Europe

Abundant rainfall and average temperatures during spring and early summer permitted high production levels in the grasslands of **Slovakia**, the **Czech Republic**, **Austria** and *Bayern* in **Germany**. Overall, the season has been quite positive, as biomass formation exceeded seasonal values during most of the spring and at the end of summer, despite of a brief episode of water stress during the second half of July that limited vegetative growth.

By contrast, in northern **Germany** the adverse weather conditions during the start of the growing season, with daily average temperatures lower than 5°C until mid-April, strongly limited pasture growth. Therefore, biomass formation in grasslands up to the end of June was significantly below an average year. Biomass production levels gradually recovered during the summer period and at the end of the season, biomass availability on grasslands slightly exceeded the seasonal values.

Biomass formation boosted in eastern Europe during summer

The season was positive for **Poland**, **Lithuania**, **Latvia** and **Estonia**. After an unfavourable start of the season with temperatures below LTA, a general increase in temperatures registered from June onwards boosted biomass formation, leading to a full recovery of production levels at the beginning of summer. Sufficient rainfall and mild temperatures in July and August allowed for a further increase of biomass accumulation, which, by the end of the season, was substantially above that of an average year.

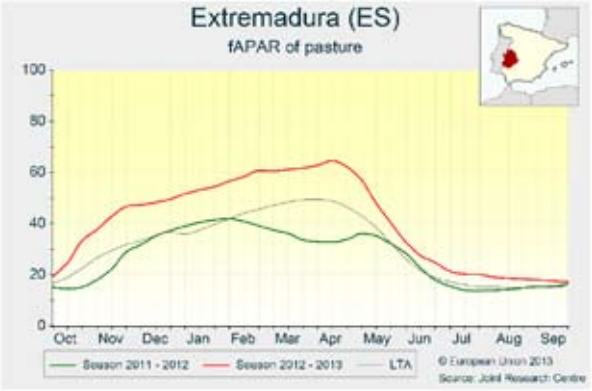
Contrasting conditions in northern Europe

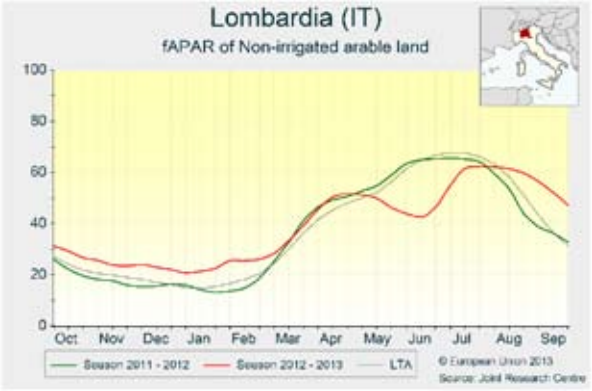
Biomass production levels were above average during the entire growing season in grassland regions of **Sweden** and **Finland**. Temperatures above LTA from mid-April led to a rapid growth of pastures, reaching high biomass formation levels at the beginning of summer. Weather conditions remained positive during the summer months, allowing the high levels of biomass accumulation to be maintained.

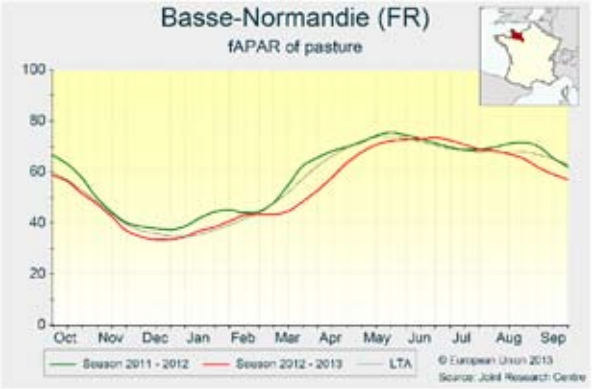
In **Denmark**, weather conditions were quite negative at the beginning of the growing season: cold temperatures strongly limited pasture development up to the end of spring, producing a delay of about two weeks in phenological development. During summer, however, temperatures were slightly above LTA, leading to improved biomass formation during the second half of the season. Biomass accumulation from July onwards was substantially above that of an average year, so that the overall season can be considered positive.

High production levels in south east Europe

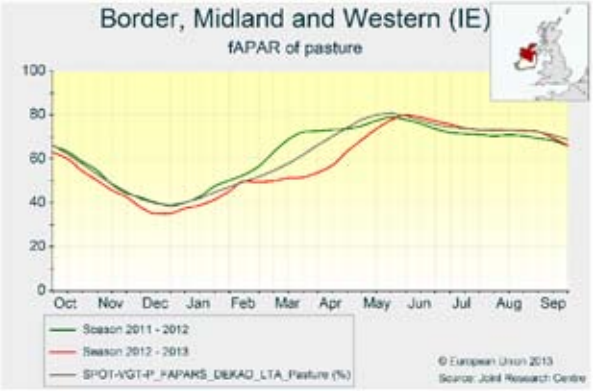
Weather conditions were rather positive during most of the growing season in **Romania** with mild temperatures and abundant rainfall in spring that led to a rapid development of pastures at the early phenological stages. Precipitation accumulation at the beginning of summer was substantially higher than LTA, which permitted the formation of biomass to be maintained at above-average levels. A dry spell during August decreased the vegetative vigour of grasslands and fodder maize, especially in central and western regions. Nevertheless, the season can be still considered positive.

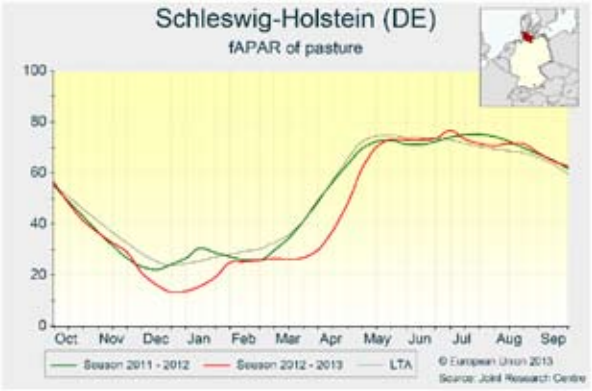

Extremadura (ES)
fAPAR of pasture
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre

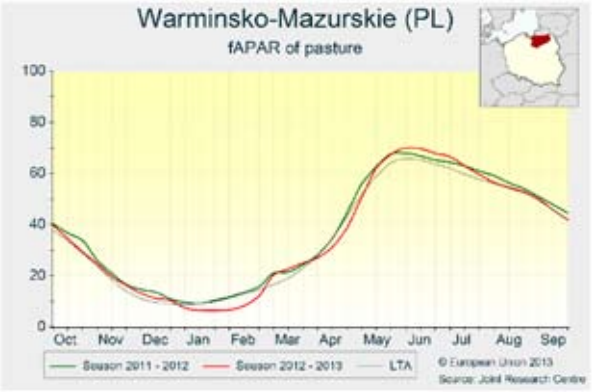

Lombardia (IT)
fAPAR of Non-irrigated arable land
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre

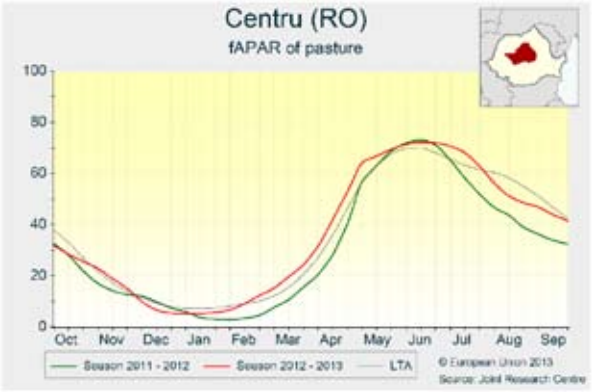

Basse-Normandie (FR)
fAPAR of pasture
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Shropshire and Staffordshire (UK
fAPAR of pasture
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Border, Midland and Western (IE)
fAPAR of pasture
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
SPOT-VGT-P_FAPARS_DEKAD_LTA_Pasture (%)
© European Union 2013
Source: Joint Research Centre


Schleswig-Holstein (DE)
fAPAR of pasture
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Warminsko-Mazurskie (PL)
fAPAR of pasture
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre


Centru (RO)
fAPAR of pasture
100
80
60
40
20
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2011 - 2012
Season 2012 - 2013
LTA
© European Union 2013
Source: Joint Research Centre

6. Rice analysis – regional analysis

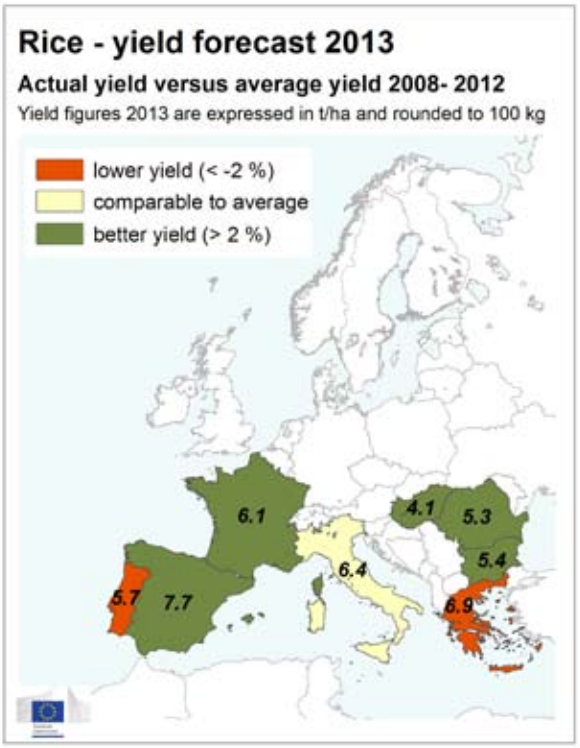
Slightly above-average yields expected for the main EU rice producers

Overall, the EU rice yield forecast is about 1.2% above the five-year average, yet 0.4% below last year's figure. In Italy, the largest rice-producing country of the EU, yields are expected to be similar to last year and to the five-year average. Countries with a forecast above-average are Hungary, Bulgaria, Romania and France, followed by Spain. Below-average yields are forecast for Greece, due to the strong persistence of blast infection; and, to a minor degree, Portugal.

EU-28 Rice yield forecasts as of 18 October 2013

Country	Yield t/ha				
	2012*	MARS 2013 forecasts	Avg 5yrs	%13/12	%13/5yrs
EU28	6.67	**6.64**	6.56	-0.4	+1.2
BG	5.55	**5.42**	5.12	-2.4	+5.9
ES	7.76	**7.73**	7.45	-0.4	+3.7
FR	5.94	**6.08**	5.81	+2.4	+4.8
GR	7.13	**6.88**	7.35	-3.5	-6.4
HU	3.60	**4.07**	3.64	+12.9	+11.6
IT	6.42	**6.38**	6.35	-0.6	+0.4
PT	6.00	**5.66**	5.82	-5.6	-2.8
RO	5.15	**5.34**	5.13	+3.6	+4.0

Sources: 2008-2013 data come from EUROSTAT Eurobase (last update: 23/09/2013) and EES (last update: 16/09/2013)
2013 yields come from MARS CROP YIELD FORECASTING SYSTEM (BioMA-WARM output up to10/10/2013)

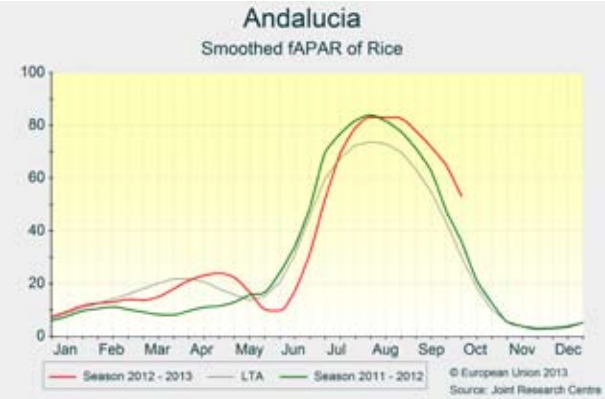


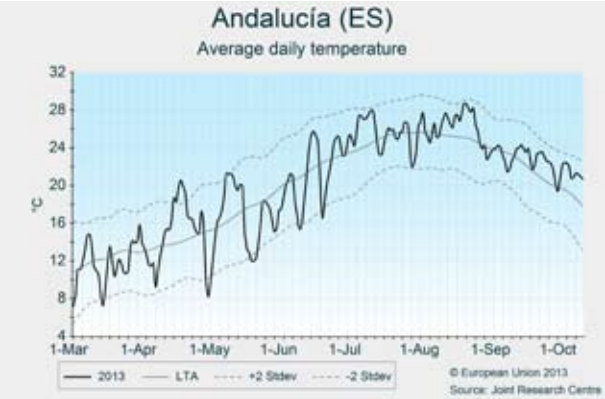
Country analysis

Spain

Above-average yields expected

The favourable meteorological conditions since the start of the growing season (in May) in the main rice-producing areas of Spain (i.e., Cataluña, Valenciana, Andalucia and Extremadura) continued during the current reporting period. The weather indicators under analysis, such as cumulated global radiation and active temperatures above 0°C were above long-term average. Rainfall has been well-distributed throughout the growing season, ensuring the availability of irrigation water. Simulated crop growth indicators such as total biomass accumulation, storage organ biomass, leaf area index (canopy development), as well as an above-average fAPAR (a satellite-based indicator of green canopy) are indicative of good yields. Therefore, the final yield forecast is revised upward compared to the previous bulletin and is now similar to that of last year and above the five-year average.

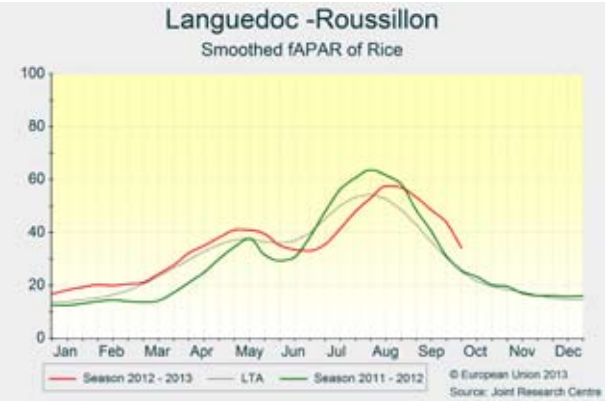


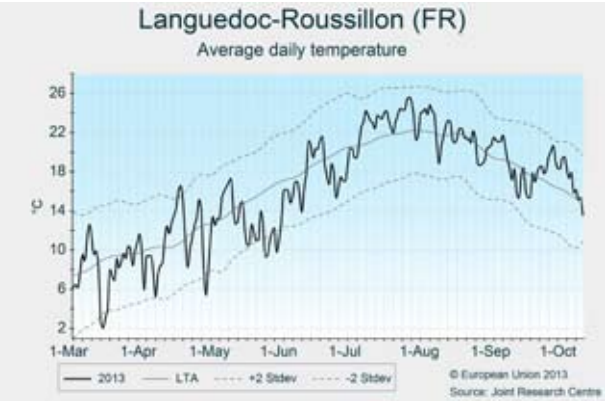


France

Above-average forecast revised further upwards

After a period of delayed growth due to low temperatures during the initial phase of the growing season in March, the crop has finally recovered and crop development is now advanced compared to the five-year average. Conducive thermal conditions, above-average radiation and abundant, well-distributed rainfall in the main rice producing areas in France (i.e. Languedoc-Roussillon and Provence-Alpes - Côte d'Azur) have resulted in good canopy development and yield formation as indicated by our crop simulations, thus suggesting a high yield potential. Good crop growth is also evident from above-average fAPAR values. The model calculations also suggest a very low risk of fungal infection on the basis of humidity and air temperature. Under this scenario, the forecast was revised upwards from the last bulletin and continues to be above the long-term average.

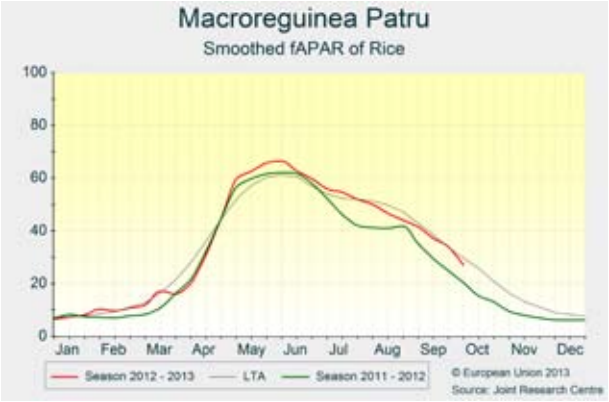


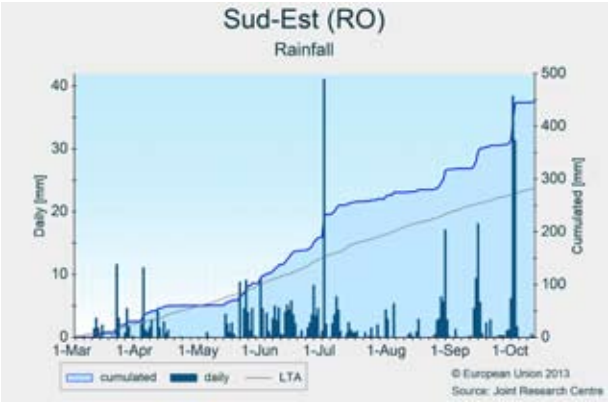


Romania

Good yields expected

After a cold spell in the first dekad of April especially in south-east Romania, meteorological determinants such as air temperature, radiation, precipitation and rainfall distribution were all favourable for rice growth and development, which can be corroborated in fAPAR graphs. The simulated leaf area index, total biomass production and biomass accumulated in storage organs are also above-average. As in the previous bulletin analysis, the model predicts a very low risk of fungal infection. Hence, the yield forecast was revised upwards and continues to be above the five-year average.

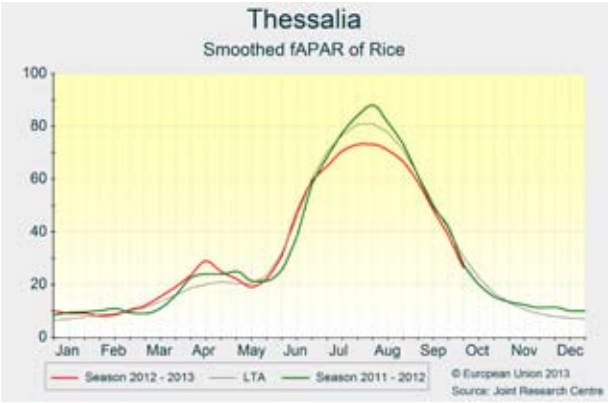


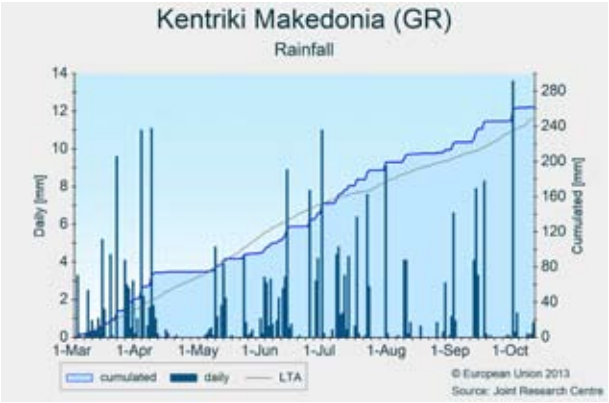


Greece

Below-average yields expected due to high risk of infection

Despite the abundant rainfall received, favourable temperatures and high solar radiation during the current review period, the forecast for rice yield is further revised down below the five-year average due to the strong persistence of blast infection, as inferred from our model calculations that indicate a very high number of high infection risk days (see crop indicator graph), as a consequence of warm and humid weather conditions. Below-average biomass accumulation is also reflected by the low fAPAR values as inferred from satellite images, which could also be related to blast infection.

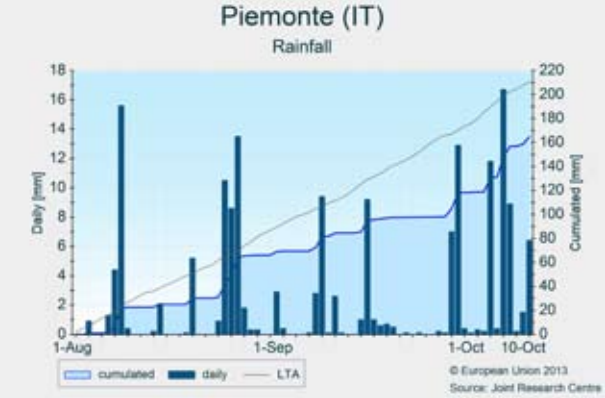


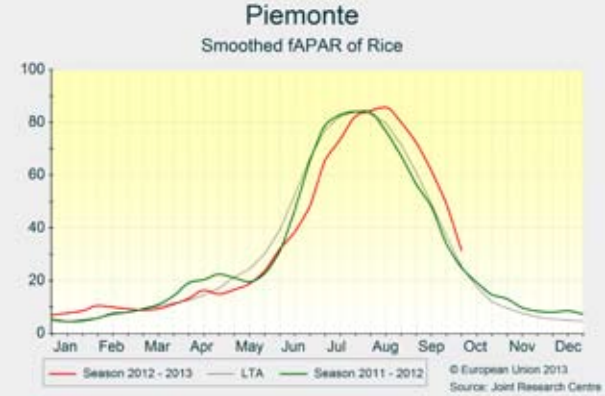


Italy

Yield forecast revised slightly downwards, but remains near average

Predominantly dry and warm summer conditions in Piemonte and Lombardia limited the number of days with a high risk of blast infections, which were mainly associated with the rainfall recorded during the end of August (especially in Piemonte). According to our model, this has not affected accumulated biomass, which indeed shows values around the average. Good canopy expansion, despite a delay in crop development mainly caused by late sowing and cold spring conditions, is also confirmed by the NDVI and fAPAR profiles. In Piemonte and Lombardia the harvest is currently ongoing with a delay of about 10 days. Heavy rainfall during the beginning of October caused some additional delay, mainly in Lombardia. In accordance with our model results, the yield forecast was revised slightly downwards, but remains close to the five-year average.

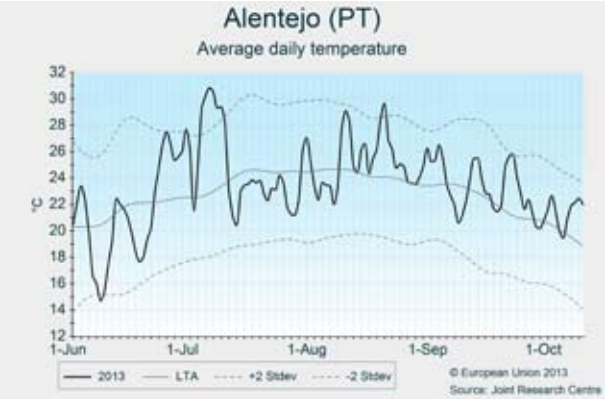




Portugal

Crop growth conditions around the average

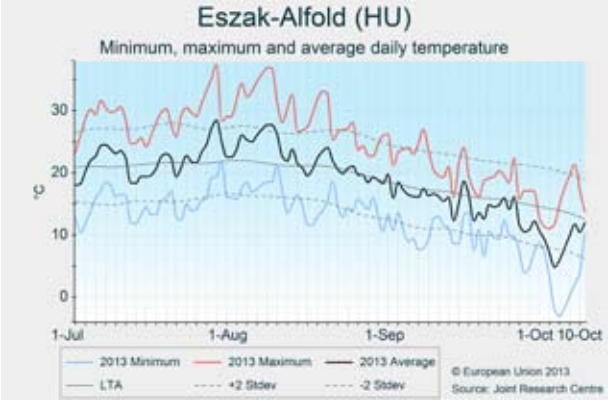
The previously reported delay in crop development due to below-average temperatures until June has now been fully compensated thanks to the warm summer, as confirmed by fAPAR profiles. The dry and warm summer months showed only a limited number of days with a high risk of blast infections. Simulated crop growth indicators as well as above-average NDVI values indicate a fairly good potential yield. Therefore the yield forecast is close to the average of the past five years.

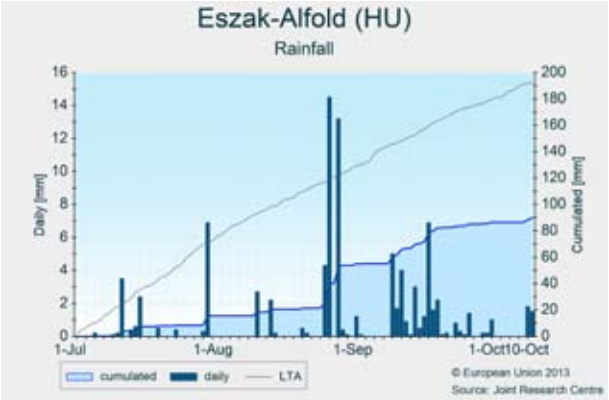


Hungary

Good yields expected

Dry and warm summer conditions limited the number of days with a high risk of blast infections. Model simulations suggest normal crop development and above-average accumulation of total biomass and biomass in storage organs. In accordance with our model results, the yield forecast was revised slightly upwards.

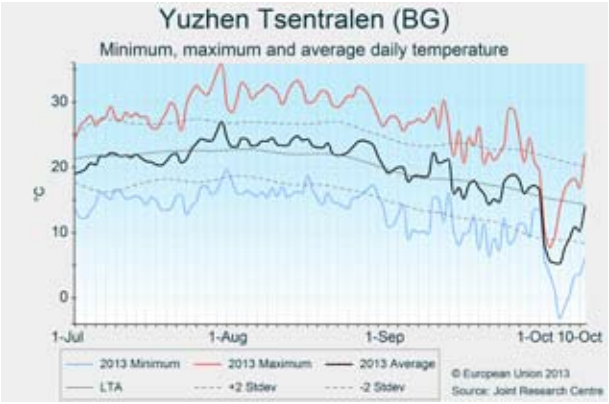


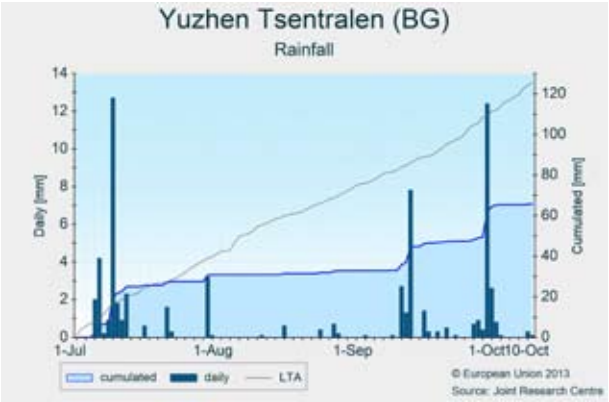


Bulgaria

Yield expectations remain above average

The hot conditions and dry spell during August and the beginning of September could have affected potential yields in Bulgaria. Nevertheless, our model calculations, considering the season as a whole, still suggest above-average total biomass accumulation and biomass in storage organs; and slightly advanced phenological development. The risk of fungal infection was very low. The yield expectation has been revised slightly downwards, but remains above the five-year average.





Yield Storage for Rice
Spain - Andalucia
2013 2012 Ita +/- 2 St.Dev
kg/ha
Dekad

Leaf Area Index for Rice
France - Mediterranee
2013 2012 Ita +/- 2 St.Dev
m2/m2

Leaf Area Index for Rice
Romania
2013 2012 Ita +/- 2 St.Dev
m2/m2
Dekad

Days With High Infection Risks for Rice
Greece - Kentriki Makedonia
2013 2012 Ita +/- 2 St.Dev

Days With High Infection Risks for Rice
Italy - Piemonte
2013 2012 Ita +/- 2 St.Dev
Dekad

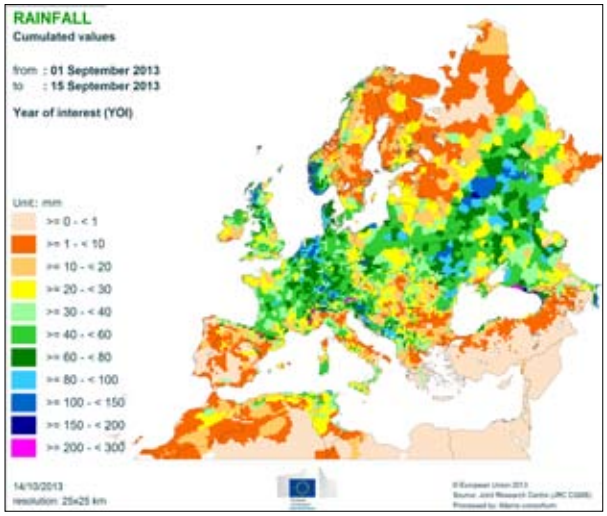
Leaf Area Index for Rice
Portugal - Alentejo
2013 2012 Ita +/- 2 St.Dev
m2/m2
Dekad

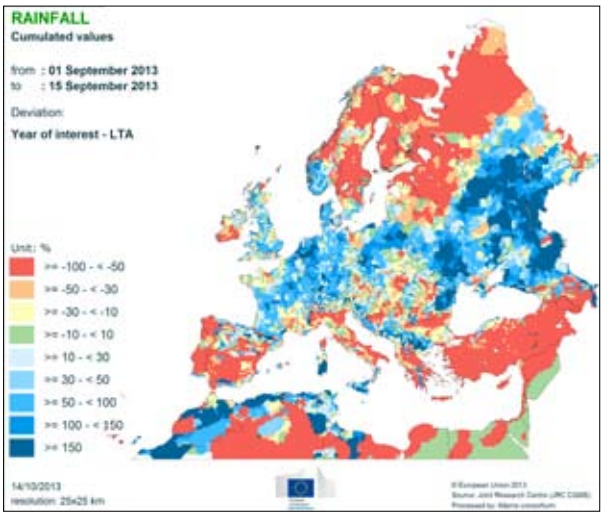
Leaf Area Index for Rice
Hungary
2013 2012 Ita +/- 2 St.Dev
m2/m2
Dekad

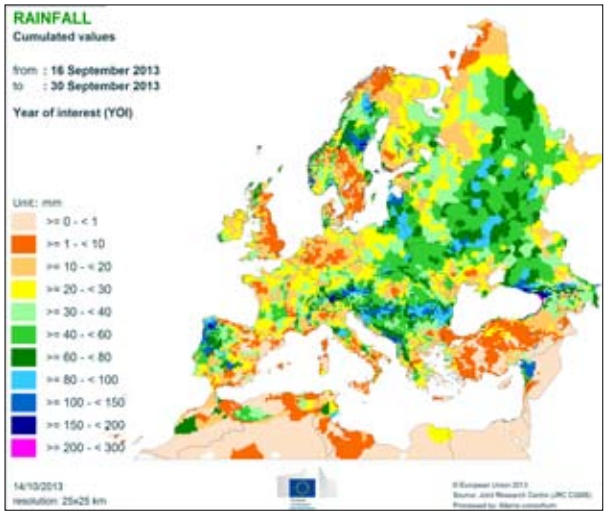
Leaf Area Index for Rice
Bulgaria
2013 2012 Ita +/- 2 St.Dev
m2/m2
Dekad

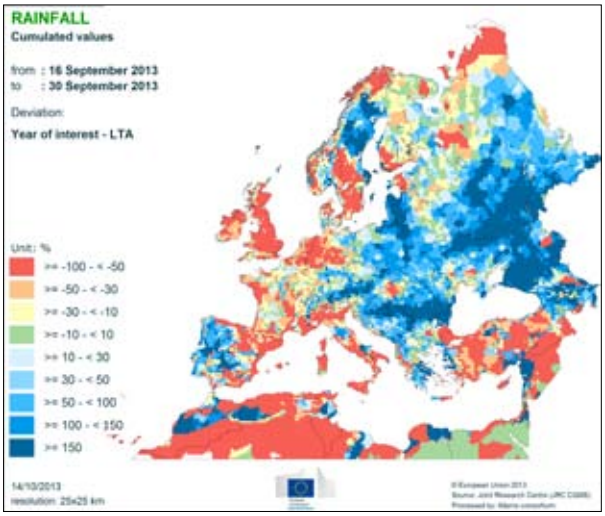
7. Atlas maps

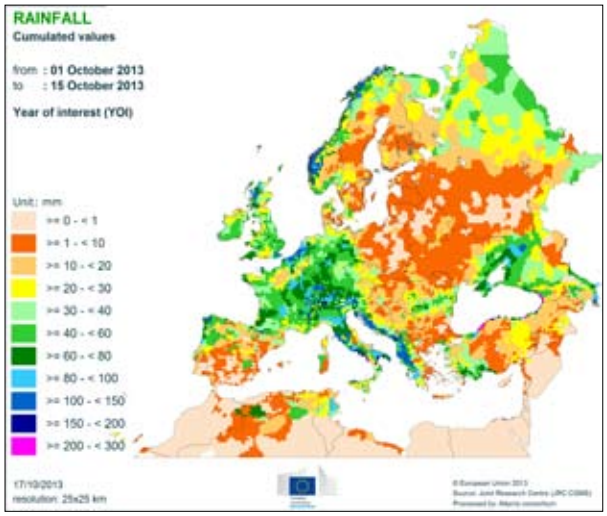
Precipitation

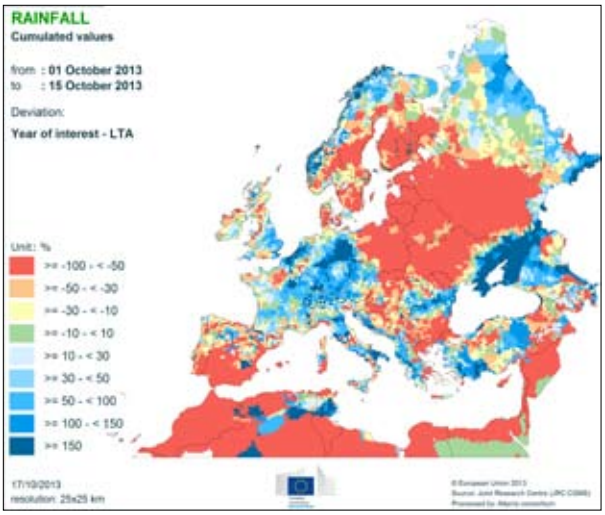




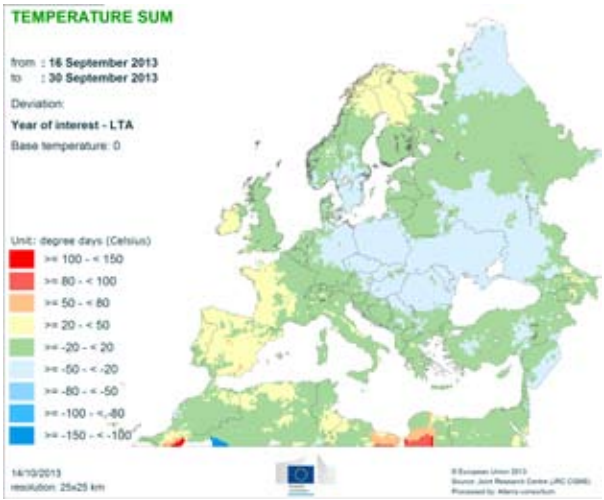


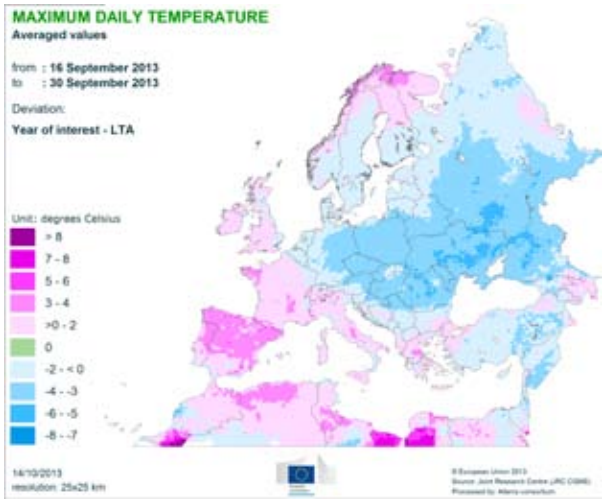


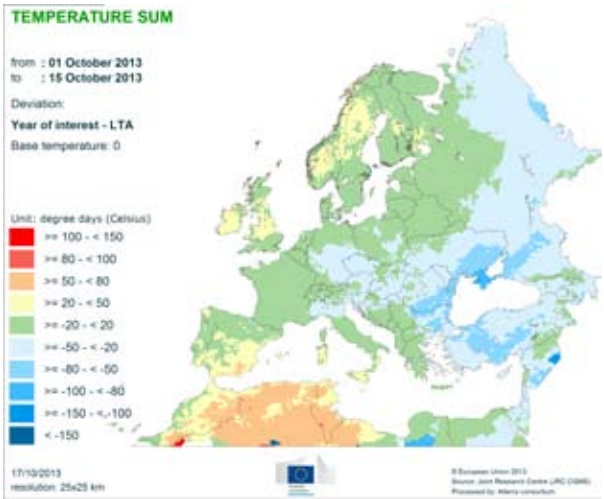


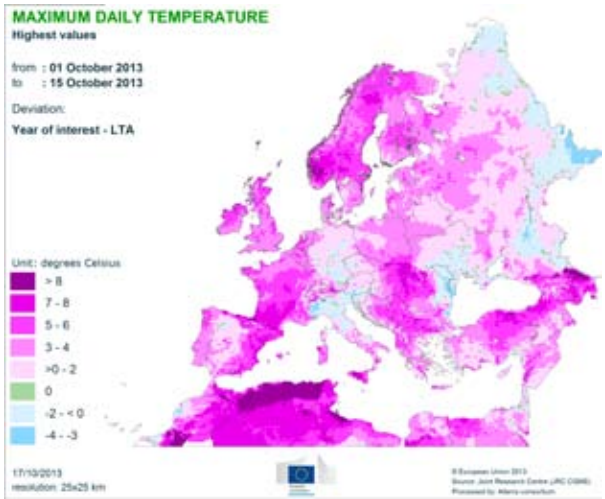


Temperatures

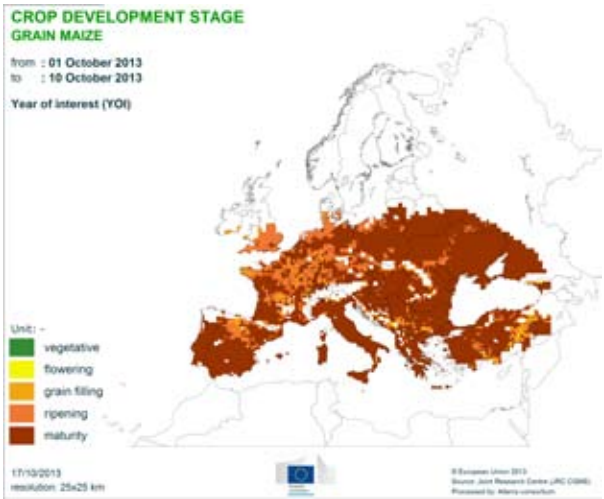


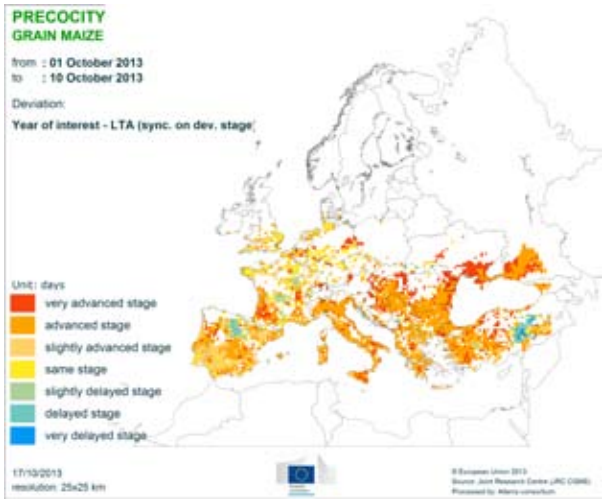






Maize crop





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2013 MARS Bulletins

Date	Publication	Reference
21 Jan	Agromet. analysis	Vol. 21 No. 1
25 Feb	Agromet. analysis	Vol. 21 No. 2
25 Mar	Agromet. analysis and yield forecast	Vol. 21 No. 3
22 Apr	Agromet. analysis, remote sensing analysis, and yield forecast	Vol. 21 No.4
21 May	Agromet. analysis, remote sensing analysis, and yield forecast, pasture analysis	Vol. 21 No. 5
17 Jun	Agromet. analysis, remote sensing analysis, and yield forecast, pasture update	Vol. 21 No. 6
22 Jul	Agromet. analysis, remote sensing analysis, and yield forecast, pasture update, rice analysis	Vol. 21 No. 7
26 Aug	Agromet. analysis and yield forecast, pasture update	Vol. 21 No. 8
16 Sep	Agromet. analysis, remote sensing analysis and yield forecast, pasture update	Vol. 21 No. 9
21 Oct	Agromet. analysis, remote sensing analysis and yield forecast, pasture analysis, rice analysis	Vol. 21 No. 10
25 Nov	Agromet. analysis, campaign review and yield forecast	Vol. 21 No. 11
16 Dec	Agromet. analysis	Vol. 21 No. 12

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Analysis and reports
B. Baruth, I. Biavetti, A. Bussay, A. Ceglar, O. Chukaliev, G. Duveiller, G. Fontana, S. Garcia Condado, S. Karetsos, R. Lecerf, R. Lopez, L. Seguini, A. Srivastava, M. Van den Berg.

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G. Mulhern

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B. Baruth, M. Van den Berg, S. Niemeyer

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Contact
JRC–IES-MARS / AGRI4CAST Action
info-agri4cast@jrc.ec.europa.eu

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Technical note:
The long term average (LTA) used within this Bulletin as a reference is based on an archive of data covering 1975-2012.

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