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European Commission

25th Anniversary

JRC MARS Bulletin
Crop monitoring in Europe
September 2017

Outlook for summer crops now above average

Harvesting of winter crops hampered in northern Europe

Favourable conditions prevailed in most of France, Germany and the Benelux countries. In Mediterranean regions and eastern Europe, heatwaves and low precipitation continued until the end of August. The drought in the Iberian Peninsula is still ongoing and some limitations to irrigation have occurred in western Spain and northern Portugal, with negative impacts on summer crops. In the United Kingdom, Ireland, Sweden, Poland and the Baltic countries, the harvest of winter crops has been hampered by frequent and abundant rain, with impacts on grain quality and locally significant damage to crops.

On balance, at the EU-28 level, the forecast for grain maize was revised slightly further upwards, as the upward revision of forecast yields in France and Romania more than compensated for the downward revision for Spain, Portugal, Bulgaria, Slovakia, Poland, Slovenia and Croatia. The yield forecast for sunflower is now clearly above the five-year average, mainly thanks to the significant upward revision for Romania. The forecast for sugar beet was also revised upwards and is now also clearly above the five-year average, as the upward revision for Germany and Poland largely outweighed the downward revision for Spain, Romania and Austria. The EU-level yield forecast for potato remained practically stable.

Content:

1. Agro-meteorological overview
2. Observed canopy conditions by remote sensing
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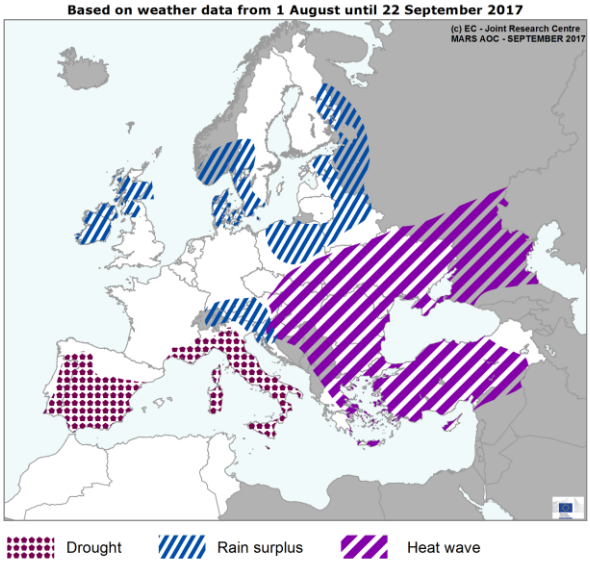
5. Pasture monitoring
6. Atlas

Covers the period from 1 August until 10 September

AREAS OF CONCERN - EXTREME WEATHER EVENTS

Based on weather data from 1 August until 22 September 2017



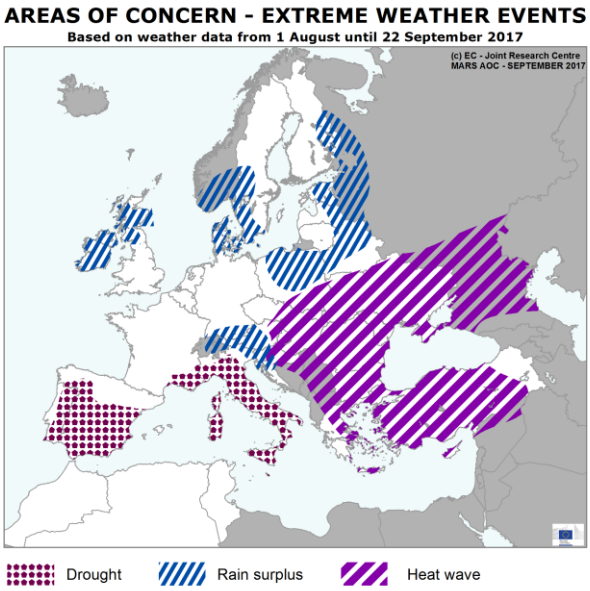
Crop	Yield (t/ha)				
	Avg 5yrs	August Bulletin	MARS 2017 forecasts	% Diff 17/5yrs	% Diff August
TOTAL CEREALS	5.30	5.29	**5.30**	-0.1	+0.2
Total Wheat	5.60	5.61	**5.62**	+0.3	+0.2
soft wheat	5.84	5.85	**5.86**	+0.4	+0.2
durum wheat	3.33	3.44	**3.44**	+3.2	+0.0
Total Barley	4.83	4.74	**4.73**	-2.1	-0.2
spring barley	4.22	3.97	**3.95**	-6.5	-0.5
winter barley	5.68	5.73	**5.73**	+1.0	+0.0
Grain maize	6.89	6.93	**6.99**	+1.4	+0.9
Rye	3.89	3.81	**3.83**	-1.5	+0.5
Triticale	4.20	4.20	**4.19**	-0.3	-0.2
Rape and turnip rape	3.24	3.27	**3.25**	+0.4	-0.6
Potato	32.6	33.3	**33.4**	+2.5	+0.4
Sugar beet	72.1	74.7	**76.9**	+6.6	+2.9
Sunflower	1.94	2.07	**2.11**	+8.5	+1.9

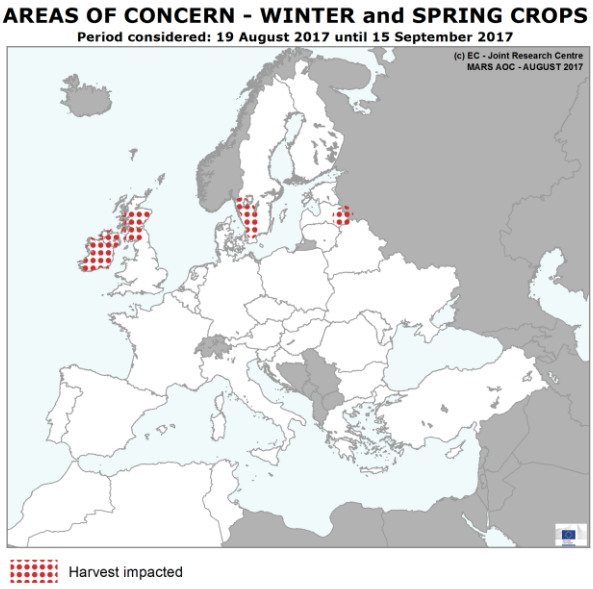
Issued: 15 September 2017

Joint Research Centre

1. Agro-meteorological overview

1.1 Areas of concern

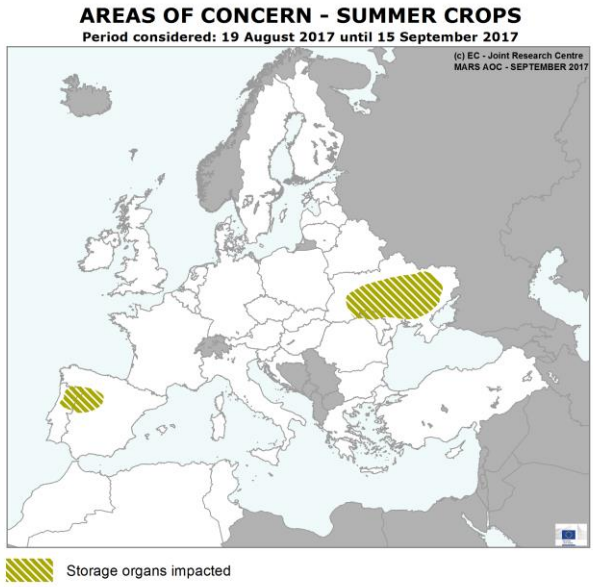




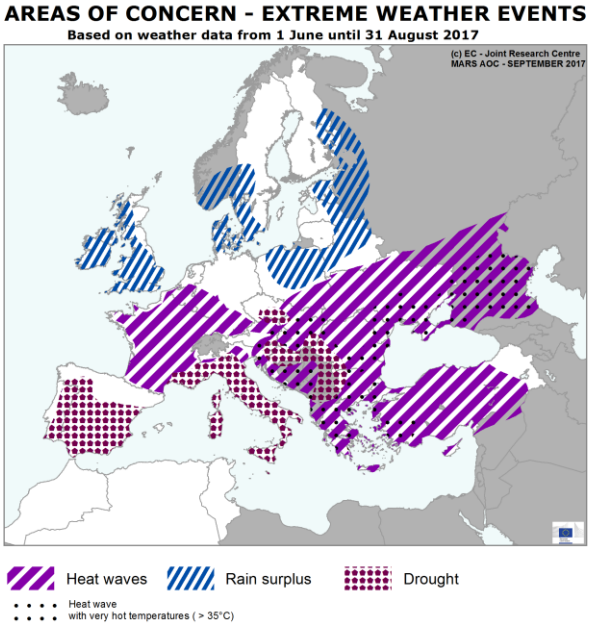
In Mediterranean regions and eastern Europe, heat waves and low precipitation continued until the end of August, as shown in the areas of concern maps above. Concerns for summer crops (Italy, Hungary, Romania and Bulgaria) and winter crops (Denmark, United Kingdom) that have already been reported in the August bulletin are not mapped again. The drought in the Iberian Peninsula is still ongoing. Water for irrigation has been sufficient in most of the country but limitations occurred in western Spain and northern Portugal, and summer crops are negatively affected at the end of the grain-filling period.

In the United Kingdom, Ireland and Sweden, the winter and spring crops cycle ended in August but harvest activities were hampered by frequent and abundant rain, with impacts on grain quality. In the Baltic countries, abundant rains occurred in August, with flood events in eastern Latvia that may have compromised the harvest.

In Ukraine, the heat wave, and associated dry conditions, continued throughout August and affected summer crops. In southern France, Italy, Romania, Bulgaria, Greece and Turkey, two to four heat waves have occurred since the beginning of August, of decreasing length and intensity, which generally accelerated the phenological development of summer crops. The latest heat waves occurred when crops had already entered into maturity, so they had marginal effect on final yields.



1.2 Summer 2017 (June, July and August)



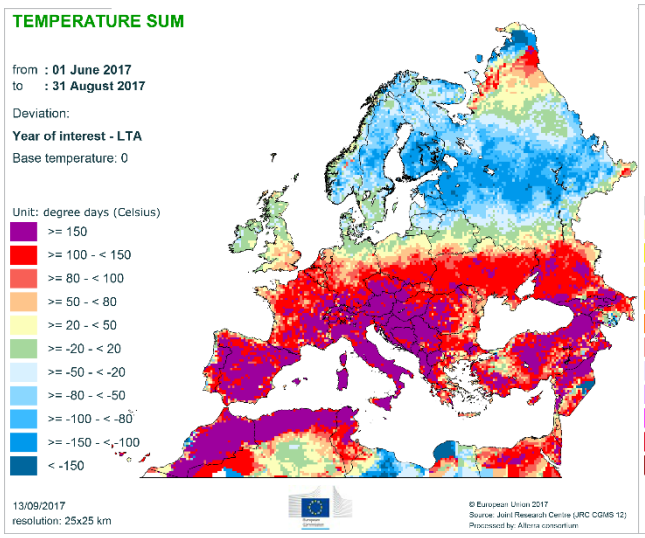
A pronounced warm-weather anomaly characterised the summer in south-western Europe, Italy, the Balkans and parts of central Europe. Temperature anomalies generally ranged between 1 °C and 4 °C above the long-term summer average. The active temperature sum exceeded the long-term average for more than 150 growing degree days, which significantly accelerated crop development. Summer temperatures have been among the warmest on record in Portugal, Spain, Italy and the western Balkans.

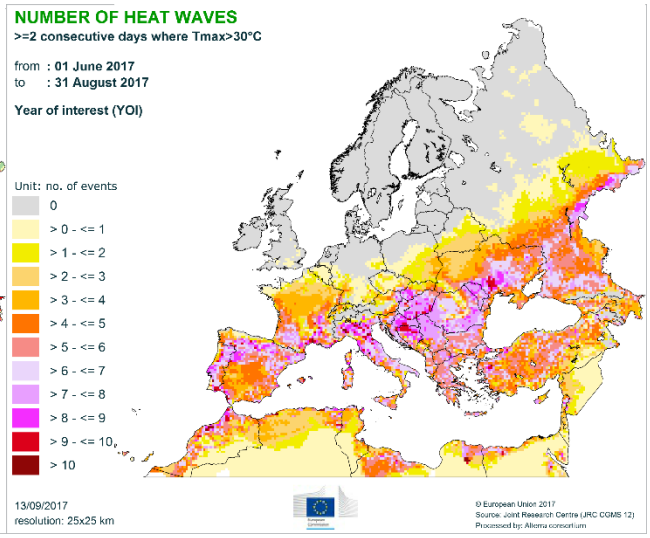
A series of heatwaves affected the Iberian Peninsula, south-eastern France, Italy, most of the Balkan Peninsula, Hungary, Austria, the Czech Republic, Slovakia, Ukraine, Turkey and southern Russia. Maximum recorded temperatures ranged from 35 °C to 38 °C in France, several regions in central Europe, Ukraine and the central part of European Russia; maximum temperatures in the central Balkans, Italy, the southern half of the Iberian Peninsula, certain regions in Turkey and the southern part of European Russia approached or even exceeded 40 °C. The number of hot days with maximum daily temperatures above 30 °C exceeded the long-term seasonal values for roughly 30 days (and regionally even more) in the northern half of the Iberian Peninsula, Italy, south-eastern France and the western Balkans. Several heatwave occurrences coincided with sensitive development stages of summer crops, constraining yields especially in parts of central Europe (the Czech Republic, Slovakia, Hungary, Austria) and the western Balkans. Heatwaves also affected Benelux and northern France in the second half of June, with maximum temperatures reaching well above 33 °C in the most affected areas.

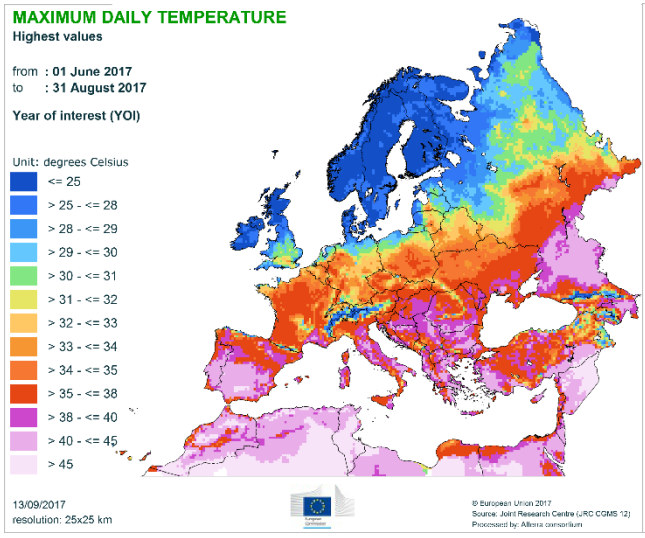
Considering the reproductive part of the winter-crop-growing season, the cumulative climatic water balance from late spring to mid-summer showed a considerable deficit compared with the long-term average for all regions in northern France, Belgium and Luxembourg. This was due to a combination of significantly below-average rainfall and above-average temperatures. The exceptionally high temperatures recorded since the beginning of June have greatly increased evapotranspiration in these regions. Hot and dry summer meteorological conditions intensified drought in the western half of the Iberian Peninsula. Drought also affected the southern part of the Czech Republic, north-eastern Austria, western Slovakia, Hungary, Italy, the western Balkan region and eastern Ukraine.

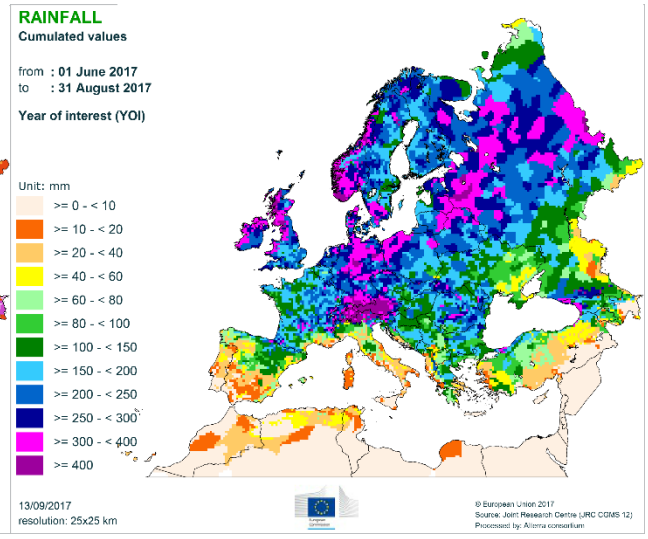
A significant precipitation deficit has been recorded since the beginning of the summer in the western half of the Iberian Peninsula, south-eastern France, Italy, major parts of the western Balkans, eastern Ukraine, eastern Turkey and in certain regions in southern European Russia. In many of these regions, precipitation was less than half of the long-term summer average. Most of the western and southern Iberian Peninsula, southern Italy and eastern Turkey saw less than 40 mm of summer rainfall. Southern Portugal, large parts of southern Spain, southern Italy and the western Balkan coast remained completely dry. The summer precipitation deficit has worsened growing conditions for non-irrigated summer crops.

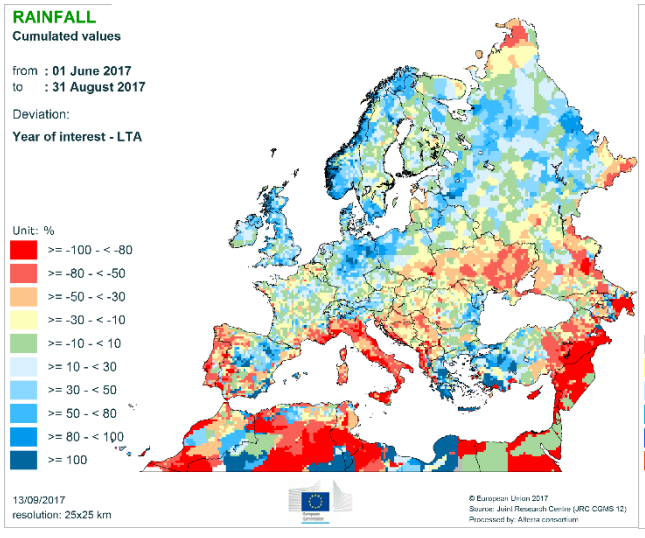
A significant precipitation surplus was recorded in the British Isles, northern Germany, northern Poland, large parts of Scandinavia and northern European Russia.

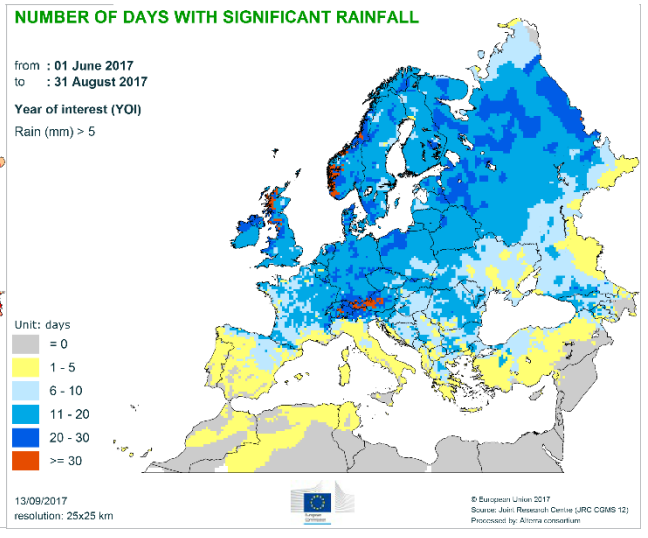

TEMPERATURE SUM
from : 01 June 2017
to : 31 August 2017
Deviation:
Year of interest - LTA
Base temperature: 0
Unit: degree days (Celsius)
>= 150
>= 100 - < 150
>= 80 - < 100
>= 50 - < 80
>= 20 - < 50
>= -20 - < 20
>= -50 - < -20
>= -80 - < -50
>= -100 - < -80
>= -150 - < -100
< -150
13/09/2017
resolution: 25x25 km
© European Union 2017
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium


NUMBER OF HEAT WAVES
>=2 consecutive days where Tmax>30°C
from : 01 June 2017
to : 31 August 2017
Year of interest (YOI)
Unit: no. of events
0
> 0 - <= 1
> 1 - <= 2
> 2 - <= 3
> 3 - <= 4
> 4 - <= 5
> 5 - <= 6
> 6 - <= 7
> 7 - <= 8
> 8 - <= 9
> 9 - <= 10
> 10
13/09/2017
resolution: 25x25 km
© European Union 2017
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium


MAXIMUM DAILY TEMPERATURE
Highest values
from : 01 June 2017
to : 31 August 2017
Year of interest (YOI)
Unit: degrees Celsius
<= 25
> 25 - <= 28
> 28 - <= 29
> 29 - <= 30
> 30 - <= 31
> 31 - <= 32
> 32 - <= 33
> 33 - <= 34
> 34 - <= 35
> 35 - <= 38
> 38 - <= 40
> 40 - <= 45
> 45
13/09/2017
resolution: 25x25 km
© European Union 2017
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium


RAINFALL
Cumulated values
from : 01 June 2017
to : 31 August 2017
Year of interest (YOI)
Unit: mm
>= 0 - < 10
>= 10 - < 20
>= 20 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150 - < 200
>= 200 - < 250
>= 250 - < 300
>= 300 - < 400
>= 400
13/09/2017
resolution: 25x25 km
© European Union 2017
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium


RAINFALL
Cumulated values
from : 01 June 2017
to : 31 August 2017
Deviation:
Year of interest - LTA
Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100
13/09/2017
resolution: 25x25 km
© European Union 2017
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 June 2017
to : 31 August 2017
Year of interest (YOI)
Rain (mm) > 5
Unit: days
= 0
1 - 5
6 - 10
11 - 20
20 - 30
>= 30
13/09/2017
resolution: 25x25 km
© European Union 2017
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

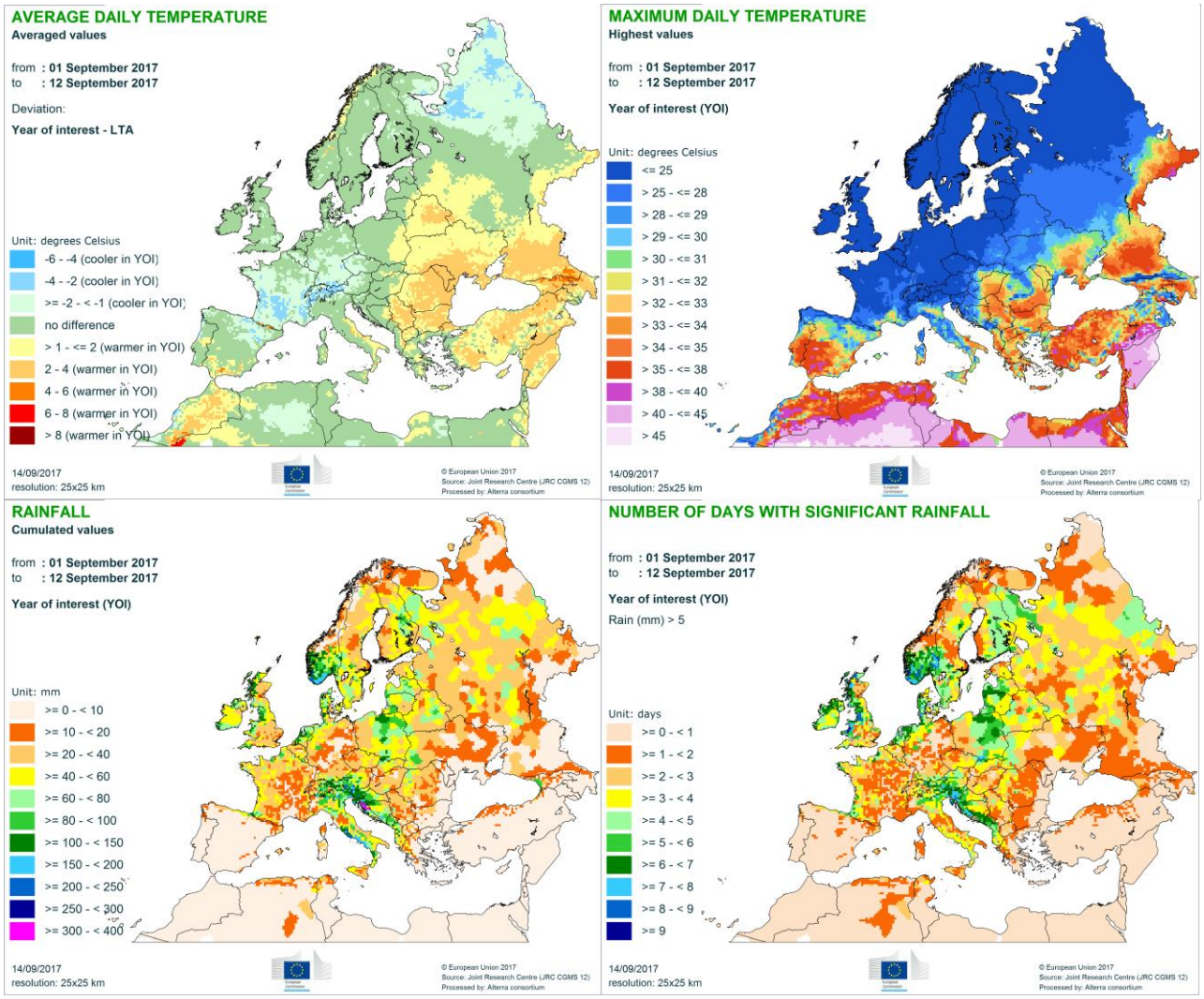
1.3. Meteorological review (1 August – 12 September)

September started with warmer-than-usual weather in regions surrounding the Black Sea, with temperature anomalies mainly confined between 2 °C and 4 °C above the long-term-average. A heatwave with maximum daily temperatures well above 30 °C affected major agricultural areas of Romania, Bulgaria, the central Balkans, eastern Hungary, the southern part of European Russia, the southern half of the Iberian Peninsula and western Turkey.

Colder-than-usual weather has characterised France, northern Spain, the Alpine regions and north-eastern Europe.

Dry conditions prevailed in the Iberian Peninsula, southern France, central Germany, the Black Sea regions and Turkey.

Abundant precipitation has occurred on the western coast of Italy and in the north-western Balkans, with regional precipitation cumulatively exceeding 100 mm.



1.4 Weather forecast (15 – 22. September)

A broad slowly evolving trough will extend from the North Atlantic towards western Europe and then central and north-eastern Europe. It will favour north/north-westerly flow over the Iberian Peninsula and France, and south-westerly flow over Italy, the Balkans and eastern Europe.

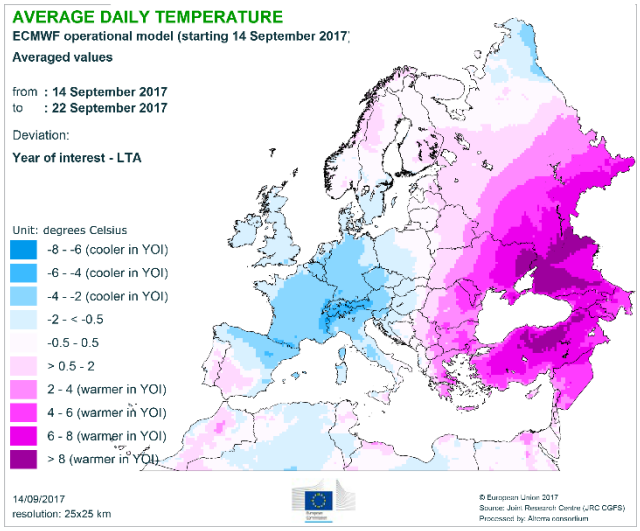
Colder-than-usual weather conditions will be observed in most of western and central Europe, except for the south-western part of the Iberian Peninsula. Mean daily temperature anomalies (w.r.t. the long-term average) will be mainly comprised between -4 °C and -2 °C. In the British Isles, moderate negative temperature anomalies will range from -0.5 °C to 2 °C.

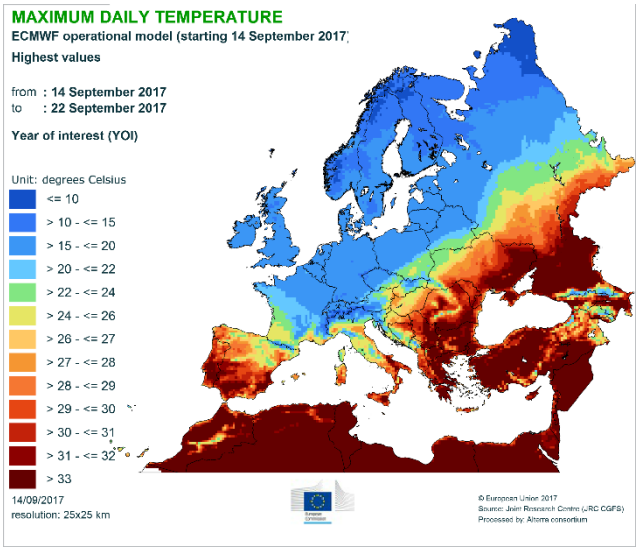
Warmer-than-usual weather conditions are forecast mainly over south-eastern Europe, Turkey and southern Russia, with mean daily temperature anomalies (w.r.t. the long-term average) ranging between 2 °C and 8 °C. Locally in Turkey and Russia, the anomalies will exceed 8 °C.

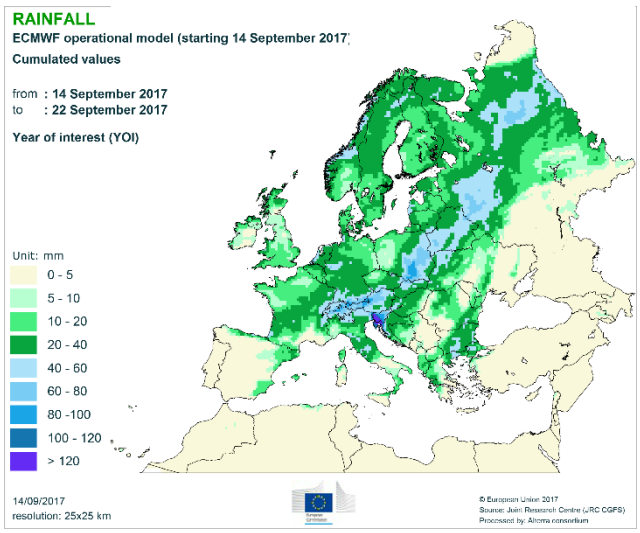
Dry conditions will prevail in the Iberian Peninsula, large areas in south-eastern Europe, Turkey and southern Russia.

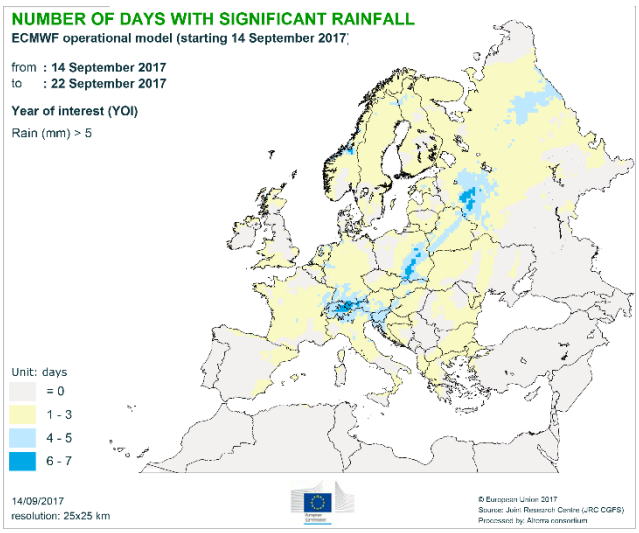
Precipitation above 40 mm are predicted in the Alpine region, Slovenia and Croatia, large areas in Poland, Belarus and Russia. In Slovenia and Croatia cumulated values will exceed 120 mm.

The long-range weather forecast for October-November-December shows very likely warmer-than-usual conditions in the western and central Mediterranean region. Precipitation in the Iberian Peninsula is likely to be lower-than-usual, while higher-than-usual precipitation is likely in central Europe.

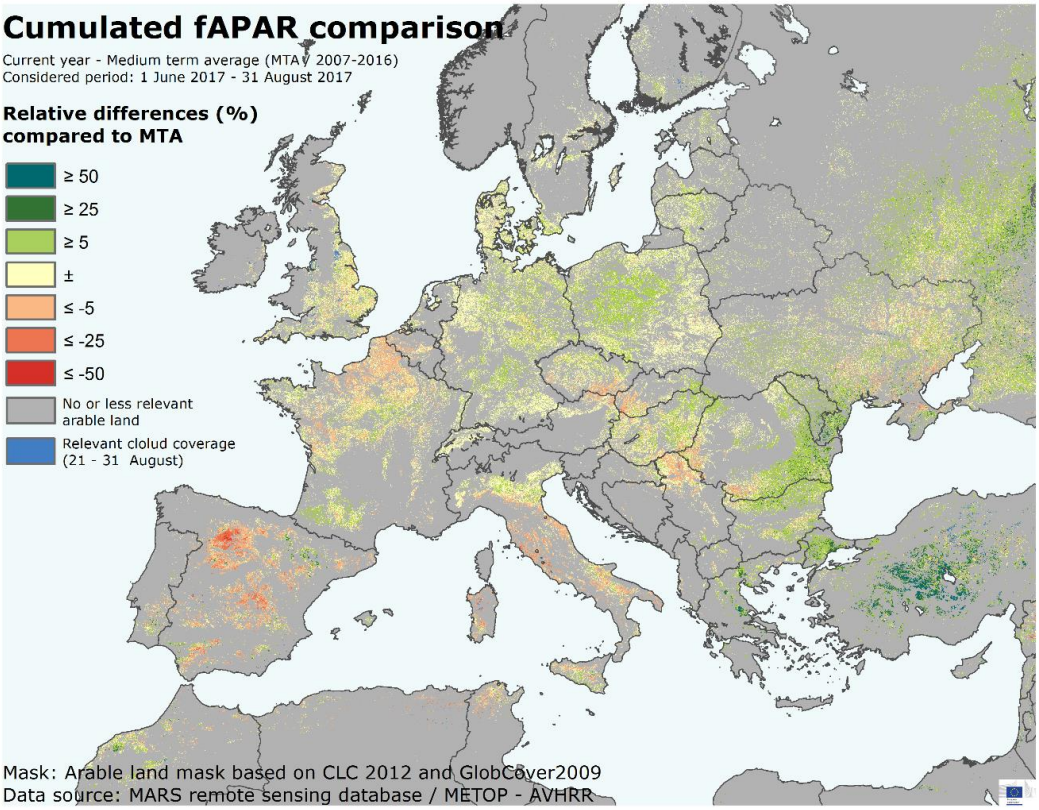








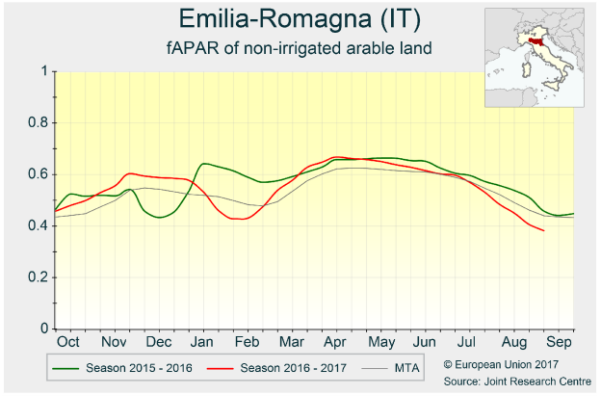
2. Remote sensing – observed canopy conditions

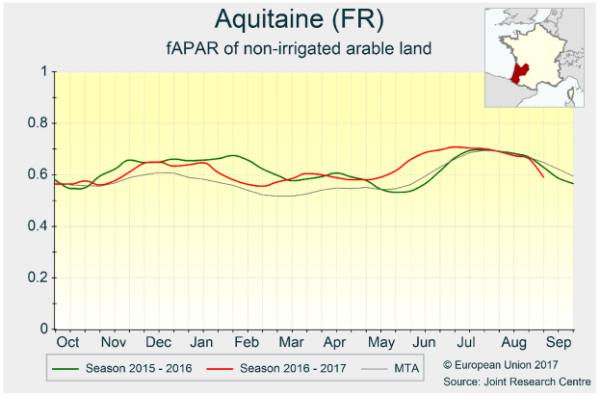


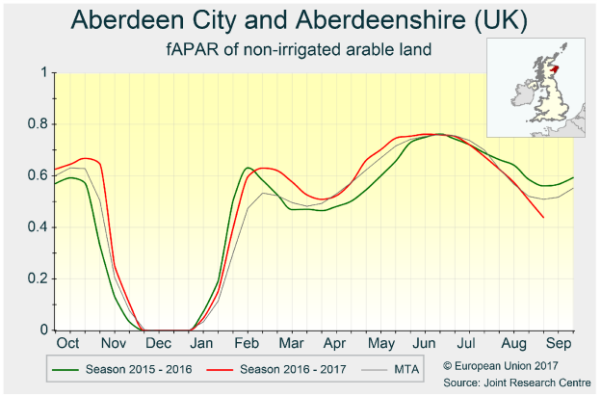
The map displays the differences between the fraction of absorbed photosynthetically active radiation (fAPAR) from 1 June to 31 August 2017, and the medium-term average (MTA, 2007-2016) for the same period. Positive anomalies (in green) reflect above-average biomass accumulation or delayed crop development, while negative anomalies (in red) reflect below-average biomass accumulation or advanced crop development.

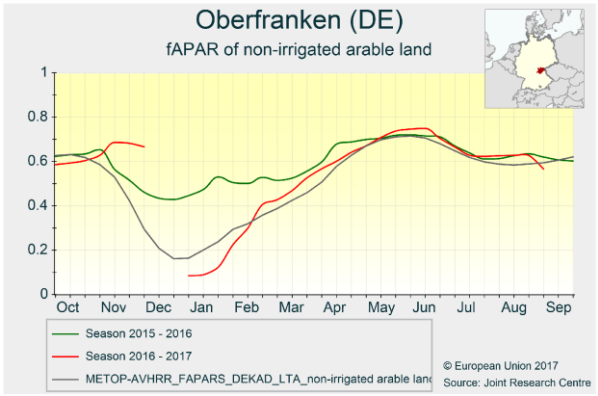
The map summarises the growing conditions throughout Europe since June. In **Spain** are visible, in green and yellow, the irrigated regions where maize that has now reached maturity had average-to-good biomass accumulation. In red are the regions that suffered from spring and summer drought. In **Italy**, the low fraction of absorbed photosynthetically active radiation (fAPAR) values in the central regions are a consequence of the drought that lasted until the end of August, which drastically reduced (non-irrigated) summer crop yields. In the Po valley, where most crops are irrigated, fAPAR anomalies reflect average biomass accumulation, but fAPAR profiles (e.g. *Emilia Romagna*) display accelerated development — triggered by the hot temperature conditions — that led to a shortening of the grain-filling period and to an early senescence. In **France**, the north-eastern regions present an early end of the maize season: the rains of mid-August slightly slowed the early senescence, but crops entered into maturity at the end of August, which is earlier than usual. In north-western France, the negative anomalies displayed in the map are due to the early end of the winter crops season. In southern France, where leaf area expansion was average or above average, maize is now approaching maturity in line with normal development (e.g. *Aquitanie*). In the **United Kingdom,** the season for winter crops and spring cereals ended early, at the beginning of August, with the exception of Scotland, where crop development has been close to average (e.g. *Aberdeenshire*). In **Germany**, the rain deficit at the beginning of summer was compensated for during August by well-distributed rains and warmer-than-usual temperatures, which have been favourable for the final stages of summer crops development (e.g. *Oberfranken*). In **Poland**, the warm and dry period of the first 15 days of August did speed up summer crops development, but results were still slightly delayed, with average-to-good biomass accumulation. However, in southern-eastern Poland, the situation appears to be less favourable, as the dry conditions may have shortened the grain-filling period and led to early ripening (e.g. *Podarpackie*). In central Europe (**Austria**, **Slovakia**, **Czech Republic**, **western Hungary** and **western Romania**)

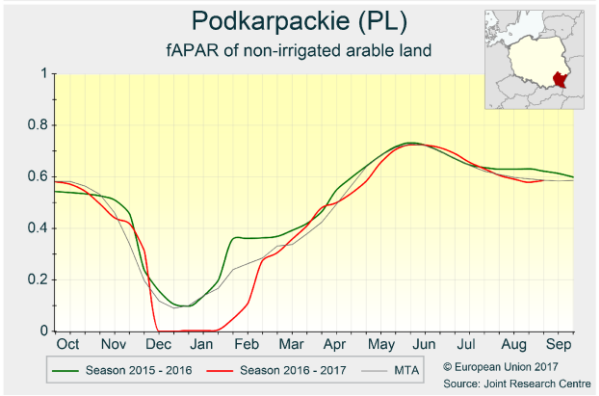
the summer drought affected summer crops, as reflected in below-average biomass accumulation and early leaf senescence (e.g. *Nyugat-Dunantul*). In **Romania** and **Bulgaria,** most of the summer-crops-growing regions present favourable-to-optimal biomass accumulation (e.g. *Severoiztochen*). Even though phenological development is slightly delayed — maturity occurred around the end of August — yield expectations are very positive. In **Ukraine**, August was dry and hot, especially in central regions, where maize presents a shortening of the grain-filling period (e.g. *Poltavs'ka*). In central **Turkey**, the strong positive fAPAR anomaly displayed is due to the considerable delay in the winter cereal season, which ended in July.

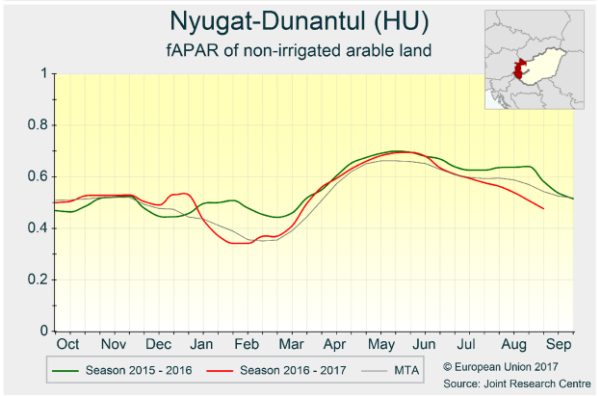


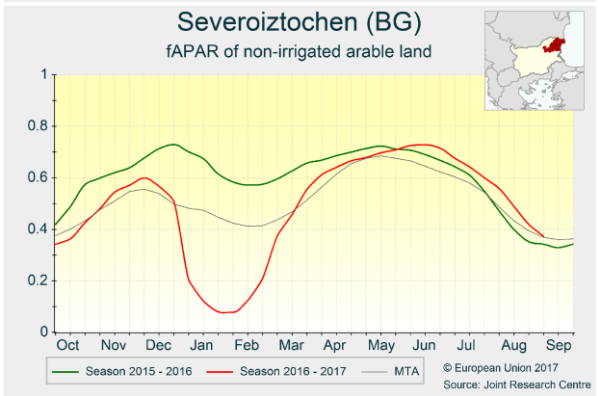


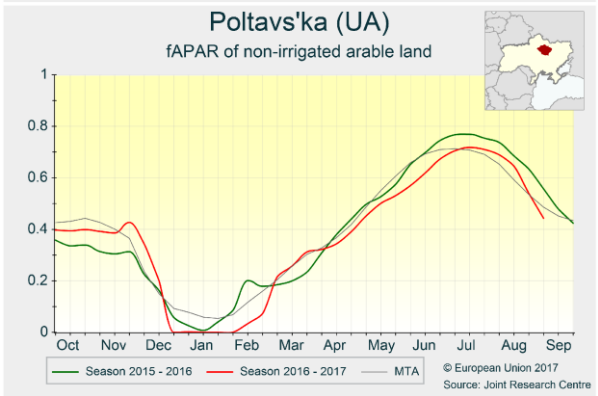












3. Country analysis

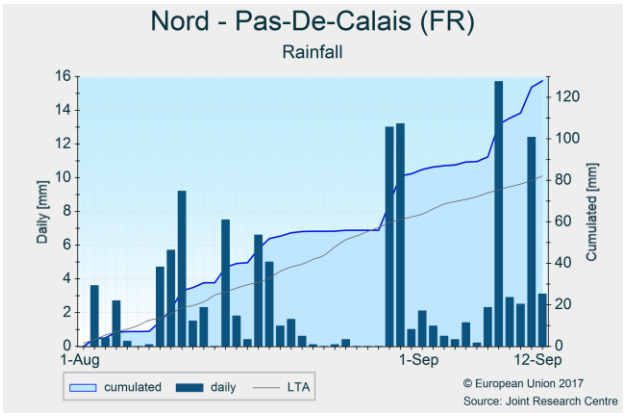
3.1 European Union

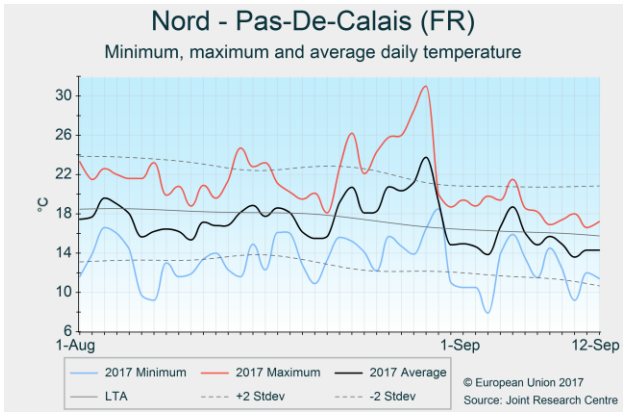
France

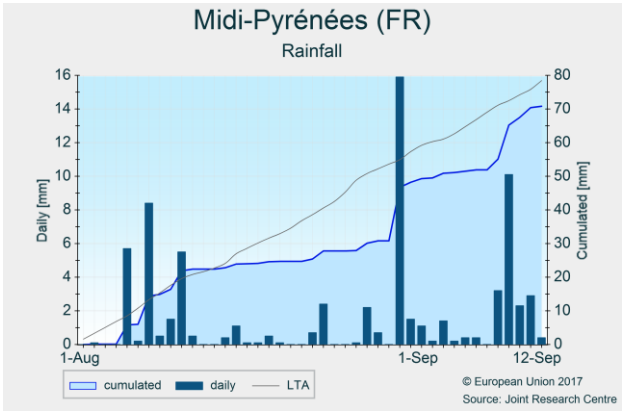
Positive outlook for summer crops

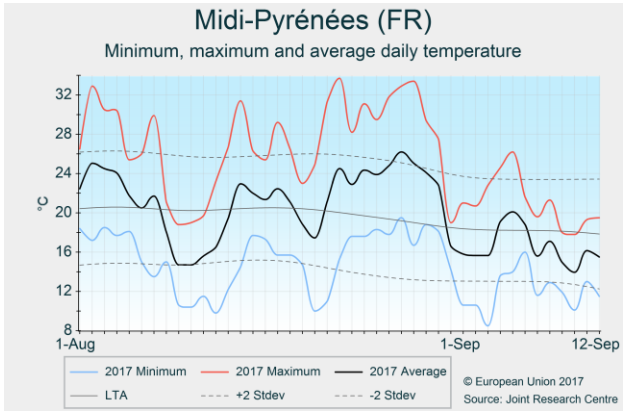
While the season started with raised concerns due to dry conditions and warm temperatures, summer crops have benefited from close-to-average rainfall since May, and temperatures returned to average at the end of July. Rainfall has been beneficial and yields of grain maize, green maize, sunflower, sugar beet and potato are forecast to be above average.

After a warm beginning to summer accelerated the development of summer crops, temperatures decreased and returned to average during the last dekad of July, particularly in the north, where only the last dekad of August was warmer than average. In the south, temperatures varied largely around the average, but no exceptionally hot temperatures have been observed for the current period of analysis. Since the beginning of August, a positive rainfall anomaly has been observed in the north-western regions and cumulative rainfall is below average only in the south-east, more specifically in *Languedoc-Roussillon*. Irrigation restrictions are still ongoing in large parts of the country as the groundwater level remains low, but the average rainfall recorded since the beginning of May in most regions ensured sufficient water supply for crops. In the north, sugar beet and potato benefited from the substantial rainfall observed for the period of analysis, while the close-to-average temperatures were beneficial for the development of tubers. Grain maize and green maize also benefited from the average rainfall that has been recorded since May, and the only concerns are the irrigation restrictions that were ongoing this summer, limiting to an extent yields of irrigated grain maize. Sunflower also benefited from the meteorological conditions observed and yields are also forecast to be above average.









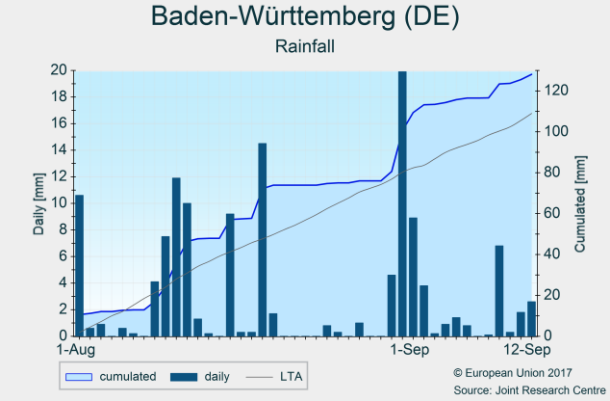
Germany

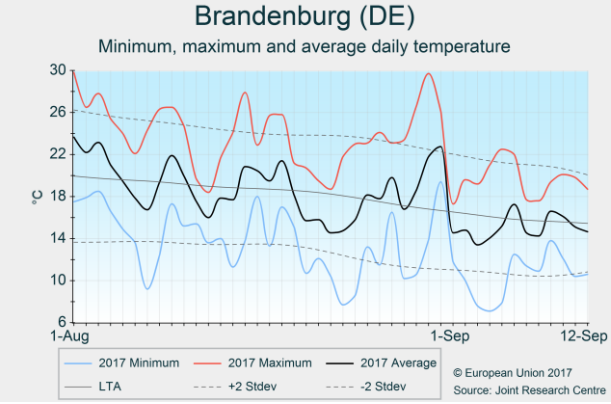
Good yields for summer crops expected

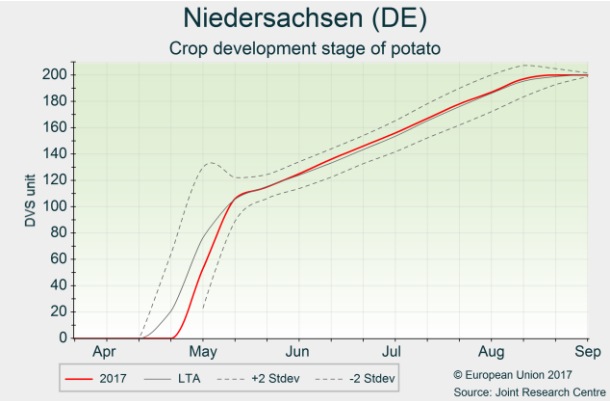
Cereals are finally in, after a difficult harvest, due to frequent rainfall and few dry periods. Summer crops, profiting from the conditions, are on track for average-to-good yields (maize and potato), while sugar beet is expected to produce even higher yields.

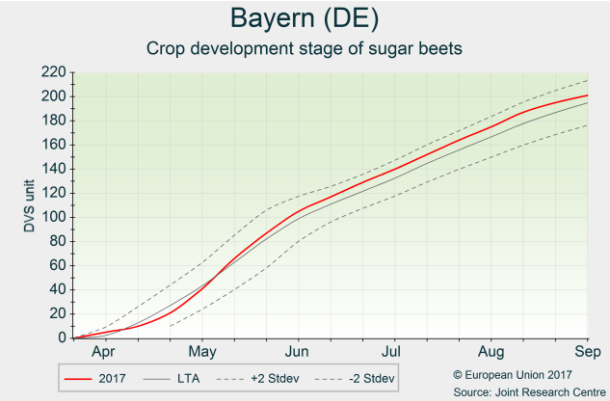
Rainfall was average to abundant for most parts of Germany, with some wetter-than-usual areas (up to more than +50 mm) in *Nordrhein-Westfalen* and *Hessen*, and in the extreme south and north of the country. Eastern Germany was characterised by a drier regime. The temperature and global radiation was in accordance with the long-term average, but with large fluctuations.

The small grain cereal and rapeseed harvest is finally concluded, after a difficult season with few dry periods suitable for harvest, often leading to late harvesting. Quantities and qualities, already suffering from an earlier water deficit and temperature extremes, were further lowered locally by wet conditions during the ripening and harvest period. This hampered a timely harvest throughout the country. Additional post-harvest drying was often necessary to achieve the required water-content levels. Summer crops, on the other hand, have benefited from the weather conditions. The abundant water supply, together with intermingled warm periods (in general, a pattern found all through this summer but also during the observation period) favoured their biomass accumulation. For potato and maize, average-to-high yields are forecast. For sugar beet, particularly high yields are forecast, although the wet weather conditions do not favour a similarly high sugar content. Wet conditions locally hampered the winter rapeseed sowing, and only after 20 August did drier conditions set in.









Poland

Grain maize forecast revised down

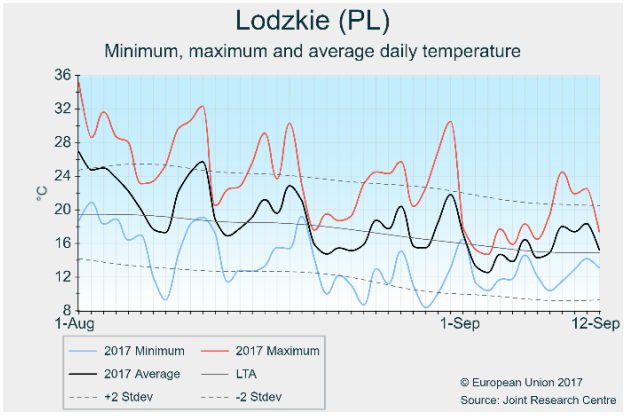
Warmer-than-usual temperatures accelerated the grain filling of maize. The almost continuous rainfall and the colder-than-usual temperatures expected for the coming weeks could hamper harvest operations. The yield forecast for forecast for sugar beet was further improved.

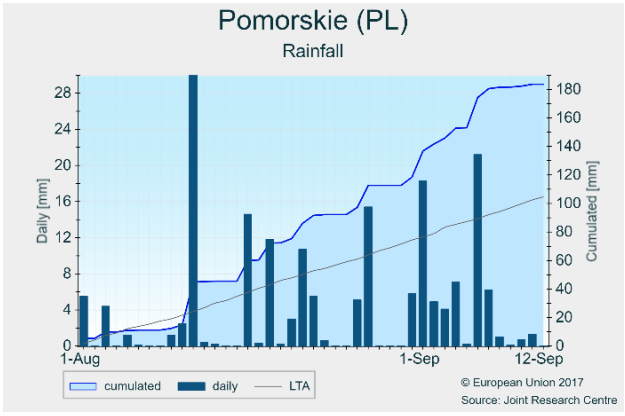
Warmer-than-usual temperatures across the entire country have prevailed since the beginning of August. Since July, rainfall have been observed almost daily throughout the country and particularly in *Lubuskie*, *Wielkopolskie*, *Kujawsko-Pomorskie* and *Pomorskie*.

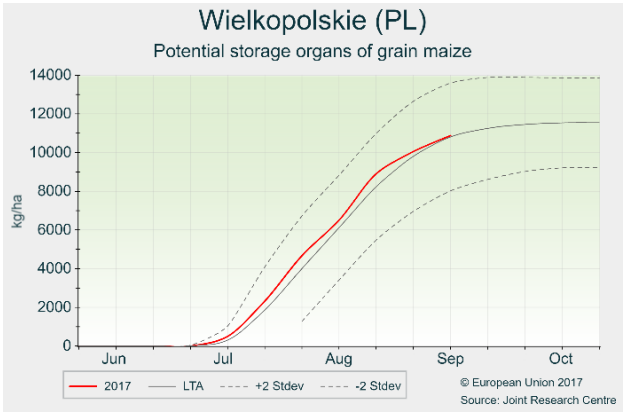
In most regions, the higher-than-usual temperatures accelerated grain maize development. This has reached maturity in southern regions, the second phase of grain filling in central regions and the beginning of grain filling in northern regions.

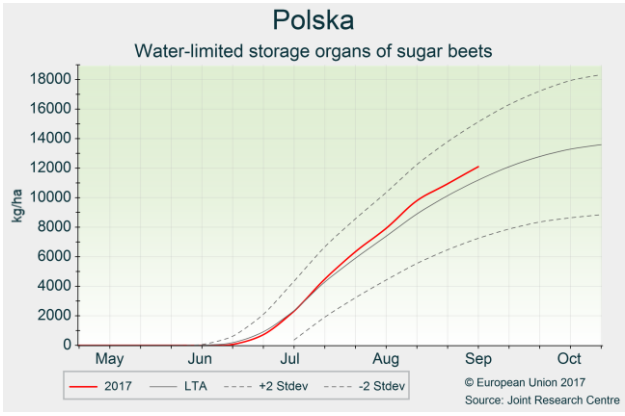
The almost continuous rainfall, which also occurred during the flowering stage, the slightly lower-than-average radiation accumulation during June, August and the first week of September, and the drop in temperatures expected for the next ten days could slow grain filling, and hamper harvest operations for grain maize. For these reasons, combined with the shortened grain-filling phase, our forecast for grain maize was revised downwards and is now in line with the five-year average.

Regarding sugar beet, the crop recovered from the negative conditions during the first phases of crop development described in the previous bulletins. Hence, our forecast is improved and it is now distinctly above the five-year average, albeit below last year's record level.









United Kingdom and Ireland

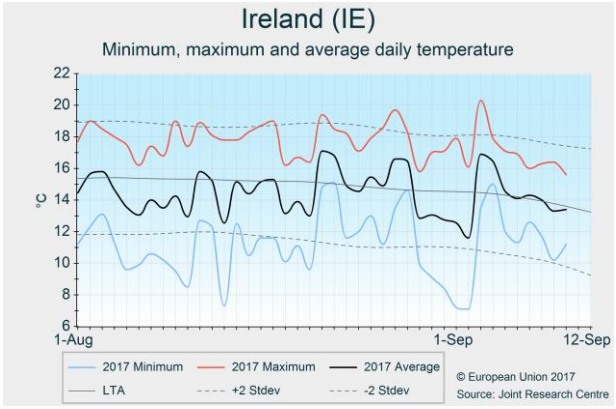
Wet weather conditions hamper harvesting in Ireland and northern UK

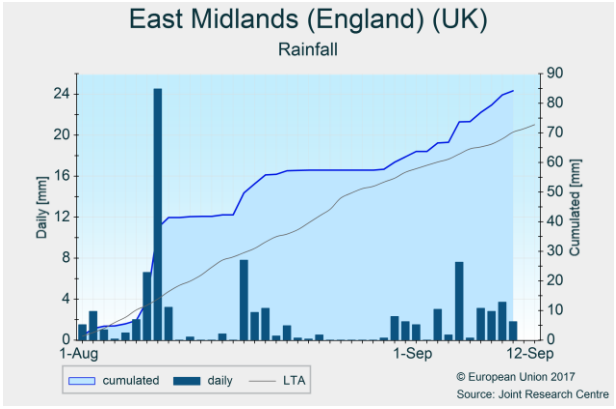
Wet-weather conditions continued to hamper the harvesting of winter and spring cereals in many parts of Ireland and the northern UK. Weather conditions were favourable for potato and sugar beet.

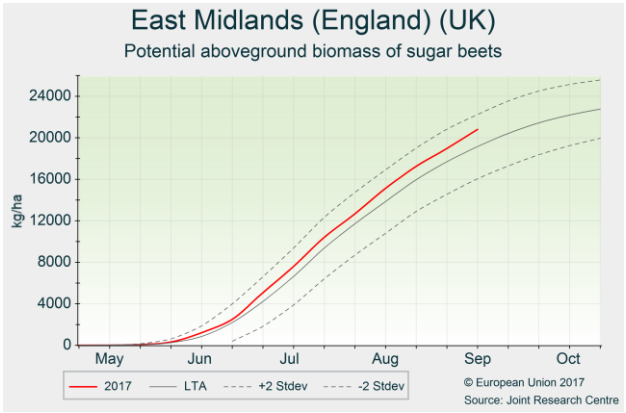
Below-average temperatures prevailed during the first two dekads of August, after which they increased to above-average levels and then decreased again around 29 August, since when they have fluctuated around the seasonal average. In both countries, rainfall was around or above average, with periods of abundant rainfall in the first two dekads of August and at the beginning of September. In north-eastern England, where the second half of August was characterised by frequent but very light rainfall events, cumulative rainfall was some 20 mm below the long-term average.

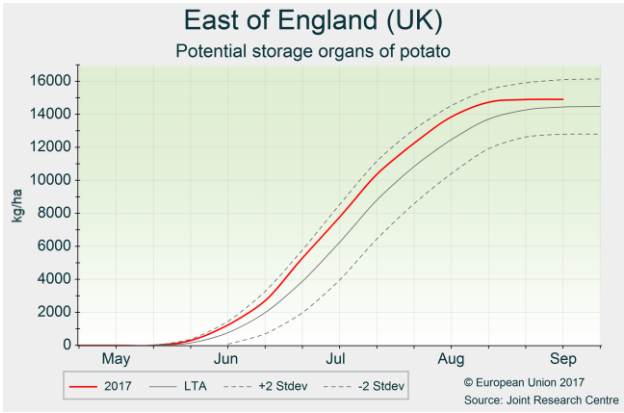
Harvesting was often hampered by the high frequency of rain events. Harvesting of rapeseed and winter barley finished mostly in August, but, in some areas of the northern UK and Ireland, the harvest of wheat and spring barley still needs to be concluded, with a consequent loss of grain quality.

The relatively cool and wet weather conditions have been favourable for potato and sugar beet, which continue to present a positive yield outlook, above the five-year average.









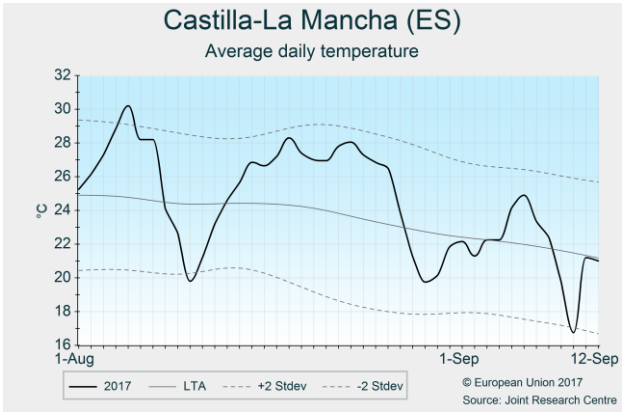
Spain and Portugal

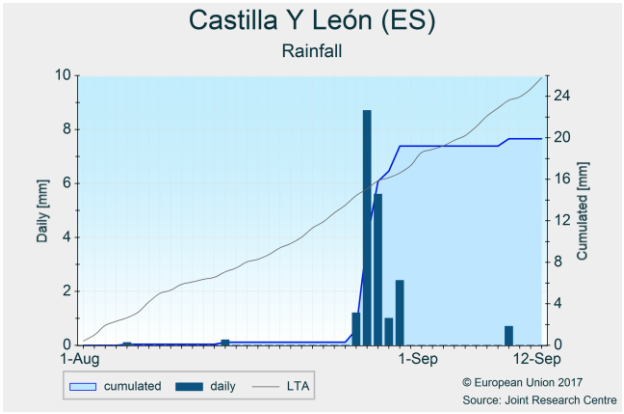
An early end of season for summer crops

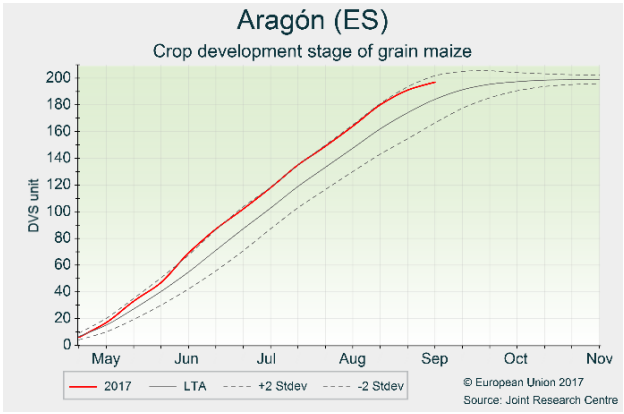
The high temperatures registered across the Iberian Peninsula during summer have accelerated the grain-filling phase of maize, which is now maturing in the main producing regions. In some areas in the north-west, irrigation of summer crops has been restricted since the second half of June.

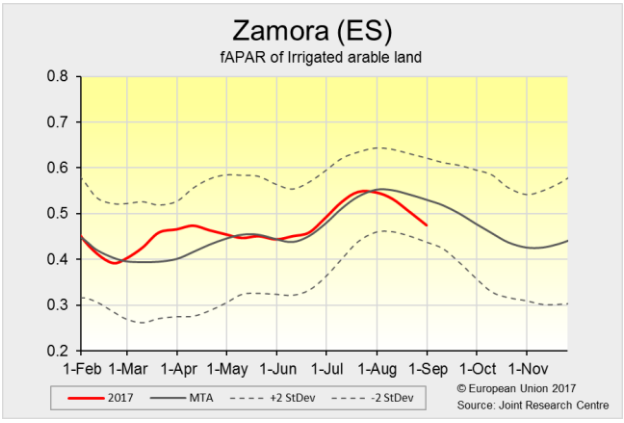
Warmer-than-usual weather conditions have prevailed since August in most of the Iberian Peninsula, with the exception of north-western Spain and the Atlantic coastline of Portugal. Cumulative precipitation was close to seasonal averages, and was concentrated mainly in the last week of August, with some significant rainfall registered across the peninsula.

The high temperatures registered since June in most regions have accelerated summer crops development. Grain maize is reaching maturity in the north (*Aragón*, *Castilla y León*) about three weeks earlier than usual, while harvest operations have already started in the southern half of the peninsula (*Andalucía*, *Castilla-La Mancha*, *Alentejo*). Similarly, potato and sugar beet are completing their yield formation in the north two to three weeks earlier than usual, and harvest operations will start soon. In general, summer-crop conditions are average in many regions, as the irrigation campaign has progressed without constraints during most of the summer. Nevertheless, remote-sensing imagery reveals a significant decrease of photosynthetic activity from mid-August in some irrigated areas in the north-west (the provinces of *León* and *Zamora* in Spain, and *Centro* and *Norte* in Portugal). This indicates some irrigation restrictions in the *Duero* river basin, where water storage was exceptionally low compared with an average year. These restrictions would have affected mainly grain maize at the end of the grain-filling period, and yield forecasts have been revised slightly downwards.









Italy

Negative impact of warm and dry conditions on summer crops

Continued warmer-than-usual and dry weather conditions have shortened the grain-filling phase of summer crops and restricted biomass accumulation, thus reducing yield expectations.

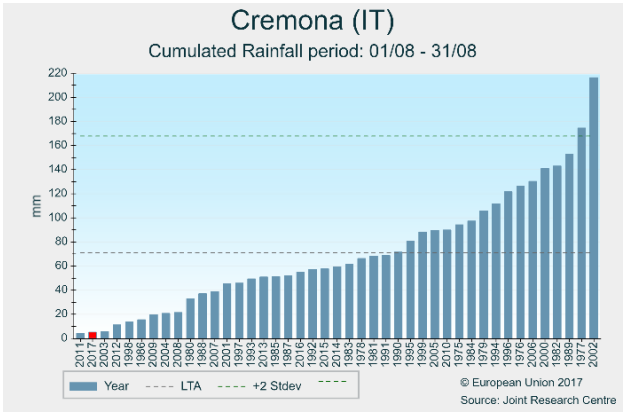
Generally warmer-than-usual conditions were recorded in August throughout the entire peninsula. Dry conditions were observed in the Po Valley, especially in some of the most important provinces for grain maize production (e.g. *Cuneo, Torino, Cremona, Mantova*), where this year's August was among the driest on our records (since 1975). Rainfall returned during the first dekad of September; this was too late, however, to have a significant positive impact on crops.

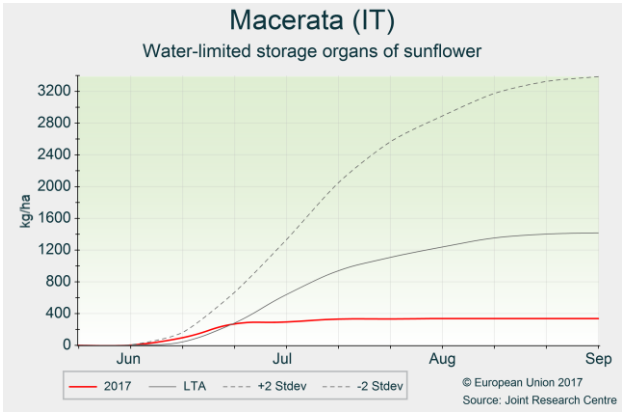
In most regions, the higher-than-usual temperatures accelerated summer crop development. Grain maize has matured in almost all main producing provinces of the Po Valley. Sunflower has reached maturity in all the producing areas.

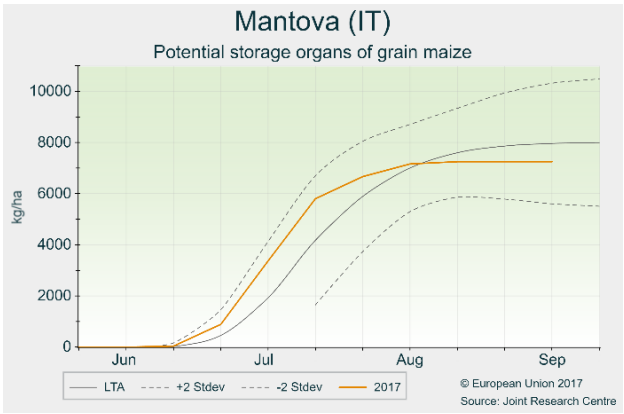
The dry conditions have had a negative impact on almost all summer crops. In the rice areas, maize and rice competed for water resources, whose availability was lower than usual. In particular, sunflower, which is typically not irrigated, was highly stressed by the dry conditions.

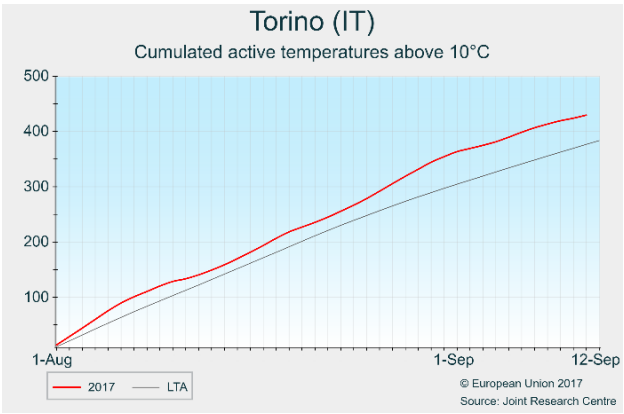
Sugar beet, which is mainly cultivated in the eastern provinces of *Emilia Romagna* (*Ferrara, Modena, Bologna*), in the southern provinces of *Veneto* (*Rovigo, Padova, Venezia*), and in *Mantova* in *Lombardia*, is also affected by the warmer-than-usual temperatures, and the dry conditions that influenced water availability for irrigation.

As the simulations of our crop model also suggest, our forecasts for all the summer crops are maintained below the long-term trend, especially for sunflower.









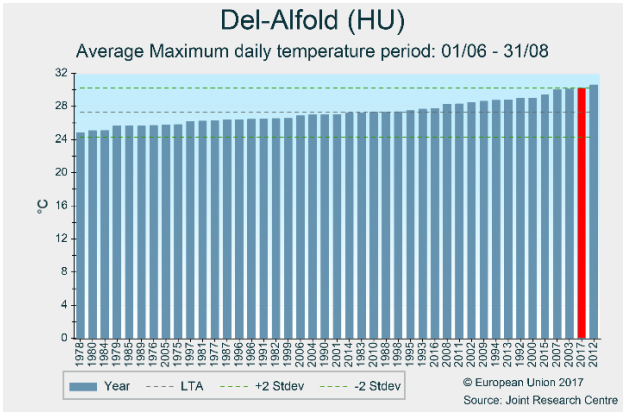
Hungary

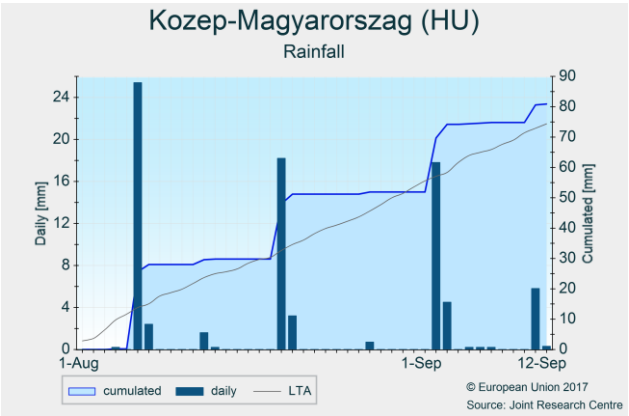
Yield outlook of summer crops reduced by a series of heatwaves

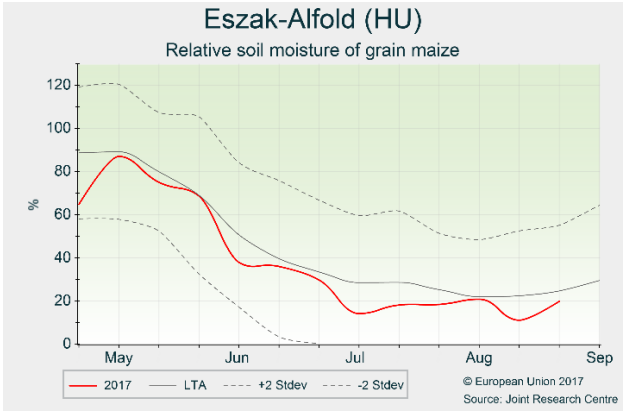
Despite this summer being extremely hot, precipitation was near normal or just lower than usual. Because of increased water demand from the summer crops, soil moisture decreased to below-average levels, but recurring precipitation somewhat mitigated the negative effect. However, biomass accumulation and yield expectations were reduced.

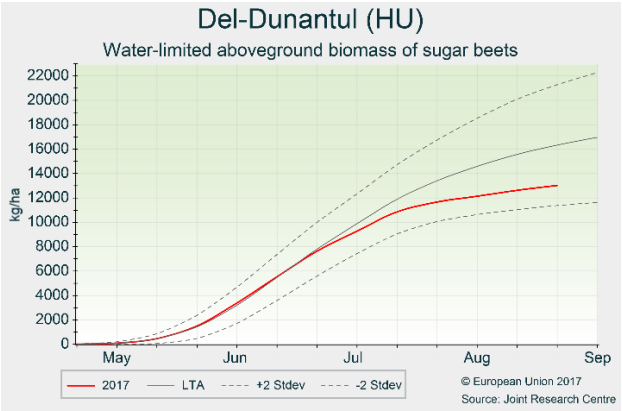
Hungary has suffered one of the hottest summers since 1975. There have been five to six heatwaves, with maximum temperatures exceeding 30 °C, during the past 42 days. The number of hot days (Tmax > 30 °C) reached 15-21, i.e. 7-15 more than usual. Considering the review period (1 August-12 September) as a whole, the temperature exceeded the average by 2 °C. In most of Hungary, near-normal precipitation (50-80 mm) was recorded, but some western, south-eastern and north-eastern regions experienced a 40-50 mm rainfall deficit with respect to the long-term average. The end of August was especially dry, with no or scarce precipitation, but rains arrived in early September. Those were vital to the sowing and emergence of rapeseed.

The extremely high temperatures led to accelerated summer crop development, and considerably shortened the grain-filling period of maize and sunflower. Since mid-July, the soil moisture content has typically been below average under summer crops, although rains partially replenished the soil moisture from time to time. During the heatwaves, maize biomass accumulation decreased, as the maize defended itself against water stress by leaf rolling in several regions. The yield outlook of grain maize is close to the forecast trend. It is more optimistic for the more drought-tolerant sunflower crop. The over-warm conditions compromised the photosynthesis and consequently the biomass accumulation of the less heat-stress-tolerant crops, such as potato and sugar beet, and the yield expectations are below average.









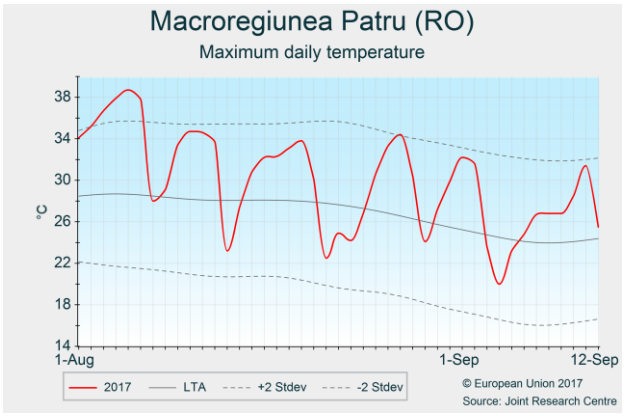
Romania

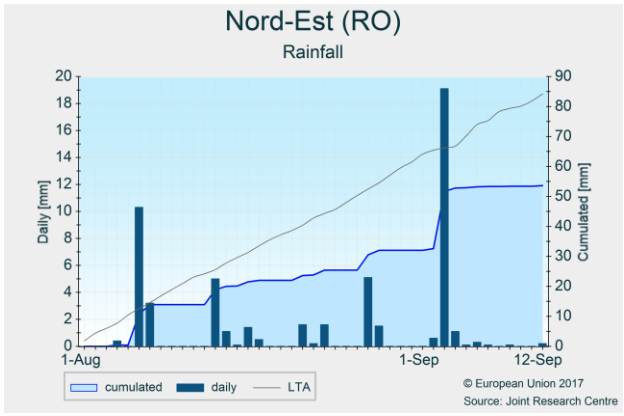
Recurring hot spells and water deficit

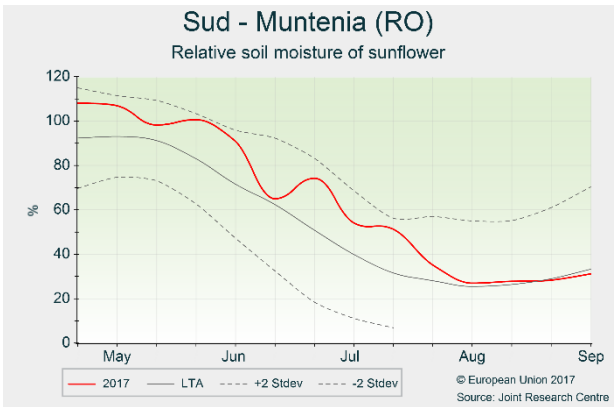
Temperatures fluctuated mostly above the long-term average. Precipitation was relatively scarce in August, but the western areas received abundant rainfall in September. The yield outlook for potato and sugar beet was negatively affected by heat and water stress. The yield forecasts for sunflower and grain maize remain above the 5-year average.

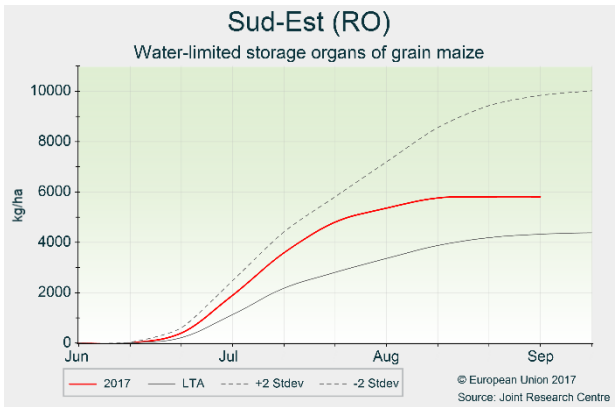
Warmer-than-usual thermal conditions, with short but frequent heatwaves, characterised Romania between 1 August and 12 September. Daily maximum temperatures reached 32-35 °C during the hottest periods. The number of hot days (Tmax > 30 °C) was exceptionally high — 25-30 along the Bulgarian border. Even the cooler northern regions experienced more than 14 hot days. Precipitation was near or above average (typically 60-120 mm) in the western and central regions of Romania; a large proportion of this only arrived in September, however. Eastern areas beyond the Carpathian Mountains were much drier, with just 10-60 mm of precipitation (i.e. 20 % to 70 % of the seasonal average).

Hot weather accelerated the phenological development of summer crops, shortening the period of biomass accumulation, and this is likely to result in an early harvest, especially in the case of maize. In the south-eastern regions, soil moisture content remained above average until mid-August, thanks to the abundant rainfall of June and July, which provided adequate water supply for the yield formation. In northern and western Romania, the soil moisture deficiency was typical during August. According to our models, water-limited biomass accumulation for all summer crops is above average in the agriculturally most important south-eastern areas, while the yield formation was negatively affected in western regions by heatwaves, increased water demand and limited water supply. On balance, our yield forecast at country level remains above the five-year average for maize and sunflower, and close to the five-year average for potato and sugar beet.









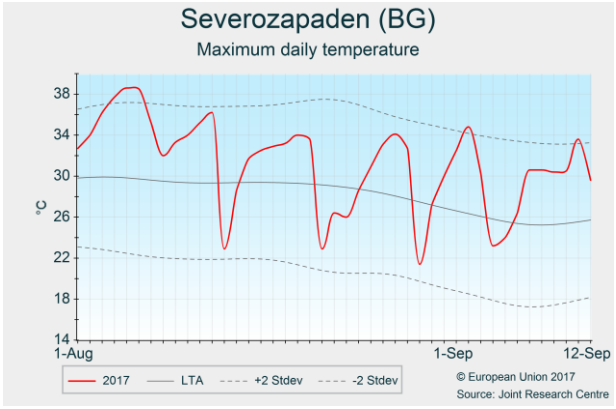
Bulgaria

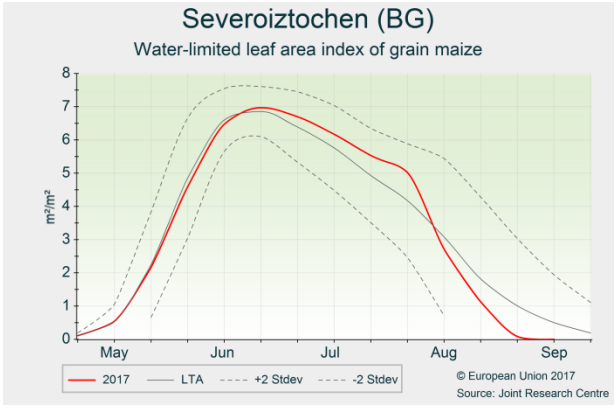
Good yield outlook despite hot and dry August

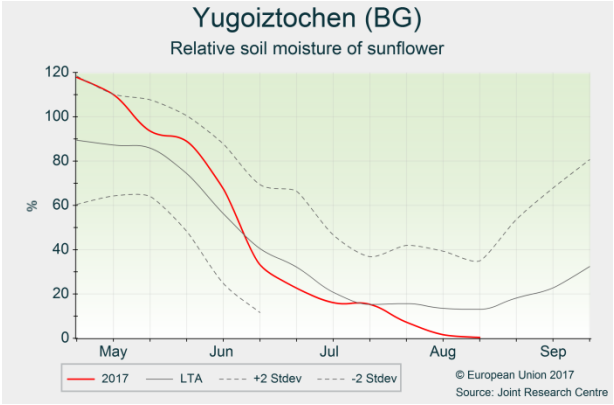
Scarce rainfalls and numerous heat waves characterised Bulgarian weather conditions. Adequate water supply supported high biomass accumulation of summer crops in northern regions. Southern Bulgaria suffered from water deficiency and the yield expectation is low for relevant areas. Our previous yield forecast was revised slightly downwards to take into account the negative effect of hot days in August on yield formation.

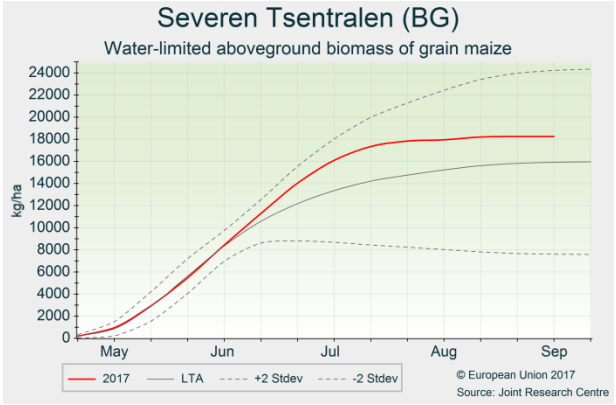
Quite hot and colder-than-usual periods alternated regularly and frequently during the review period (1 August-12 September), resulting in five to seven heat spells and significant positive thermal anomalies of between 1 °C and 3 °C. The frequency of hot days (Tmax > 30 °C) was exceptionally high, exceeding the usual incidence typically by 9-18 days. After the abundant rainfall of late July, the precipitation tendency decreased appreciably. In the north-western half of Bulgaria, 30-70 mm of rain was measured, while *Yugoiztochen* and the eastern regions of *Severoiztochen* and *Yuzhen Tsentralen* received only 10-20 mm of precipitation. The rainfall deficit was high in a wide belt along the coastline, reaching 50-70 % of the average, while central and western areas mostly experienced a 25-45 % deficiency.

Crop development and leaf senescence were accelerated by a series of heat waves this summer, leading to an early start to the harvest, especially for sunflower. In early August, soil moisture was at average or above-average levels in the main crop-growing regions of northern Bulgaria, though it later decreased considerably as a result of high temperatures and moderate rainfall. The biomass accumulation of summer crops is typically above average in the northern half of the country. Since late June, water supply has been insufficient in southern Bulgaria, negatively affecting biomass accumulation and yield formation primarily of grain maize, but sunflower was also badly affected. Our yield outlook was slightly revised downwards, but still exceeds both last year's level and the five-year average.







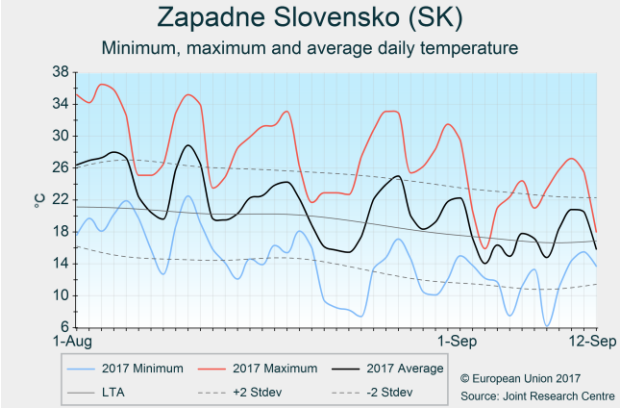


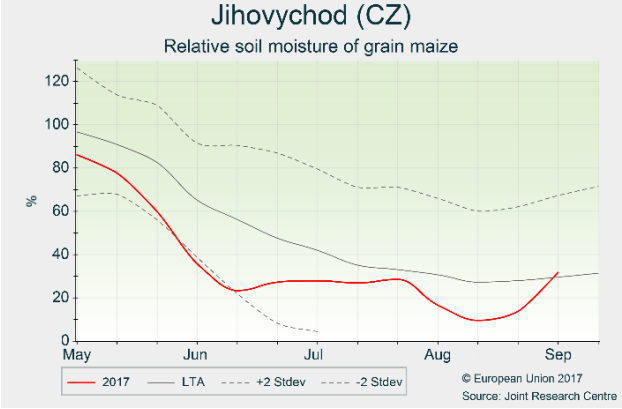
Austria, Slovakia and the Czech Republic

Unfavourable weather conditions for summer crops

Warmer-than-usual weather conditions paired with a series of heatwaves and a rainfall deficit continued in August, providing generally unfavourable conditions for summer crops in the eastern Czech Republic, western Slovakia and eastern Austria. The outlook for summer crops remains mainly well below the harvested yields of the previous year.

August was characterised by warmer-than-usual weather conditions, with average temperatures mainly between 1 °C and 2 °C (regionally between 2 °C and 4 °C) above the long-term average. Heatwaves continued to affect summer crops, especially in western Slovakia, north-eastern Austria and the south-eastern half of the Czech Republic. The highest temperatures in major agricultural areas at the beginning of August reached between 35 °C and 38 °C. Temperatures returned to normal levels during the first dekad of September. A rainfall deficit was recorded in the south-eastern part of the Czech Republic, western Slovakia and north-eastern Austria, with cumulative rainfall generally below 70 mm during the period of review. Higher-than-average summer temperatures have accelerated the development of summer crops; grain maize is currently in the ripening stage, and in many regions it has already reached the maturity stage. Recurring heatwaves and the drought negatively affected summer crops, especially in *Jihovychod* (CZ), the eastern part of *Niederösterreich* (AT) and *Zapadne Slovensko* (SK). According to our model simulations, the grain maize forecast remains well below the average of the last five years in the Czech Republic and Slovakia, while in Austria grain yields close to the five-year average are expected. The sugar beet yield outlook is below the values recorded in the previous year in all three countries, as plants were weakened by frost during the second half of April and further affected by unfavourable summer weather.





Denmark and Sweden

Positive outlook for summer crops

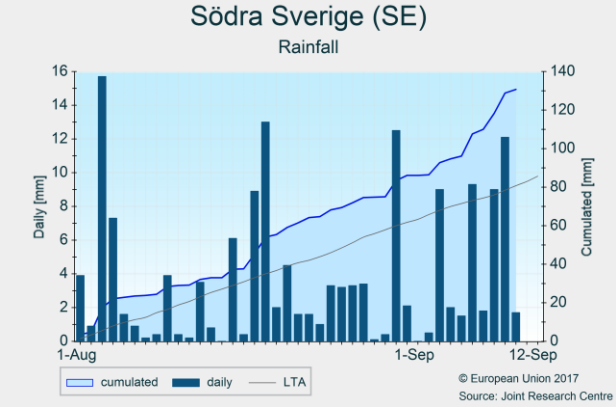
Positive yield forecasts for winter and spring cereals are confirmed. The yield forecast for summer crops remained unaltered despite the excessive rain and relatively cool temperatures of August.

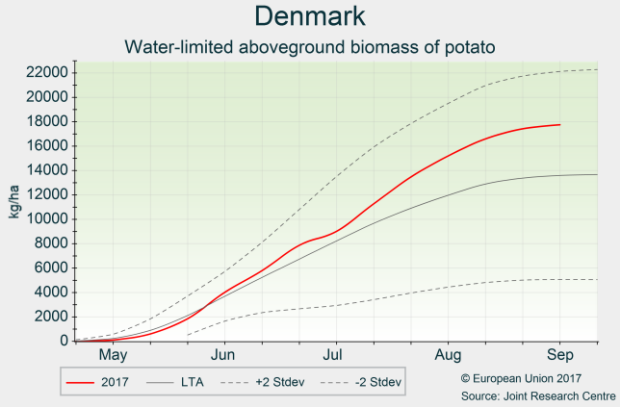
In Denmark and Sweden, colder-than-usual temperatures generally prevailed during the review period, from 1 August to 15 September. Above-average temperatures occurred only during a couple of days per dekad in both countries.

Cumulative rainfall was above average in Denmark and Sweden. In Denmark, precipitation was particularly heavy in August, when 9 days with significant rainfall (> 5 mm) were recorded. After a period of less abundant rainfall during the last dekad of August, precipitation in Denmark increased again during the first dekad of September. In Sweden, rainfall was heavy and frequent during the entire review period, with cumulative rainfall exceeding the long-term average of about 50 mm in *Södra Sverige* and *Östra*

Sverige, and of about 40 mm in the *Norra Sverige* region. In southern Sweden, cumulative radiation was 10 % lower than the long-term average for the review period.

The harvesting of winter and spring cereals has been completed, but rainfall during August hampered harvesting activities, locally affecting the final grain quality. The yield forecast remains positive and close to average for winter and spring cereals in both countries. Weather conditions were favourable for sugar beet, potato and green maize, which according to our models continue to show above-average growth despite the excessive rain and relatively cool temperatures in August. The yield forecasts of last month's bulletin were practically kept.





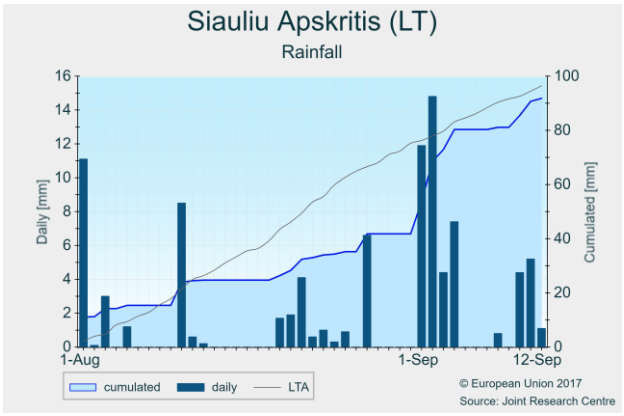
Finland, Lithuania, Latvia and Estonia

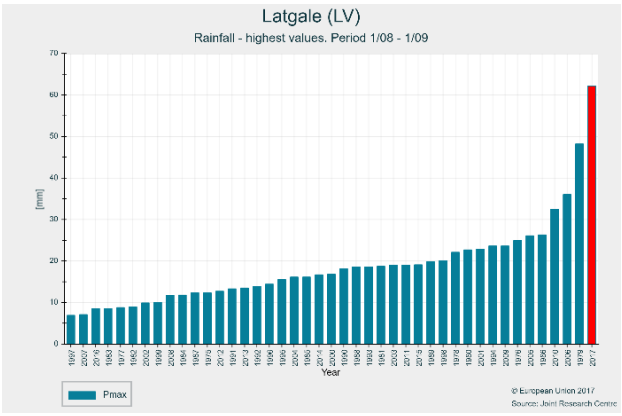
Difficult harvest due to frequent rainfall

Eastern Latvia suffered from unusually heavy rain that probably caused crop losses, and yield forecasts have been revised downwards. In the other countries, rains were less intense but still hampered the harvest campaign, and yield forecasts remain close to average for most crops.

In Lithuania, sparse rainfall during August was particularly welcome for the harvest of crops, but in Panevezio and Utenos Apskritis strong showers were observed. However, abundant rain in September (which may reduce the quality of grains) interrupted field work, and the rainfall expected in the coming days will further saturate soils. Our model results indicate that potato presents an above-average yield potential, whereas expectations are seasonal for sugar beet. In Estonia, heavy rains and wet conditions in August hampered harvest activities, although rain-free days in September helped to reduce over-wet conditions and led to continued harvest operations. Similarly wet but cooler conditions were recorded in Finland, where below-average temperatures continue to mark the agricultural campaign, with the effect of prolonging the crop cycles. However, crops in southern regions have finally reached maturity and the rain-free window in September allowed farmers to start the harvest campaign. For these countries, yield forecasts remain stable, around the five-year average for most crops. Eastern Latvia was hit by unusually heavy rains during the last dekad of August. The heaviest precipitation was concentrated in Latgale, while less-intense precipitation was recorded in the eastern areas of Vidzeme and a few intense showers in Zemgale. Significant crop damage has been reported in the local news[1] and based on the reported area around 15 % of Latvia's crop production may be affected. Yield forecasts for all crops were revised downwards, remaining close to or below average.

[1] http://new.llkc.lv/lv/nozares/augkopiba/zemgale-kurzeme-razas-labas-latgale-vidzeme-skaidriba-bus-septembri





Belgium, the Netherlands and Luxembourg

Adequate end-of-season conditions

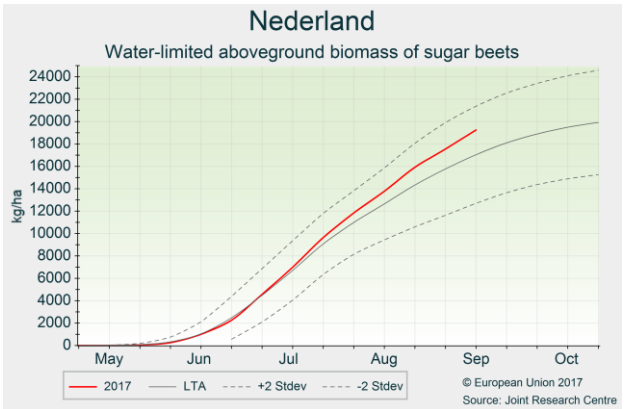
Weather conditions were adequate to finalise the harvesting of winter crops and spring cereals, and, in general, favourable for the development and growth of maize, sugar beet and potato. The yield forecasts for these crops were maintained or revised slightly upwards.

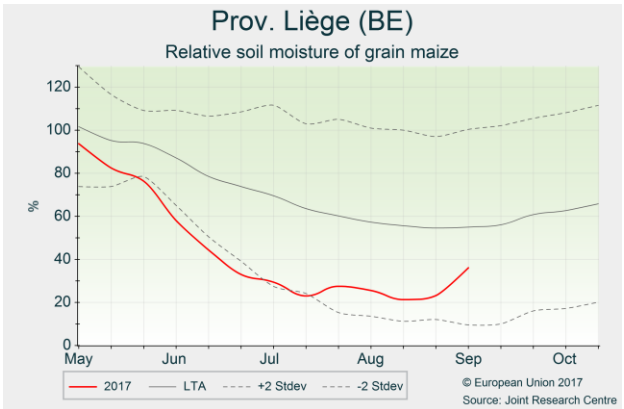
Below-average temperatures prevailed during the first 3 weeks of August, whereas the last week of August was notably warmer than usual. Maximum temperatures exceeding 30 °C occurred only on 29 August in southern parts of the region. For the period as a whole, across Benelux, the average temperature was very close to the seasonal average.

Rainfall events were frequent and regularly distributed, with the exception of the last dekad of August, which was mainly dry. The spatial variability of rainfall amounts was high. Positive anomalies (locally exceeding 100 mm) were recorded in coastal regions and most of the Netherlands. Other parts present an irregular pattern, with cumulative rainfall varying between –50 mm and +50 mm compared with the long-term average.

The dry last dekad of August provided good conditions for the harvesting of any remaining winter crops and spring cereals.

Although higher levels of sunshine would have been welcomed, summer crops benefited from the mild temperature conditions and favourable water supply in most areas. Sugar beet crops are faring particularly well, and present a well-above-average yield outlook. Field samplings report high sugar contents. The harvesting campaign started on 11 September in both the Netherlands and Belgium. Grain maize crops are two to three weeks advanced and are generally also faring well. In some parts of Belgium, however, soil water content has remained well below average and close to critical for several months. The forecasts for sugar beet, grain maize, green maize and potato were maintained or slightly increased.



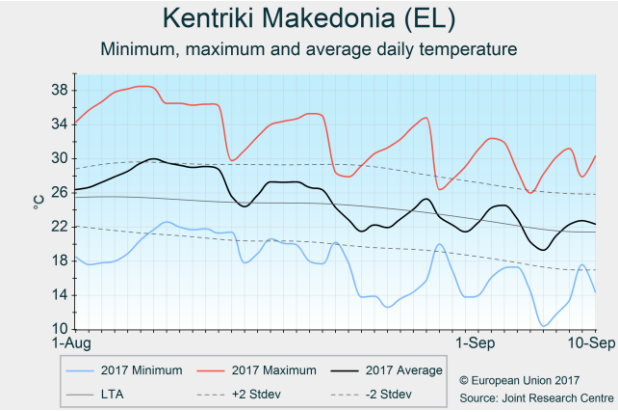


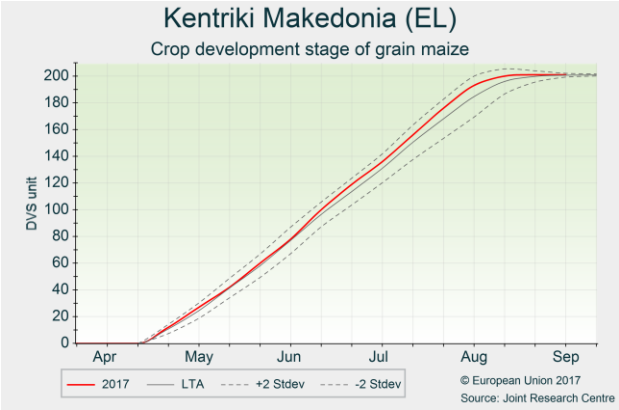
Greece and Cyprus

Summer crops start to mature

The very hot temperatures in the first half of August negatively affected the grain-filling of summer crops. In late August, weather conditions were slightly more favourable, but still not sufficiently good to compensate the hot and dry summer. Compared with the August bulletin, which took into account the main negative events of that month, yield forecasts have been maintained for summer crops.

At the beginning of August, a heatwave of around 10 days occurred, with maximum temperatures around 35 °C in central Greece, but definitely above 35 °C in the northern and north-eastern agricultural regions. After a short break, temperatures rose again, and a second, shorter and less-intense, heatwave occurred. After 20 August, sparse rains interrupted the dry period that had been ongoing since mid-July in most regions. During the rest of the month temperatures oscillated between 30 °C and 35 °C, with more frequent rainy events even if of low intensity. For the period between 1 August and 10 September, central and northern regions present a cumulative precipitation deficit of more than 50 % compared with average values. The repeated heatwaves at the beginning of August have accelerated the phenological development and shortened the grain-filling period of maize, while sunflower, usually more resistant to high temperatures and more advanced in the phenological cycle, has been less affected. The weather conditions of the second half of the month were more mixed, with positive and negative elements that have compensated each other while crops entered into maturity. As a consequence, yield forecasts for maize and sunflower remained unaltered from those issued in August.





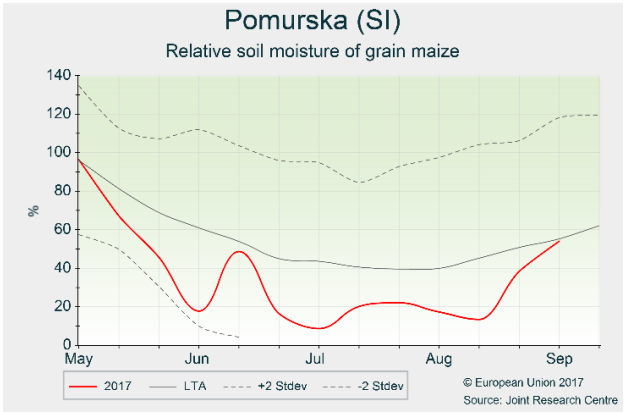
Slovenia and Croatia

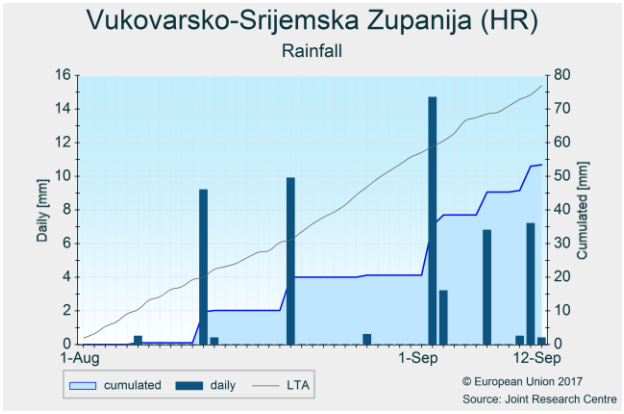
Grain maize yield outlook well below five-year average

August was extremely hot, with maximum daily temperatures during the first half of the month reaching towards 40 °C. These high temperatures, in conjunction with the rainfall deficit, affected the growth of summer crops and we consequently lowered our yield forecasts.

Hot weather continued in August, with temperatures between 2 °C and 4 °C above the long-term average. At least four heatwaves have occurred in major agricultural areas since the beginning of August, further worsening growing conditions and accelerating the development of summer crops. Maximum recorded temperatures during the first dekad of August reached between 38 °C and 40 °C (locally even above 40 °C) in the eastern half of Croatia and coastal regions. Elsewhere, maximum temperatures between 35 °C and 38 °C were recorded. Temperatures returned to average levels at the beginning of September. Substantially drier-than-usual weather conditions prevailed in eastern Croatia, coastal areas of Croatia and Slovenia, central Slovenia and north-eastern Slovenia. In many of these areas, cumulative rainfall did not exceed 30 mm during August; the most heatwave-affected areas in Dalmatia remained dry. The beneficial rainfall during the first dekad of September increased soil

moisture levels, but with very limited beneficial effects for summer crops because of their very advanced stage.
Grain maize was affected by heat stress and drought around the sensitive pollination stage, which occurred in July. Rainfall deficit and heat stress have further decreased grain-filling rates in August. The maize yield forecast therefore remains substantially below the yields recorded in the previous year, as well as well below the five-year average. Severe drought and heat stress have, to a lesser extent, also affected sugar beet, where the forecast indicates values close to the five-year average, but well below the yield recorded last year.





3.2 European Union – rice producing countries

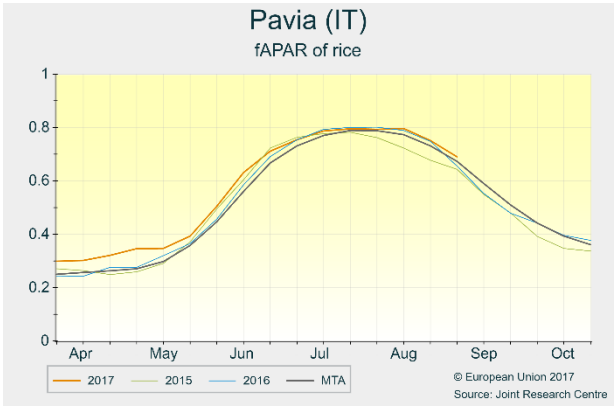
Average outlook for the main rice-producing countries

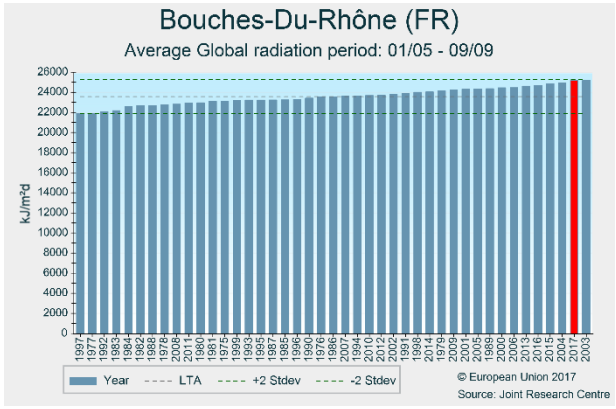
Temperatures above the long-term average prevailed in all the rice-producing countries, especially in June and August. Drier-than-usual conditions helped to prevent the development of diseases. Yield expectations are close to average or above average, with the exception of Bulgaria, where strong temperature oscillations and several heat waves had a negative impact on crop growth.

Italy and France

Average yield outlook in Italy, above-average outlook in France

In Italy, temperatures generally above the long-term average were observed in June and August, and around the long-term average in July. The first phase of crop growth and development accelerated in all producing areas. The brief drop in temperatures recorded in the middle of August is likely to have created some problems during microsporogenesis and the first phases of grain filling. The generally dry conditions observed this year were not conducive to diseases but locally caused some difficulties for water supply. However, in the main producing areas, most of the fields were irrigated properly with no major constraints. Our rice yield outlook for Italy is just slightly below the long-term average.
In France, conditions have been slightly warmer than usual since the beginning of May, with active temperature sums (T*base*E = 10 °C) about 5 % above the long-term average. Minimum temperatures have not fallen below 10 °C since mid-May. Global radiation has been one of the highest on our records (maintained since 1975). Rainfall has remained below the average since May, which, together with the high radiation, limited disease pressure. Considering the beneficial conditions observed so far, yield is forecast to be substantially above the average.





Spain and Portugal

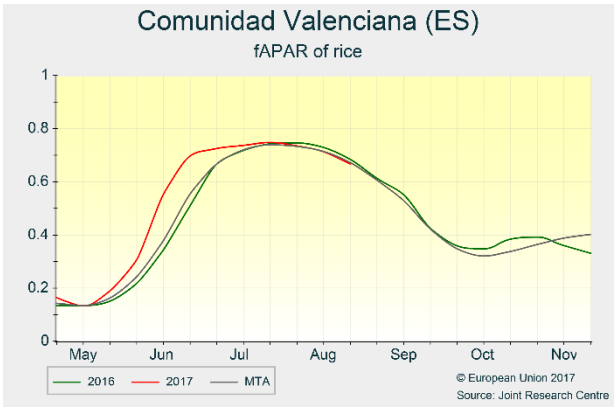
Average yield expectations in the main producing areas

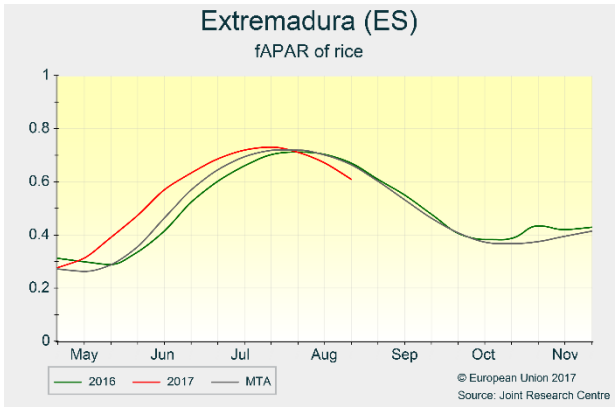
Exceptionally hot conditions in May and June across the Iberian Peninsula favoured the rapid emergence and vegetative development of rice in all the main producing regions.

In the delta of the Ebro river (Cataluña) and Valencia, flowering had started by the end of June, almost three weeks earlier than usual. Since July, temperatures have remained close to the average, and rice reached the grain-filling stage under overall favourable conditions. The growing season has been substantially drier than usual, but remote-sensing imagery indicates no major irrigation constraints. The yield outlook is therefore close to the results of the previous five years.

In the Guadalquivir marshes (Andalucía), rice has just reached the grain-filling phase. Average temperatures in June and July, and sufficient water supply, led to favourable crop conditions and positive yield expectations.

In Alentejo and Extremadura, remote sensing indicates earlier-than-usual senescence, as high temperatures accelerated development, and flowering occurred in the second half of July, about two weeks earlier than usual. No evidence of severe water stress has so far been observed, suggesting that the irrigation campaign has progressed adequately. Yield expectations are close to the average.



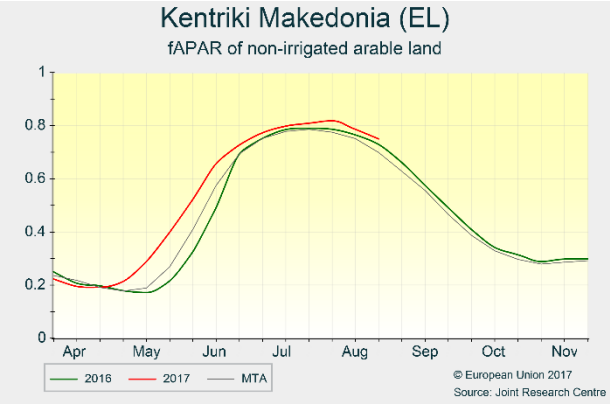


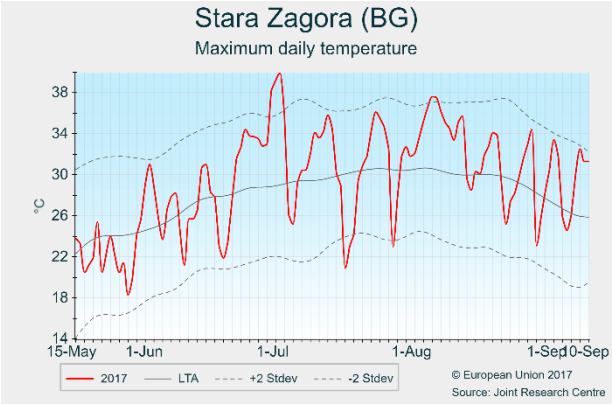
Greece and Bulgaria

Positive outlook for Greece, negative impacts of heat waves in Bulgaria

In Greece, the heat wave observed at the beginning of July was followed by a few days of intense precipitation just before flowering, which increased the risk of rice blast infection. However, according to our model, the event had no negative impact on final yields because the thermal conditions were unfavourable for the further development of diseases. Average weather conditions were recorded up to the end of July, when flowering occurred. After 2 August, maximum temperatures remained above 35 °C for ten days, and then oscillated between 30 °C and 35 °C until the end of the month. As a consequence, the grain-filling period was shortened. Rice reached maturity in September. The yield outlook is positive, and above the five-year average.

In Bulgaria, thermal conditions have been negative since the beginning of June. Maximum temperatures oscillated strongly, with differences of up to 17 °C within a few days (e.g. from 37 °C on 1 July to 20 °C on 3 July in Pazardzhik). Up to ten heat waves with particularly high temperatures were observed at the beginning of July (40 °C in Plovdiv and Stara Zagora) and during the first week of August (38 °C in Yambol). The crop was stressed during pre-flowering and flowering. Our rice yield outlook for Bulgaria is therefore well below the long-term average.





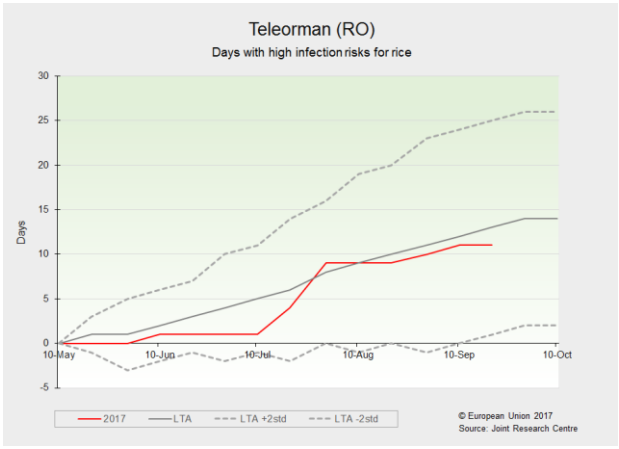
Romania and Hungary

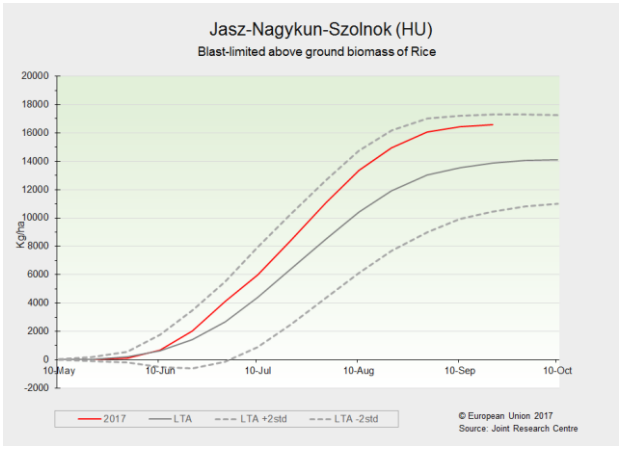
Near-average yield expectations

Weather conditions in Romania and Hungary were colder than usual until late May, thus restricting plant growth and development during the early phases of the growing period. After early June, above-average temperatures accelerated crop development, which became advanced before the start of the grain-filling period. According to our model simulations, despite the slow start, potential biomass accumulation has been above average in Hungary, and in western and southern Romania. In south-eastern Romania, potential biomass accumulation has been below average, because of the colder-than-average temperature conditions observed at the beginning of the growing season.

Maximum daily temperatures during flowering remained in the average range; spikelet sterility was therefore negligible in both countries. However, abundant rainfall increased the probability of fungal infection, and yield losses associated with rice blast infection are expected to have been at or slightly above the average level.

On balance, considering biotic and abiotic stresses for the main rice-producing regions, our yield forecast for both countries is slightly above the five-year average.





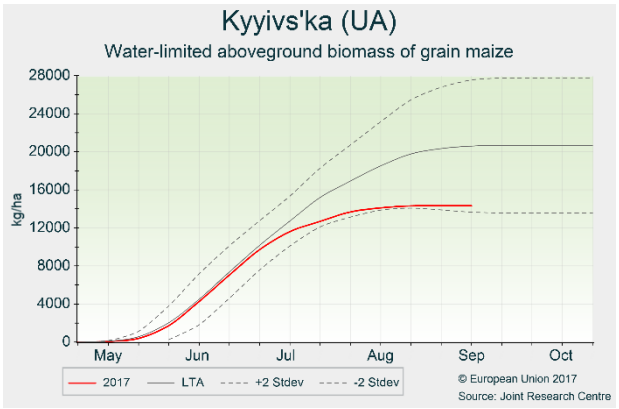
3.3 Black Sea Area

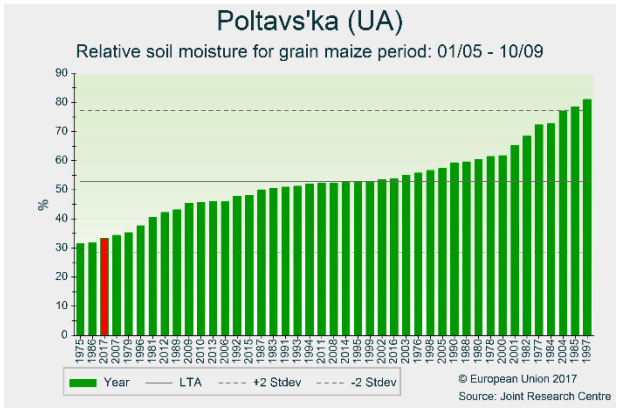
Ukraine

Summer crops continuously affected by dry conditions

Rainfall remained largely below the average for the period under analysis, prolonging the dry conditions observed earlier this year. Summer crops have been continuously exposed to a low soil moisture, so the grain maize yield forecast is maintained below the trend and close to the average.

Since the beginning of August, rainfall has stayed below the average in most oblasts except in the westernmost regions, thus prolonging the rain deficit observed since March in central Ukraine, and since June in eastern oblasts. All oblasts except *Odes'ka* are currently showing a substantial rain deficit, the highest being recorded in *Vinnyts'ka*, followed by the central oblasts, where grain maize and soybeans are cultivated. Temperatures have remained far above average since the beginning of August; two heat waves with a maximum temperature of 34 °C were recorded during the first and second dekads of August. Since the last dekad of August, temperatures have fluctuated above the average without exceeding 30 °C. The warm temperatures have increased evapotranspiration and reinforced the dry conditions, lowering soil moisture. Grain maize yield is forecast to be at the level of the five-year average, but largely below the trend. Farmers harvested part of the grain maize as green maize, which will contribute to maintaining the relatively high yield, but will also affect harvested area and production. Like grain maize, soybean was negatively affected by the dry conditions and warm temperatures, so yields are expected to be below the average. The sowing of winter cereals is currently ongoing, but the dry conditions are not favourable and will delay emergence as long as no substantial rainfall is received.





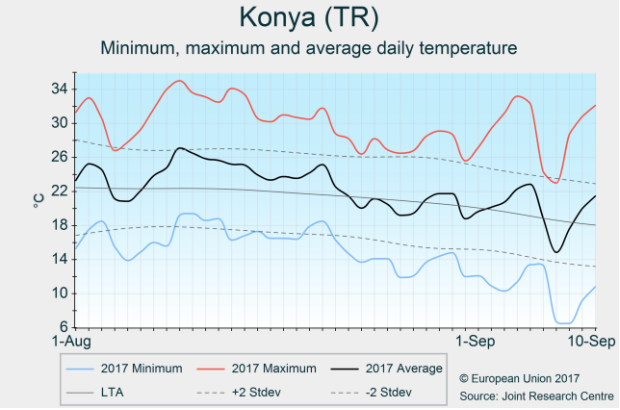
Turkey

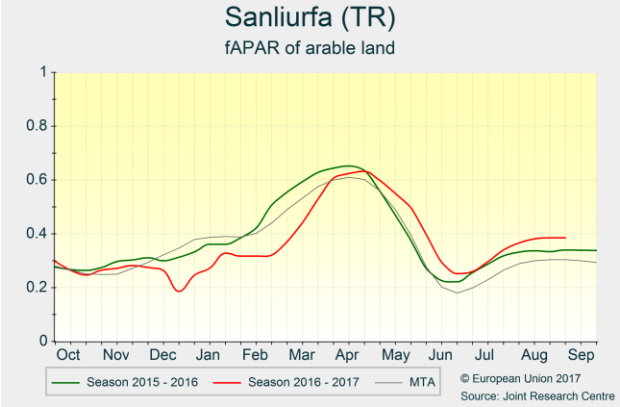
Promising maize season

In the main maize-producing regions, the potential negative impact caused by the hot weather in August was mitigated by irrigation. In south-eastern regions, temperatures may have damaged flower fertility. The yield forecast was slightly increased and remains above the five-year average.

In central Anatolia, maximum temperatures at the beginning of August reached almost 35 °C. From 15 August, some rainy days occurred and temperatures decreased but remained above the seasonal average. In September, temperatures increased again and some days presented maximum temperatures above 30 °C. In the Adana region, August was dry and temperatures were slightly hotter than average, but only a few days occurred with maximum temperature above 35 °C. In the eastern regions of *Sanliurfa, Mardin* and *Diyarbakir*, August and the beginning of September were hot, with a total of 10 days with maximum temperatures above 40 °C.

In Konya, the grain-filling of maize has almost finished and crops are entering the ripening stage. In Adana, maize has already reached maturity and harvesting is proceeding well under favourable weather conditions. In eastern regions, maize reached flowering during August and, even though biomass accumulation as displayed by the fAPAR remote-sensing profile is well above average, the very hot temperatures may have caused problems of flower sterility, even where mitigated by irrigation. The maize-yield forecast at country level was revised slightly upwards.





3.4 European Russia and Belarus

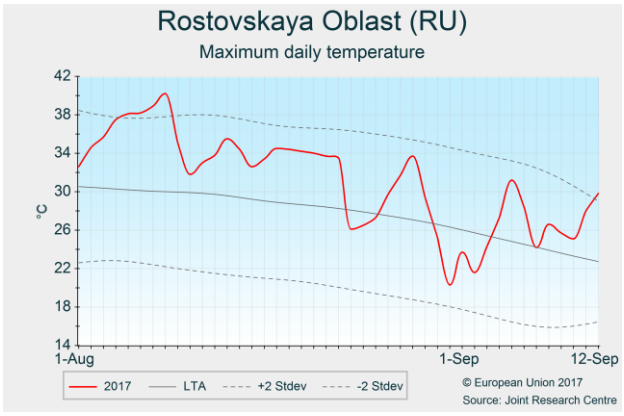
European Russia

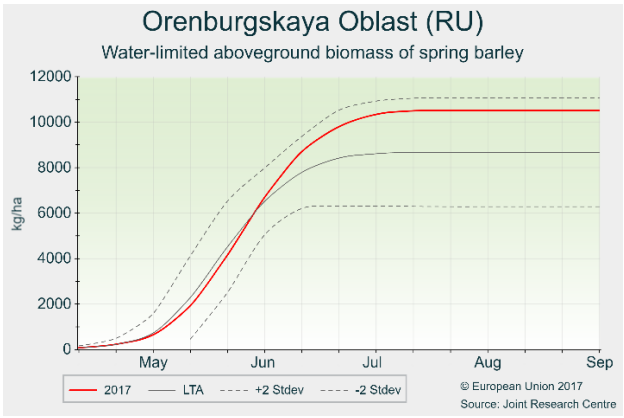
High yield outlook for spring cereals

Significantly warmer- and drier-than-usual weather conditions in the southern regions of European Russia negatively affected the yield formation of grain maize. For spring cereals, soil moisture was sufficient during the most relevant period of yield formation and the yield expectations are at a near-record level.

Considering the review period as a whole, a positive mean thermal anomaly of 1-4 °C characterised the southern half of European Russia while prevailing temperatures in the northern regions were near-average. The areas between the Black Sea and the Caspian Sea experienced 25-30 hot days (Tmax > 30 °C). The southern part of the *Central Okrugs*, as well as regions along the Kazakh border, the number of hot days significantly exceeded the long-term average (by 4-16 days). The first two dekads of August were extremely hot in the *North Caucasian* and *Southern Okrugs*, with daily maximum temperatures reaching 38-42 °C on the hottest days. Rainfall until the end of August was scarce (typically less than 20 mm) in the central regions and practically absent in wide areas of southern Russia. At the end of August, rainfall increased to above-average levels, except in some coastal areas of

the Caspian Sea and southern parts of the *Near Volga Okrug*. The scarce rainfall in August was favourable for the completion of the harvest of winter cereals. Spring cereals gained above-average biomass thanks to adequate water supply during the cardinal development stages. The yield outlook of spring wheat and spring barley is high, but in eastern and northern Russia the harvest could be later than usual this year, because of delayed crop development. The water supply of grain maize was sufficient during the flowering stage, but soil moisture levels sharply decreased during the grain-filling period. Therefore the initially very high maize yield expectations were reduced, but are still positive.



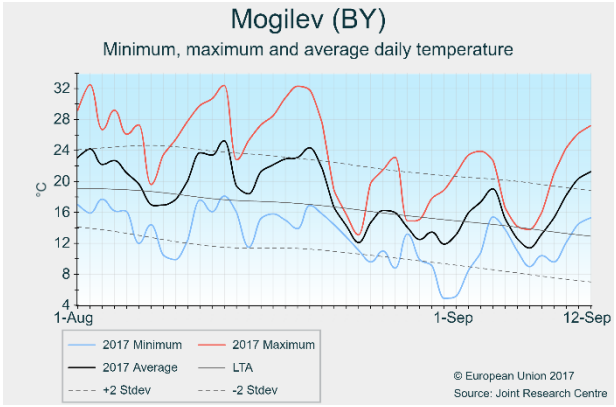


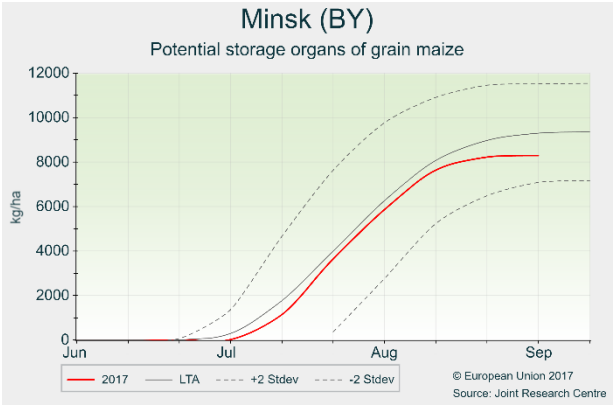
Belarus

Grain maize outlook below long-term average

Early end to the grain-filling period reduced dry matter accumulation in grain.

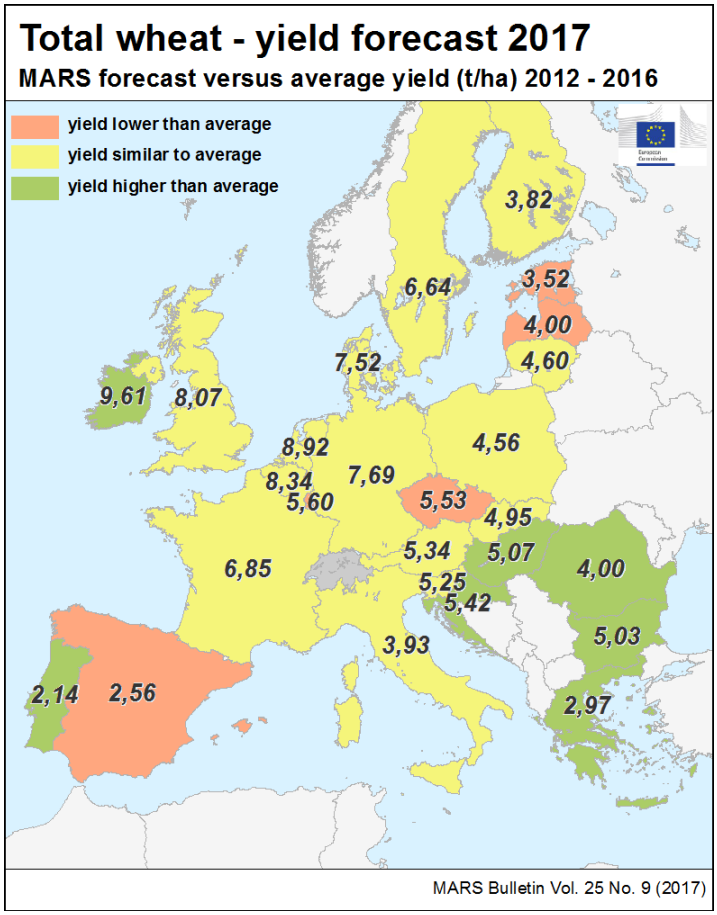
Generally, warmer-than-usual temperatures were observed during the first two dekads of August, especially in the areas between *Brest* and *Gomel*. During the third dekad of August, temperatures dropped throughout the country and most markedly in *Gomel* and *Mogilev*, where minimum temperatures below 5 °C were recorded. During the first week of September, temperatures oscillated around the long-term average, and they increased well above this during the second week. Grain maize reached maturity during the last week of August. Therefore, the cold snap at the end of August and the beginning of September should not have affected the crop. As pointed out in our previous bulletins, the phenological development of maize during the early phases of grain filling was accelerated, thus restricting dry matter accumulation. Our forecast below the long-term average is therefore confirmed.



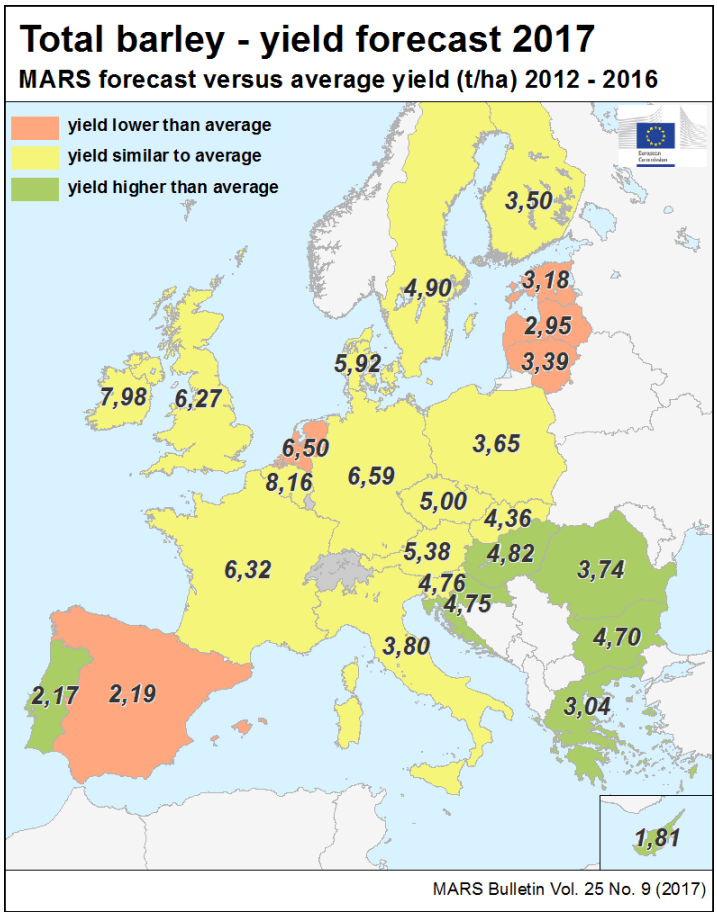


4. Crop yield forecasts

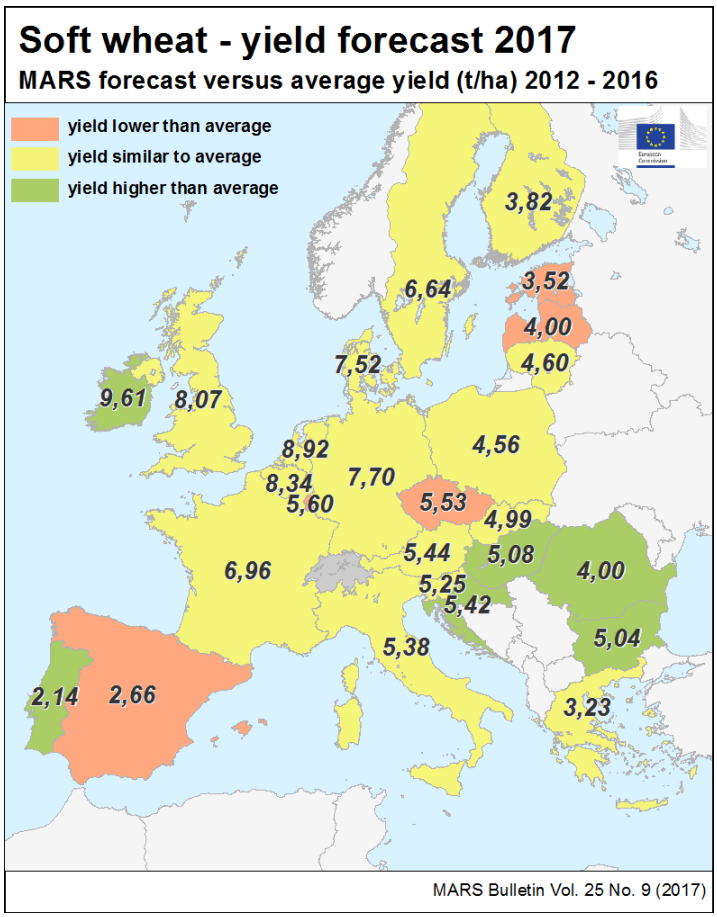
Country	TOTAL WHEAT (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	5,60	5,35	**5,62**	+0,3	+5,0
AT	5,48	6,22	**5,34**	-2,5	-14
BE	8,53	6,71	**8,34**	-2,3	+24
BG	4,28	4,75	**5,03**	+18	+6,0
CY	-	-	**-**	-	-
CZ	5,88	6,50	**5,53**	-6,0	-15
DE	*7,94*	*7,64*	***7,69***	-3,3	+0,6
DK	*7,54*	*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*	*5,30*	***6,85***	-1,4	+29
GR	*2,83*	*2,35*	***2,97***	+5,1	+27
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



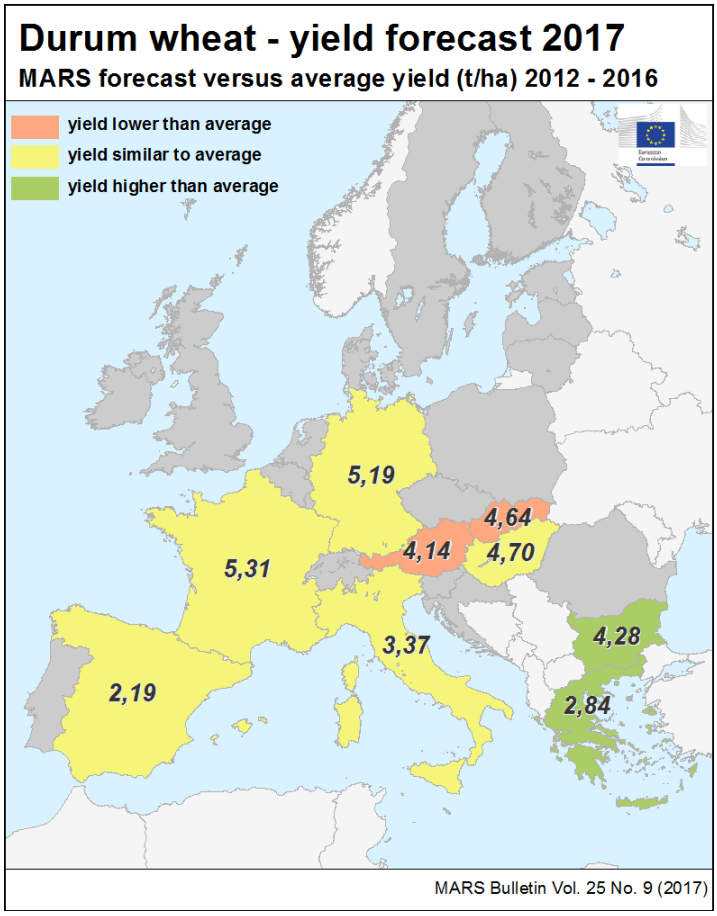
Country	TOTAL BARLEY (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	4,83	4,86	**4,73**	-2,1	-2,8
AT	5,39	6,12	**5,38**	-0,2	-12
BE	8,21	6,34	**8,16**	-0,7	+29
BG	3,90	4,32	**4,70**	+21	+8,7
CY	*1,72*	*0,70*	***1,81***	+5,8	+159
CZ	5,08	5,66	**5,00**	-1,5	-12
DE	*6,79*	*6,69*	***6,59***	-2,9	-1,4
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*	*5,41*	***6,32***	-2,0	+17
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***	+0,3	+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



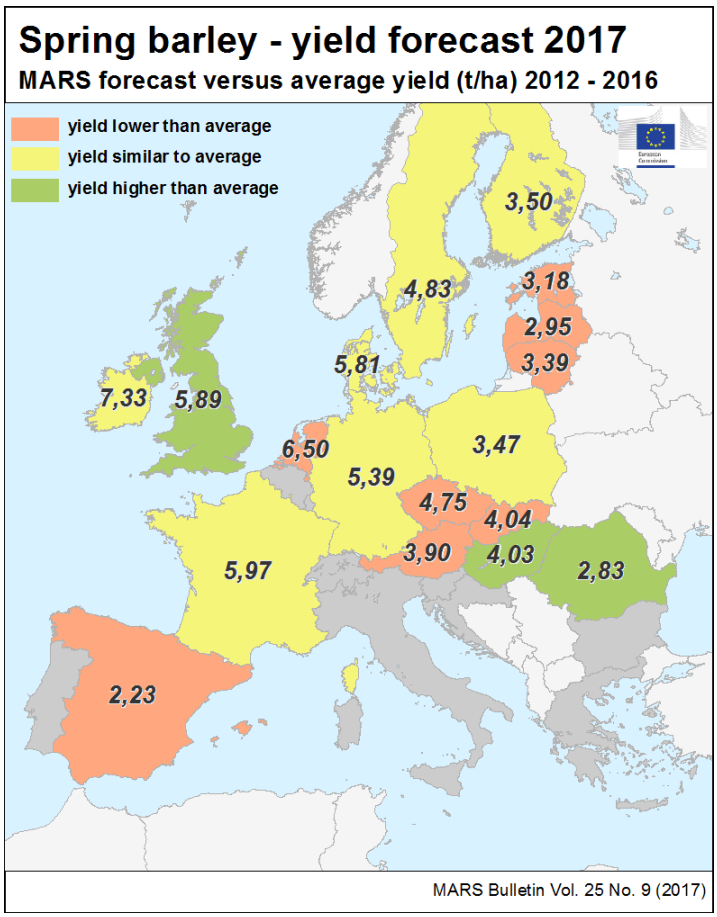
Country	SOFT WHEAT (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	5,84	5,56	**5,86**	+0,4	+5,3
AT	5,52	6,29	**5,44**	-1,5	-14
BE	8,53	6,71	**8,34**	-2,3	+24
BG	4,29	4,75	**5,04**	+17	+6,0
CY	-	-	**-**	-	-
CZ	5,88	6,50	**5,53**	-6,0	-15
DE	*7,96*	*7,66*	***7,70***	-3,3	+0,5
DK	*7,54*	*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*	*5,38*	***6,96***	-1,6	+29
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



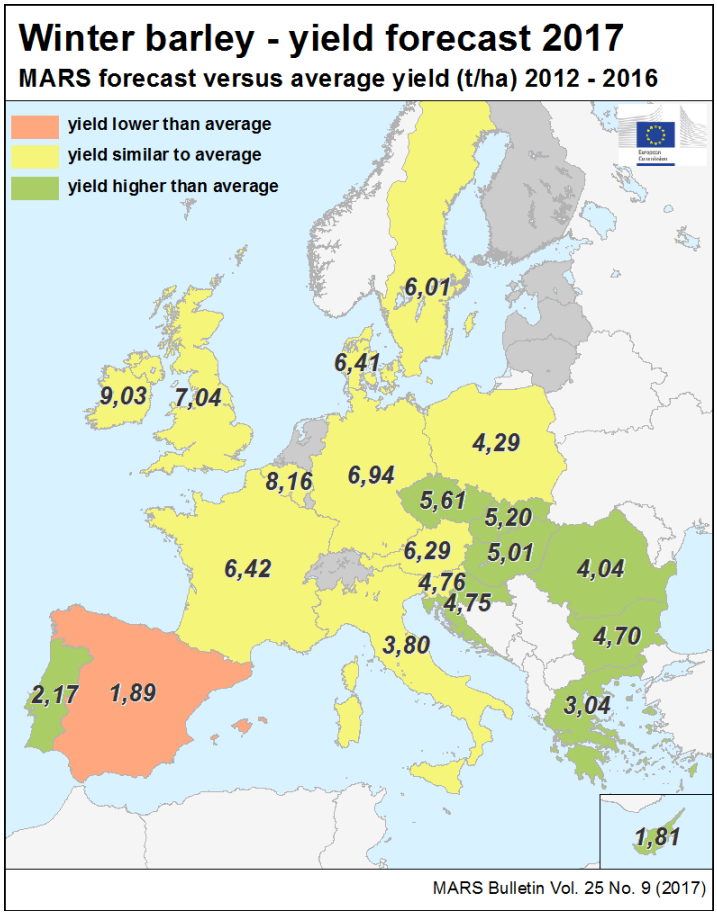
Country	DURUM WHEAT (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	3,33	3,42	**3,44**	+3,2	+0,5
AT	4,65	5,33	**4,14**	-11	-22
BE	-	-	**-**	-	-
BG	3,28	4,03	**4,28**	+30	+6,1
CY	-	-	**-**	-	-
CZ	-	-	**-**	-	-
DE	*5,36*	*5,32*	***5,19***	-3,2	-2,4
DK	-	-	**-**	-	-
EE	-	-	**-**	-	-
ES	*2,16*	*2,29*	***2,19***	+1,4	-4,6
FI	-	-	**-**	-	-
FR	*5,13*	*4,24*	***5,31***	+3,5	+25
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	-	-	**-**	-	-



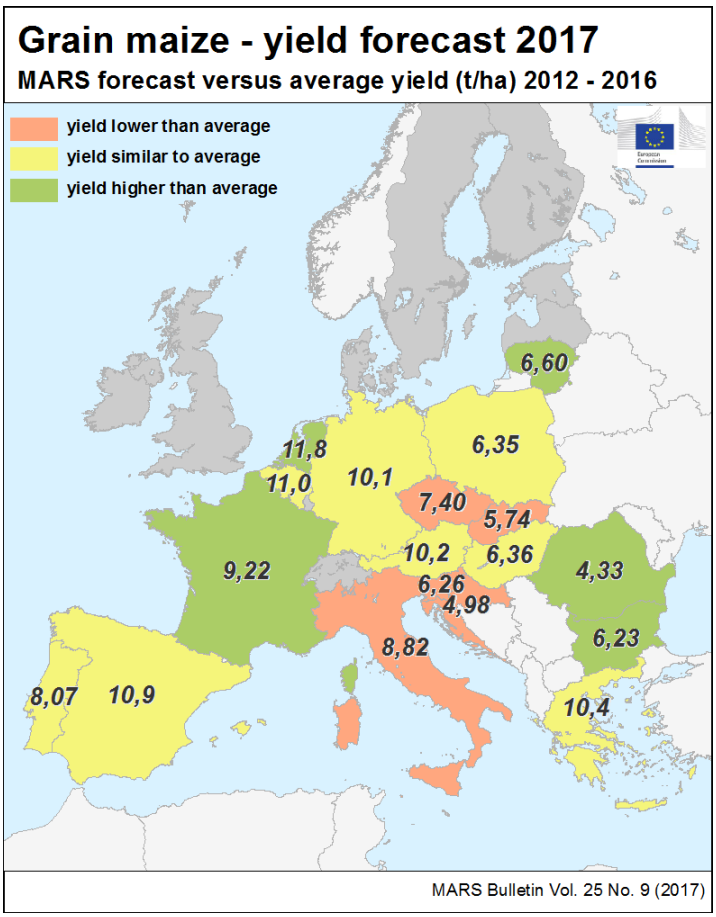
Country	SPRING BARLEY (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	4,22	4,34	**3,95**	-6,5	-8,9
AT	4,49	5,31	**3,90**	-13	-27
BE	-	-	**-**	-	-
BG	-	-	**-**	-	-
CY	-	-	**-**	-	-
CZ	5,05	5,45	**4,75**	-5,9	-13
DE	*5,55*	*5,24*	***5,39***	-2,9	+2,8
DK	*5,64*	*5,48*	***5,81***	+2,9	+5,9
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*	*5,00*	***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



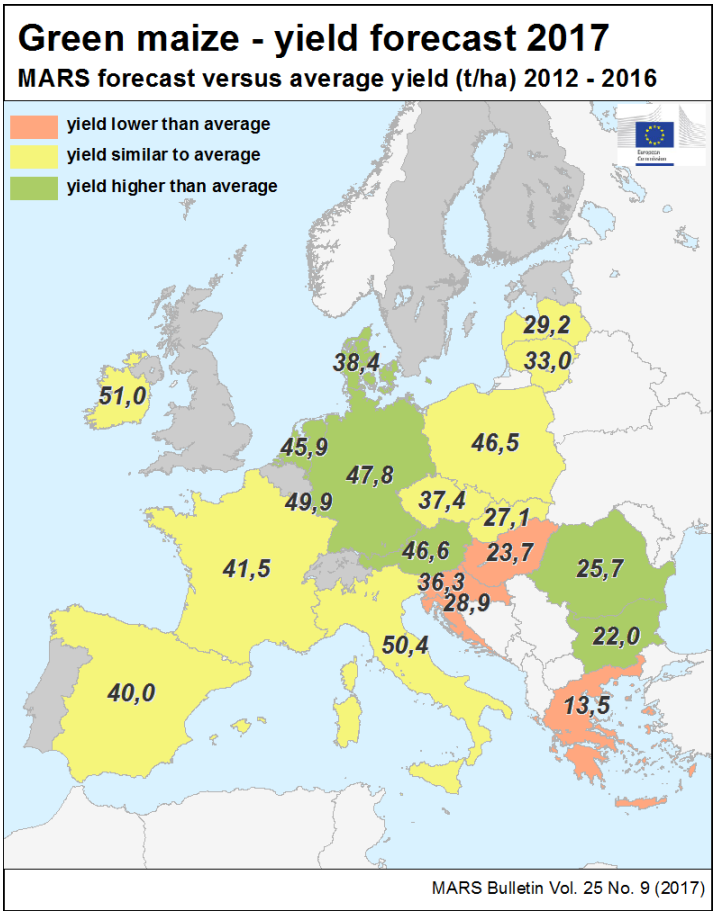
Country	WINTER BARLEY (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	5,68	5,54	**5,73**	+1,0	+3,5
AT	6,08	6,59	**6,29**	+3,5	-4,5
BE	8,21	6,34	**8,16**	-0,7	+29
BG	3,90	4,32	**4,70**	+21	+8,7
CY	*1,72*	*0,70*	***1,81***	+5,8	+159
CZ	5,17	6,13	**5,61**	+8,7	-8,4
DE	*7,20*	*7,07*	***6,94***	-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*	*5,53*	***6,42***	-2,1	+16
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	-17
RO	3,52	4,13	**4,04**	+15	-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



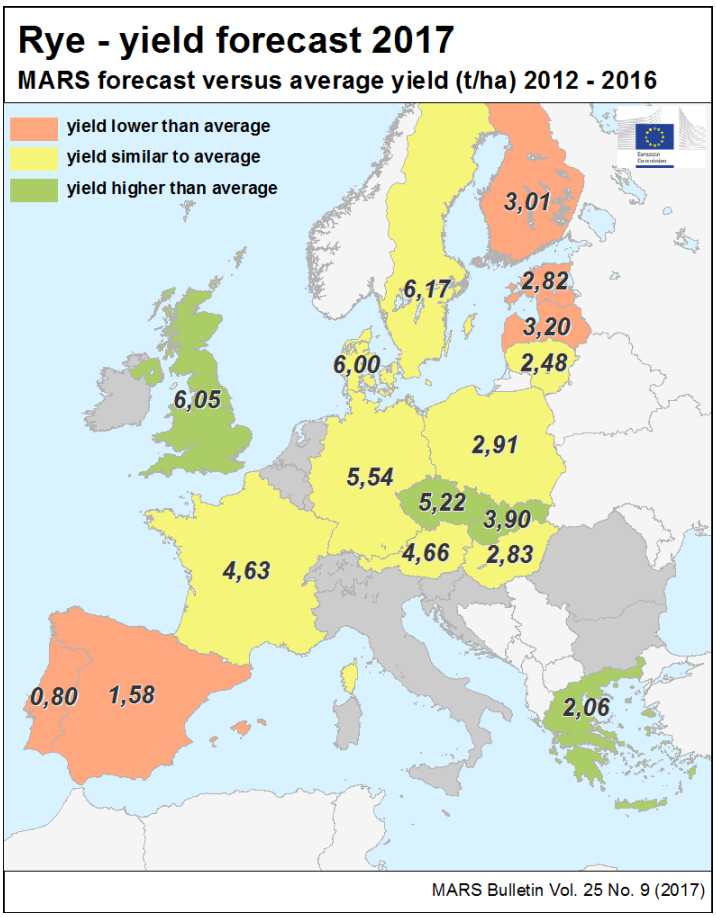
Country	GRAIN MAIZE (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	6,89	7,15	**6,99**	+1,4	-2,2
AT	9,92	11,2	**10,2**	+2,8	-8,6
BE	10,6	9,23	**11,0**	+3,0	+19
BG	5,66	5,45	**6,23**	+10	+14
CY	-	-	**-**	-	-
CZ	7,74	9,79	**7,40**	-4,4	-24
DE	*9,77*	*9,65*	***10,1***	+3,8	+5,1
DK	-	-	**-**	-	-
EE	-	-	**-**	-	-
ES	*11,1*	*11,1*	***10,9***	-2,2	-2,4
FI	-	-	**-**	-	-
FR	*8,82*	*8,19*	***9,22***	+4,5	+13
GR	*10,8*	*10,1*	***10,4***	-3,5	+3,0
HR	6,46	8,41	**4,98**	-23	-41
HU	6,15	8,61	**6,36**	+3,3	-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	**4,33**	+19	+24
SE	-	-	**-**	-	-
SI	8,00	9,54	**6,26**	-22	-34
SK	6,44	8,53	**5,74**	-11	-33
UK	-	-	**-**	-	-



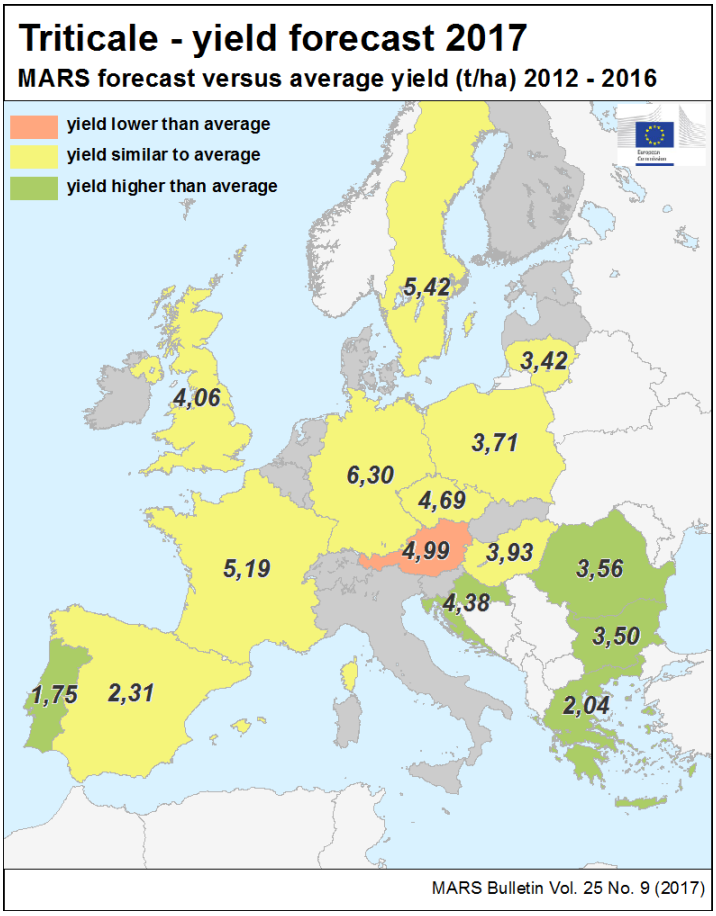
Country	GREEN MAIZE (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU*	41,9	41,2	**44,1**	+5,3	+7,0
AT	44,7	49,3	**46,6**	+4,3	-5,5
BE	-	-	**-**	-	-
BG	20,2	24,0	**22,0**	+8,5	-8,5
CY	-	-	**-**	-	-
CZ	36,5	40,7	**37,4**	+2,3	-8,2
DE	43,5	43,1	**47,8**	+10	+11
DK	*36,0*	*30,6*	***38,4***	+6,6	+26
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	**28,9**	-16	-32
HU	25,7	32,5	**23,7**	-7,6	-27
IE	50,5	49,5	**51,0**	+1,1	+3,1
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	**49,9**	+9,4	+18
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	**36,3**	-15	-26
SK	28,1	34,9	**27,1**	-3,8	-22
UK	-	-	**-**	-	-



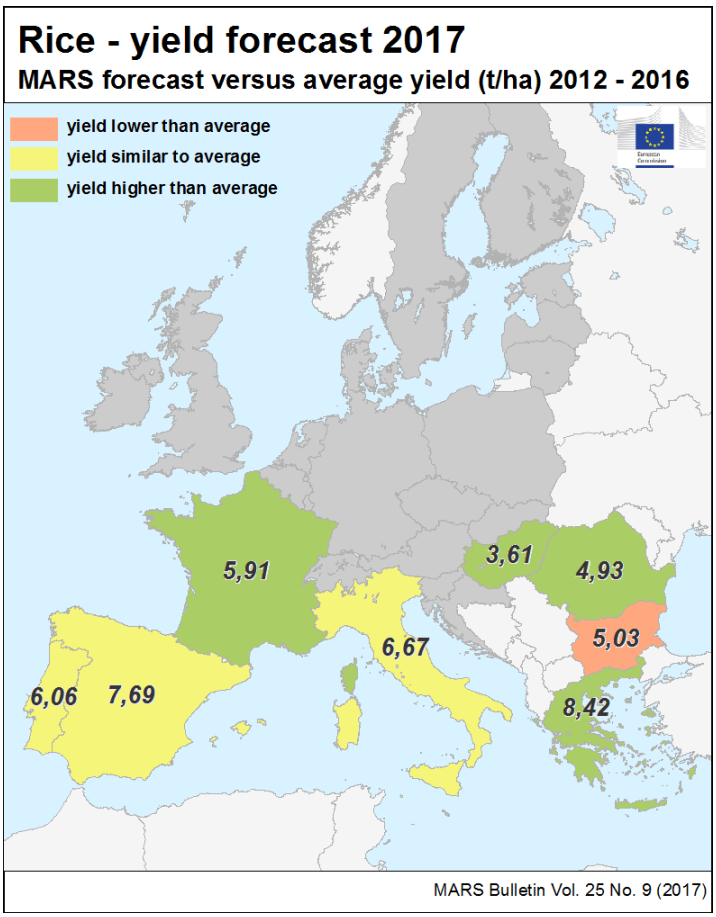
Country	RYE (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	3,89	3,90	**3,83**	-1,5	-1,7
AT	4,49	5,05	**4,66**	+3,7	-7,8
BE	-	-	**-**	-	-
BG	-	-	**-**	-	-
CY	-	-	**-**	-	-
CZ	4,88	4,98	**5,22**	+7,0	+4,8
DE	5,71	5,56	**5,54**	-3,0	-0,4
DK	*5,97*	*5,80*	***6,00***	+0,3	+3,4
EE	3,06	2,61	**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	+17
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



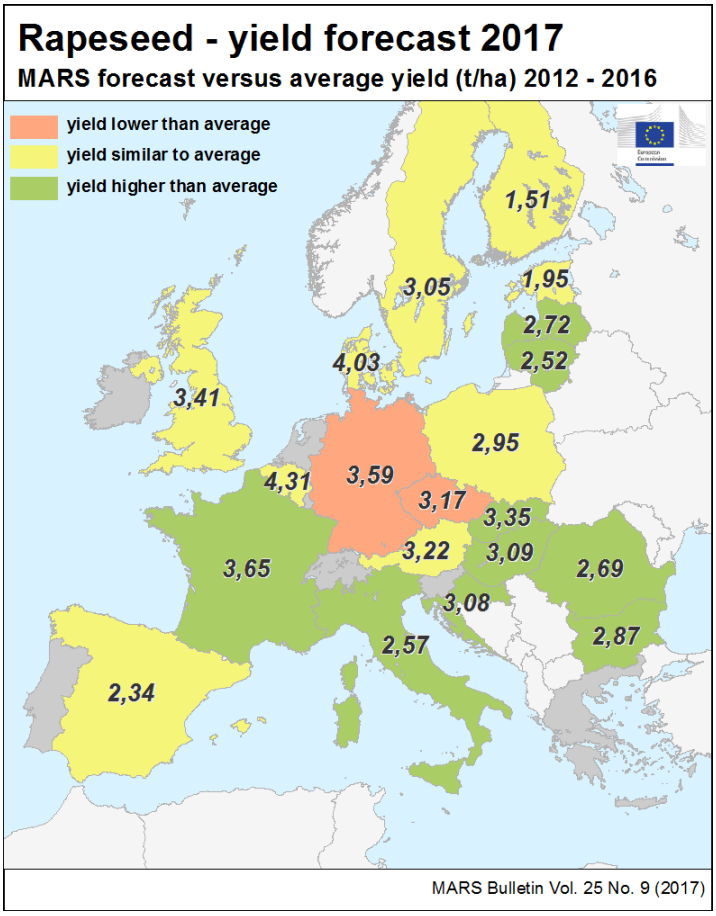
Country	TRITICALE (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	4,20	3,99	**4,19**	-0,3	+5,0
AT	5,44	5,88	**4,99**	-8,3	-15
BE	-	-	**-**	-	-
BG	2,95	3,06	**3,50**	+18	+14
CY	-	-	**-**	-	-
CZ	4,70	4,88	**4,69**	-0,3	-3,9
DE	*6,49*	*6,05*	***6,30***	-3,0	+4,0
DK	-	-	**-**	-	-
EE	-	-	**-**	-	-
ES	*2,25*	*2,41*	***2,31***	+2,9	-4,3
FI	-	-	**-**	-	-
FR	*5,17*	*4,33*	***5,19***	+0,4	+20
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



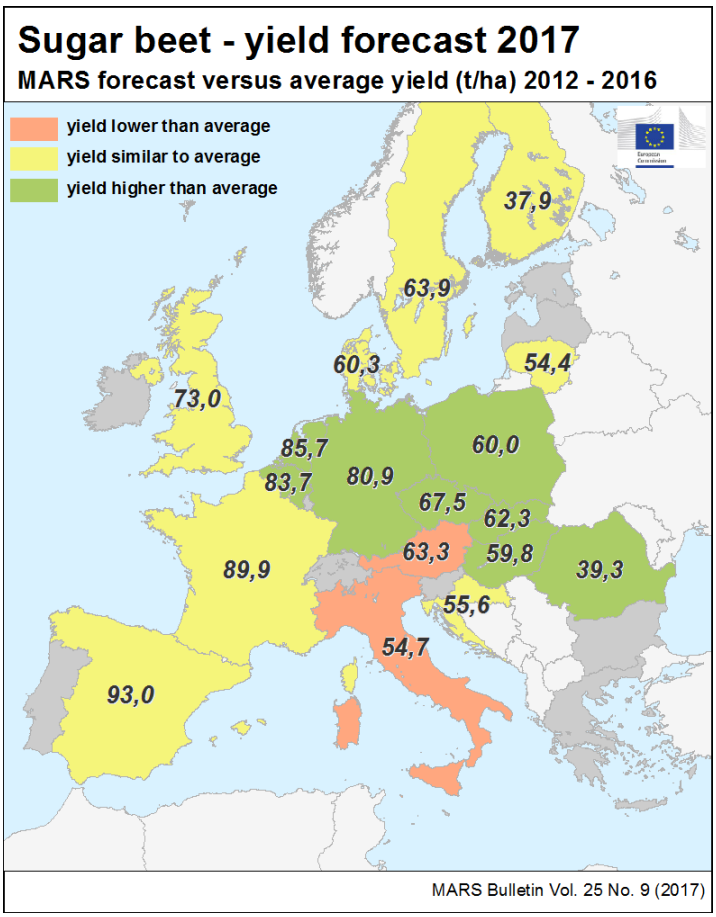
Country	RICE (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	6,86	6,73	**6,89**	+0,4	+2,3
AT	-	-	-	-	-
BE	-	-	-	-	-
BG	5,27	5,00	**5,03**	-4,6	+0,6
CY	-	-	-	-	-
CZ	-	-	-	-	-
DE	-	-	-	-	-
DK	-	-	-	-	-
EE	-	-	-	-	-
ES	*7,72*	*7,51*	***7,69***	*-0,4*	*+2,3*
FI	-	-	-	-	-
FR	*5,30*	*5,33*	***5,91***	*+12*	*+11*
GR	*7,86*	*7,57*	***8,42***	*+7,1*	*+11*
HR	-	-	-	-	-
HU	3,42	3,40	**3,61**	+5,7	+6,2
IE	-	-	-	-	-
IT	6,79	6,68	**6,67**	-1,7	-0,1
LT	-	-	-	-	-
LU	-	-	-	-	-
LV	-	-	-	-	-
MT	-	-	-	-	-
NL	-	-	-	-	-
PL	-	-	-	-	-
PT	*5,98*	*5,71*	***6,06***	*+1,4*	*+6,1*
RO	4,33	4,67	**4,93**	+14	+5,5
SE	-	-	-	-	-
SI	-	-	-	-	-
SK	-	-	-	-	-
UK	-	-	-	-	-



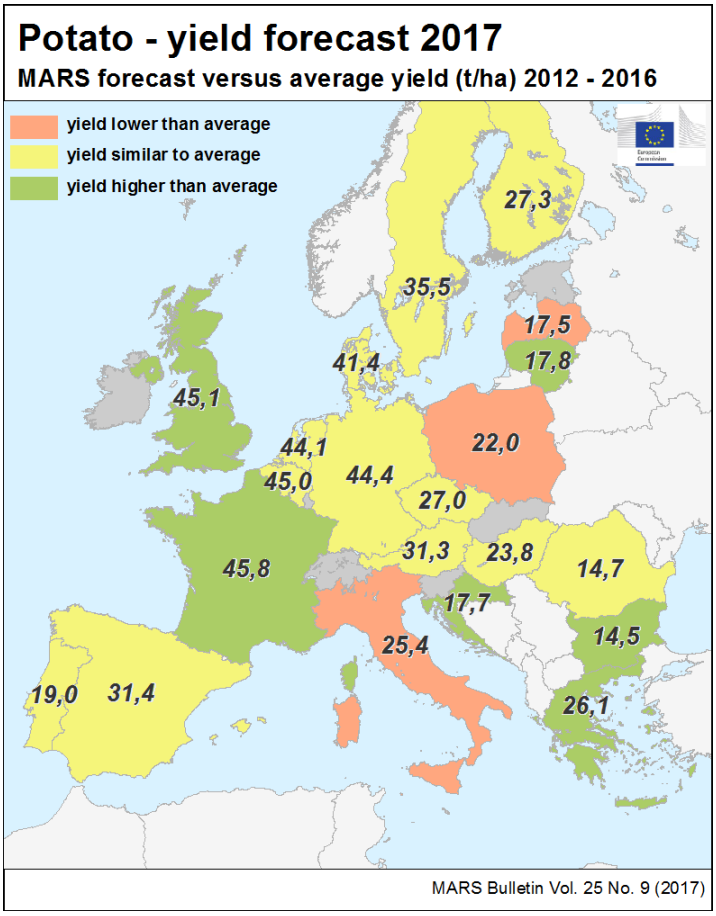
Country	RAPE AND TURNIP RAPE (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	3,24	3,00	**3,25**	+0,4	+8,4
AT	3,26	3,58	**3,22**	-1,4	-10
BE	4,15	3,44	**4,31**	+3,9	+25
BG	2,58	2,95	**2,87**	+11	-2,9
CY	-	-	-	-	-
CZ	3,41	3,46	**3,17**	-6,9	-8,3
DE	*3,90*	*3,45*	***3,59***	*-8,1*	*+3,8*
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	*3,29*	*2,77*	***3,65***	*+11*	*+31*
GR	-	-	-	-	-
HR	2,88	3,11	**3,08**	+6,9	-0,9
HU	2,95	3,44	**3,09**	+4,9	-10
IE	-	-	-	-	-
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



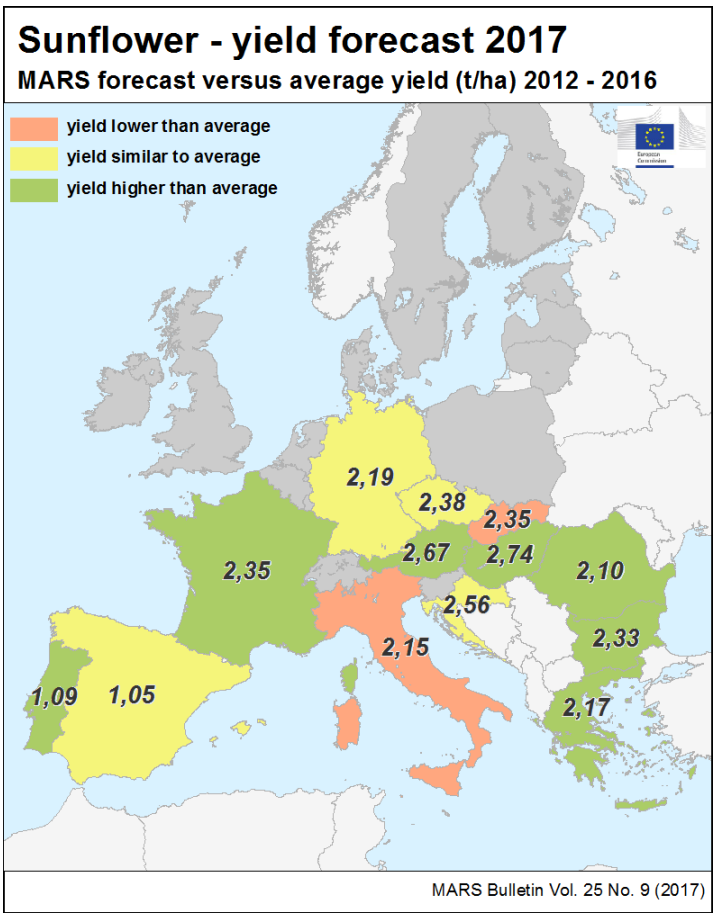
Country	SUGAR BEETS (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	72,1	74,1	**76,9**	+6,6	+3,7
AT	71,8	81,3	**63,3**	-12	-22
BE	77,2	72,5	**83,7**	+8,3	+16
BG	-	-	**-**	-	-
CY	-	-	**-**	-	-
CZ	64,2	67,8	**67,5**	+5,1	-0,5
DE	72,1	76,2	**80,9**	+12	+6,1
DK	*60,9*	*51,3*	***60,3***	-1,0	+18
EE	-	-	**-**	-	-
ES	*92,5*	*95,7*	***93,0***	+0,5	-2,9
FI	*38,1*	*37,3*	***37,9***	-0,6	+1,5
FR	87,4	83,9	**89,9**	+2,9	+7,1
GR	-	-	**-**	-	-
HR	55,9	75,5	**55,6**	-0,5	-26
HU	57,2	67,5	**59,8**	+4,6	-11
IE	-	-	**-**	-	-
IT	57,0	63,4	**54,7**	-4,0	-14
LT	54,1	61,3	**54,4**	+0,5	-11
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	80,6	77,8	**85,7**	+6,3	+10
PL	55,9	65,8	**60,0**	+7,2	-8,8
PT	-	-	**-**	-	-
RO	37,5	39,9	**39,3**	+5,0	-1,4
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	**73,0**	+2,8	+11



Country	POTATO (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	32,6	33,7	**33,4**	+2,5	-0,9
AT	31,4	36,2	**31,3**	-0,2	-13
BE	45,9	38,2	**45,0**	-2,0	+18
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	**44,4**	+0,9	+0,0
DK	*41,8*	*42,4*	***41,4***	-1,1	-2,4
EE	-	-	**-**	-	-
ES	*30,9*	*30,7*	***31,4***	+1,9	+2,5
FI	*26,6*	*27,1*	***27,3***	+2,8	+0,7
FR	*42,7*	*39,0*	***45,8***	+7,1	+17
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	**23,8**	-1,1	-3,3
IE	-	-	**-**	-	-
IT	26,6	28,3	**25,4**	-4,7	-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	**44,1**	+1,4	+2,8
PL	23,8	28,5	**22,0**	-7,4	-23
PT	*18,7*	*18,8*	***19,0***	+1,7	+0,9
RO	14,3	14,2	**14,7**	+2,6	+3,2
SE	34,3	35,7	**35,5**	+3,7	-0,6
SI	-	-	**-**	-	-
SK	-	-	**-**	-	-
UK	42,1	45,0	**45,1**	+7,3	+0,3



Country	SUNFLOWER (t/ha)				
	Avg 5yrs	2016	MARS 2017 forecasts	%17/5yrs	%17/16
EU	1,94	2,06	**2,11**	+8,5	+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	**2,38**	+2,5	-17
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	*2,18*	*2,16*	***2,35***	+7,9	+8,8
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	**2,74**	+7,7	-7,0
IE	-	-	**-**	-	-
IT	2,26	2,42	**2,15**	-4,8	-11
LT	-	-	**-**	-	-
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	-	-	**-**	-	-
PL	-	-	**-**	-	-
PT	*0,93*	*1,30*	***1,09***	+18	-16
RO	1,83	1,92	**2,10**	+15	+9,4
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**	+11	+4,2
UA	5,84	6,60	**5,84**	+0,0	-12

Note: Yields are forecast for crops with more than 10000 ha per country (for rice more than 1000 ha per country)

Sources: 2017 yields come from MARS CROP YIELD FORECASTING SYSTEM (output up to 10/09/2017). For EU countries 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 was not available.

EU. 2012-2017 data come from DG AGRICULTURE short term Outlook data (dated August 2017, received on 28/08/2017), EUROSTAT Eurobase (last update: 05/09/2017) and EES (last update: 14/07/2017)

Non-EU. 2012-2016 data come from USDA,Turkish Statistical Institute (TurkStat), EUROSTAT Eurobase (last update: 05/09/2017),State Statistics Service of Ukraine, FAO and PSD-online

Potato and Sugar beet: the 2016 yield for Croatia and Italy come from National Institute of Statistics

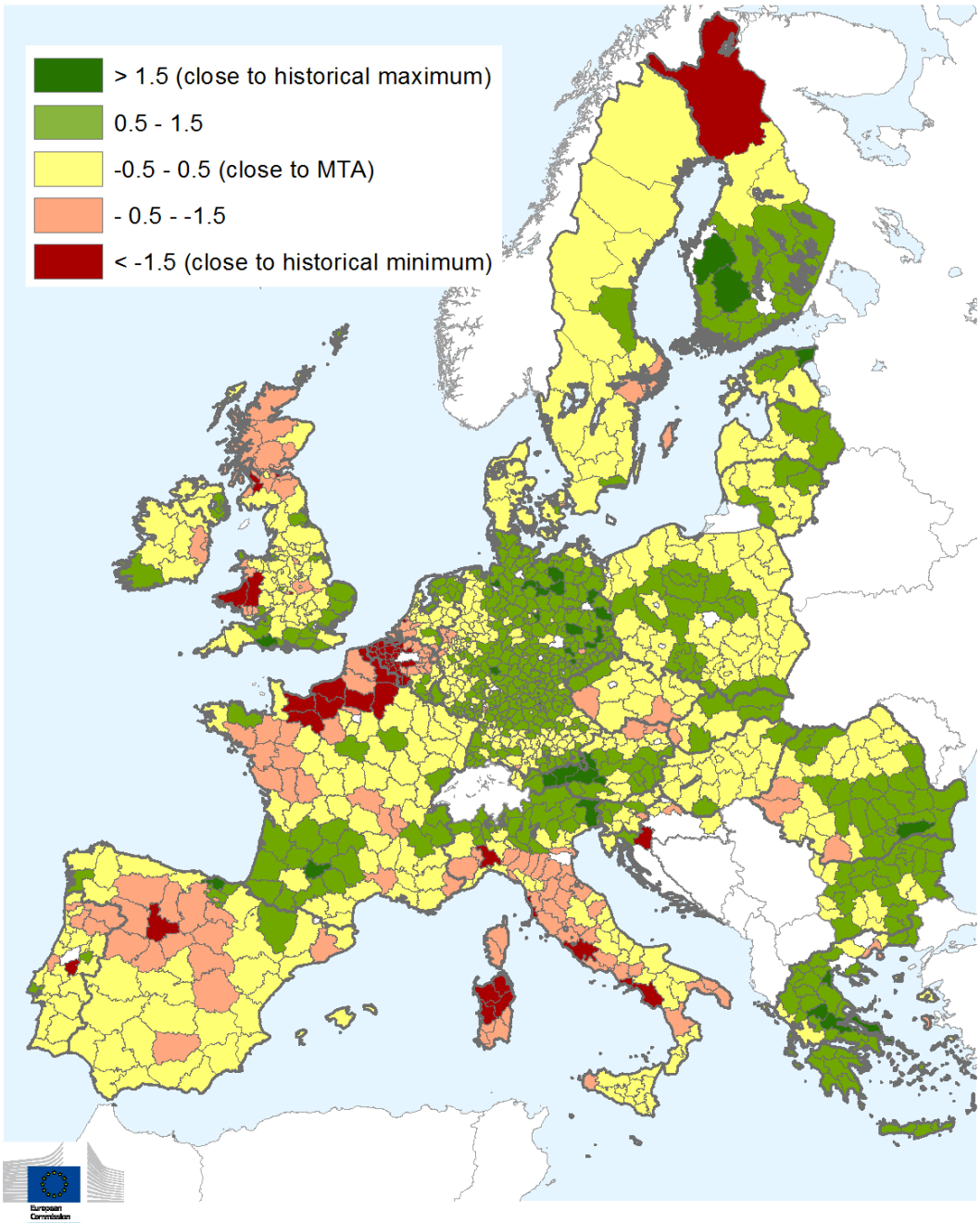
A 2017 yield value as reported by the Member State is published and made available by Eurostat for the rows in italic

6. Atlas

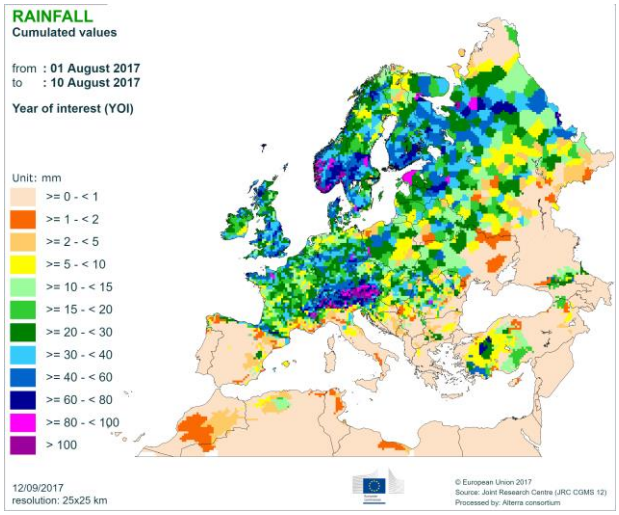
Relative index of pasture productivity

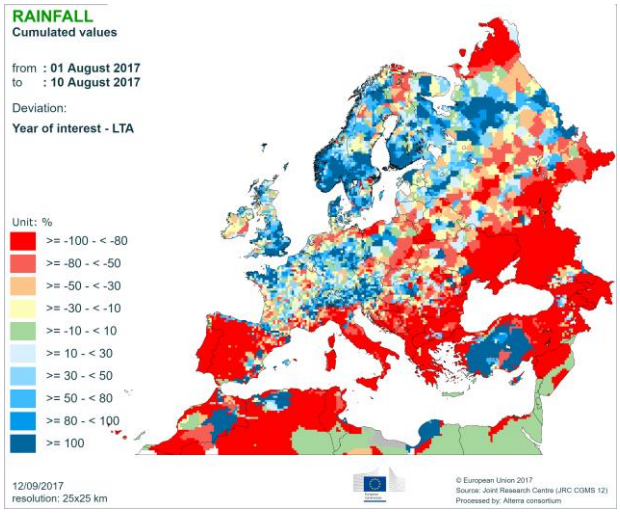
Period of analysis: 1 June - 10 September 2017

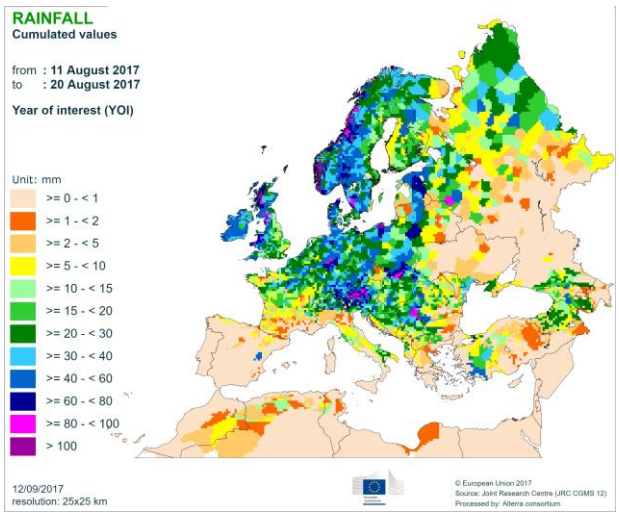
Index based on METOP-AVHRR smoothed fAPAR10-day product.
Historical archive (MTA) from 2008 to 2017

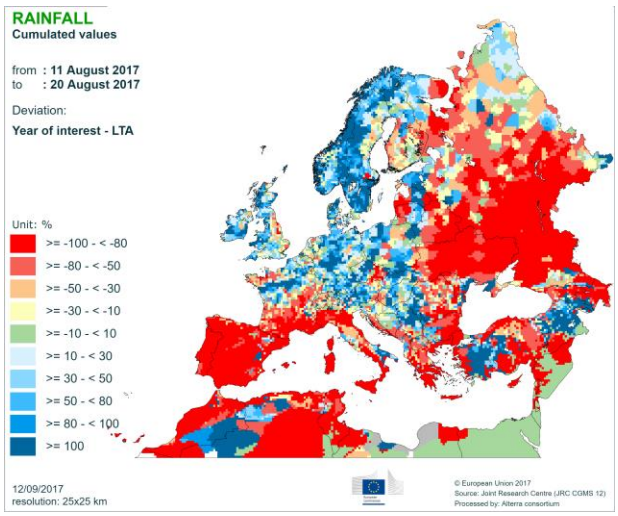


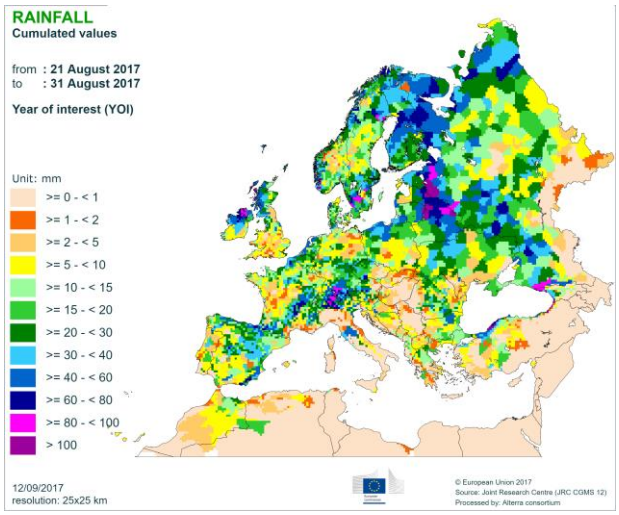
Precipitation

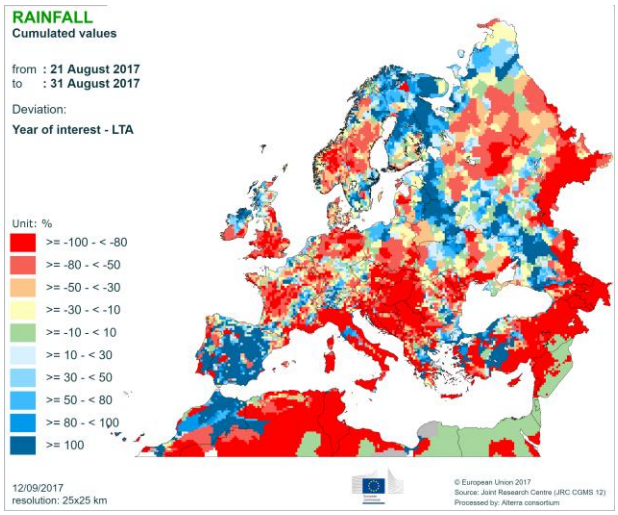


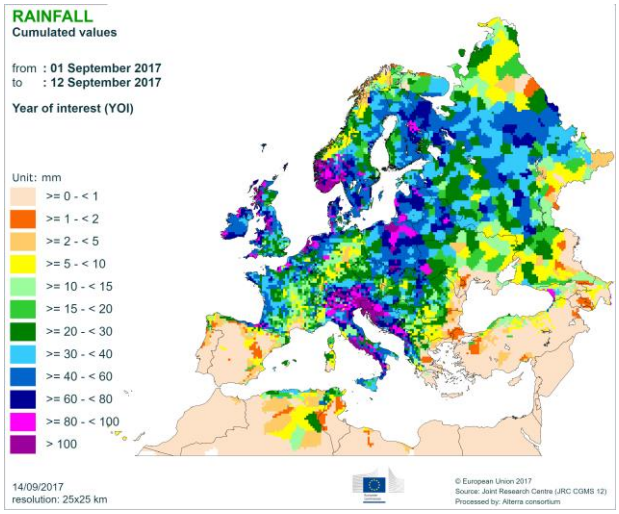


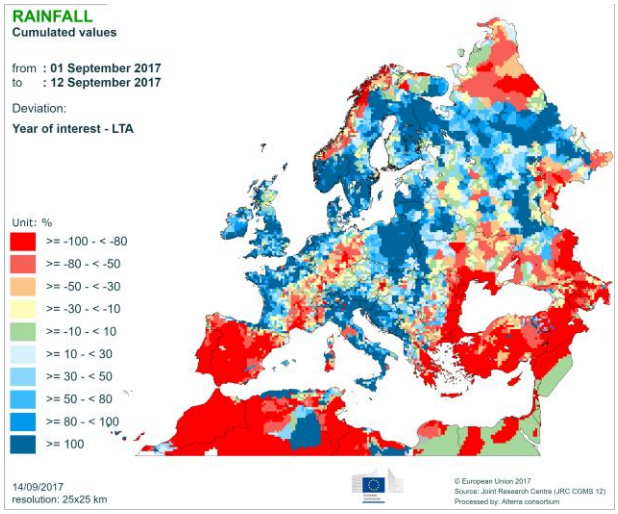




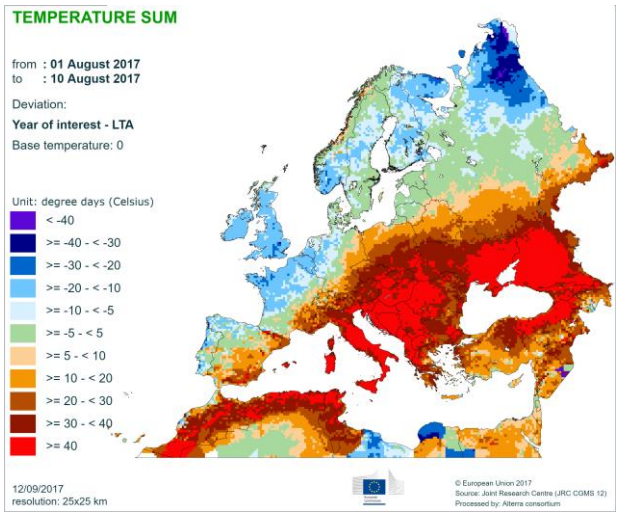


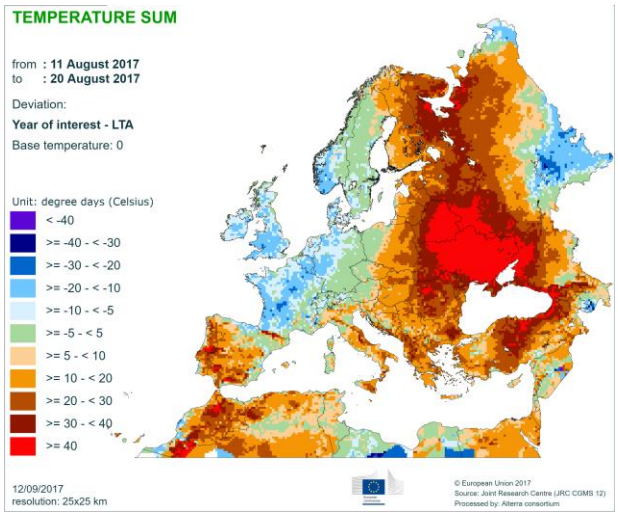


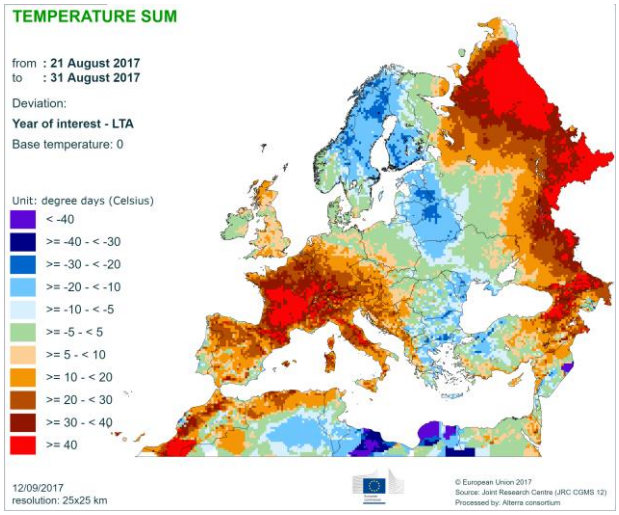


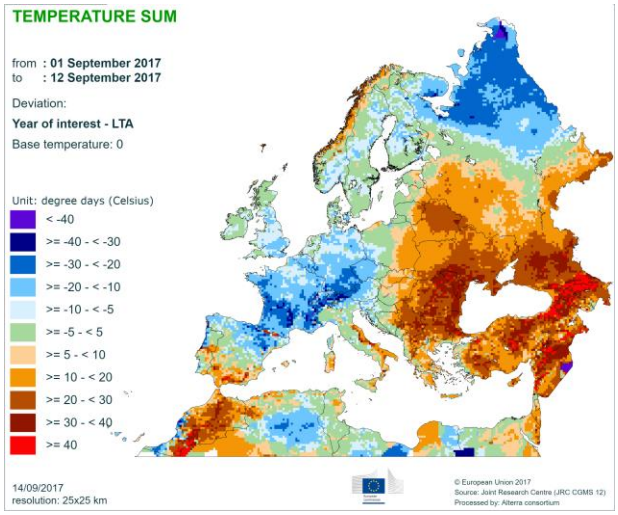


Temperature regime

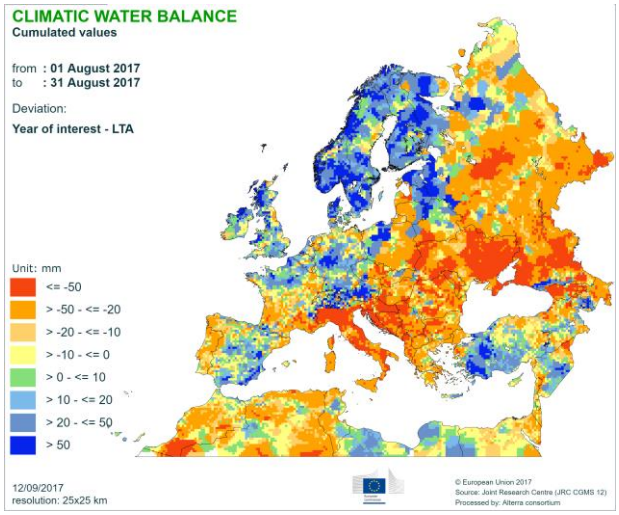


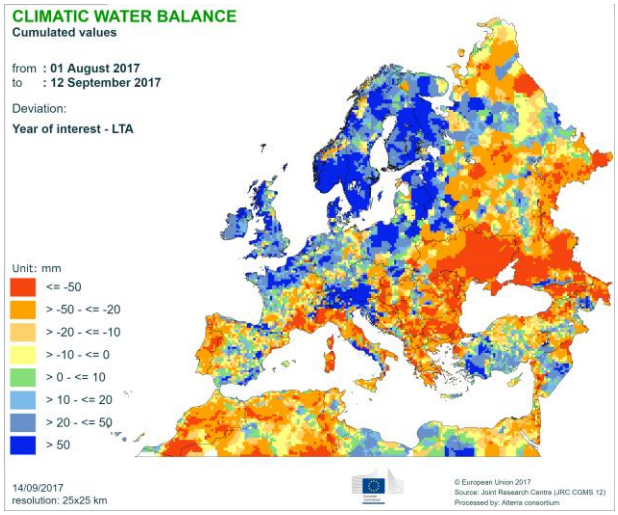




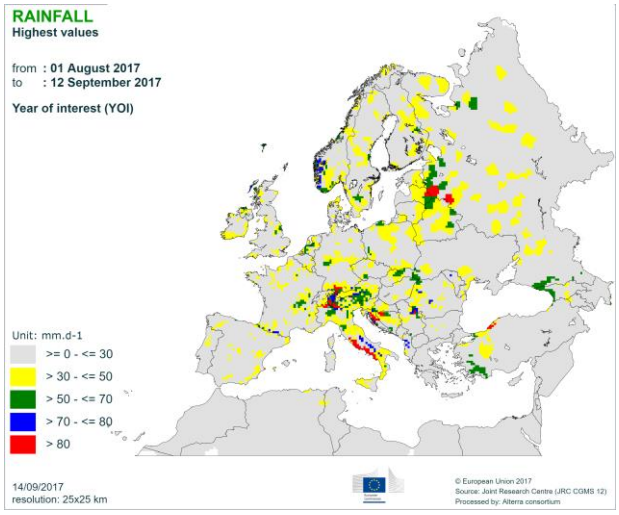


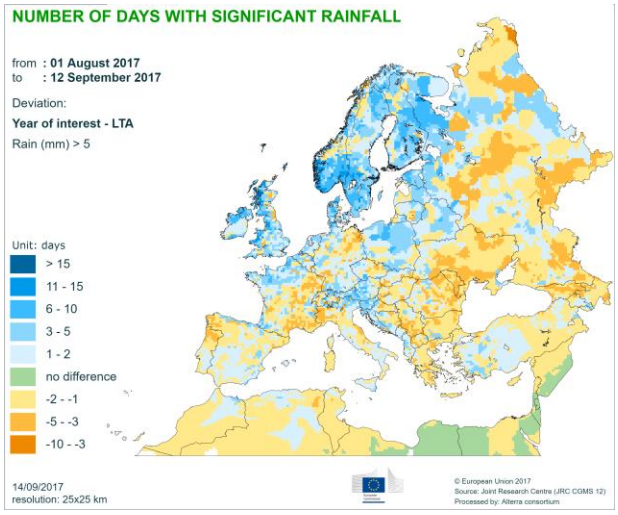
Climatic water balance

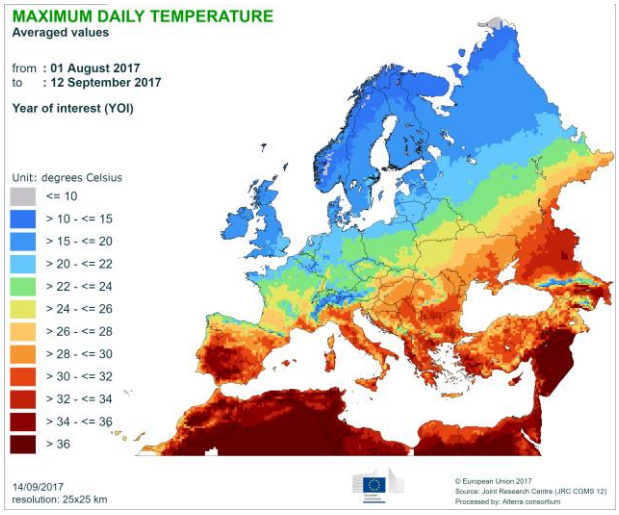


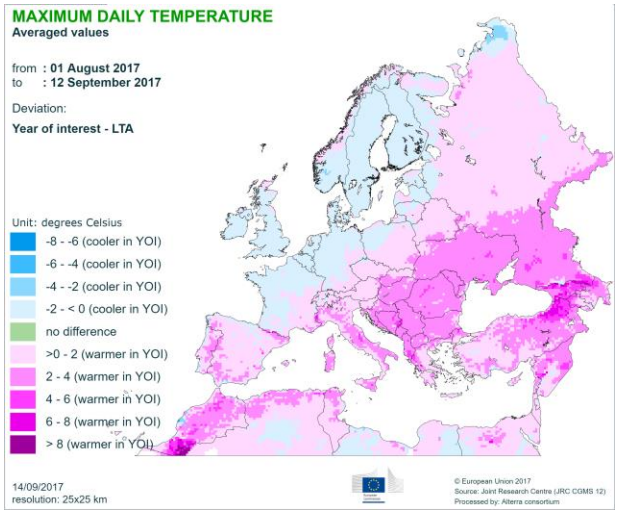


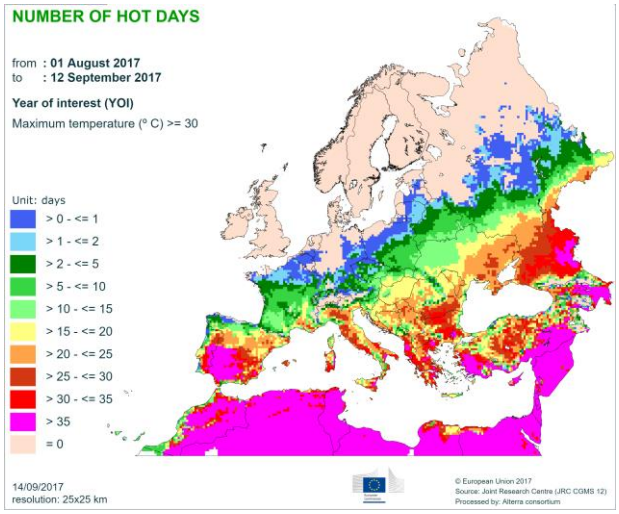
Weather events

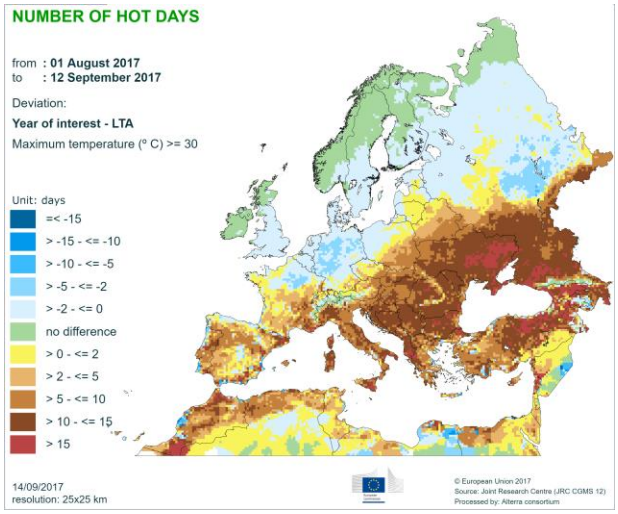




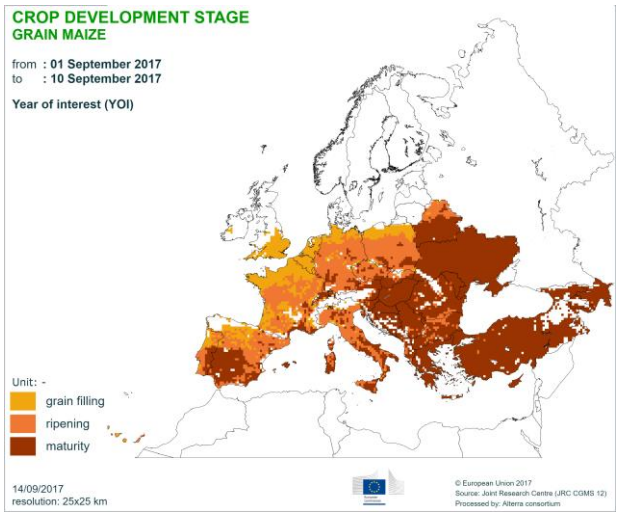


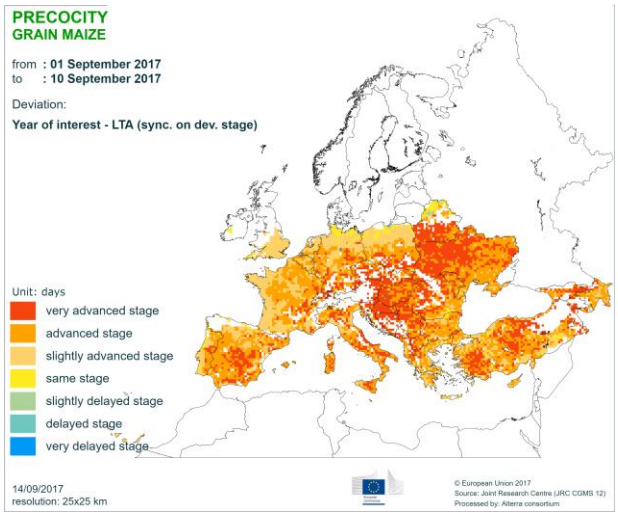


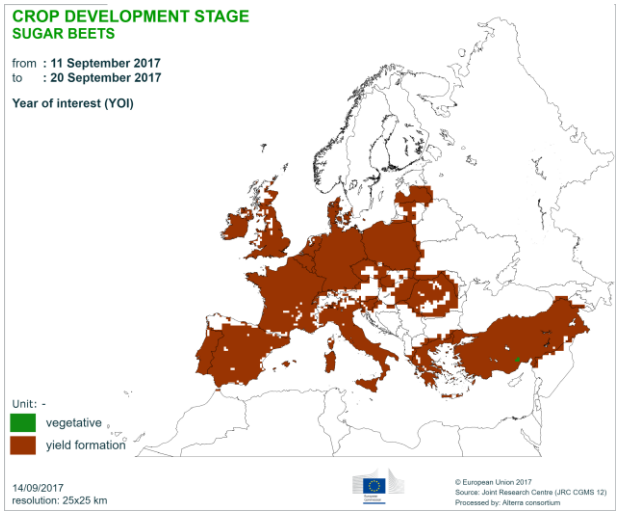


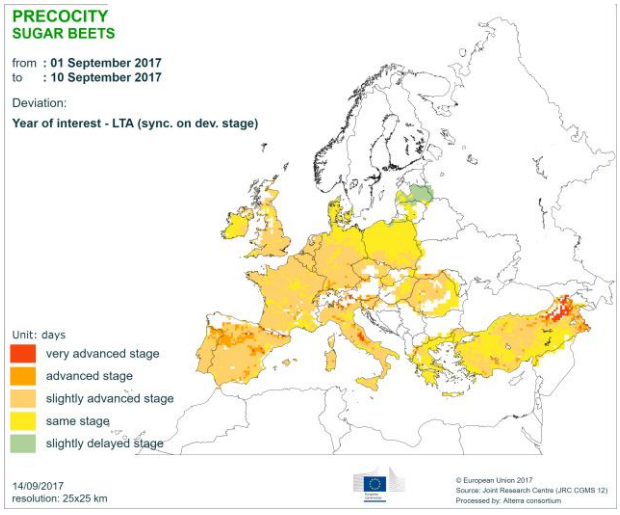


Crop development stages and precocity

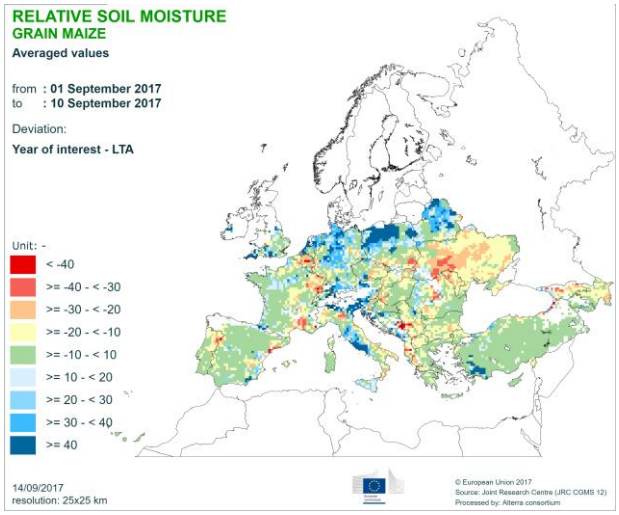


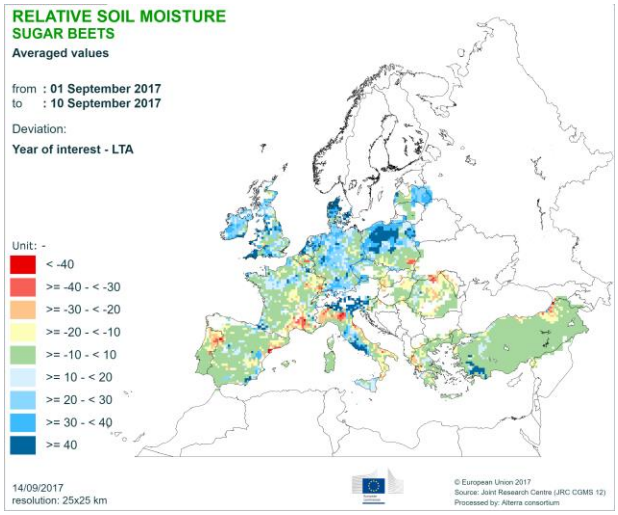




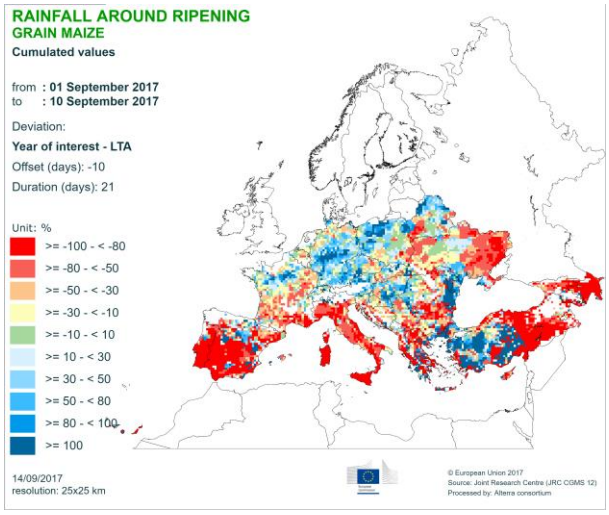


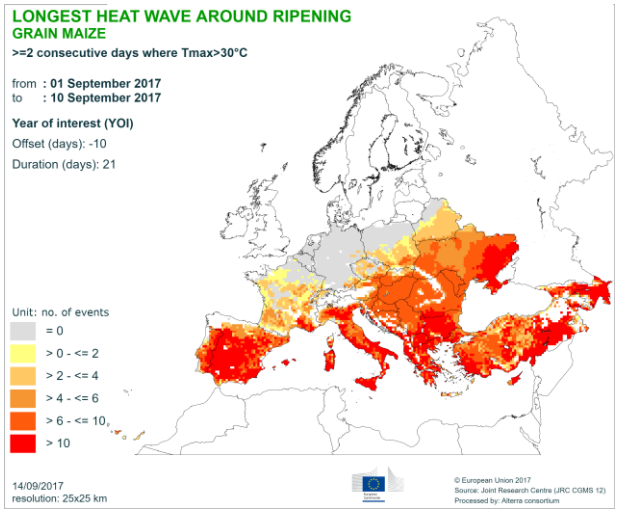
Relative soil moisture

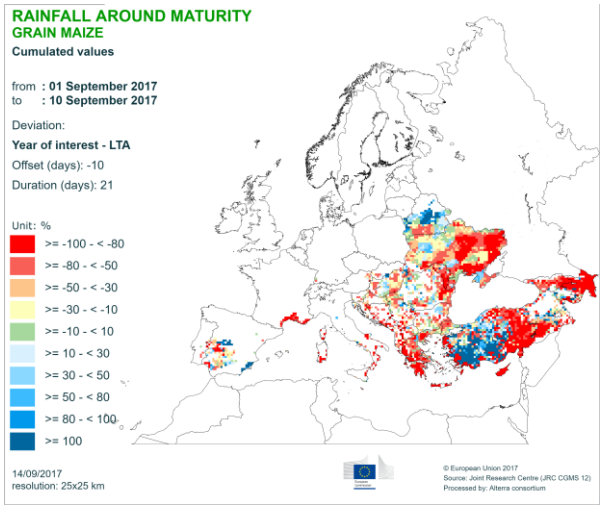


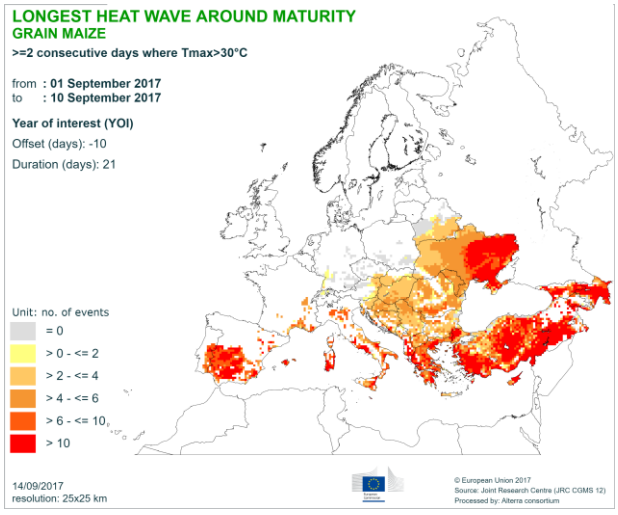


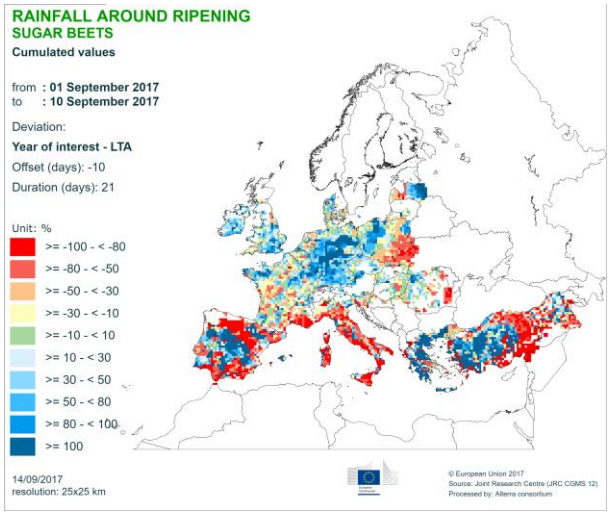
Rainfall and longest heat wave around crop development stages

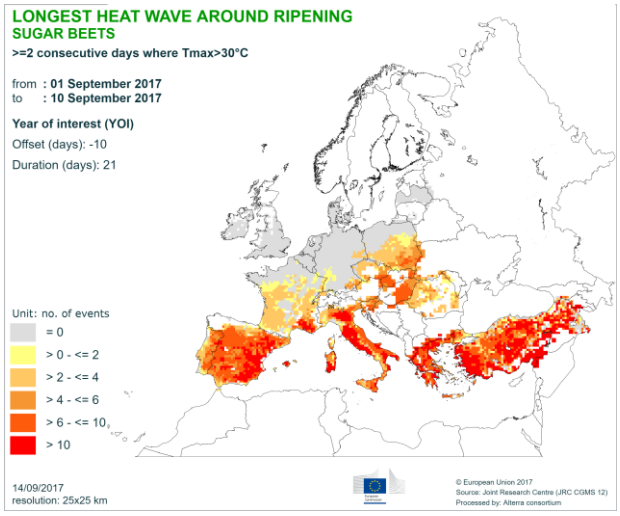




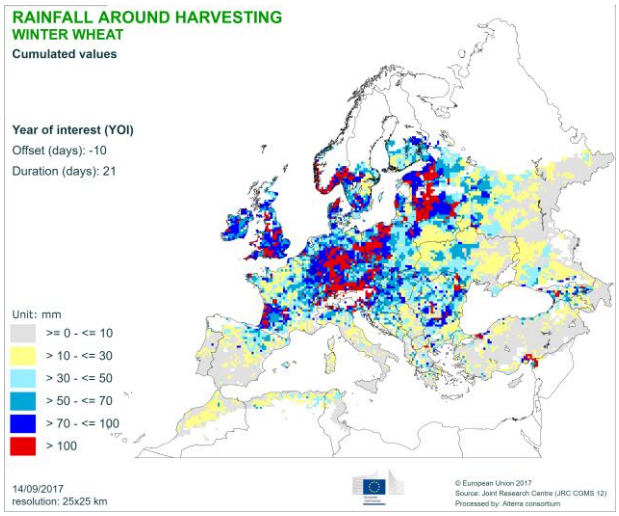


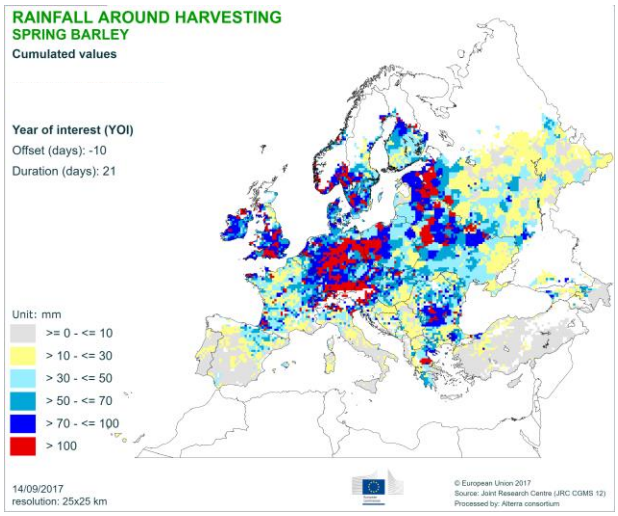


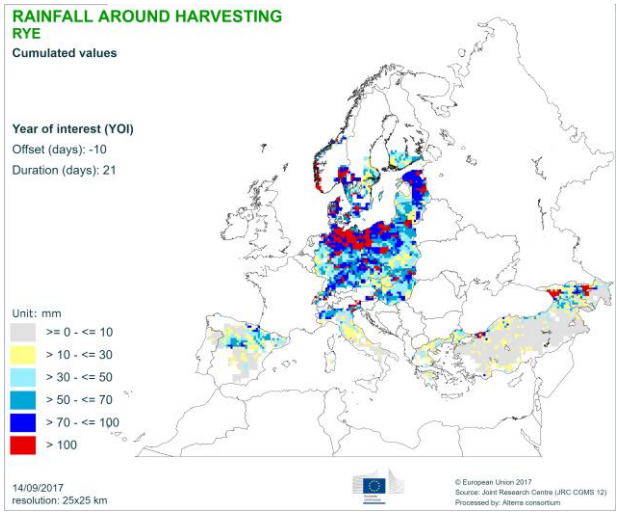


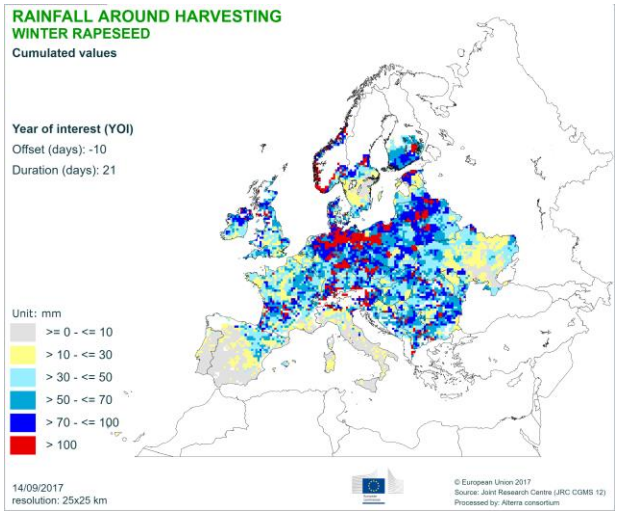


Rainfall around harvesting









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, yield forecast	Vol. 25 No 3
24 Apr	Agromet analysis, remote sensing, yield forecast, sowing conditions	Vol. 25 No 4
22 May	Agromet analysis, remote sensing, yield forecast, pasture analysis,	Vol. 25 No 5
26 Jun	Agromet analysis, remote sensing, yield forecast, pasture update, rice analysis	Vol. 25 No 6
24 Jul	Agromet analysis, remote sensing, yield forecast, pasture update	Vol. 25 No 7
21 Aug	Agromet analysis, remote sensing, yield forecast, pasture update	Vol. 25 No 8
18 Sep	Agromet analysis, remote sensing, rice analysis, yield forecast	Vol. 25 No 9
23 Oct	Agromet analysis, remote sensing, yield forecast,	Vol. 25 No 10
27 Nov	Agromet analysis and yield forecast, sowing conditions	Vol. 25 No 11
18 Dec	Agromet analysis	Vol. 25 No 12

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MARS stands for Monitoring Agricultural Resources

Technical note:

The long-term average (LTA) used within this Bulletin as a reference is based on an archive of data covering 1975-2016.