

European
CommissionPeriod covered: 1 August - 15 September
Issued: 22 September 2014

Crop Monitoring in Europe

MARS BULLETIN Vol.22 No. 9 (2014)

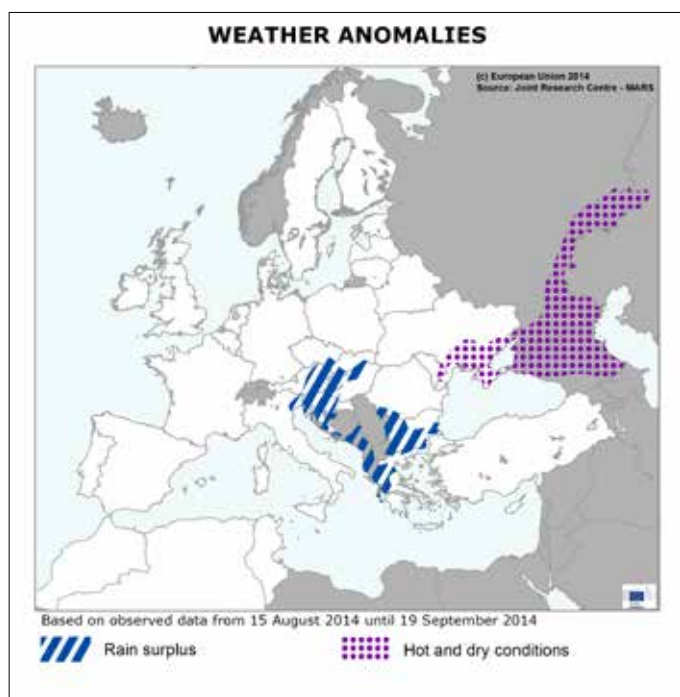
Maize maturing under favourable conditions

Yield prospects for grain maize have further improved; forecasts are 12.5 % above the level of last year and 11.8% above the last five year's average. With the harvest having finished for most of the winter and spring crops the overall favourable EU-28 cereal yield forecast for 2014 is confirmed.

In most of the EU, a wet and relatively cool August was followed by dry and sunny conditions, with above-average temperatures during the first half of September. Overall growth conditions continued to be favourable and the yield outlook for summer crops is positive. There are a few regions of concern, however. In western Bulgaria, parts of the Pannonian plain and north eastern Italy, a huge rain

surplus extending into September created problems to the farmers for all kinds of field operations; and in many places the conditions are favourable to the spread of plants diseases.

In southern Ukraine and in the main agricultural regions of European Russia a persistent hot spell during August coupled with rain scarcity hampered the grain filling stages of the summer crops, negatively impacting on the yield outlook.



| Crop | Yield t/ha | | | | |
|-----------------------------|------------|---------------------|----------|--------------|-------------|
| | 2013 | MARS 2014 forecasts | Avg 5yrs | %14/13 | %14/5yrs |
| TOTAL CEREALS | 5.32 | 5.42 | 5.09 | +2.0 | +6.5 |
| Total Wheat | 5.59 | 5.64 | 5.33 | +0.9 | +5.7 |
| <i>soft wheat</i> | 5.81 | 5.88 | 5.57 | +1.1 | +5.5 |
| <i>durum wheat</i> | 3.35 | 3.17 | 3.22 | -5.5 | -1.7 |
| Total Barley | 4.85 | 4.61 | 4.49 | -5.1 | +2.6 |
| <i>spring barley</i> | 4.43 | 3.90 | 3.94 | -11.9 | -1.0 |
| <i>winter barley</i> | 5.50 | 5.61 | 5.31 | +2.0 | +5.8 |
| Grain maize | 6.74 | 7.59 | 6.78 | +12.5 | +11.8 |
| Rye | 3.99 | 3.71 | 3.46 | -7.1 | +7.1 |
| Triticale | 4.29 | 4.27 | 4.07 | -0.4 | +4.9 |
| Other cereals | 3.22 | 3.25 | 3.42 | +1.2 | -4.9 |
| Rape and turnip rape | 3.11 | 3.33 | 3.07 | +7.2 | +8.6 |
| Potato | 30.94 | 32.78 | 30.61 | +5.9 | +7.1 |
| Sugar beet | 67.94 | 73.41 | 69.36 | +8.1 | +5.8 |
| Sunflower | 2.02 | 2.10 | 1.86 | +4.3 | +12.9 |

Issued: 19 September 2014

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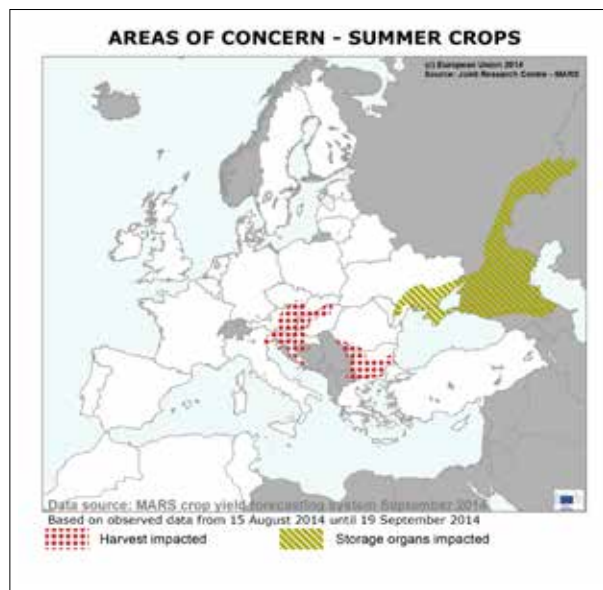
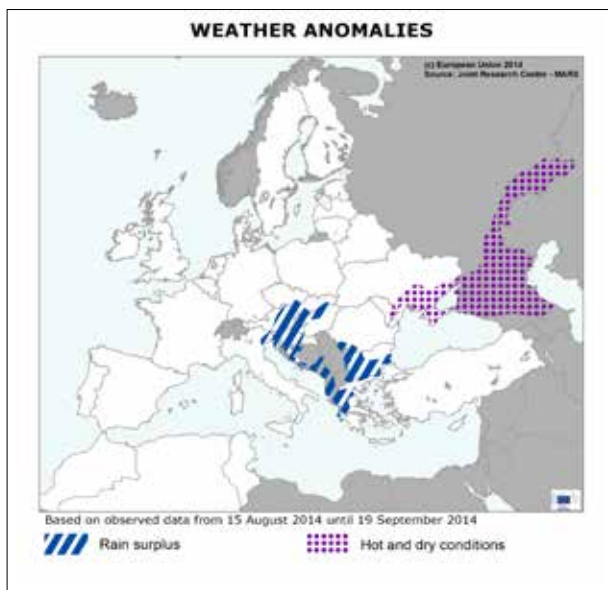
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1. Agro-meteorological overview

1.1 Areas of concern



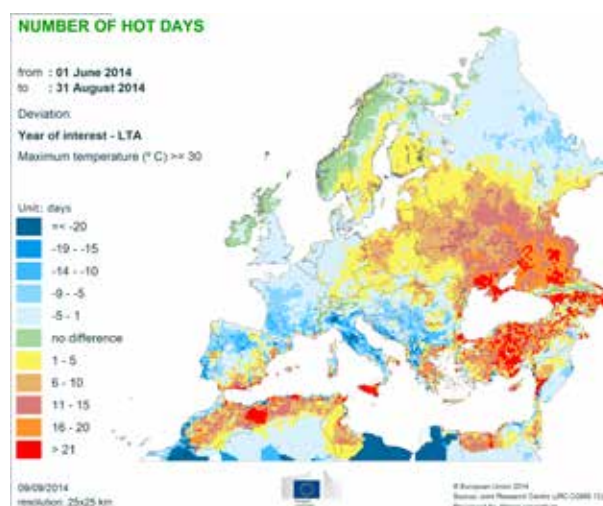
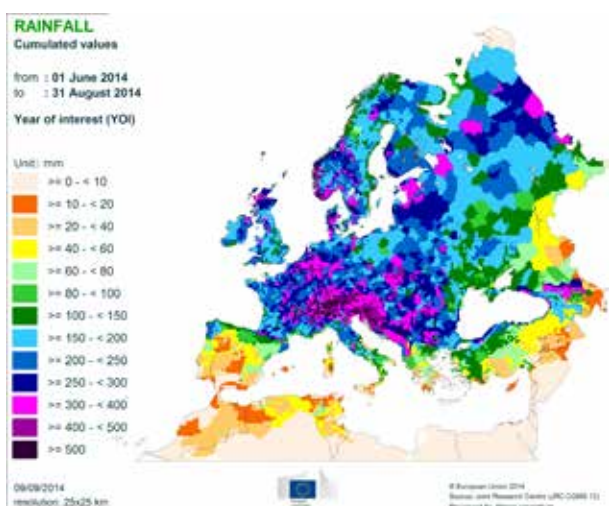
Overall growth conditions continued to be favourable and yield outlooks for summer crops are positive, however there are a few regions of concern: western Bulgaria, parts of the Pannonian plain and north eastern Italy. The huge rain surplus created problems to the farmers for all kind of field operations and in many places the conditions are favourable to the spread of plants diseases.

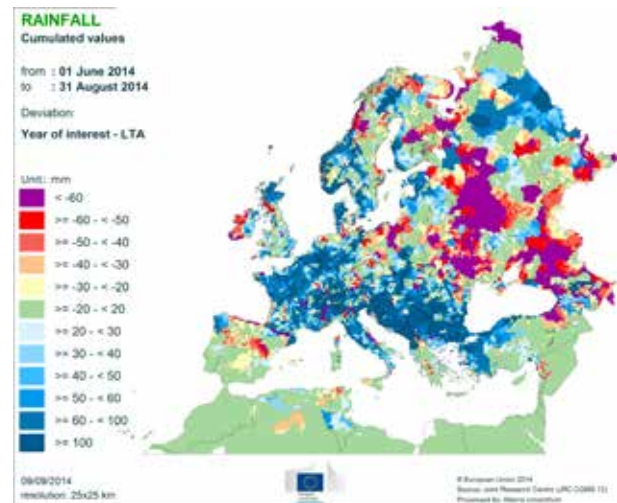
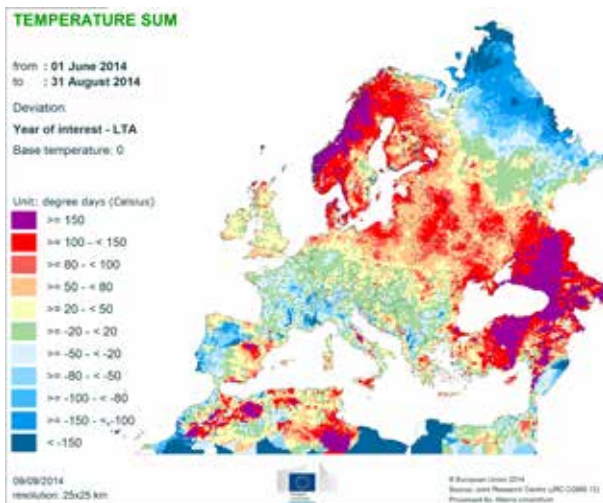
In southern Ukraine and in the main agricultural regions of the European Russia a persistent hot spell during August coupled with rain scarcity hampered the grain filling stages of the summer crops negatively impacting on the yield outlook.

The maps consider the period from 15 August to 19 September 2014.

1.2 Agro-meteorological review summer 2014 (June - August)

This summer was one of the wettest in our climatological records for most of the Alpine and pre-Alpine regions and the Balkans, with cumulated rainfall exceeding 400 mm. During the period between July and August, heavy rainfall and severe thunderstorms over northern Italy and the Balkans caused widespread flooding and waterlogging. Wetter and colder-than-usual weather occurred in large parts of central and western Europe. By contrast, warmer conditions prevailed in eastern Europe and in the Scandinavian Peninsula. Cumulated active temperatures ($T_{base}=0^{\circ}C$) since June were well above the long-term average (>150 GDD) in Turkey, southern Russia and the western part of the Scandinavian Peninsula. Warm and dry conditions have persisted over Spain, the southern part of European Russia, western Ukraine and locally in Poland.

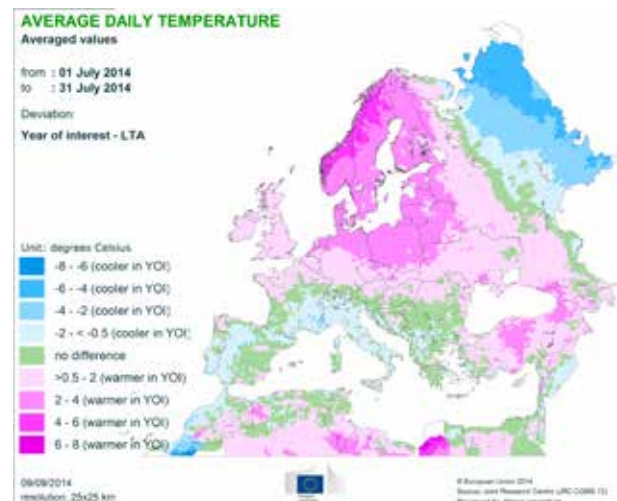
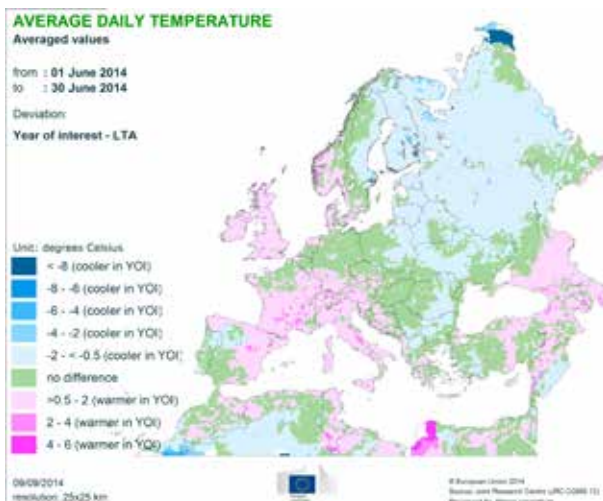




Observed temperatures

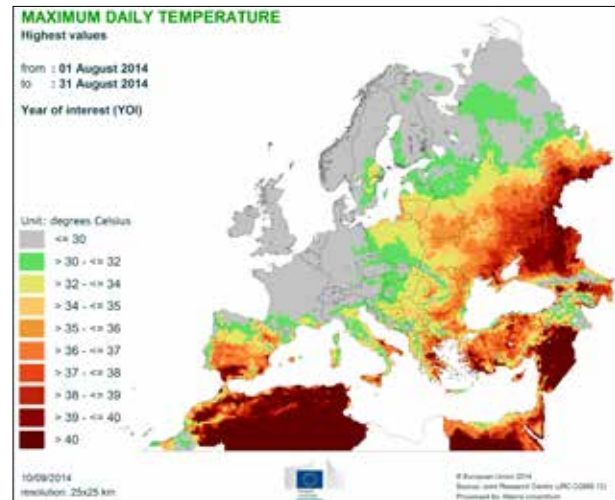
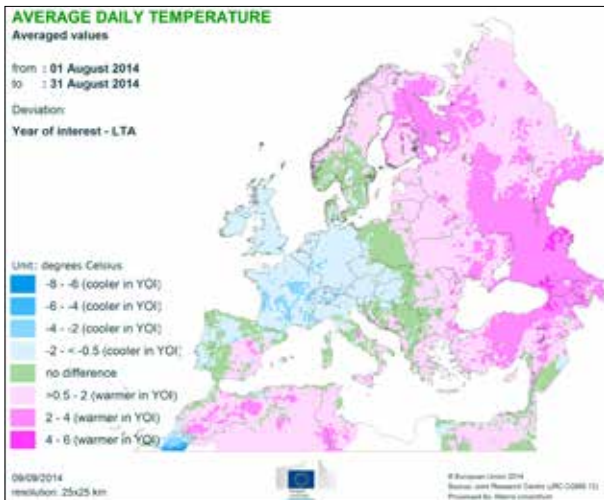
During the first two weeks of **June**, warmer-than-usual conditions affected almost all of Europe, with positive average thermal anomalies of up to 4°C. During this period, a significant heat wave occurred in central and northern Europe and over the western part of the Mediterranean regions, with maximum daily temperatures locally above 36°C. Colder-than-usual conditions were observed only in Turkey. The last two weeks of June were characterised by colder-than-usual conditions, with anomalies of 4°C in central-eastern Europe (especially in Russia and Finland), and of 0.5-2°C in the western part of the Iberian Peninsula. Normal to warmer-than-usual temperatures prevailed during this period over eastern and northern Spain, France, Italy, the UK and Greece, whereas particularly warmer-than-usual conditions were recorded over Turkey and east of the Black Sea. Warmer-than-usual conditions prevailed during **July** in most of northern Europe. The first half of July was characterised by colder-than-usual conditions, as much as 2 to 4°C below the average, over the western countries, Italy and across the coast of the Balkan Peninsula. By contrast, warmer conditions were recorded in northern Europe, Ukraine and Turkey. During the second half

of July, the positive thermal anomalies, in the range of 2 to 4°C above average, were expanded to north-western and eastern Europe. These positive anomalies were particularly pronounced in the Scandinavian Peninsula, Denmark and northern Poland, with average temperatures as much as 6 to 8°C above the long-term average. By contrast, slightly colder-than-usual conditions were observed during the same period in the western part of the Iberian Peninsula, southern France, Italy and locally over the Balkan Peninsula. Negative thermal anomalies continued to prevail and even intensified during the first half of **August** over the northern part of the Iberian Peninsula, France, and north-western Italy. Normal to slightly colder-than-usual weather conditions were also observed in central Europe and the British Isles. Meanwhile, warmer conditions continued over eastern Europe, with average daily air temperatures significantly above the long-term-average. The longest heat wave (locally longer than 20 days) was recorded in southern Russia, eastern Ukraine and eastern Romania, with maximum daily air temperatures above 36°C. As this significantly warmer period occurred during the end of the flowering period and the start of the grain-filling



stages, it may have affected maize productivity in Ukraine and Turkey. The second half of August was characterised by colder-than-average conditions over most of Europe, with negative anomalies up to 4°C in central Europe, France, the Benelux countries and Denmark, and of 0.5-2°C in the British Isles, the Scandinavian Peninsula, the Balkan region, Belarus, western Ukraine, Romania and the northern part of the Iberian Peninsula. By contrast, positive thermal anomalies were recorded in the range of 2 to 4°C above average in southern

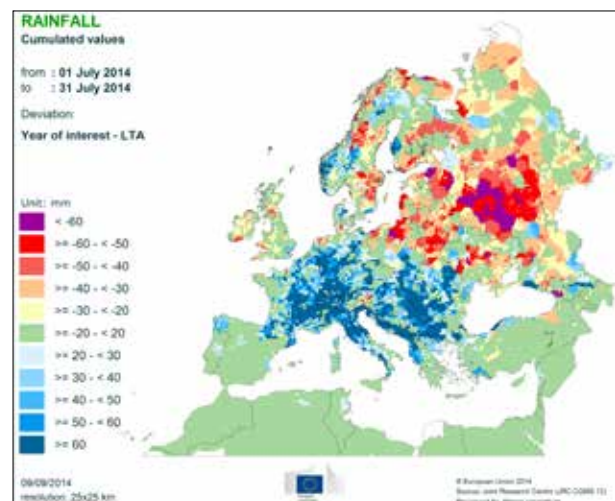
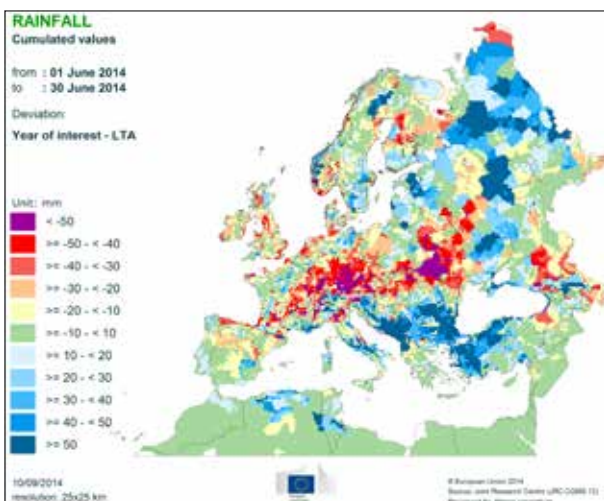
Russia, Turkey, southern Italy and eastern Spain. Normal or slightly warmer-than-usual conditions were recorded elsewhere. As a consequence of the warmer conditions, the cumulated active temperatures ($T_{base}=0^{\circ}\text{C}$) since June were above average (>100 GDD) in eastern and northern Europe. The normal to colder-than-usual thermal conditions recorded in central and western Europe led to a slight delay in phenological stages for summer crops.



Observed rainfall

During **June**, wetter-than-usual conditions were observed over the Balkans and the Mediterranean/Black Sea coasts of western Turkey, southern Romania, Bulgaria and Slovenia, with cumulated rainfall locally exceeding the long-term average by more than 50 mm. Above-average cumulated rainfall was also recorded in some areas of central and northern Russia, eastern Ukraine, Latvia, southern France and north-western Italy. However, rainfall occurred mainly in the second half of June, with cumulated values during this period of above 80-100 mm in the Balkan countries and locally in northern Italy.

Normal to drier-than-usual conditions were recorded over the other European regions, with recorded cumulated rainfall 50 mm below average over southern Germany, western France, southern Poland, the Czech Republic, Hungary, western Ukraine and southern Belarus. The persistent lack of rain from May to the middle June in central and southern Spain led to scarce soil moisture during the grain-filling phase of winter and spring crops. The cumulated rainfall during **July** was well above the long-term average (> 60 mm) in central and eastern parts of France, western Germany, the Benelux countries,

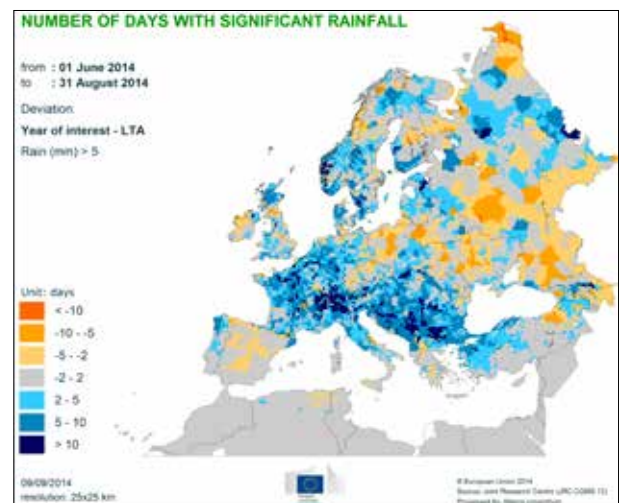
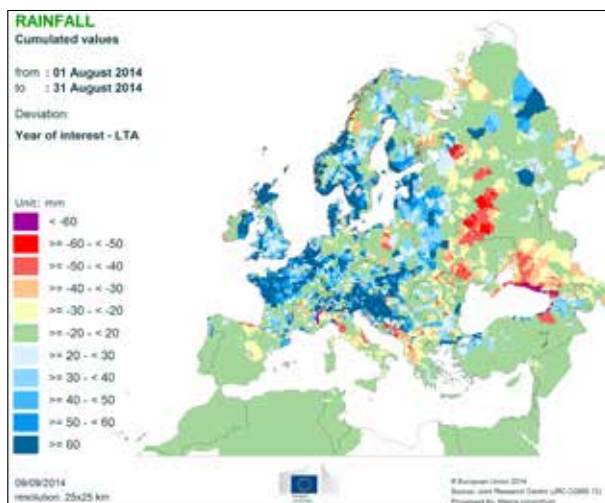


the pre-Alpine and Alpine regions, northern and central Italy, Slovakia, Hungary and over the Balkan Peninsula. In these regions, frequently heavy rainfall and severe thunderstorms were recorded during the period from 15 June to the last two weeks of July, locally causing waterlogging. By contrast, drier-than-usual conditions were recorded over north-eastern European regions, with cumulated rainfall up to 50 mm below the average.

August was characterised by wetter-than-usual conditions, with cumulated rainfall locally up to 50 mm above average over the British Isles, northern and western France, the Benelux countries, southern Scandinavia, the Alpine region, northern Italy, Croatia, western Hungary, Slovakia and the Baltic countries. Heavy daily rainfall (1-3 days with daily precipitation greater than 30mm) was recorded in the Balkans,

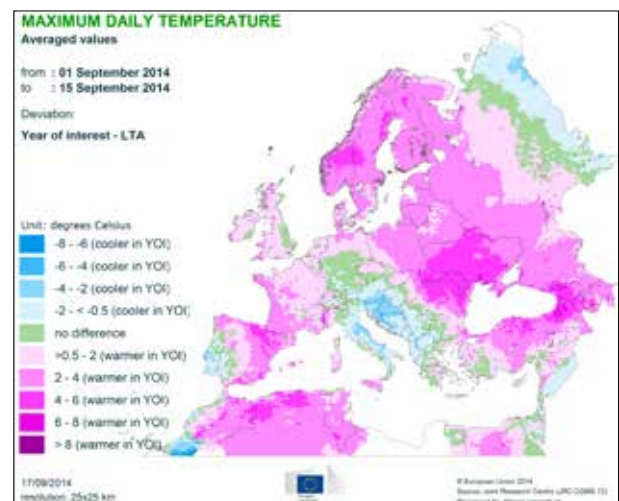
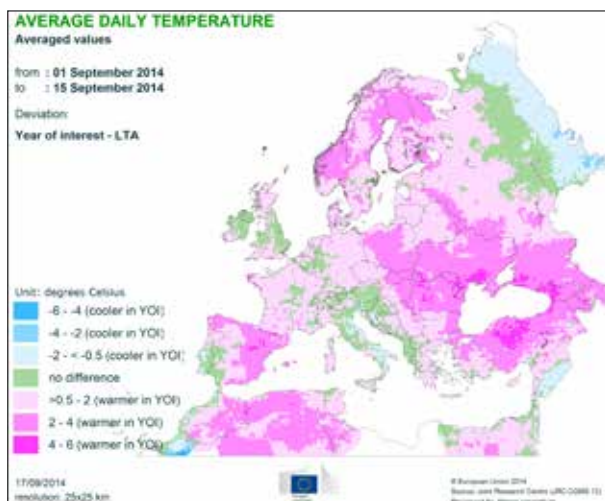
southern Sweden and locally in northern Italy, resulting in flooding and lodging. Scarce rainfall (30% less than the normal conditions) was observed locally in Russia, Ukraine, Romania, central Spain and over central and southern Italy.

The water shortage associated with high atmospheric evaporative demand, especially over large parts of Ukraine and southern Russia, has depleted the soil moisture, affecting the growth of summer crops. By contrast, cumulated rainfall was above average in central and western Europe, providing good water supply for maize.



1.3 Meteorological review (1 – 15 September)

Normal to slightly warmer-than-usual mean temperature conditions predominated over Europe during the first two weeks of September, with daily maxima higher than usual over large areas of northern and eastern Europe, locally exceeding the long-term average by 4°C (Ukraine). Rainfall was below average in most of Europe, but particularly wet conditions (rainfall exceeding 150% wrt. the long term average) were observed over Portugal, Italy, the Balkans and Turkey.

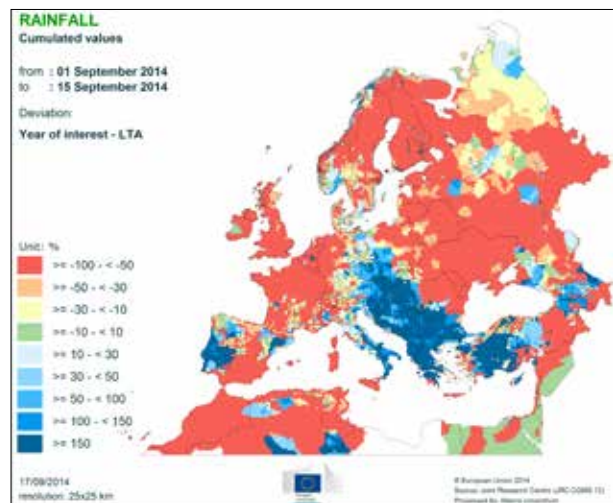
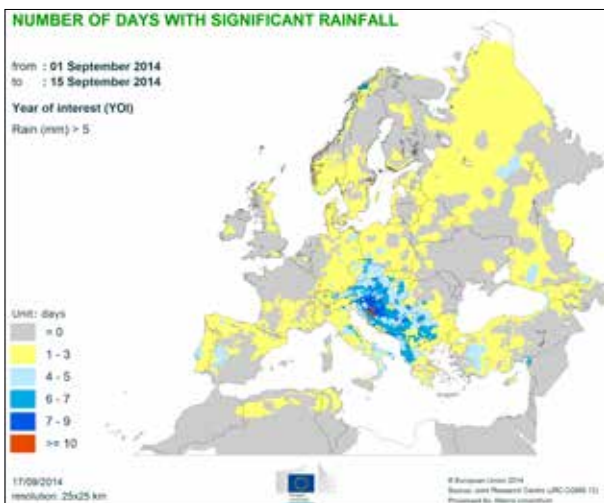


Observed temperatures: The first two weeks of September were characterised by normal or slightly above-average temperature conditions over Europe. Higher warm anomalies (2 to 4°C above the long-term average) were observed over large areas of Spain, the Scandinavian Peninsula, eastern Europe, Turkey and the region east of the Black Sea, whereas slightly colder-than-usual temperatures were experienced in eastern Italy and eastern Russia. Above-average daily

maxima (by 4 to 6°C) were recorded in Ukraine, Moldova and northern Romania. Below-average maximum temperatures were experienced in the western part of the Iberian Peninsula, Italy, the Balkans and eastern Russia.

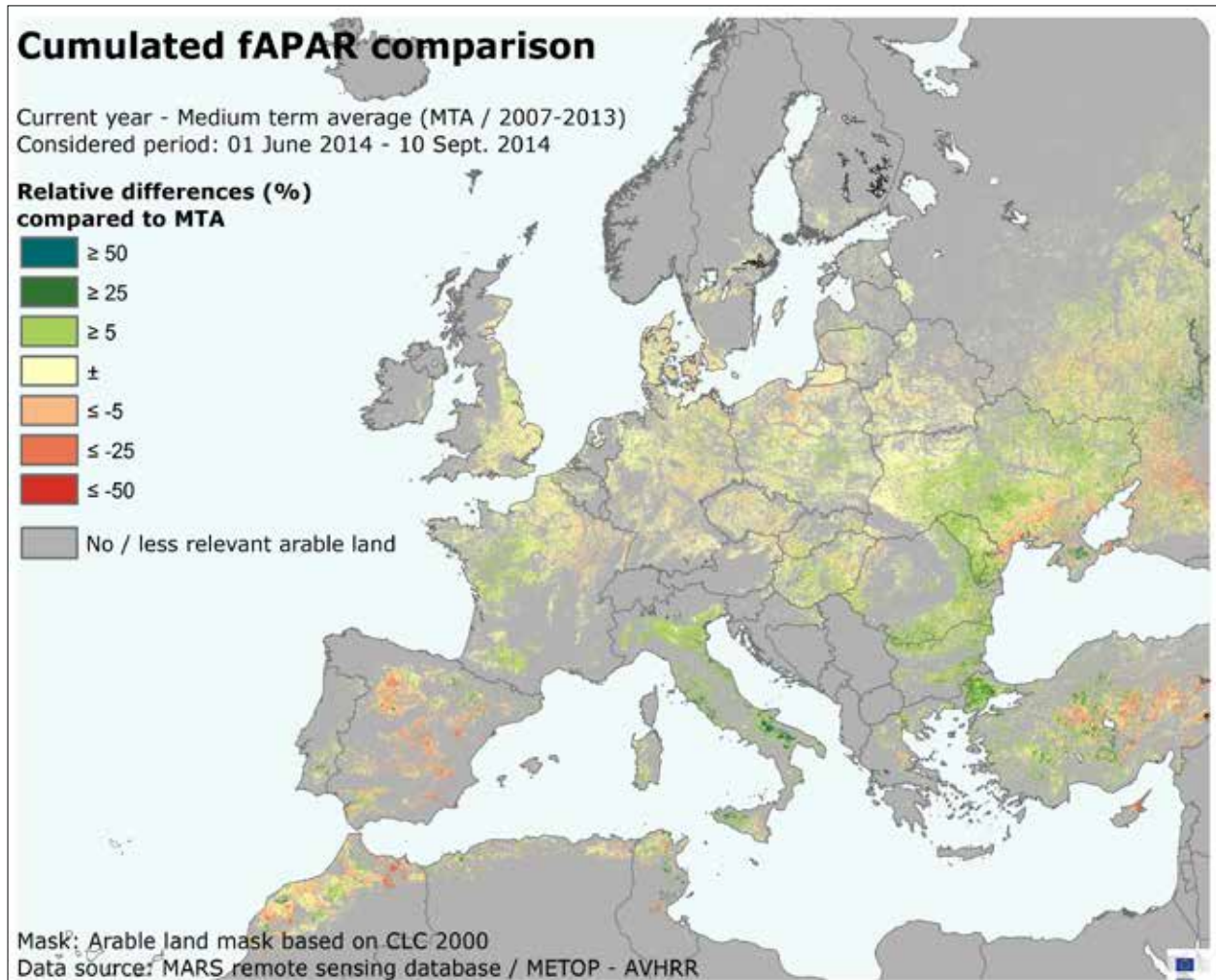
Observed precipitation: During the first 15 days of September, wetter-than-usual conditions (exceeding 150% of the long-term average) were mainly observed over the western part of the Iberian Peninsula, central and southern Italy, Hungary, Slovakia, the Czech Republic, Austria, the Balkans and Turkey. Heavy rainfall occurred over the Balkans from 10 to 12 September, causing again (as in May) flooding and waterlogging, mainly in Croatia and Slovenia. All other

European regions were drier than usual. Persistent warm and dry conditions were recorded during the grain-filling and the ripening stages of summer crops in Ukraine and over the southern and western part of Russia, affecting their productivity.



2. Remote Sensing - observed canopy conditions

Maize maturing under favourable conditions in Europe. Persistent dry conditions in Ukraine and Russia

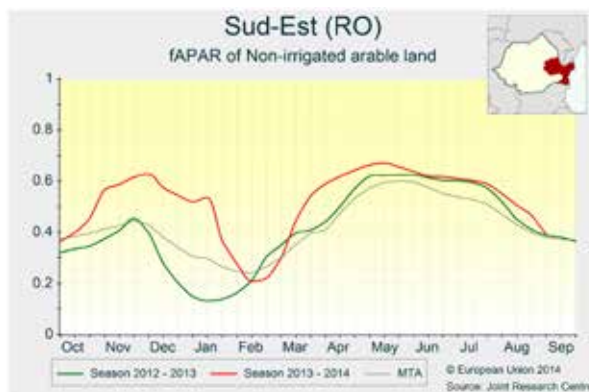
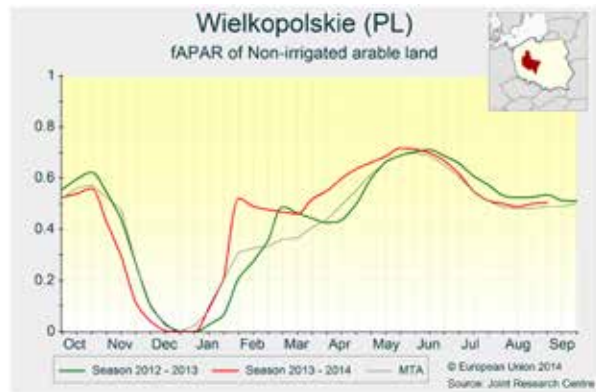
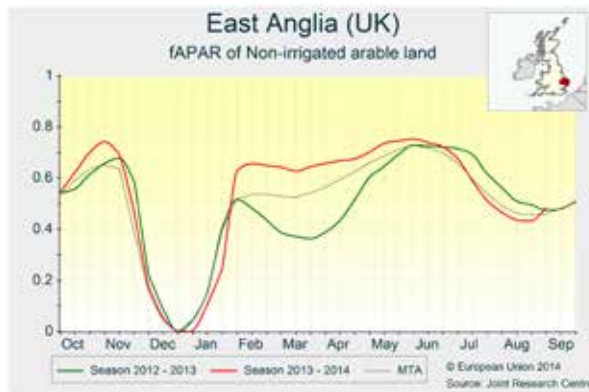
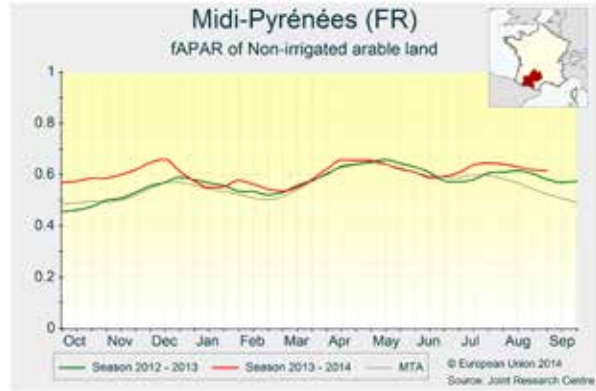
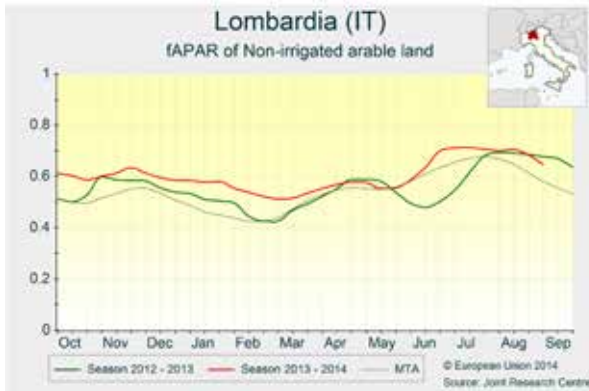


The map displays the observed cumulated values of fAPAR (fraction of Absorbed Photosynthetically Active Radiation) from the beginning of June to 10 September, compared to the medium-term average (MTA of 2007 – 2013). In **Spain**, irrigated summer crops are approaching maturity without any significant concerns, as the water reserves were sufficient to cover crop requirements. In central and northern **Italy**, maize did not suffer any significant impact from the overly wet conditions that prevailed throughout the summer. The maize canopy is still optimal in the north-western fields (e.g. Lombardia) thanks to a window of dry weather in September, while north-eastern regions seem to have suffered more from the abundant rains that persisted until the date of this analysis. In **France**, all winter crops and spring cereals have been harvested. Although the summer crops season, which got off to an early start, slowed down in August due to below-average temperatures, accumulated biomass is significantly above average (e.g. Midi-Pyrenees). In the **United Kingdom**, the winter and spring crops season ended, as can be seen in the East Anglia profile. The overall biomass cumulated during the summer period is around average as a result of the normal weather conditions that prevailed during the period of

analysis. In **Germany**, maize conditions are close to optimal; the crops were not negatively affected by the wet and cool weather. In **Poland**, the cropping season ended everywhere in the central and northern agricultural areas (e.g. Wielkopolskie) without any negative impact on the reproductive phases. Summer crop development is slightly advanced, approaching the end of the cycle. In Central Europe (the **Czech Republic**, **Austria**, **Hungary** and **Slovakia**), the accumulated fAPAR values for summer crops are slightly above average. In **Romania** (e.g. Sud-Est) and **Bulgaria**, the summer season is marked by exceptional canopy growth of the summer crops, as confirmed by the accumulated fAPAR values, which are well above average for all regions. At the time of analysis, summer crops had entered in their final growth stages, with sunflowers ready for harvesting and maize entering the maturity stage. Optimal weather conditions are continuing in the north-western agricultural regions of **Ukraine**, and the ripening of spring and winter crops is proceeding without any relevant concerns (e.g. Kyiv's'ka). The canopy density reached peak values in central and southern regions, where most summer crops are cultivated. The dry conditions since July determined a significant water deficit that affected summer crops. The

impact on the summer crop canopy was limited in irrigated regions (e.g. Dnipropetrovs'ka). The negative anomalies of FAPAR accumulation in the south-western regions of Ukraine are not only related to dry conditions but also to factors such as changes in crop planting strategies, which resulted in the

absence of almost all of the summer crops biomass compared to previous years. In **Russia**, the hot and dry conditions of July and August determined an acceleration of the crop cycle, which led to a shortening the grain-filling stage in many regions and an early end to the season (e.g. Volgogradskaya).



3. Country analysis

3.1 European Union

Since most crops have reached maturity and have largely been harvested most crop yield forecasts have remained stable compared to the previous MARS Bulletin (dated 22 August). Crops that are still in the process of reaching maturity – generally under favourable conditions – are grain maize, sugar beet, and potatoes.

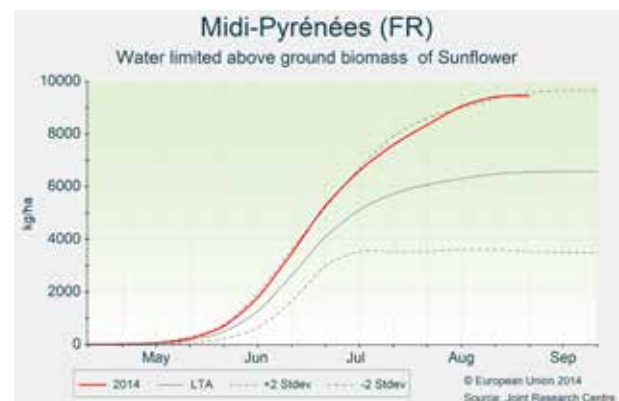
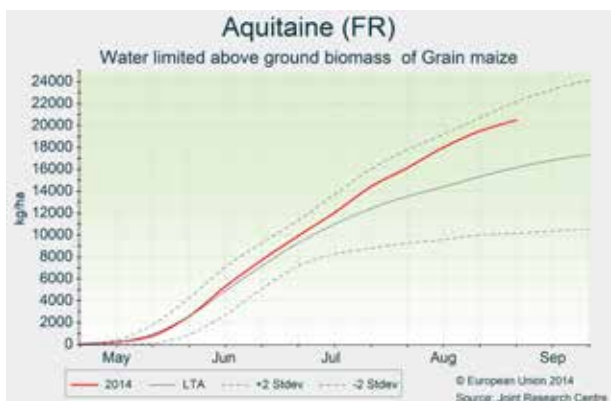
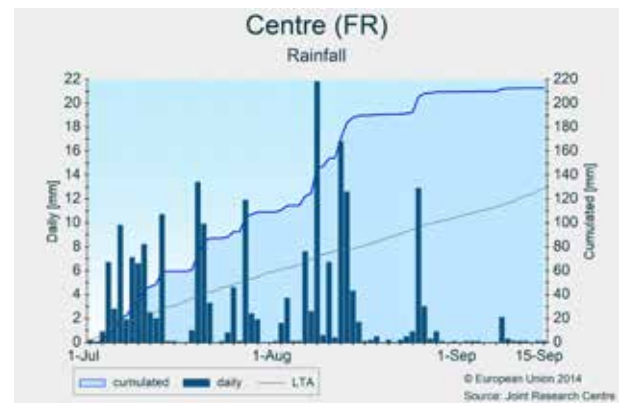
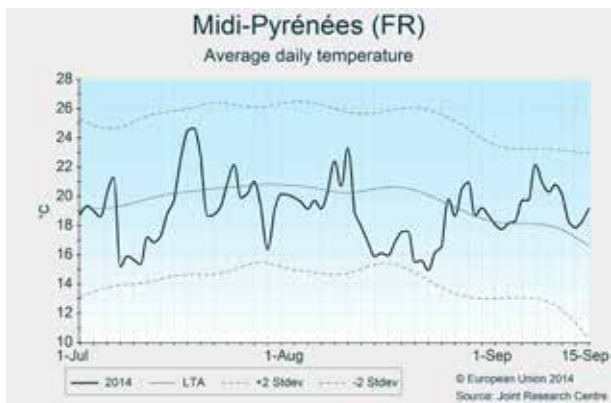
France

Concerns about grain quality but high yields

This summer was one of the wettest of the past 30 years. Although the abundant rainfall hampered the harvesting of winter and spring cereals and negatively affected their grain quality, yields are high. Meanwhile, summer crops benefit from an optimal water supply.

The rainy weather observed in July extended until mid-August, while temperatures generally remained below the seasonal average. This summer has been one of the rainiest since 1975 throughout the country. Rainfall between 1 July and 10 September was between 1.5 and 2 times higher than average. Only PACA and *Aquitaine* experienced less extreme rainfall events, yet still 25% more than on average. Since 1 August, *Pays de la Loire* got twice the amount of precipitation normally recorded, whereas cumulated rainfall was close to average in the south-eastern regions. Temperatures tended to be milder than average, overall nearly 1 degree below

the norm, contributing to decreased evapotranspiration and persistent wet conditions. These exceptional conditions hampered the harvesting of winter and spring cereals as farmers had only a few very short windows during which they could proceed. These wet conditions negatively affected the quality of cereals, decreasing the specific weight of grains and the Hagberg Falling Number. Some cases of pre-harvest sprouting were reported. On the other hand, the wet conditions were beneficial for summer crops: sunflowers, grain maize, potatoes and sugar beets. Aside from spring barley and durum wheat, all forecasts are maintained above the 5-year average, particularly sunflowers and grain maize which are expected to be close to record values.



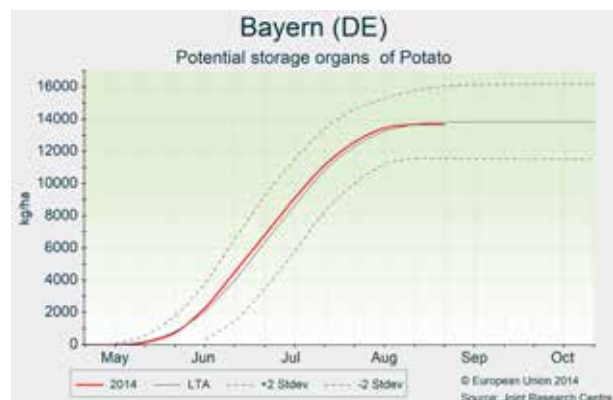
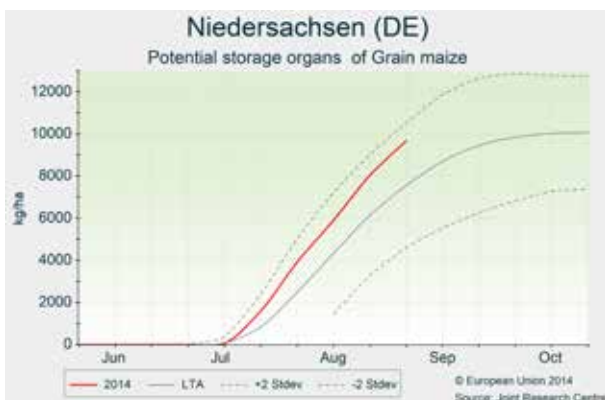
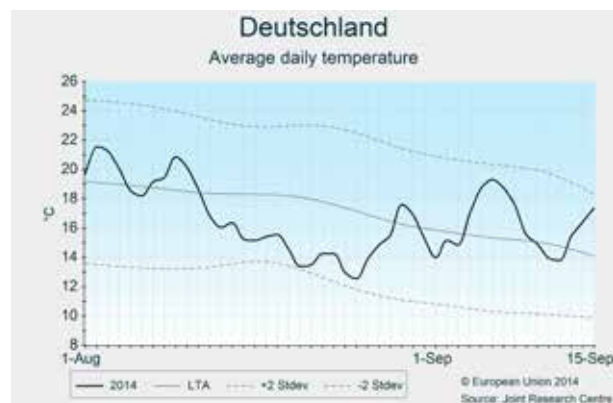
Germany

High yields despite difficult harvest

Although the winter cereals harvest, which started early, was frequently interrupted due to recurrent precipitation, severe problems occurred only locally. Yields are at a very good level, albeit with some quality concerns for soft wheat. Prospects for maize are good.

July was warm and wet, characterised by a variety of extreme events such as hot days, heavy rain, thunderstorms and strong winds. The precipitation at country level is the highest in our database for the month of July and the second highest for July and August together; only in the north was rainfall less plentiful than usual. While July was warmer than the norm, chilly conditions prevailed from 11 August until the beginning of September, when temperatures started to rise again. During August, precipitation levels remained high to very high, and the number of rainy days recorded was greater than average, except for the north where conditions were drier than usual throughout the summer. September started with a

dry period, but plentiful precipitation set in from 10 until 14 September in all parts of the country aside from the west. The unstable weather conditions and frequent showers complicated and delayed the harvest of winter and spring crops, which started early due to their advanced development. However, severe problems occurred only locally. In general, yields for winter and spring cereals as well as rapeseed are high to very high, but grain quality was partially diminished because of the plentiful rain. As conditions were near optimal for maize, with the warm and wet conditions of July guaranteeing a good start to the grain-filling period, the yield forecast has been raised compared to our last Bulletin. Potatoes and sugar beet also developed well, but disease pressure is high due to high soil moisture levels and humid conditions in southern and western Germany. The sowing of rapeseed is complete, and emergence has taken place.



Poland

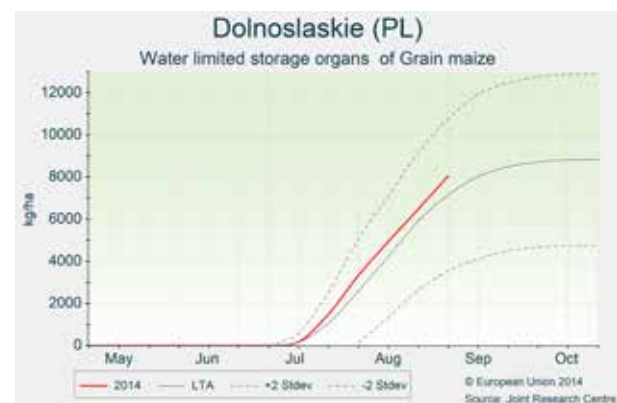
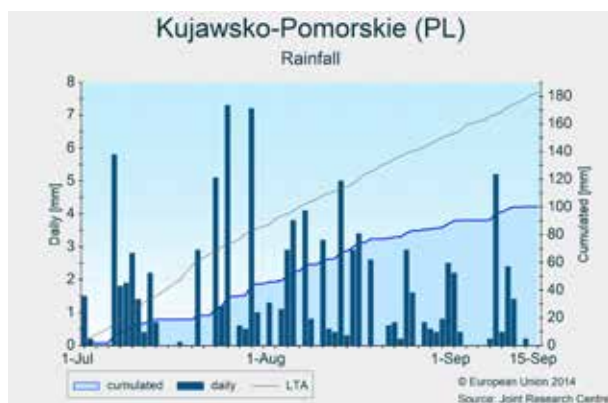
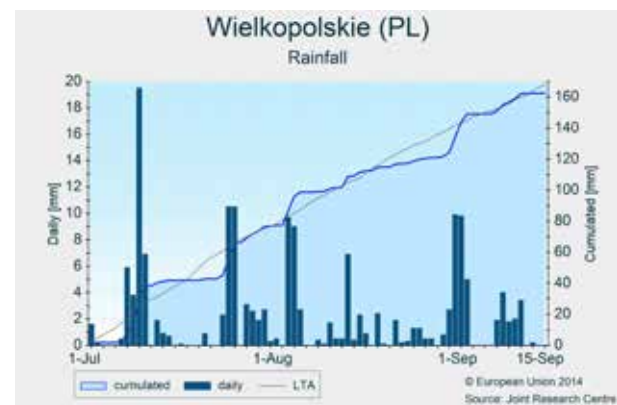
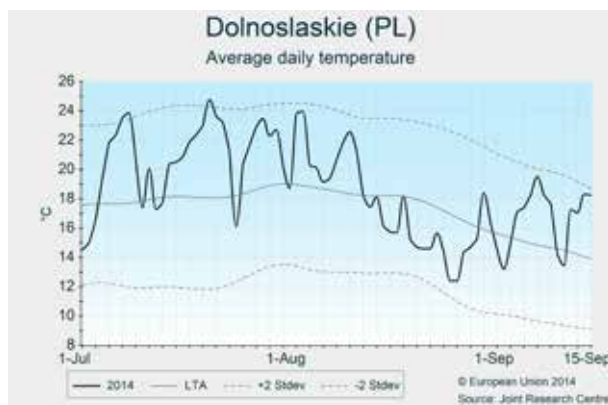
High yields expected for summer crops

Meteorological conditions were favourable, particularly in southern Poland, as temperatures were warmer than average in July and rainfall was average. The northern half

of the country received less-than-average rainfall, but overall conditions remained good. Crop yields are at the same level as last year, which was a record year for most crop yields.

From the beginning of July until the first dekad of August, temperatures were 3–4°C above average throughout the country. July was one of the warmest since 1975. Maximum temperatures reached 33°C in July in the southern half of the country, but only for a few days, so crops were not negatively impacted. After the second dekad of August, temperatures dropped and stayed slightly below average before again rising above the average at the end of August. Cumulated rainfall remained close to the average in the southern half of the country from 1 July to 10 September, whereas the northern

half received 15–30% less rainfall than usual. The only impact of scarce rainfall on crops yields, mainly sugar beets, was in *Kujawsko-Pomorskie*, where rainfall was 60% below average. Summer crops benefited from the good weather conditions, particularly in July. The combination of warm temperatures and average rainfall was particularly beneficial for grain maize and did not hamper the harvesting of winter and spring cereals. Thus, yields of grain maize, potatoes and sugar beet are forecast to be close to last year's yields.



United Kingdom and Ireland

Favourable outlook, despite challenging weather conditions

Frequent and abundant precipitation, especially during the first half of August, hampered field activities. Nevertheless harvesting and field preparations for next season's winter crops were accomplished without major hiccups, and conditions were favourable for sugar beet and potatoes. The high yield forecasts for winter, spring and summer crops are maintained.

Whereas July was characterised by average to above-average temperatures, temperatures gradually fell in August, reaching 4°C below the long-term average by around 24 August. Temperatures increased again to near, or slightly above, average levels for the remainder of the month and into September, until the end of the review period (15 September).

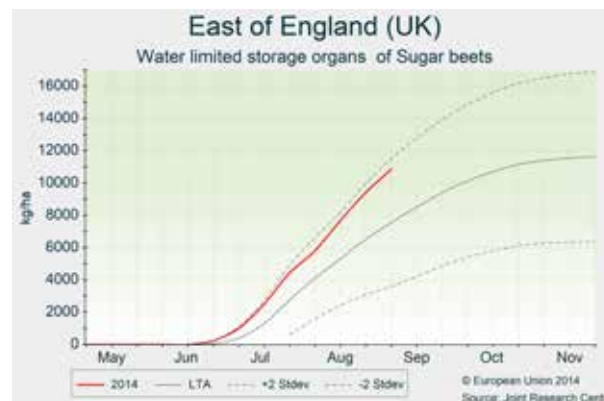
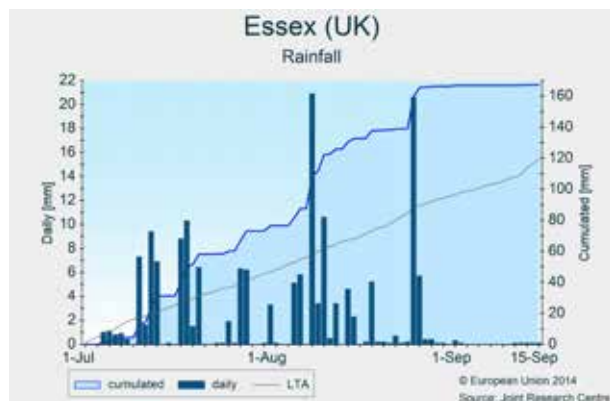
Overall, precipitation levels were above average, with frequent minor rainfall events and some periods of intense rain (around 20 mm/day) such as on 8, 10 and 25 August in large parts of the eastern UK, and on 1 and 2 August in Ireland. Periods of dry weather lasting several days also occurred, notably during the last dekad of July and the 2nd half of August. September, until now, has been generally characterised by sparse rainfall. The weather conditions outlined above posed a challenge to carrying out harvesting and other field activities, especially as most winter and spring crops were ready for harvesting well before the end of August. In general, however, sufficient windows presented themselves for the harvest of winter crops and spring cereals to be completed without serious delays,

thus avoiding loss of grain quality, and for carrying out the field preparations (tillage, drilling of oilseed rape) for next season's winter crops on time.

Overall, the weather conditions were favourable for sugar

beet and potatoes.

For all crops, the high yield forecasts of last month's bulletin were practically maintained.



Spain and Portugal

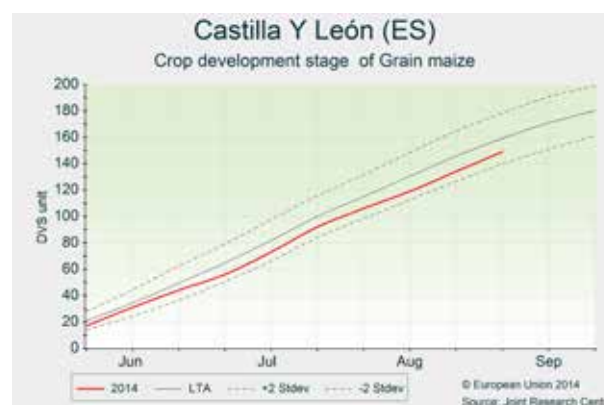
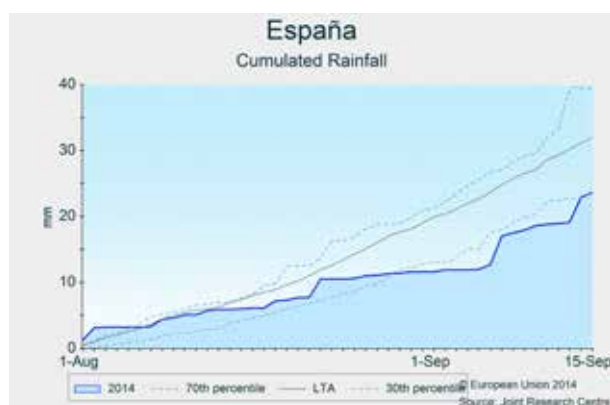
Average outlook for summer crops

Summer crops developed adequately during July and August. Temperatures were warmer than usual in the eastern half of the Iberian Peninsula, and precipitation was scarce. Average yields are expected for most summer crops, aside from sunflowers, for which yields are expected to be below average.

Contrasting weather conditions have been observed in the east and west of the Iberian Peninsula during this second half of the summer. In western regions (*Castilla y León, Extremadura, Centro*), temperatures were below average throughout August, but increased progressively during the first half of September. In the eastern half of the Peninsula (*Aragon, Castilla-La Mancha*), by contrast, daily averages exceeded the long-term average by 2-3°C during the first two weeks of August and the first half of September. Rainfall all over the Peninsula was scarce, and what rainfall occurred was mainly in the form of thunderstorms.

The development of summer crops is progressing adequately.

The sunflower harvest has already finished in the southern half of the Peninsula, whereas in *Castilla y León* it will start shortly. The yield outlook for sunflowers is below average, as the drier-than-usual seasonal weather conditions have affected yield potential. For the other summer crops, yield expectations are average, as the irrigation campaign took place without significant constraints thanks to the availability of water reserves from spring onwards. Grain maize in *Castilla y León* and *Centro* is currently in the grain-filling stage, delayed by about one week compared to an average season due to the relatively low temperatures registered. In the south, by contrast, most maize crops are in the ripening stage, and the harvest is already underway in some areas of *Andalucía* and *Castilla La Mancha*. Sugar beet and potatoes are finishing the yield-formation phase, and their harvesting will start in the coming months.



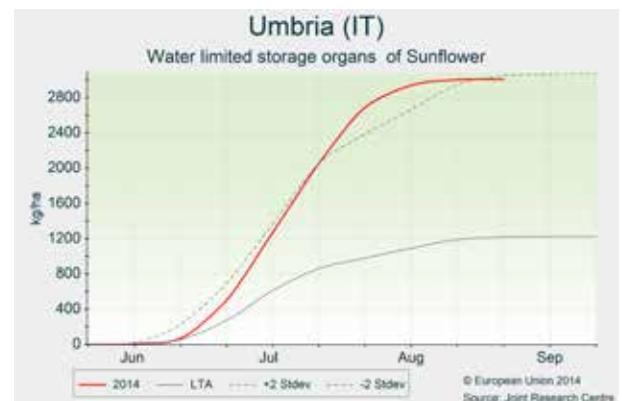
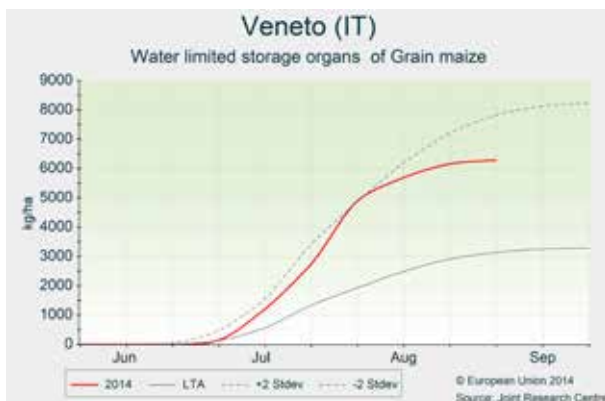
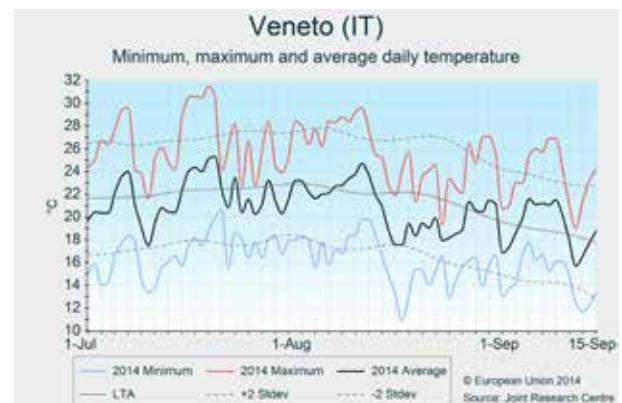
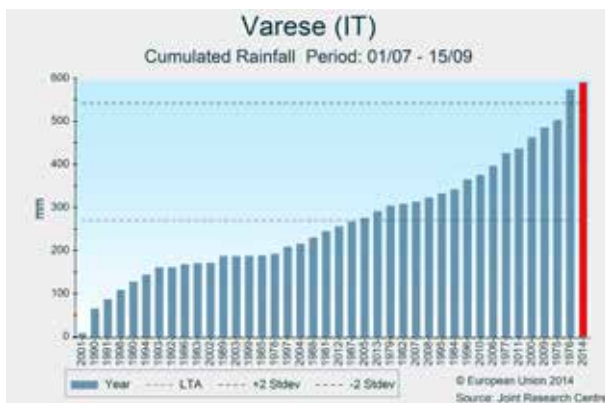
Italy

Good growth conditions for summer crops

Wetter and colder-than-usual weather characterised the summer season in large parts of northern and central Italy. Summer crops show high levels of vegetative development, but overly wet conditions could locally increase the risk of pests and diseases. The yields forecast for summer crops remain above average.

Wetter and colder-than-usual weather conditions characterised the summer season in large parts of northern and central Italy. This summer was one of the wettest on our climatological records over the northern part of *Lombardy* (*Varese* and *Como*), eastern *Veneto* and *Friuli-Venezia Giulia*, with cumulated rainfall since 1 July locally exceeding 400 mm. In these regions, heavy rainfall and severe thunderstorms recorded between the end of July and the beginning of August caused widespread flooding and waterlogging. During the first two dekads of September, cumulated rainfall across Italy was around or slightly below average, with the exception of south-eastern and north-eastern regions, where heavy rainfall caused some waterlogging. Colder-than-usual thermal conditions, in the range of 0.5-2°C below average, prevailed during the entire period of review in northern and central Italy, where maximum daily temperatures exceeded 30°C only for a few days. As a consequence, a slight delay in the phenological development

of summer crops was observed in the northern regions. By contrast, normal thermal conditions were recorded in the rest of Italy, and drier-than-usual conditions were observed in *Sicily* and *Sardegna*. The harvesting of winter cereals was completed in July, with some concerns about grain quality in northern regions due to the wet conditions during the harvest. Wet conditions in central and northern Italy resulted in good water supply for the vegetative development of summer crops, suggesting a generally favourable outlook. On the other hand, the high levels of soil moisture and humidity recorded during the summer months could locally increase the risk of pests and disease. Maize is close to be harvested, thanks the scarcity of rainfall during the past two weeks in central and north-western Italy maturation was good. According to our model, the yield forecasts remain above the 5-year average for maize and sunflowers, and close to average for potatoes and sugar beet.



Hungary

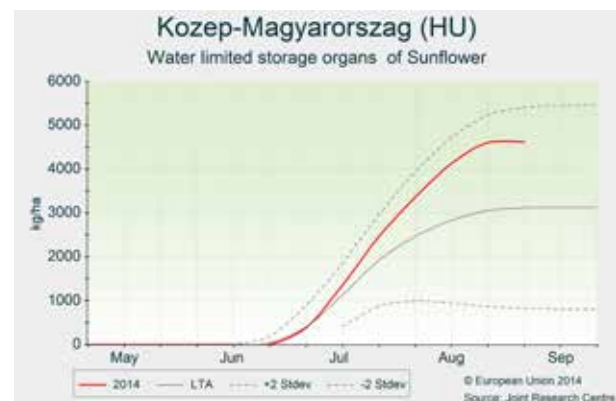
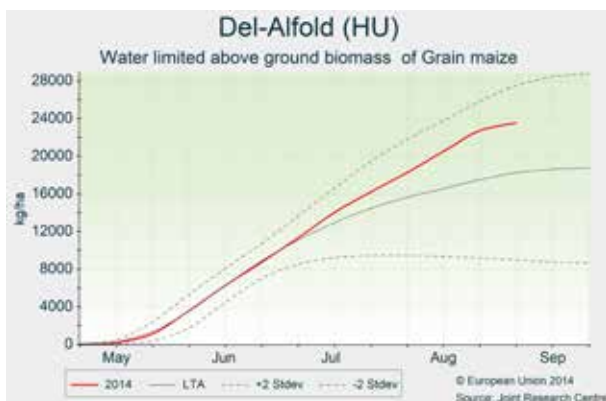
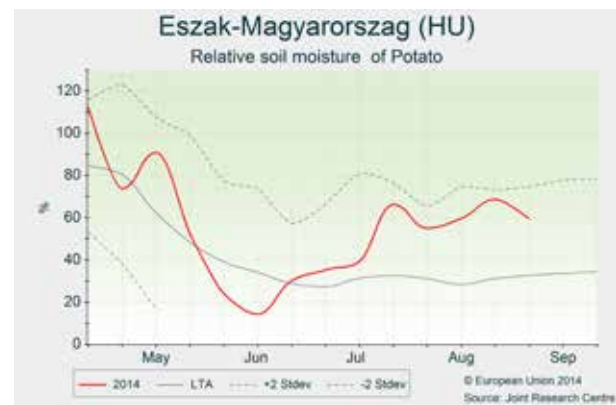
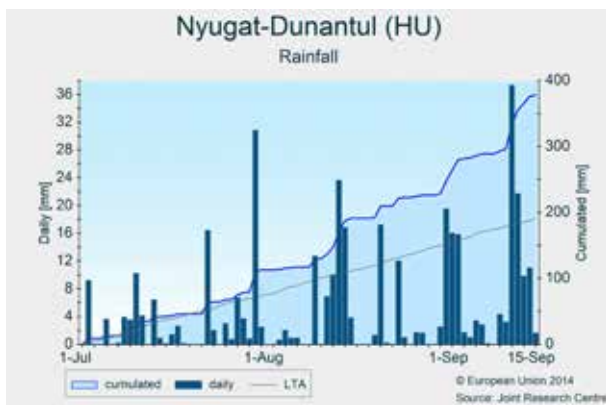
Torrential rains in September

Abundant precipitation in July and August kept soil moisture under summer crops at favourable levels, which gives rise to positive yield expectations. However, excessive precipitation during the first half of September has caused delays to and is likely to affect the quality of the harvest. The overly wet soil conditions also raise concerns regarding field preparation and the timely sowing of rapeseed.

Near-average temperatures prevailed in Hungary during the review period as a whole (1st Aug-15 Sept). During the first half of August, daily mean temperatures typically fluctuated above the average, while during the second half of the month they remained below average. Warmer-than-usual conditions returned during the first part of September. The wet weather of July continued into August and September. Precipitation exceeded the average by 100-260 mm in western and central Hungary; September (to date) has been excessively wet in these regions, with accumulated rainfall reaching 100-150 mm. Areas east of the Tisza River received near- or slightly

above-average rainfall levels.

Since the beginning of July, soil moisture levels are above average and the model simulations indicate very high biomass accumulation and promising yield formation for maize, sunflowers, potatoes and sugar beet. The yield forecasts for those crops are well above the trend. The harvesting of potatoes and sunflowers which began in late August / early September, has been hampered and delayed by overly wet conditions in western and central Hungary. Sunflowers may suffer from reduced seed quality and could even incur considerable yield losses due to the late harvest. The high moisture content of potato tubers may decrease their storage life. Moreover, soil preparation for subsequent winter crops is problematic due to the very wet topsoil. The sowing of rapeseed is already late because fields were inaccessible during the relatively short sowing window, which implies that the intended sowing area may be reduced.



Romania

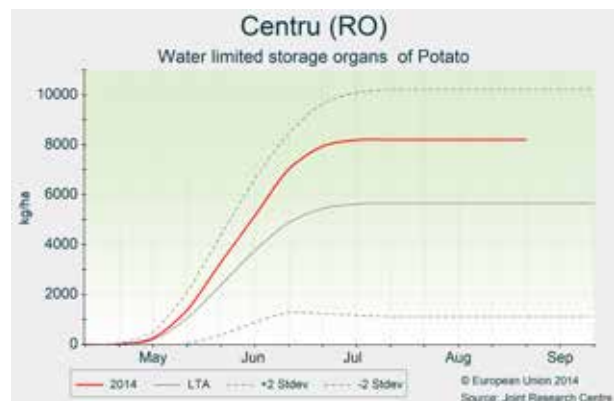
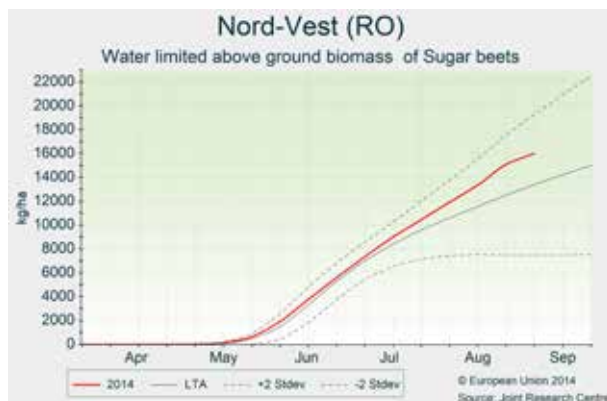
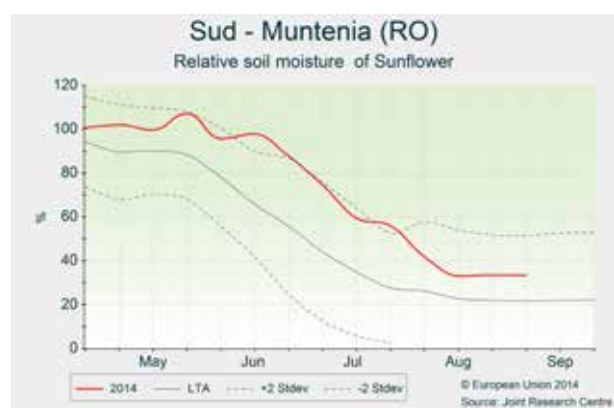
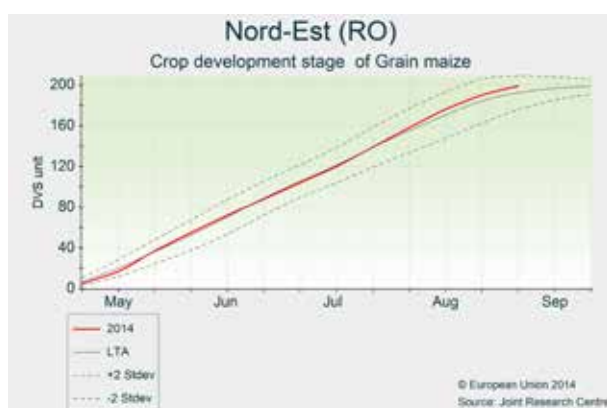
Good yield expectations

Thermal conditions in Romania were warmer than usual. Precipitation since the beginning of August remained slightly

below average, but was generally sufficient for adequate water supply for summer crops. Our model simulations

depict a positive picture with high biomass and storage organ formation. All yield forecasts are significantly above the trend. Daily temperatures generally exceeded the average during the first half of August and the first half of September, whereas near-normal thermal conditions typified the second half of August. Regarding the review period as a whole, the thermal anomaly reached +1 to 3°C, with the higher values occurring in eastern Romania. Following a wet July, the precipitation tendency decreased in August, but 40-80 mm still fell during this month. Only some smaller areas along the Bulgarian and Moldovan borders remained dry (rainfall <20 mm). In September, precipitation was concentrated in the south-western regions where it locally reached 100-220 mm.

The less frequent rains in August allowed the harvest of winter and spring cereals to be completed. Crop development of sunflowers and maize is advanced by 1 to 2 weeks. Sunflowers have reached the maturity phase nearly everywhere, while maize is still in the grain-filling phase in the western and southern territories. Soil moisture content has almost continuously exceeded the average, thus ensuring sufficient water supply to summer crops. Biomass accumulation is decidedly higher than usual. The yield forecast was revised slightly upwards for all crops, and is considerably above the 5-year average. The dry weather conditions of September allowed for good progress of the harvest, except in the overly wet *Marcroregiunea Patru* region.



Bulgaria

Extremely high yield potential

In August and September, daily temperatures fluctuated around the long-term average, providing favourable conditions for crop growth. Cumulated precipitation since April has been the highest on our records, allowing adequate water supply for summer crops during the whole growing season. Consequentially, the forecast for maize and sunflowers is for possible record yields.

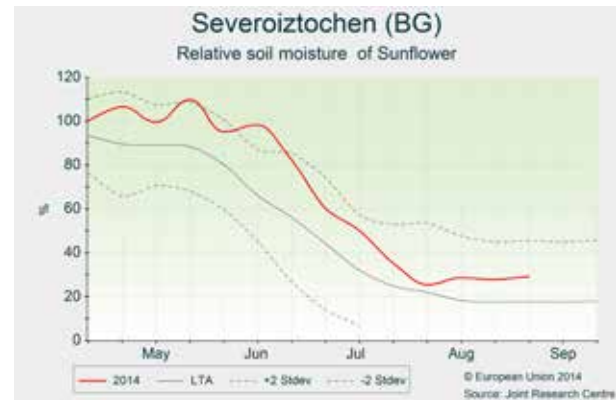
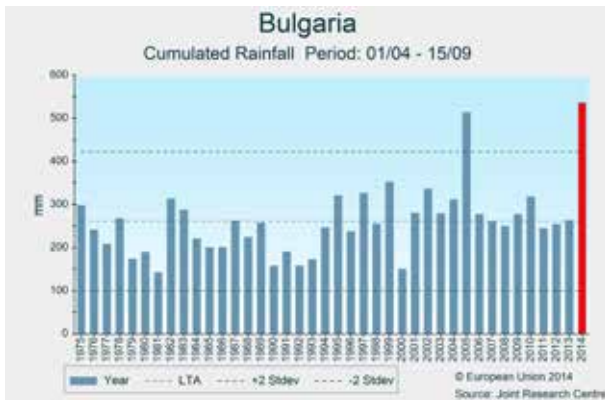
Western Bulgaria had near-normal thermal conditions, but the central regions of the country experienced a moderately positive thermal anomaly of around 1°C, and the eastern part

was 2°C warmer than usual. Hot days ($T_{max} > 30^{\circ}\text{C}$) occurred more frequently than usual in the central-northern and eastern areas by 4-10 days, but none of the hot spells constrained crop growth, since the daily maximum temperature exceeded 35°C only in 1-4 cases. Precipitation showed a very scattered spatial distribution. In August, rainfall remained 20-30 mm below average in the *Yugozapaden* and some other smaller regions, while elsewhere it typically exceeded the average by 20-30 mm. High levels of rainfall were recorded between 3 and 5 September, with precipitation totals up to 40-80 mm,

locally reaching 100-140 mm in the *Severozapaden* and *Yugoiztochen* regions.

Thanks to the abundant rainfall of this summer, the relative soil moisture was continuously higher than average. Due to favourable water supply, biomass accumulation reached an exceptionally high level, and in several cases the simulated storage organ biomass is approaching or exceeding record values. The actual yield forecast for maize and sunflowers is the highest of the past 20 years.

Maize and sunflowers are 1-2 weeks advanced in their phenological development in the eastern half of Bulgaria, but crop development in western areas is around average. Summer crops are close to or have reached the ripening stage. The excessive rainfall of early September may have caused considerable harvest delays and local damages primarily in sunflower stands, but the drier weather conditions during the second dekad of September have facilitated the progress of harvest.



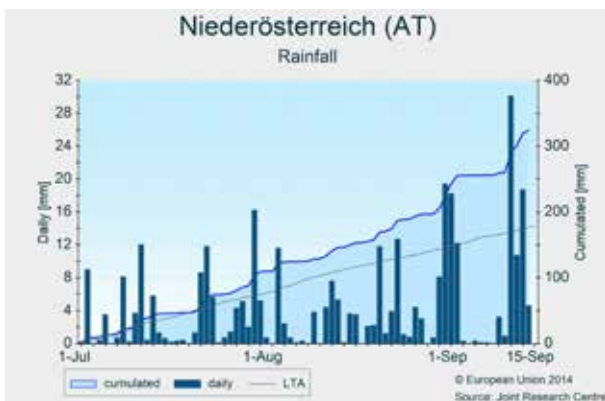
Austria, Slovakia and the Czech Republic Summer rainfall beneficial for crop growth

Wetter-than-usual conditions prevailed during July, August and the first half of September. Soil moisture levels were beneficial for the growth and development of summer crops. The yield forecast for grain maize is above the 5-year average, especially in Slovakia. Recent rainfall in eastern Austria, western Slovakia and the southern Czech Republic may pose difficulties to accessing the fields during the harvest period.

Hot and dry weather in June was followed by wetter conditions in July (except in southern Austria) and August, during which air temperatures were normal or slightly lower than usual. Although August started with warmer and drier-than-usual weather conditions, the second dekad was characterised by an inflow of cooler air, resulting in a drop in air temperature and increased rainfall. The rainfall that cumulated during the

second dekad locally exceeded 100 mm in *Steiermark*. Colder-than-usual wet weather continued during the third dekad of August. The first half of September was dominated by warmer-than-usual temperatures and drier weather over the western Czech Republic and central Slovakia. Wet conditions persisted over *Kärnten*, *Steiermark*, *Niederösterreich*, the southern part of *Stredne Slovensko*, *Jihovýchod* and *Severovýchod*.

The maturation of spring and winter cereals was greatly advanced due to above-average thermal conditions. In many places, the harvest was delayed due to unstable weather conditions. The first week of September brought a few sunny and warm days, which enabled the harvest of the remaining spring and winter cereals to be completed. The weather generally resulted in favourable soil moisture conditions for



summer crops. Grain maize has entered the ripening stage and is generally in good condition. However, severe thunderstorms may have damaged summer crops locally. The yield outlook for grain maize is significantly above last year's yield, which

was affected by drought. Recent rainfall in eastern Austria, western Slovakia and southern part of the Czech Republic may prolong the ripening period and the pose some difficulties to accessing the fields during the harvest.

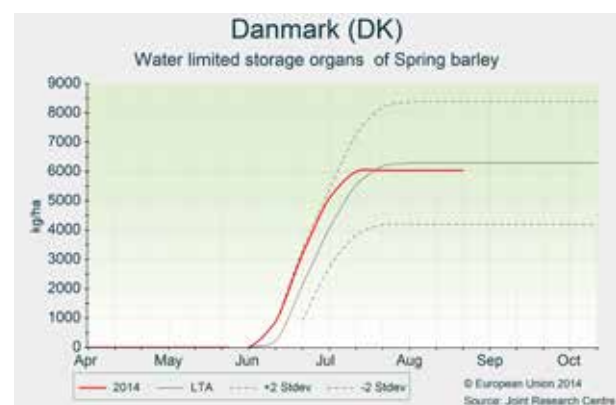
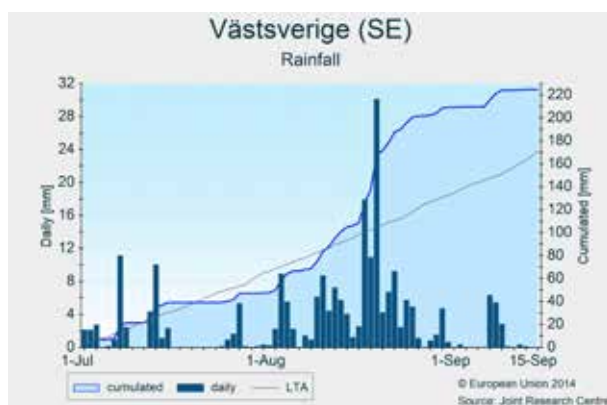
Denmark and Sweden

Difficult harvest for winter and spring crops

After a very good growing season for winter and spring crops, heavy and persistent rainfall locally hampered harvest activities. The yield forecast for spring crops was revised slightly downwards.

The period from 1 July to 15 September, was characterized by warmer-than-usual thermal conditions, and well-above average solar radiation levels throughout the region. Positive thermal anomalies were particularly pronounced until the first decade of August, with average temperatures as much as 6 to 8°C above the long-term average. Colder-than-usual conditions prevailed during the second half of August, with anomalies down to -4°C in Denmark, and of -0.5 to -2°C in

southern Sweden. Temperatures rose again in the beginning of September. Since 1 August, rainfall was well above average in Denmark and south-western Sweden, with cumulated values locally exceeding 200 mm. During August, more than 11 days with significant rainfall (>5mm) were recorded in these regions, and heavy rainfall occurred in southern Sweden, causing flooding. The yield forecast remains above average for winter crops and close to average for spring crops, but the overly wet conditions, recorded in August locally hampered harvest activities and could also affect final grain quality. The yield forecasts were revised slightly downwards for spring barley, potato and sugar beets, due to the over wet conditions.



Finland, Lithuania, Latvia and Estonia

Rainfall benefits summer crops but interrupts the harvest

This review period was characterised by high temperatures. Overall, rainfall was close to the average throughout the region, but occurred mainly during August. Winter crops were harvested under good conditions. While the harvesting of spring crops was hampered by rain, the yield estimates for both winter and spring crops are high, and good yields are also expected for summer crops.

From 1 July to mid-August, temperatures were extremely high: maximum temperatures were 6°C above the norm for more than 10 days, and then dropped to average levels, remaining favourable for crop development. Temperatures for the whole period from the beginning of July to mid-September were among the warmest recorded in our database. Precipitation was quite sparse in July but abundant in August, causing some problems locally to harvesting activities. No rainfall was

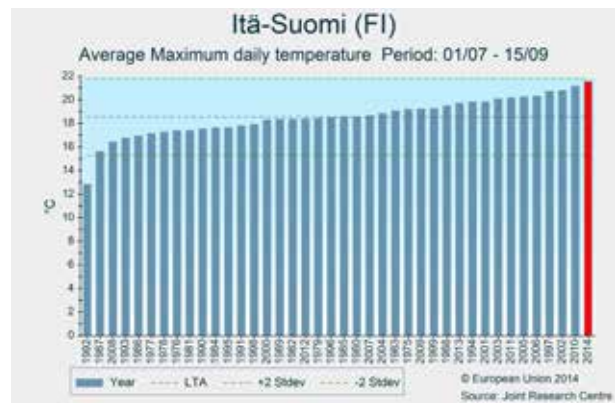
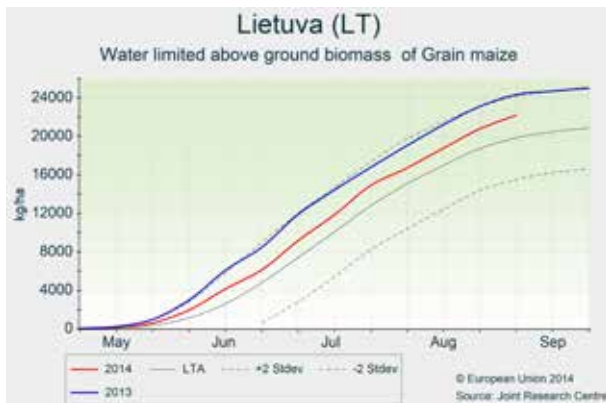
registered in September, which led to beneficial conditions for concluding the harvest and for soil preparations for the next sowing.

Winter crops were harvested under near-optimal conditions due to the dry weather conditions that prevailed in July. Consequently, above-average yields are confirmed and good grain quality is expected in the Baltic countries, especially in Lithuania. The scenario was different for the harvesting of spring crops, which was carried out mainly during the second half of August, and hampered by frequent rain. Although the yield estimate remains above average for spring crops, grain quality could be affected, especially in Latvia.

According to our model, the cumulated biomass of maize in Lithuania is above average but lower than last year. Overall, summer crops benefited from substantial rains during August,

and the yield forecast remains similar to that of the August Bulletin, i.e. slightly above average for all summer crops with

the exception of the potato crop, which was affected by the dry conditions of July.



Belgium, the Netherlands and Luxembourg

Favourable outlook for summer crops

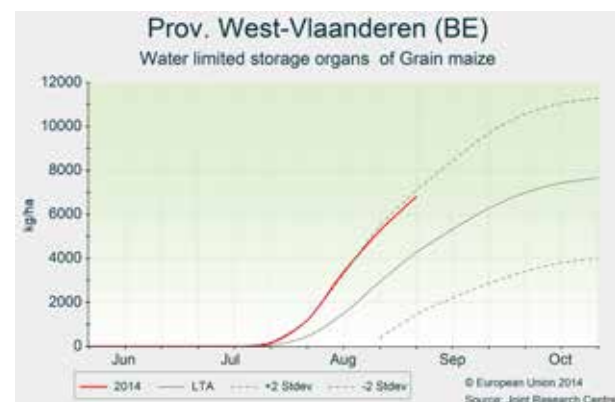
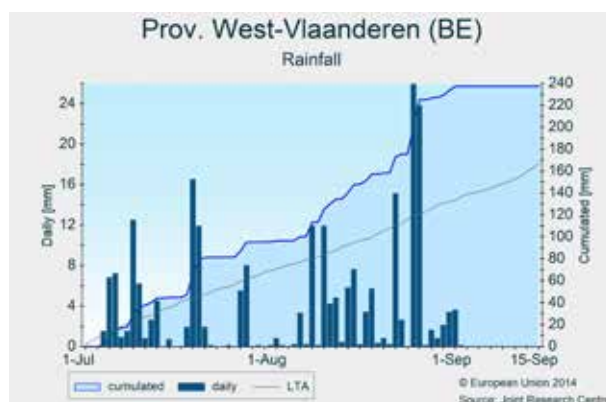
Abundant rainfall in August hampered the harvesting of winter crops and spring cereals, which, nevertheless, was mostly harvested with reasonable to good grain quality. The yield outlook for grain maize, potatoes and sugar beet continues to be favourable.

Whereas July was characterised by alternating rainy and dry periods of several days, rainy weather dominated in August. Rainfall totals in Belgium, Luxembourg and large parts of the Netherlands exceeded the long-term average by more than 100% in August. On the other hand, September has been predominantly dry and sunny to date.

The conditions described above posed a challenge to harvesting and other field activities. Nevertheless, as winter

crops and spring cereals ripened early as a result of the generally warm conditions throughout the growing season, most of the harvest was completed by the end of July and early August. Several regions also benefited from suitable harvesting windows in mid-August, but some of the harvest had to be delayed until the first week of September, which may have led to a loss in grain quality.

Overall, the weather conditions described have facilitated continued good growth for sugar beet, grain maize, and potatoes, despite the excessive rain and relatively cool temperatures in August. The yield forecasts of last month's bulletin were practically maintained.



Greece and Cyprus

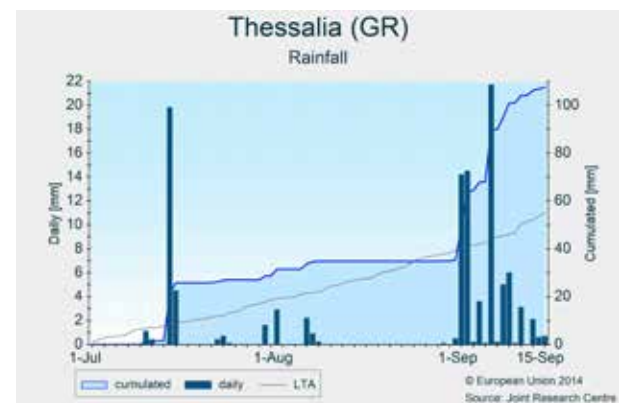
Warm and dry August

August was warm and dry throughout Greece, with temperatures reaching 40°C in some areas. Temperatures returned to average levels during the first dekad of September.

Precipitation delayed the harvest as grain moisture was increased. In Cyprus, temperatures were constantly above the long-term average, and scarce rainfall was observed.

Temperatures in August fluctuated mainly above the long-term average in all parts of Greece. Moreover, very high temperatures were recorded around mid-August throughout the country, but the hottest weather was in Thessalia where the maximum daily temperature was near or even above 40°C. August was dry with no rainfall recorded except for a few rainy days in the northern areas (i.e. *Central Macedonia, Eastern Macedonia and Thrace*). However, from the beginning of September temperatures returned close to the long-term average, and frequent abundant rainfall events occurred. Although grain maize and sunflowers have reached maturity, the harvest has not yet begun because the levels of grain moisture haven't reached appropriate levels due to the aforementioned September rainfall. Additionally, in some

areas it is not possible to enter into the fields with heavy machinery. Potatoes presented some delays in reaching maturity in northern areas (i.e. *Central Macedonia, Eastern Macedonia and Thrace*) mainly due to early summer rainfall. The harvest has gotten underway, but there is some concern about the management of the pest *Phthorimaea operculella*. However, it is too early to estimate any impact on yield. In Cyprus, temperatures were constantly above the long-term average from 1 August to 10 September. Moreover, almost no precipitation was recorded aside from a couple of rainy days at the end of the observation period. The current year's chronic drought conditions have significantly affected water reserves.



Slovenia and Croatia

Wet summer, good yield outlook for grain maize

2014 was one of the wettest summers in our climatological database for Slovenia and Croatia. Wet conditions continued into the first half of September, with heavy rainfall resulting in local flooding and waterlogging. Above-average grain maize yields are expected due to beneficial soil moisture conditions during the grain-filling period in August. The harvest will mainly depend on the weather during the coming dekad.

Abundant rainfall occurred over Slovenia and Croatia, resulting in one of the wettest summers on our records. July was characterised by normal temperatures and wetter-than-usual

weather conditions, especially in *Jadranska Hrvatska*. August started with slightly warmer-than-usual temperatures, with rainfall around average in Slovenia and above-average in eastern Croatia. Contrasting conditions occurred during the second and third dekads of August, with air temperatures below average and significantly wetter-than-usual conditions over Slovenia and most of Croatia. Wet conditions continued into the first half of September, with accumulated precipitation locally exceeding 200 mm in eastern Slovenia and central Croatia. The heavy rainfall in the middle of September caused



flooding and waterlogging in these areas.

Wet conditions in many areas caused difficulties for potato harvesting. Grain maize is mainly in the ripening stage. Abundant rainfall in August during the grain-filling period provided favourable soil moisture conditions for growth.

3.2 Black Sea Area

Turkey

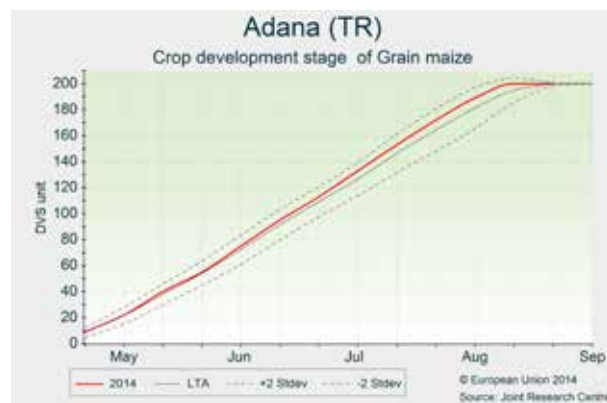
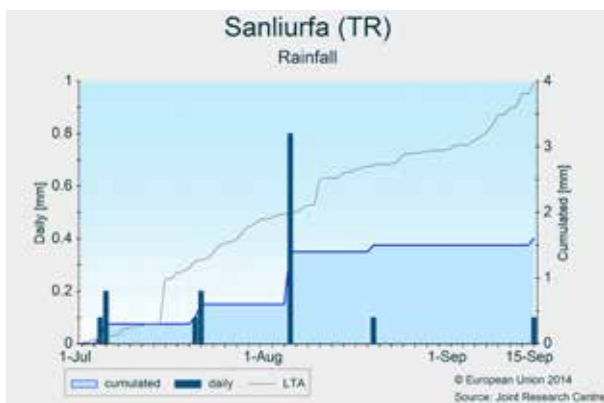
Very warm August

August was a very warm month with temperatures constantly above the long-term average in most parts of the country. Average to above-average precipitation occurred in the northern and eastern parts of the country, but hardly any rainfall was recorded in southern areas. Grain maize reached maturity, and harvesting has begun in some areas.

Temperatures in August were constantly above the long-term average in most areas of the country, leading to one of the warmest Augusts on record in the past 35 years. Temperature accumulation was 25 to 35% higher than the long-term average in northern and eastern parts of the country (e.g. *Dogu Karadeniz, Kostamonu, Samsun, Kocaeli*). A hot spell that hit the country on 16 August drove the

Consequently, the foreseen grain maize yield is well above the 5-year average for both countries. Nevertheless, heavy rainfall during the middle of September, which locally resulted in flooding and waterlogging, will delay ripening and the harvest.

maximum daily temperatures to very high values (around 40°C). In September, temperatures gradually returned to close to the average. Frequent abundant rainfall events occurred in the aforementioned very warm areas. In southern areas, however, almost no precipitation was recorded. Grain maize is progressing well and has reached, or is close to reaching, maturity. Frequent rainfall benefited maize crops in non-irrigated areas (i.e. *Kocaeli, Zonguldak*) during August, when they were in the grain-filling stage. The season is ending with good yield prospects in irrigated areas, such as *Adana*, as farmers were allowed to irrigate despite the low levels of water reserves and lack of precipitation. Harvesting has begun in some areas.



Ukraine

Dry conditions impacted summer crops

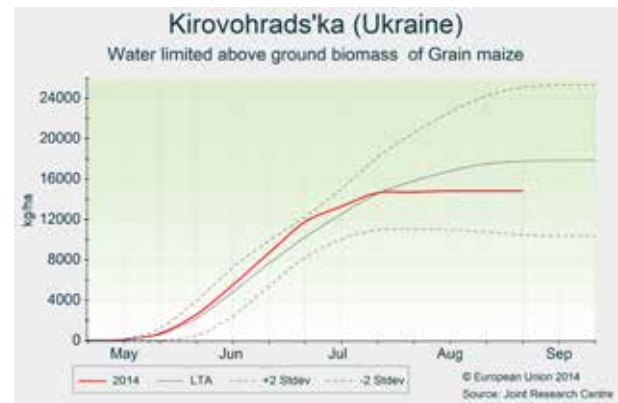
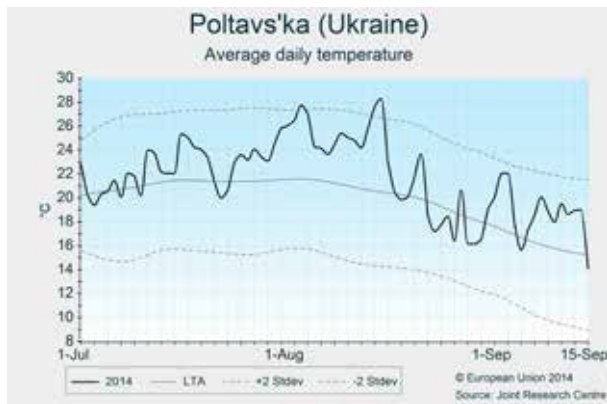
Record yields are expected for winter and spring cereals, whereas grain maize yield is forecast to be largely below the trend and near the 5-year average as a consequence of the dry conditions observed in August.

This summer is one of the driest recorded since 1975 in central regions, where most of the grain maize is cultivated. Since 1 July, more than 35 days with temperatures above 30°C were recorded in *Zaporiz'ka, Khersons'ka* and *Mykolayivs'ka*. Conditions in western regions (from *Vinnyts'ka* and beyond) were closer to the average, with just a few hot days. A long consecutive hot spell, which began at the end of

July, lasted until mid-August. Maximum temperatures reached 36°C locally in the east. Regions surrounding the Black Sea were the most impacted. Scarce rainfall was recorded, with central regions receiving only 50% of the average amount of precipitation from 1 August. Following a dry July, only 30 to 40% of the average cumulated rainfall was recorded in August in *Mykolayivs'ka, Kirovohras'ka, Odes'ka* and *Vinnyts'ka*. These dry conditions occurred while maize was reaching the grain-filling stage. Grain maize yield is forecasted at 5.81 t/ha, largely below the trend and close to the 5-year average. Sugar beets and sunflower yields are also expected to be

below average. However, the winter and spring crops harvests benefited from the dry conditions, and yield forecasts are

maintained at above average, close to record values.

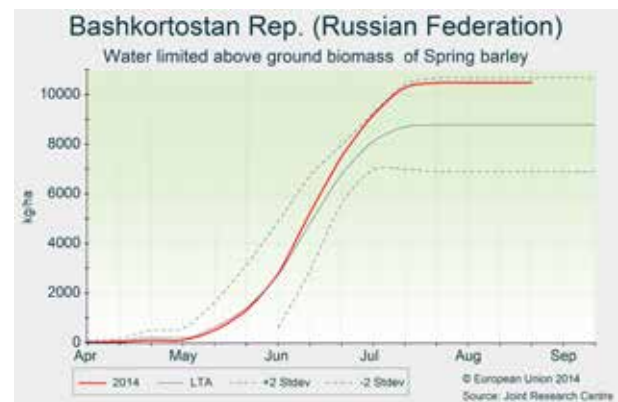
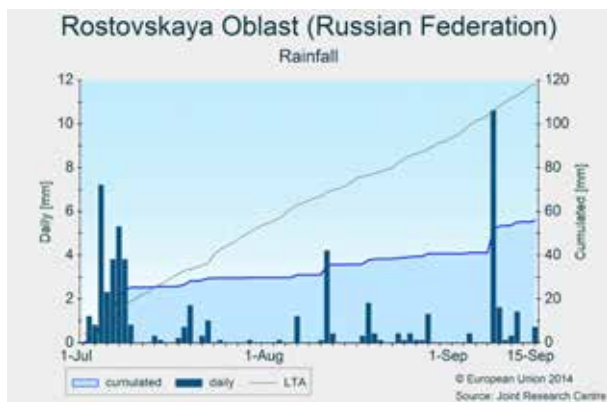


3.3 European Russia and Belarus

European Russia High cereal production

Warmer-than-usual weather conditions were typical in most of European Russia during the period of review (1 August - 15 September). In the southern regions, below-average precipitation was recorded from the first dekad of July, but soil moisture was sufficient for spring cereals for the most relevant period of yield formation. For maize, the dry conditions are expected to negatively affect yields.

A significant positive thermal anomaly (of 2 to 4°C) was experienced in the southern half of the *Central Okrug* and areas between the Black Sea and the Caspian Sea, while elsewhere the deviation remained moderate (+1 to 2°C). Daily maximum temperatures persistently exceeded the average, and the number of hot days ($T_{max} > 30^{\circ}\text{C}$) reached 20-35 days in the Southern Federal district. In the southern part of



the *Near Volga* and *Central Okrugs*, the number of hot days was 10-15 above the long-term average for this period. During the first half of this year, precipitation was near or slightly above the norm. In July, however, the precipitation tendency lessened and the weather became drier than usual for the subsequent two months. During this period, rainfall was less than half the average in the central and southern regions of the *Near Volga Okrugs*.

This dry period was quite favourable for the rapid progress of the winter cereals harvest. In July, the soil moisture content

was adequate to meet water requirements during the grain-filling period of spring barley in northern areas, resulting in high yield expectations. The water supply of grain maize was sufficient during the flowering stage, but soil moisture levels decreased sharply during the grain-filling period, reducing the initially high maize yield expectations to around average.

Belarus

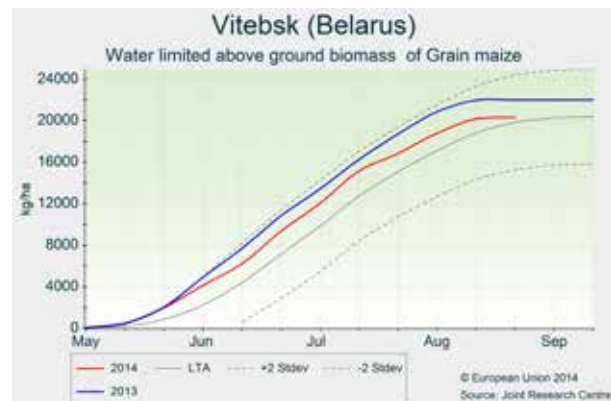
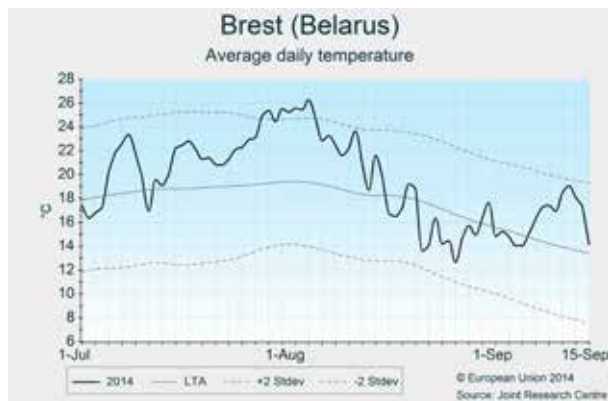
High cereal yields

Temperatures were high during the review period. Precipitation was close to average in the northern districts but less than average in the south. Winter and spring crops were harvested under good conditions. High grain maize yields are also expected.

Temperatures were higher than normal, particularly during the period from 1 July to mid-August, which was the second warmest recorded in our database (since 1975). Temperatures subsequently fell to normal until mid-September. Precipitation was close to average in the north of the country, but below average in the south, where the cumulated rainfall from 1

July to 15 September was around 40 mm less than usual.

Winter and spring crops were harvested under good conditions, due to the dry weather that occurred at the end of July. As growing conditions have been favourable throughout the season, yields are above average. Good conditions are also reported for grain maize, which had already benefited from early sowing. According to our model, the cumulated biomass of maize is slightly above average but less than last year, thus the maize yield forecast is maintained above the 5-year average. Therefore, the overall outlook for cereal yields is largely positive for the current year.



4. Crop yield forecasts

| Country | TOTAL WHEAT t/ha | | | | | TOTAL BARLEY t/ha | | | | |
|---------|------------------|-------------|----------|--------|----------|-------------------|-------------|----------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| EU28 | 5.59 | 5.64 | 5.33 | +0.9 | +5.7 | 4.85 | 4.61 | 4.49 | -5.1 | +2.6 |
| AT | 5.37 | 5.45 | 5.06 | +1.5 | +7.8 | 5.15 | 5.10 | 4.83 | -0.9 | +5.7 |
| BE | 9.13 | 8.66 | 8.78 | -5.2 | -1.4 | 8.54 | 8.41 | 8.51 | -1.5 | -1.1 |
| BG | 4.19 | 4.19 | 3.68 | -0.2 | +13.7 | 3.72 | 4.09 | 3.59 | +9.8 | +14.0 |
| CY | - | - | - | - | - | 1.58 | 0.98 | 1.73 | -37.9 | -43.4 |
| CZ | 5.67 | 5.33 | 5.23 | -5.9 | +2.1 | 4.57 | 4.51 | 4.35 | -1.3 | +3.6 |
| DE | 8.00 | 8.16 | 7.48 | +1.9 | +9.0 | 6.59 | 6.79 | 6.23 | +3.2 | +9.1 |
| DK | 7.28 | 7.69 | 7.14 | +5.6 | +7.7 | 5.77 | 5.58 | 5.54 | -3.3 | +0.8 |
| EE | 3.26 | 3.50 | 3.14 | +7.4 | +11.3 | 3.30 | 3.27 | 2.81 | -1.1 | +16.2 |
| ES | 3.58 | 2.92 | 3.05 | -18.4 | -4.1 | 3.63 | 2.56 | 2.81 | -29.7 | -9.1 |
| FI | 3.84 | 3.72 | 3.71 | -3.1 | +0.5 | 3.91 | 3.52 | 3.52 | -9.9 | +0.0 |
| FR | 7.25 | 7.26 | 7.02 | +0.1 | +3.4 | 6.30 | 6.48 | 6.42 | +2.7 | +0.8 |
| GR | 3.43 | 3.46 | 2.88 | +1.1 | +20.4 | 3.53 | 3.59 | 2.95 | +1.7 | +21.8 |
| HR | 4.89 | 4.20 | 4.81 | -14.0 | -12.6 | 3.78 | 4.18 | 4.09 | +10.7 | +2.2 |
| HU | 4.62 | 4.53 | 4.03 | -2.0 | +12.4 | 4.07 | 4.15 | 3.62 | +1.9 | +14.6 |
| IE | 8.97 | 9.02 | 8.53 | +0.5 | +5.7 | 7.49 | 7.52 | 7.05 | +0.4 | +6.8 |
| IT | 3.71 | 3.62 | 3.79 | -2.5 | -4.4 | 3.62 | 3.55 | 3.61 | -2.2 | -1.7 |
| LT | 4.30 | 4.36 | 4.03 | +1.4 | +8.2 | 3.27 | 3.36 | 3.04 | +2.5 | +10.2 |
| LU | 6.37 | 5.63 | 6.07 | -11.6 | -7.1 | - | - | - | - | - |
| LV | 3.89 | 3.68 | 3.68 | -5.2 | +0.2 | 2.73 | 2.78 | 2.65 | +2.0 | +5.1 |
| MT | - | - | - | - | - | - | - | - | - | - |
| NL | 8.72 | 8.70 | 8.74 | -0.2 | -0.5 | 6.95 | 6.84 | 6.41 | -1.6 | +6.8 |
| PL | 4.44 | 4.42 | 4.15 | -0.4 | +6.5 | 3.57 | 3.53 | 3.41 | -1.1 | +3.5 |
| PT | 1.71 | 1.77 | 1.43 | +3.2 | +24.0 | 1.69 | 1.75 | 1.54 | +3.5 | +13.7 |
| RO | 3.48 | 3.50 | 2.97 | +0.8 | +18.0 | 3.25 | 3.16 | 2.73 | -2.7 | +15.8 |
| SE | 5.78 | 6.27 | 5.77 | +8.4 | +8.7 | 4.62 | 4.51 | 4.46 | -2.3 | +1.2 |
| SI | 4.38 | 4.40 | 4.75 | +0.3 | -7.4 | 4.00 | 4.03 | 4.20 | +0.8 | -3.9 |
| SK | 4.58 | 3.80 | 4.00 | -17.1 | -5.1 | 3.93 | 3.80 | 3.43 | -3.4 | +10.8 |
| UK | 7.38 | 8.24 | 7.49 | +11.6 | +10.0 | 5.85 | 5.81 | 5.74 | -0.6 | +1.3 |

| Country | SOFT WHEAT t/ha | | | | | DURUM WHEAT t/ha | | | | |
|---------|-----------------|-------------|----------|--------|----------|------------------|-------------|----------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| EU28 | 5.81 | 5.88 | 5.57 | +1.1 | +5.5 | 3.35 | 3.17 | 3.22 | -5.5 | -1.7 |
| AT | 5.39 | 5.50 | 5.10 | +2.1 | +7.9 | 5.09 | 4.42 | 4.33 | -13.1 | +2.2 |
| BE | 9.13 | 8.66 | 8.78 | -5.2 | -1.4 | - | - | - | - | - |
| BG | 4.20 | 4.19 | 3.69 | -0.2 | +13.6 | 3.17 | 3.77 | 3.22 | +19.0 | +17.1 |
| CY | - | - | - | - | - | - | - | - | - | - |
| CZ | 5.67 | 5.33 | 5.23 | -5.9 | +2.1 | - | - | - | - | - |
| DE | 8.00 | 8.16 | 7.48 | +1.9 | +9.0 | - | - | - | - | - |
| DK | 7.28 | 7.69 | 7.14 | +5.6 | +7.7 | - | - | - | - | - |
| EE | 3.26 | 3.50 | 3.14 | +7.4 | +11.3 | - | - | - | - | - |
| ES | 3.76 | 3.03 | 3.29 | -19.4 | -7.7 | 2.64 | 2.35 | 2.13 | -11.2 | +10.0 |
| FI | 3.84 | 3.72 | 3.71 | -3.1 | +0.5 | - | - | - | - | - |
| FR | 7.39 | 7.39 | 7.19 | +0.0 | +2.8 | 5.27 | 5.01 | 5.12 | -5.0 | -2.2 |
| GR | 3.44 | 3.50 | 3.10 | +1.7 | +13.0 | 3.42 | 3.45 | 2.80 | +0.8 | +23.2 |
| HR | 4.89 | 4.20 | 4.81 | -14.0 | -12.6 | - | - | - | - | - |
| HU | 4.63 | 4.54 | 4.03 | -1.9 | +12.5 | 4.43 | 4.08 | 3.84 | -8.0 | +6.3 |
| IE | 8.97 | 9.02 | 8.53 | +0.5 | +5.7 | - | - | - | - | - |
| IT | 5.22 | 5.22 | 5.34 | -0.1 | -2.2 | 2.97 | 2.86 | 3.08 | -3.9 | -7.2 |
| LT | 4.30 | 4.36 | 4.03 | +1.4 | +8.2 | - | - | - | - | - |
| LU | 6.37 | 5.63 | 6.07 | -11.6 | -7.1 | - | - | - | - | - |
| LV | 3.89 | 3.68 | 3.68 | -5.2 | +0.2 | - | - | - | - | - |
| MT | - | - | - | - | - | - | - | - | - | - |
| NL | 8.72 | 8.70 | 8.74 | -0.2 | -0.5 | - | - | - | - | - |
| PL | 4.44 | 4.42 | 4.15 | -0.4 | +6.5 | - | - | - | - | - |
| PT | 1.71 | 1.77 | 1.43 | +3.2 | +24.0 | - | - | - | - | - |
| RO | 3.48 | 3.50 | 2.97 | +0.8 | +18.0 | - | - | - | - | - |
| SE | 5.78 | 6.27 | 5.77 | +8.4 | +8.7 | - | - | - | - | - |
| SI | 4.38 | 4.40 | 4.75 | +0.3 | -7.4 | - | - | - | - | - |
| SK | 4.58 | 3.79 | 4.00 | -17.3 | -5.4 | 4.68 | 4.16 | 3.95 | -11.0 | +5.4 |
| UK | 7.38 | 8.24 | 7.49 | +11.6 | +10.0 | - | - | - | - | - |

| Country | TRITICALE t/ha | | | | | RAPE AND TURNIP RAPE t/ha | | | | |
|---------|----------------|-------------|----------|--------|----------|---------------------------|-------------|----------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| EU28 | 4.29 | 4.27 | 4.07 | -0.4 | +4.9 | 3.11 | 3.33 | 3.07 | +7.2 | +8.6 |
| AT | 4.98 | 5.05 | 4.97 | +1.4 | +1.6 | 3.39 | 2.72 | 3.12 | -19.8 | -12.8 |
| BE | - | - | - | - | - | 4.26 | 4.31 | 4.22 | +1.3 | +2.1 |
| BG | 2.82 | 3.31 | 2.76 | +17.0 | +19.7 | 2.54 | 2.61 | 2.37 | +2.8 | +10.4 |
| CY | - | - | - | - | - | - | - | - | - | - |
| CZ | 4.58 | 4.51 | 4.33 | -1.4 | +4.3 | 3.45 | 2.95 | 3.03 | -14.4 | -2.8 |
| DE | 6.57 | 6.46 | 5.94 | -1.8 | +8.7 | 3.95 | 4.20 | 3.77 | +6.3 | +11.4 |
| DK | 5.71 | 5.45 | 5.14 | -4.7 | +5.9 | 3.87 | 3.88 | 3.68 | +0.1 | +5.3 |
| EE | - | - | - | - | - | 2.02 | 2.01 | 1.71 | -0.3 | +17.7 |
| ES | 2.79 | 2.30 | 2.26 | -17.7 | +2.0 | 2.56 | 1.87 | 2.04 | -27.0 | -8.3 |
| FI | - | - | - | - | - | 1.52 | 1.37 | 1.43 | -9.8 | -3.9 |
| FR | 5.31 | 5.37 | 5.39 | +1.1 | -0.2 | 3.04 | 3.45 | 3.39 | +13.4 | +1.6 |
| GR | - | - | - | - | - | - | - | - | - | - |
| HR | 3.40 | 3.00 | 3.64 | -11.6 | -17.4 | 2.66 | 2.70 | 2.62 | +1.4 | +3.0 |
| HU | 3.87 | 3.68 | 3.27 | -4.9 | +12.5 | 2.60 | 2.67 | 2.31 | +2.3 | +15.2 |
| IE | - | - | - | - | - | 3.53 | 3.55 | 3.48 | +0.6 | +1.8 |
| IT | - | - | - | - | - | 2.17 | 2.27 | 2.26 | +4.3 | +0.2 |
| LT | 3.13 | 3.31 | 3.00 | +5.4 | +10.1 | 2.13 | 2.15 | 2.06 | +1.0 | +4.4 |
| LU | - | - | - | - | - | - | - | - | - | - |
| LV | 2.60 | 2.75 | 2.72 | +5.9 | +0.9 | 2.36 | 2.11 | 2.18 | -10.5 | -3.2 |
| MT | - | - | - | - | - | - | - | - | - | - |
| NL | - | - | - | - | - | - | - | - | - | - |
| PL | 3.63 | 3.64 | 3.43 | +0.3 | +5.9 | 2.80 | 3.06 | 2.69 | +9.3 | +13.5 |
| PT | 1.55 | 1.45 | 1.21 | -6.8 | +19.2 | - | - | - | - | - |
| RO | 3.66 | 3.61 | 3.18 | -1.3 | +13.7 | 2.42 | 2.47 | 1.86 | +2.1 | +32.7 |
| SE | 4.90 | 5.69 | 4.82 | +16.0 | +18.0 | 2.65 | 2.93 | 2.76 | +10.4 | +6.1 |
| SI | - | - | - | - | - | - | - | - | - | - |
| SK | 3.35 | 2.92 | 3.06 | -12.8 | -4.6 | 2.74 | 2.24 | 2.27 | -18.2 | -1.2 |
| UK | 3.75 | 4.14 | 3.90 | +10.4 | +6.1 | 2.98 | 3.81 | 3.43 | +28.1 | +11.4 |

| Country | SUGAR BEETS t/ha | | | | | POTATO t/ha | | | | |
|---------|------------------|--------------|----------|--------|----------|-------------|--------------|----------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| EU28 | 67.94 | 73.41 | 69.36 | +8.1 | +5.8 | 30.94 | 32.78 | 30.61 | +5.9 | +7.1 |
| AT | 68.16 | 72.37 | 69.07 | +6.2 | +4.8 | 28.59 | 34.45 | 31.65 | +20.5 | +8.8 |
| BE | 74.07 | 77.26 | 76.30 | +4.3 | +1.3 | 46.15 | 47.29 | 44.97 | +2.5 | +5.2 |
| BG | - | - | - | - | - | 15.69 | 18.84 | 14.86 | +20.1 | +26.8 |
| CY | - | - | - | - | - | - | - | - | - | - |
| CZ | 60.00 | 63.71 | 59.66 | +6.2 | +6.8 | 23.12 | 27.69 | 26.68 | +19.8 | +3.8 |
| DE | 63.88 | 72.30 | 68.06 | +13.2 | +6.2 | 39.83 | 45.26 | 42.95 | +13.6 | +5.4 |
| DK | 60.52 | 61.67 | 60.76 | +1.9 | +1.5 | 40.00 | 39.13 | 39.59 | -2.2 | -1.2 |
| EE | - | - | - | - | - | - | - | - | - | - |
| ES | 89.85 | 89.44 | 83.93 | -0.5 | +6.6 | 30.49 | 30.16 | 30.17 | -1.1 | -0.1 |
| FI | 38.78 | 38.04 | 36.19 | -1.9 | +5.1 | 27.56 | 27.41 | 26.03 | -0.6 | +5.3 |
| FR | 85.40 | 93.56 | 88.10 | +9.5 | +6.2 | 43.39 | 46.97 | 43.16 | +8.3 | +8.8 |
| GR | - | - | - | - | - | 25.36 | 25.88 | 25.69 | +2.1 | +0.7 |
| HR | 52.00 | 57.85 | 48.91 | +11.3 | +18.3 | 17.00 | 17.21 | 17.26 | +1.2 | -0.3 |
| HU | 47.00 | 63.63 | 50.36 | +35.4 | +26.4 | 21.83 | 27.86 | 23.66 | +27.6 | +17.7 |
| IE | - | - | - | - | - | 34.00 | 34.24 | 31.41 | +0.7 | +9.0 |
| IT | 53.00 | 57.04 | 56.22 | +7.6 | +1.5 | 25.60 | 24.87 | 24.82 | -2.9 | +0.2 |
| LT | 51.00 | 52.08 | 48.69 | +2.1 | +7.0 | 18.00 | 15.48 | 15.80 | -14.0 | -2.0 |
| LU | - | - | - | - | - | - | - | - | - | - |
| LV | - | - | - | - | - | 19.00 | 17.34 | 17.40 | -8.7 | -0.4 |
| MT | - | - | - | - | - | - | - | - | - | - |
| NL | 76.00 | 82.91 | 77.43 | +9.1 | +7.1 | 41.50 | 45.69 | 44.13 | +10.1 | +3.5 |
| PL | 52.90 | 52.79 | 52.08 | -0.2 | +1.4 | 21.40 | 21.18 | 20.55 | -1.0 | +3.0 |
| PT | - | - | - | - | - | 18.00 | 17.71 | 16.39 | -1.6 | +8.1 |
| RO | 32.28 | 42.00 | 33.60 | +30.1 | +25.0 | 15.03 | 16.59 | 14.47 | +10.4 | +14.6 |
| SE | 64.20 | 61.14 | 59.07 | -4.8 | +3.5 | 33.79 | 33.18 | 31.93 | -1.8 | +3.9 |
| SI | - | - | - | - | - | - | - | - | - | - |
| SK | 49.77 | 61.76 | 53.79 | +24.1 | +14.8 | - | - | - | - | - |
| UK | 68.40 | 72.28 | 68.03 | +5.7 | +6.3 | 40.10 | 42.97 | 41.07 | +7.2 | +4.6 |

| Country | SUNFLOWER t/ha | | | | |
|---------|----------------|-------------|-------------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| EU28 | 2.02 | 2.10 | 1.86 | +4.3 | +12.9 |
| AT | 2.35 | 2.74 | 2.58 | +16.4 | +6.3 |
| BE | - | - | - | - | - |
| BG | 2.40 | 2.53 | 2.05 | +5.6 | +23.8 |
| CY | - | - | - | - | - |
| CZ | 2.20 | 2.46 | 2.38 | +11.9 | +3.4 |
| DE | 2.11 | 2.26 | 2.20 | +7.3 | +2.8 |
| DK | - | - | - | - | - |
| EE | - | - | - | - | - |
| ES | 1.21 | 1.03 | 1.11 | -15.1 | -7.4 |
| FI | - | - | - | - | - |
| FR | 2.05 | 2.48 | 2.32 | +21.0 | +7.2 |
| GR | 2.54 | 2.37 | 2.19 | -6.7 | +8.2 |
| HR | 3.24 | 2.42 | 2.65 | -25.3 | -8.7 |
| HU | 2.48 | 2.67 | 2.25 | +8.0 | +18.7 |
| IE | - | - | - | - | - |
| IT | 2.09 | 2.34 | 2.24 | +11.7 | +4.3 |
| LT | - | - | - | - | - |
| LU | - | - | - | - | - |
| LV | - | - | - | - | - |
| MT | - | - | - | - | - |
| NL | - | - | - | - | - |
| PL | - | - | - | - | - |
| PT | 0.64 | 0.62 | 0.56 | -2.8 | +10.8 |
| RO | 2.00 | 2.06 | 1.65 | +3.0 | +25.1 |
| SE | - | - | - | - | - |
| SI | - | - | - | - | - |
| SK | 2.33 | 2.40 | 2.17 | +3.0 | +10.4 |
| UK | - | - | - | - | - |

Notes: Yields are forecast for crops with more than 10000 ha per country

Sources: 2009-2014 data come from DG AGRICULTURE short term Outlook data (dated July 2014, received on 28/07/2014), EUROSTAT Eurobase (last update: 16/08/2014) and EES (last update: 01/08/2014)
2014 yields come from MARS CROP YIELD FORECASTING SYSTEM (CGMS output up to 10/09/2014)

| Country | WHEAT (t/ha) | | | | |
|---------|--------------|-------------|----------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| BY | 3.33* | 3.67 | 3.31 | +10.2 | +11.0 |
| DZ | 1.72* | 1.70 | 1.62 | -1.4 | +4.5 |
| MA | 2.10* | 1.71 | 1.75 | -22.8 | -2.3 |
| TN | 1.55* | 2.09 | 1.92 | +34.7 | +8.6 |
| TR | 2.78 | 2.52 | 2.63 | -9.5 | -4.3 |
| UA | 3.39 | 3.74 | 3.08 | +10.4 | +21.7 |

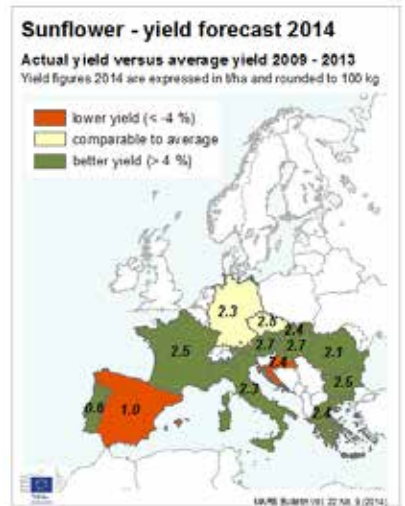
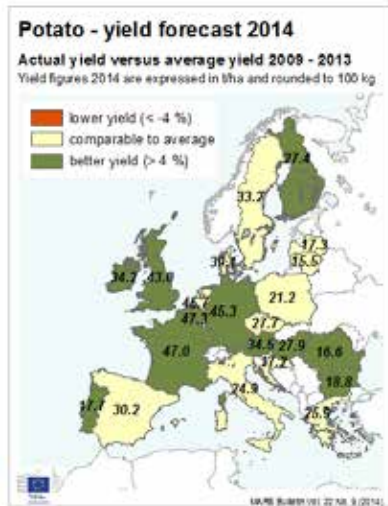
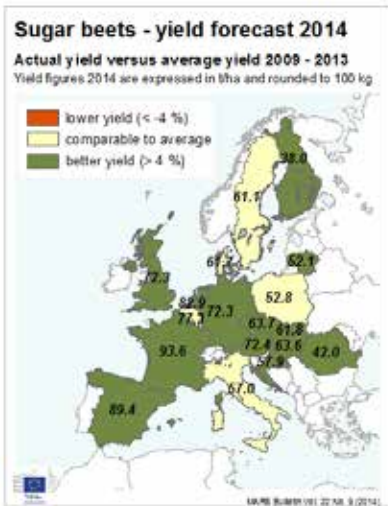
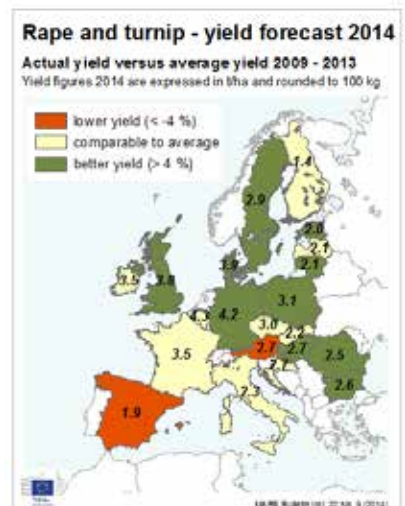
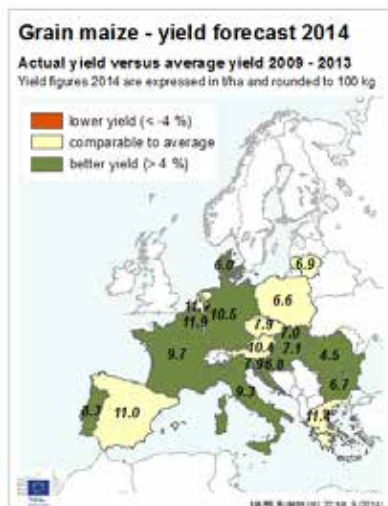
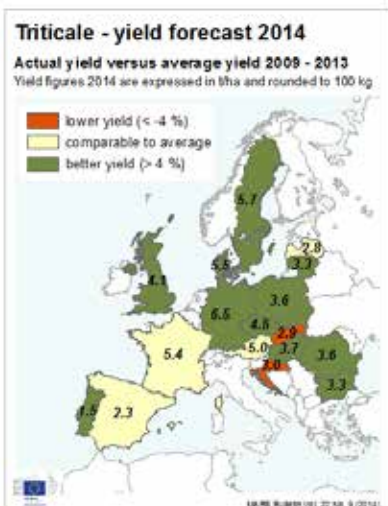
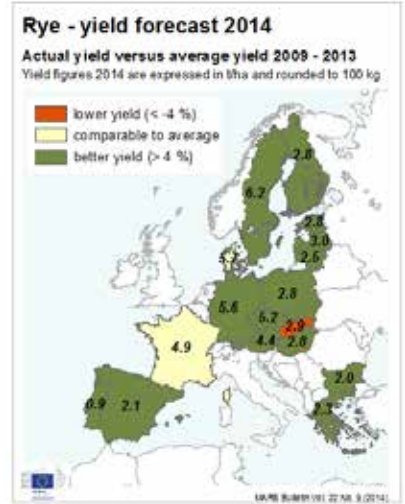
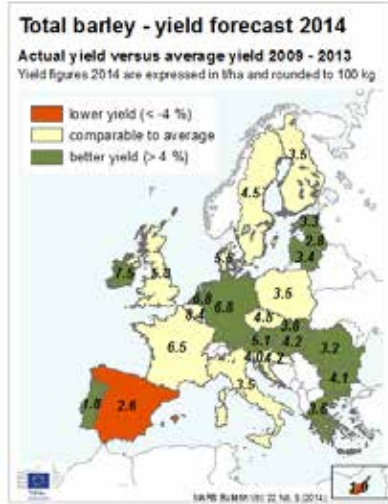
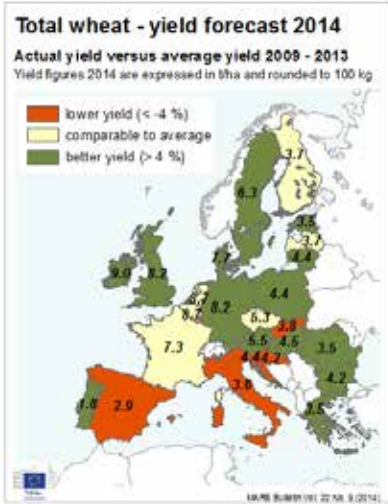
| Country | BARLEY (t/ha) | | | | |
|---------|---------------|-------------|----------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| BY | 3.09 | 3.29 | 3.12 | +6.4 | +5.2 |
| DZ | 1.65* | 1.42 | 1.53 | -14.1 | -7.1 |
| MA | 1.24* | 1.16 | 1.27 | -6.5 | -8.6 |
| TN | 0.94* | 1.41 | 1.24 | +50.3 | +13.5 |
| TR | 2.89 | 2.47 | 2.58 | -14.7 | -4.6 |
| UA | 2.34 | 2.56 | 2.25 | +9.5 | +13.8 |

| Country | GRAIN MAIZE (t/ha) | | | | |
|---------|--------------------|-------------|----------|--------|----------|
| | 2013 | 2014 | Avg 5yrs | %14/13 | %14/5yrs |
| BY | 6.00* | 5.85 | 5.64 | -2.6 | +3.6 |
| DZ | - | - | - | - | - |
| MA | - | - | - | - | - |
| TN | - | - | - | - | - |
| TR | 8.90 | 8.24 | 7.60 | -7.5 | +8.4 |
| UA | 6.40 | 5.81 | 5.56 | -9.2 | +4.6 |

Notes: Yields are forecast for crops with more than 10000 ha per country

Sources: 2009-2013 data come from FAO, PSD-online, INRA Maroc, MinAGRI Tunisia and DSASI Algeria
*2013 yields come from MARS CROP YIELD FORECASTING SYSTEM as reported values were not available
2014 yields come from MARS CROP YIELD FORECASTING SYSTEM (CGMS output up to 10/09/2014;
for DZ, MA and TN CGMS output was used up to 10/06/2014 as the season has finished)

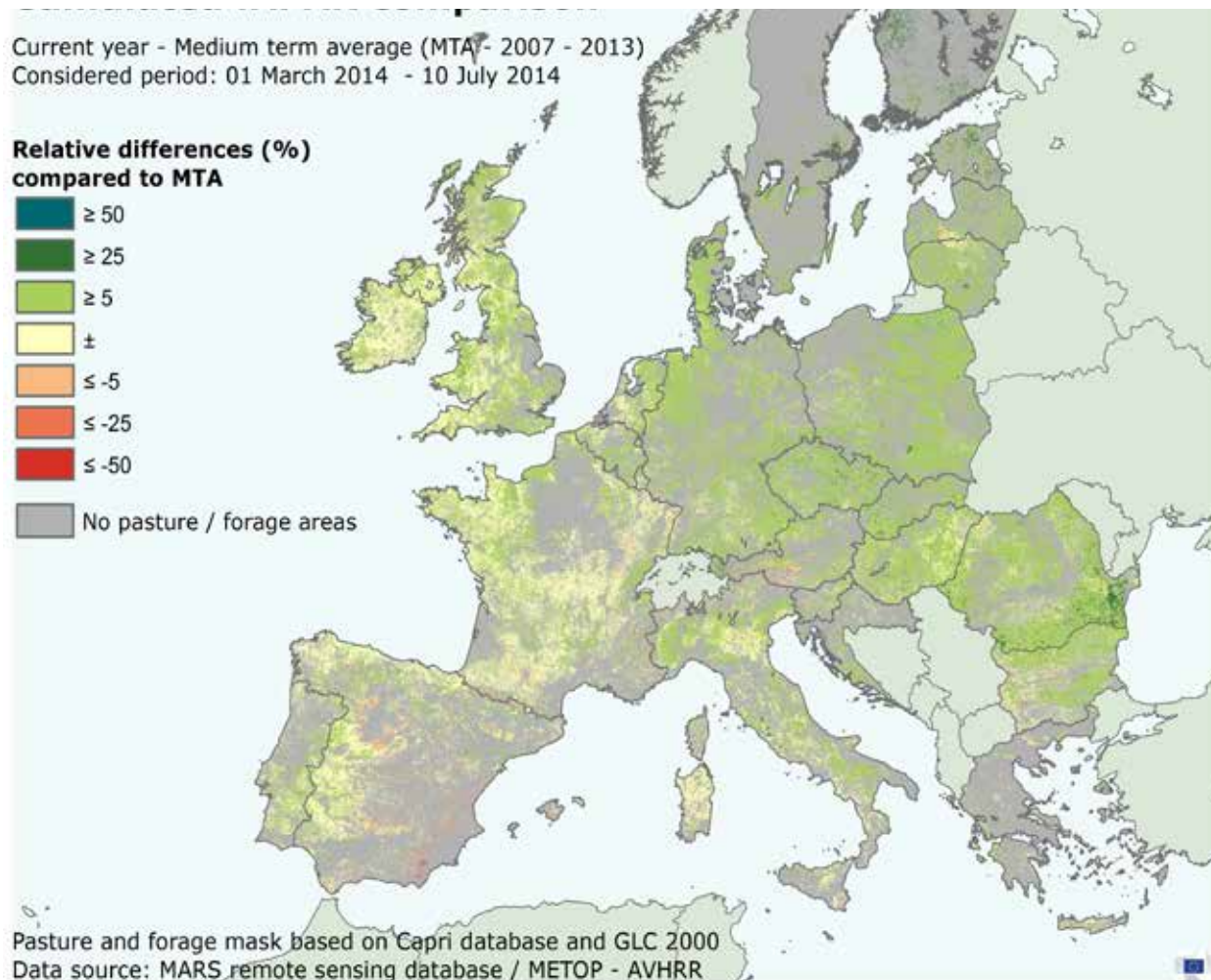
Yield maps



5. Pastures in Europe - Remote sensing monitoring update

High biomass accumulation thanks to a humid late summer

Weather conditions in August and September maintained high biomass formation rates across Europe. There are currently no areas of concern, and the growing season has generally been quite positive.



Warmer-than-usual temperatures persisted in the northern pasture areas of **Spain** during August and the first half of September. Precipitation levels were close to the average, with thunderstorms during the first week of August. The vegetative vigour of grasslands remains close to the average, and no major concerns are expected for the rest of September. The seasonal outlook is rather positive, as cumulated biomass has been above average during the entire growing season. In **Italy**, the humid conditions observed throughout the growing season continued during the second half of August. Biomass formation levels in fodder maize areas in northern regions are substantially above the seasonal values, and yield expectations are quite high. In central and southern regions (*Abruzzo, Basilicata*) the outlook is also positive for grasslands. Rainfall has been quite abundant in **France** from July onwards, with temperatures slightly below the seasonal values, especially during the second half of August. The vegetative growth of grasslands has been fairly positive during this second half of the summer thanks to favourable

weather conditions. Similar conditions were observed for the **Benelux** region. The yield outlook for the whole season is quite positive in most regions, but only close to the average in north-eastern France (*Bourgogne, Lorraine*), where pastures suffered water stress in June. The outlook is also favourable for the **UK** and **Ireland**, where meteorological conditions in August – with temperatures that were slightly below the norm and sufficient precipitation – facilitated the maintenance of normal biomass formation levels during the second half of the summer.

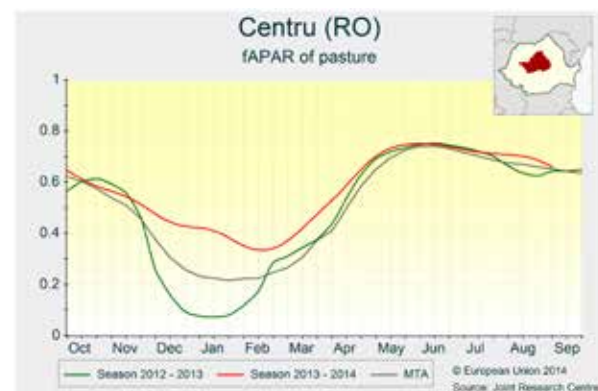
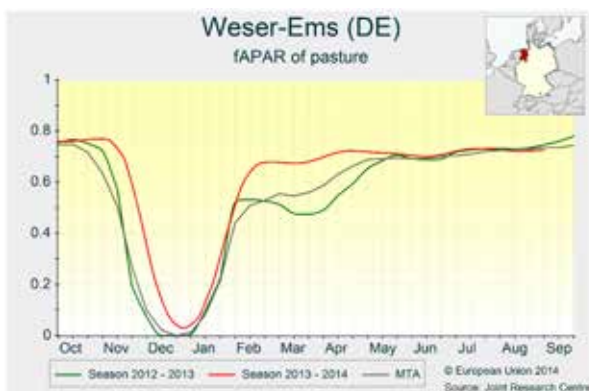
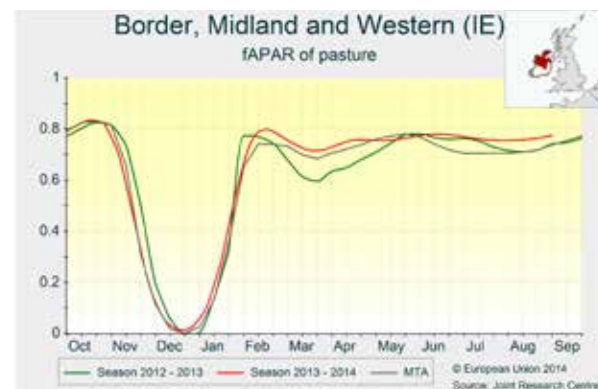
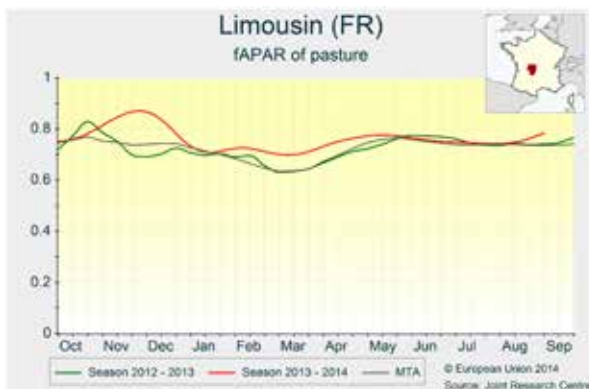
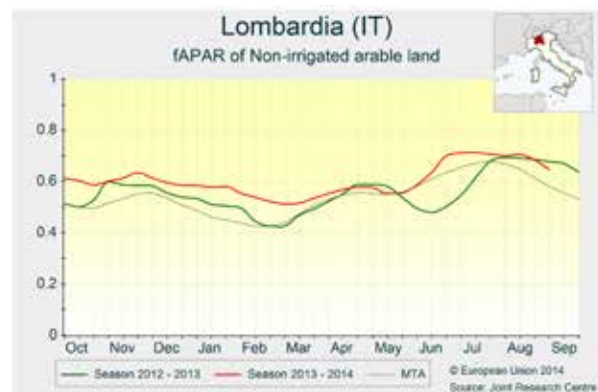
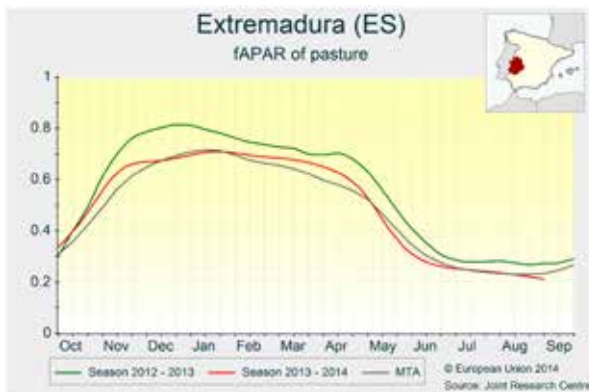
In **Germany**, the biomass production rates of grasslands in southern regions are close to the average thanks to favourable weather conditions, with temperatures slightly below the average and sufficient rainfall. Pastures also present satisfactory production rates in the northern half of the country and **Denmark**, thanks to the rainfall registered during the first two weeks of August. Overall, the growing season in both countries has been very positive, and water constraints are not expected for the remaining months. The

outlook for pastures is also favourable in **Austria, Slovakia** and the **Czech Republic**.

Weather conditions during July and August were very positive for pastures in **Hungary**, and the overall season is expected to be more productive than usual. Especially in the east, where a lack of water in June produced a significant decrease in vegetative vigour, abundant precipitation in July and August led to a boost in vegetative growth, which is currently far above the seasonal values. The growing season in **Romania** has also been quite favourable up to now. Precipitation was sufficient during July and August in all regions, and biomass formation is presently above average. September started with dry conditions and warmer-than-average temperatures. If these conditions continue, they may induce an early senescence in the coming weeks.

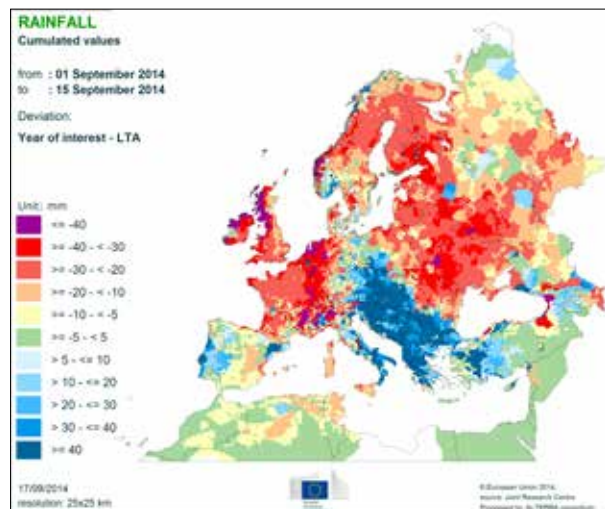
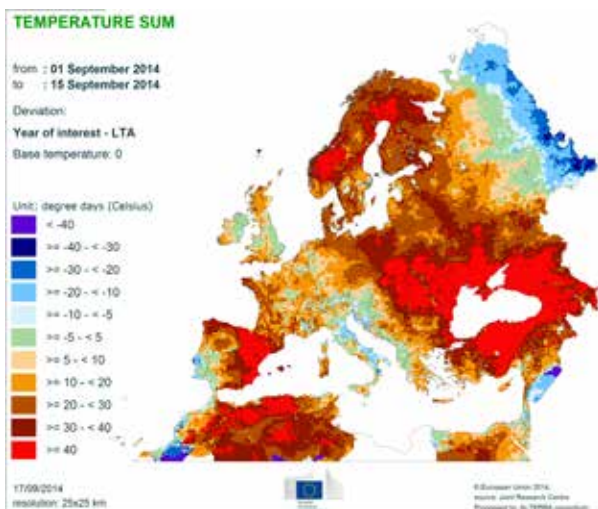
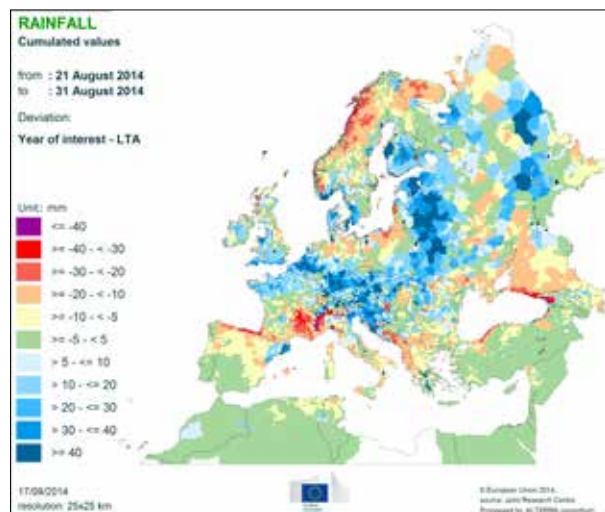
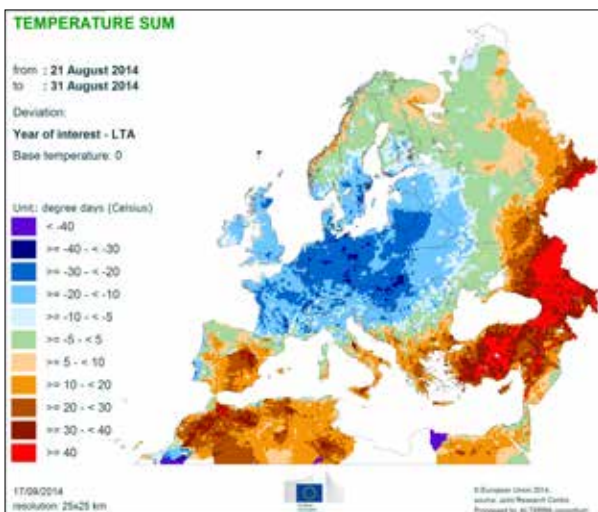
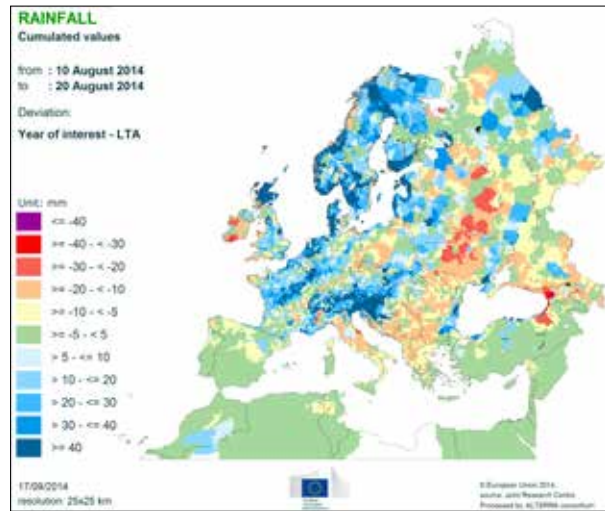
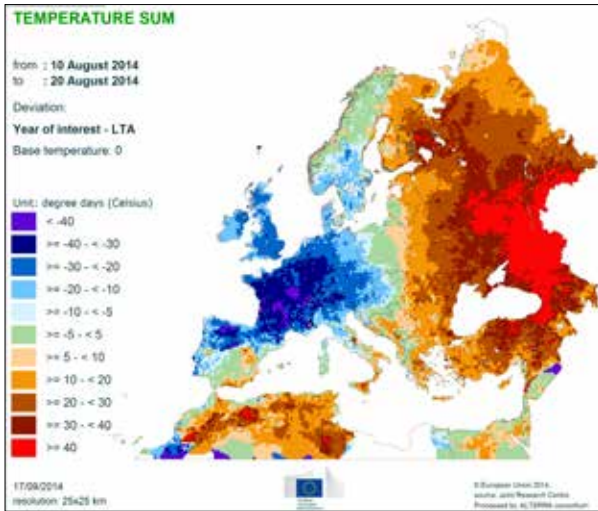
In **Poland**, the warmer-than-usual temperatures observed

during most of the season decreased to seasonal values in the second half of August. Pasture conditions are currently average in the main producing areas, and the season has been quite positive overall. In **Latvia** and **Lithuania**, the extraordinarily high temperatures observed in the first week of August led to a decrease in the growth rates of pastures in the second half of the month. Nevertheless, abundant precipitation and the decrease in temperatures since then have permitted a recovery to average production rates, confirming a favourable growing season for both countries.

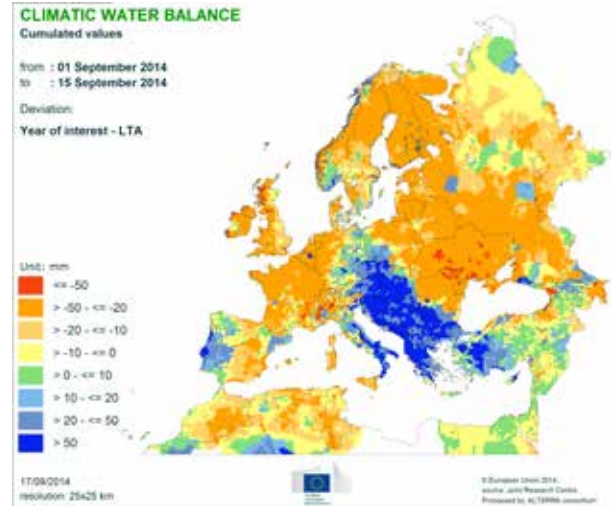
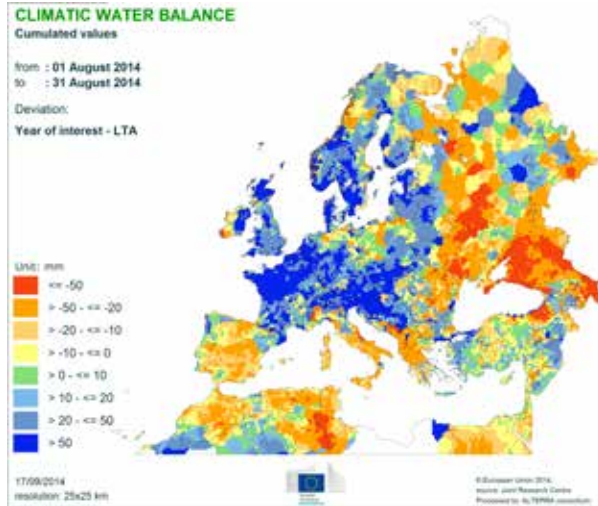


6. Atlas maps

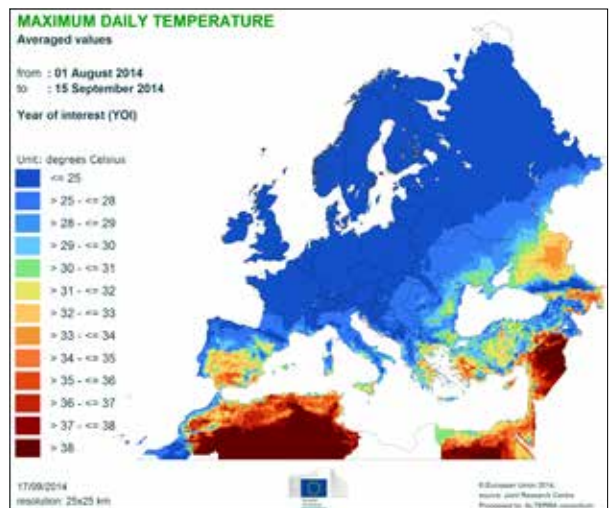
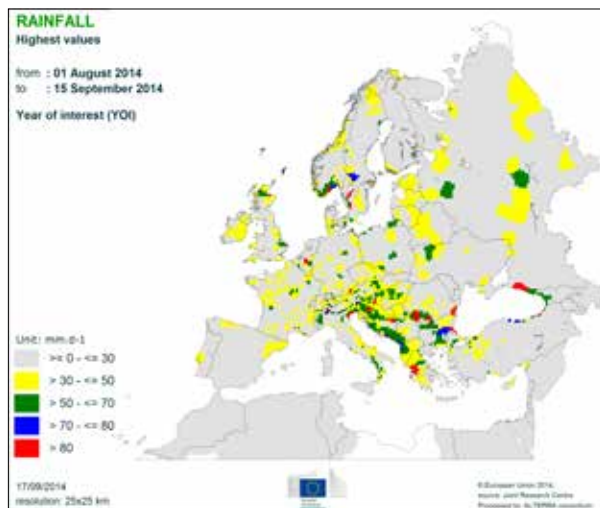
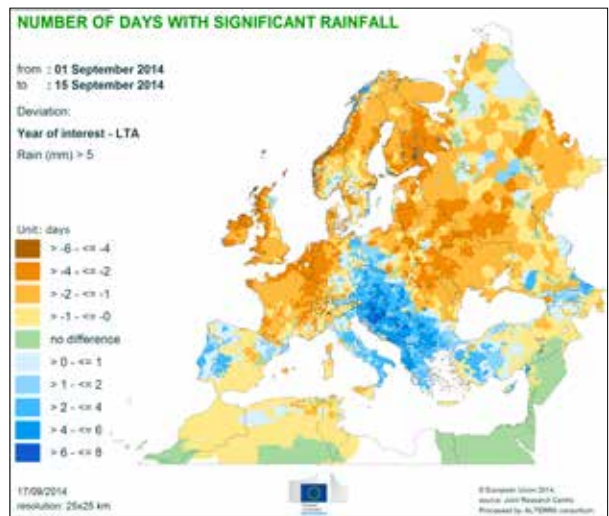
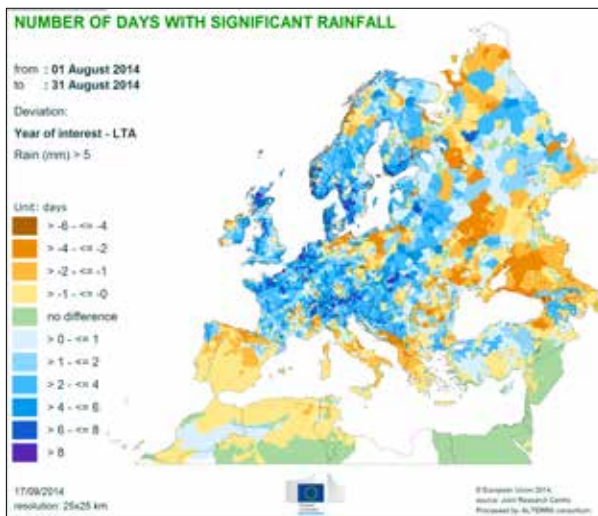
Temperatures and precipitation

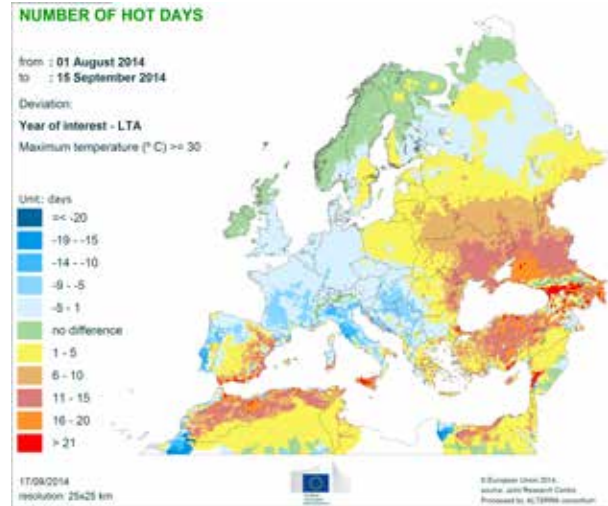
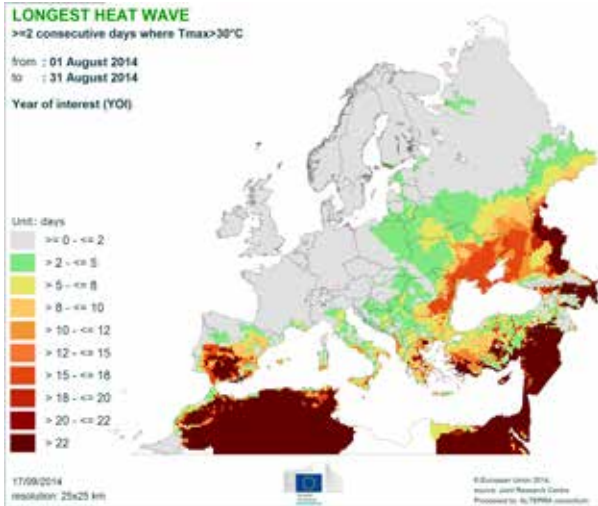


Climatic water balance

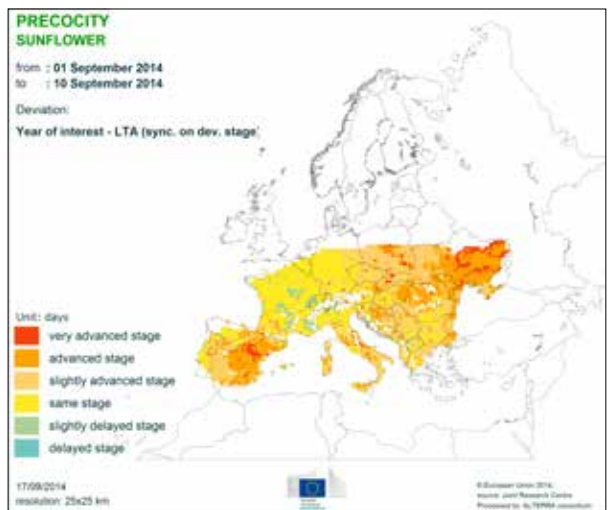
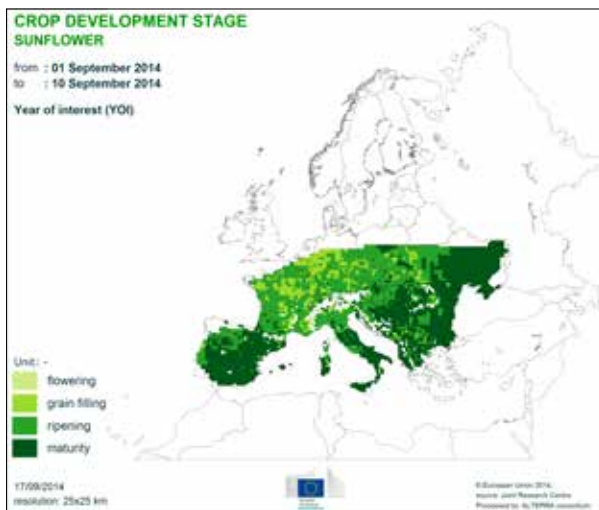
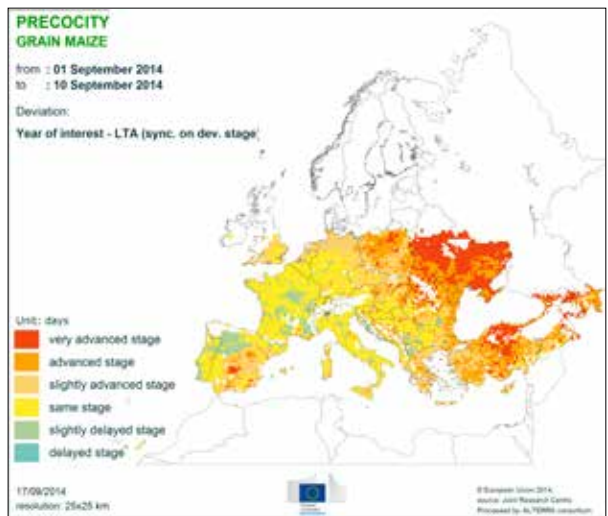
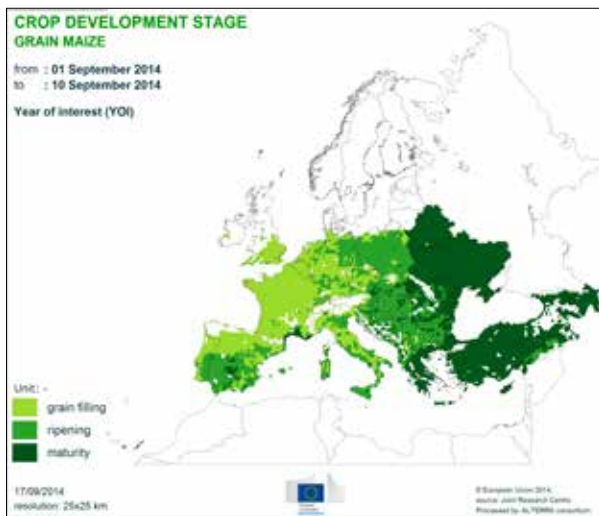


Weather events

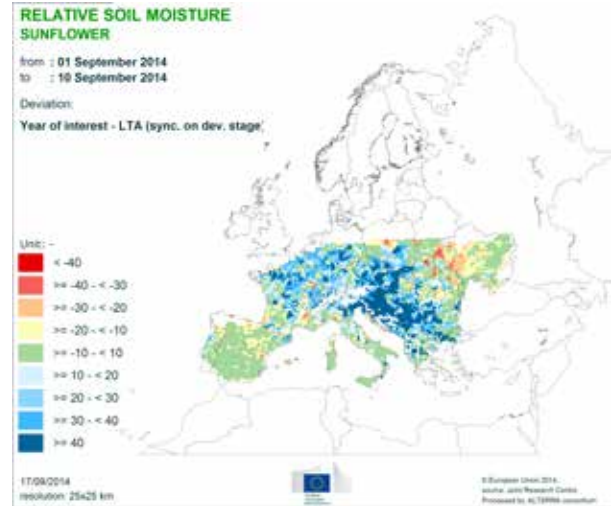
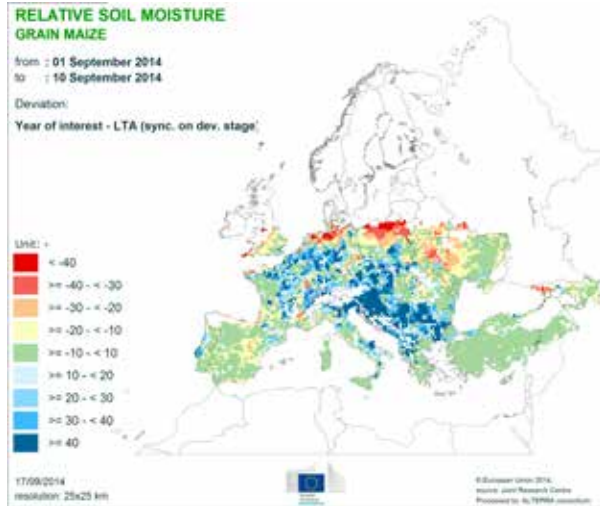




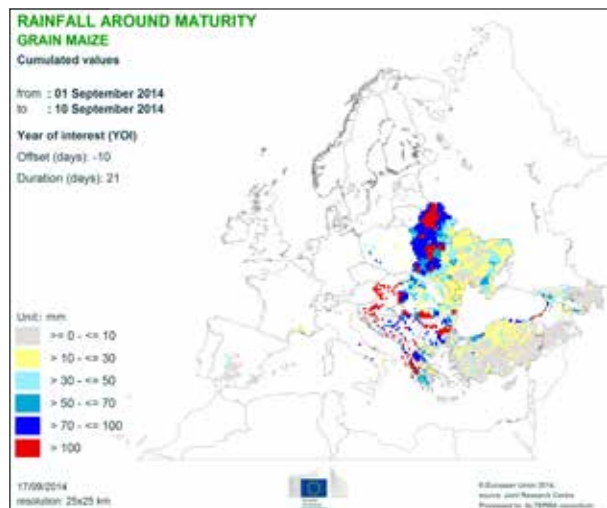
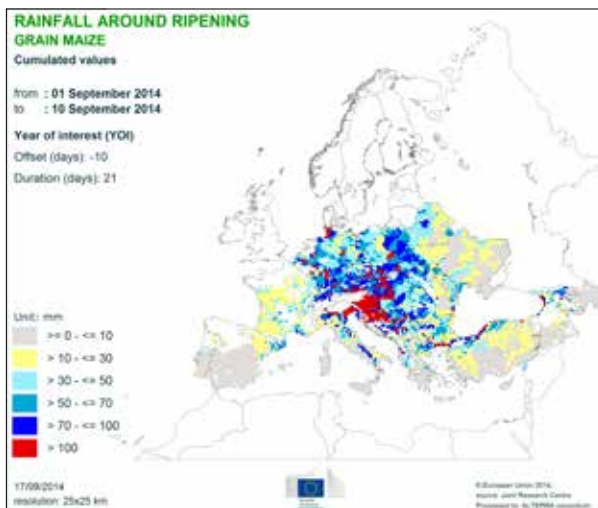
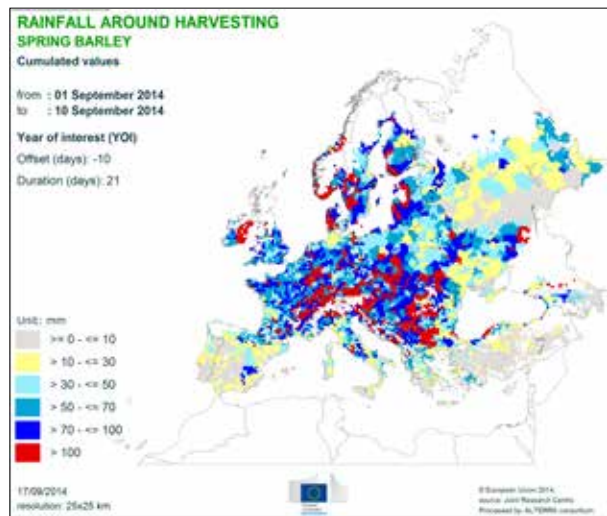
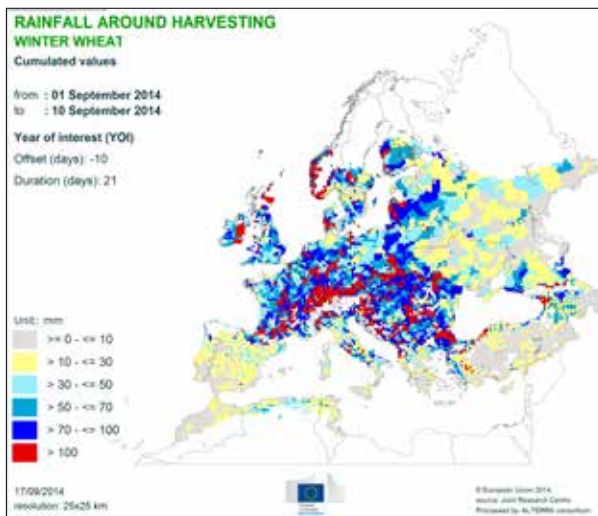
Crop development stages and precocity



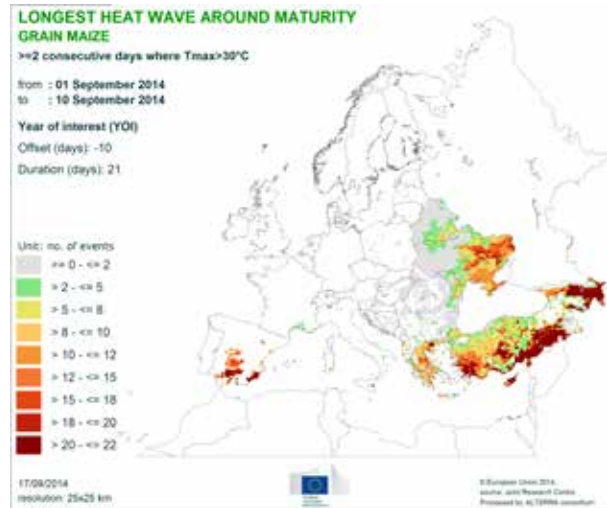
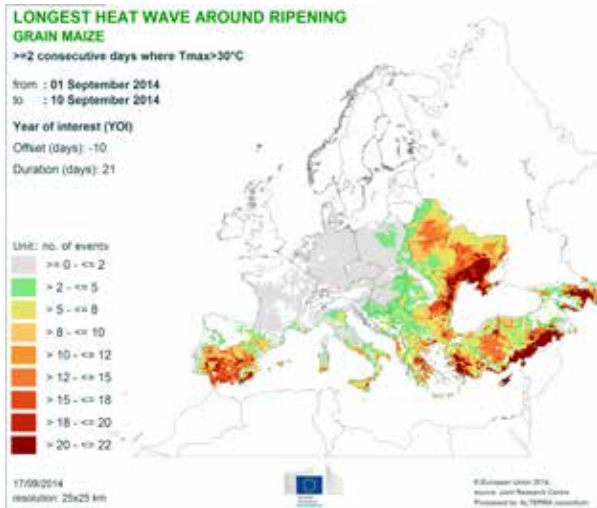
Relative soil moisture



Rainfall around crop development



Maize – heat waves



2014 MARS Bulletins

| Date | Publication | Reference |
|--------|--|----------------|
| 27 Jan | Agromet. analysis | Vol. 22 No. 1 |
| 24 Feb | Agromet analysis | Vol. 22 No. 2 |
| 24 Mar | Agromet analysis and yield forecast | Vol. 22 No. 3 |
| 14 Apr | Agromet analysis, remote sensing and yield forecast | Vol. 22 No. 4 |
| 12 May | Agromet analysis, remote sensing, yield forecast and pasture analysis | Vol. 22 No. 5 |
| 23 Jun | Agromet analysis, remote sensing, yield forecast and pasture update | Vol. 22 No. 6 |
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| 25 Aug | Agromet analysis, yield forecast and pasture update | Vol. 22 No. 8 |
| 22 Sep | Agromet analysis, remote sensing, yield forecast and pasture update | Vol. 22 No. 9 |
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