

Crop Monitoring in Europe

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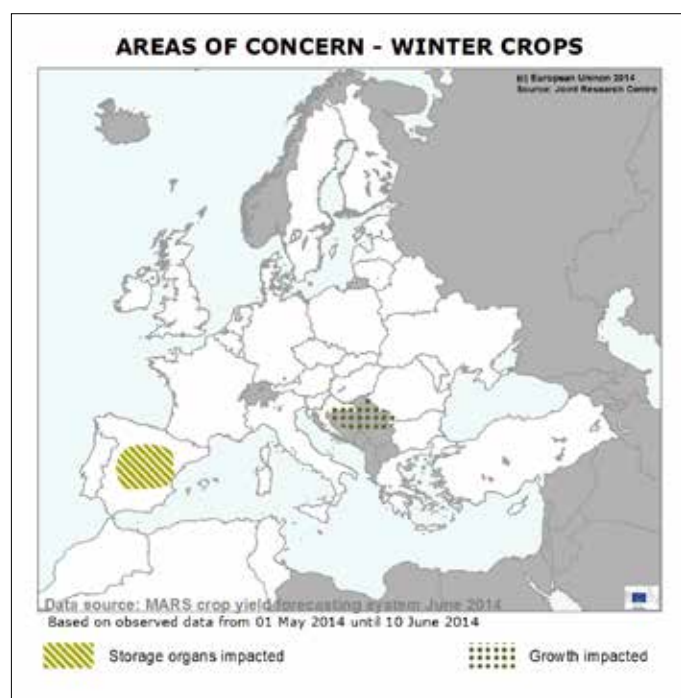
Yield outlook predominantly positive, concerns for Spain

Overall, the outlook for EU-28 yields remains positive: above the 5-year average and close to 2013 yields - with only minor changes (at EU-level) compared to the May forecasts. The yield outlook for soft wheat is 4.2% above the 5-year average, and is particularly good for Romania, Hungary, Bulgaria and the UK, as well as for Denmark, Estonia, Lithuania and Portugal.

The outlook for durum wheat is slightly below the 5-year average, mainly due to suboptimal performance in Italy. For barley, the overall forecast is just above the 5-year average (but below the excellent

levels of 2013) as the high yields expected for Romania, Hungary and several smaller producers are practically offset by the particularly poor forecast for Spain, the EU's largest barley producer.

The outlook for rape and turnip rape is positive for all major EU producers, except the Czech Republic. For grain maize, sunflowers, sugar beet and potatoes, most forecasts are still early estimates, but the overall above-average figures indicate a promising start for these crops.



Crop	Yield t/ha				
	2013	MARS 2014 forecasts	Avg 5yrs	%14/13	%14/5yrs
TOTAL CEREALS	5.30	5.30	5.08	+0.1	+4.4
Total Wheat	5.58	5.56	5.33	-0.2	+4.4
<i>soft wheat</i>	5.82	5.81	5.57	-0.3	+4.2
<i>durum wheat</i>	3.24	3.15	3.19	-3.0	-1.5
Total Barley	4.85	4.55	4.49	-6.1	+1.4
<i>spring barley</i>	4.43	3.90	3.94	-12.1	-1.1
<i>winter barley</i>	5.49	5.48	5.30	-0.2	+3.2
Grain maize	6.69	7.18	6.77	+7.3	+6.0
Rye	3.98	3.66	3.46	-8.0	+5.7
Triticale	4.30	4.22	4.07	-1.9	+3.4
Other cereals	3.21	3.19	3.46	-0.6	-7.8
Rape and turnip rape	3.10	3.21	3.07	+3.7	+4.8
Potato	31.02	31.97	30.69	+3.0	+4.2
Sugar beet	68.14	72.29	69.53	+6.1	+4.0
Sunflower	1.96	1.92	1.84	-1.7	+4.6

Issued: 17 June 2014

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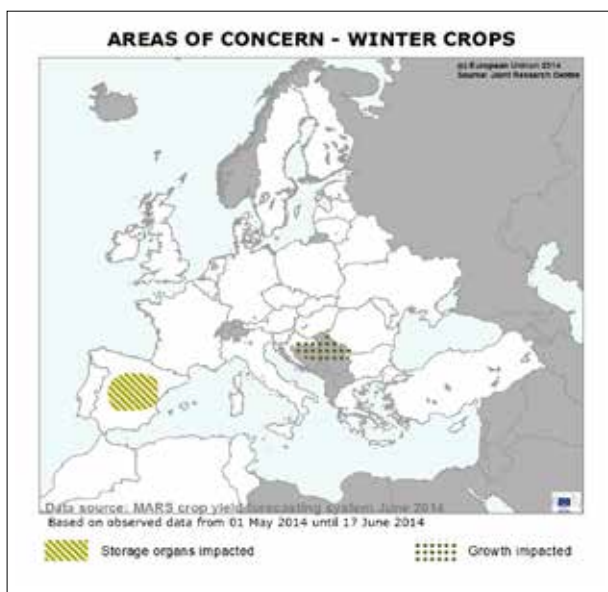
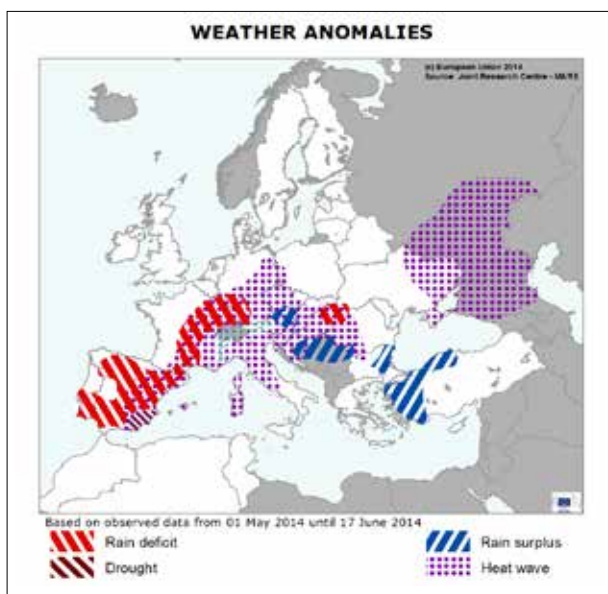
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1. Agro-meteorological overview

1.1 Areas of concern

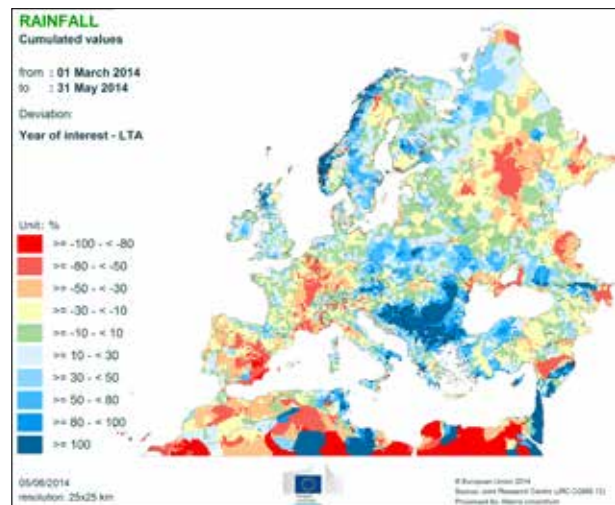
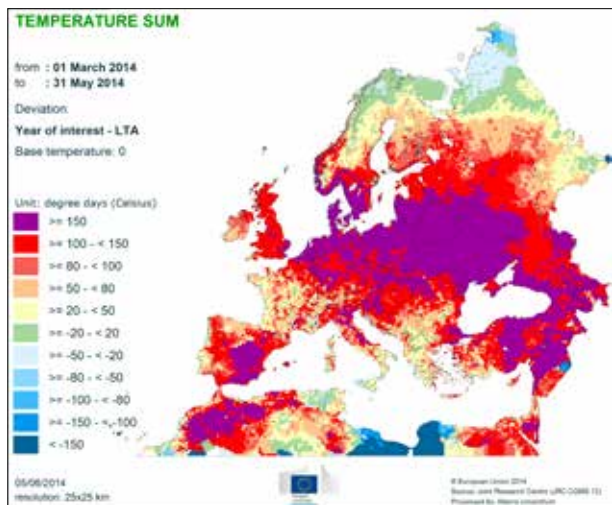
The persistent lack of rain in central and southern Spain determined scarce soil moisture during the grain-filling phase of winter and spring crops; the situation worsened at the beginning of June when maximum daily temperatures increased above seasonal values. In southern France, dry and hot weather is not yet impacting on crop conditions: the heat wave was short (1-3 days) and dry conditions are not yet very severe, but rainfall will be needed in the coming weeks to sustain crop growth.

The same hot African air masses also influenced the weather over Germany at the beginning of June, where the high temperatures occurred during winter wheat flowering, diminishing crop fertility. However, as general conditions were optimal, we consider that the high temperatures had only a marginal impact. High temperatures were also recorded in central Europe and Italy, but had no relevant impact.



However, summer crop conditions are deemed to be fragile in eastern Hungary, and a persistent lack of rain coupled with high temperatures could reduce the yield outlook in the coming weeks. Abundant rainfall was recorded in Austria, eastern Bulgaria, part of Ukraine, southern Belarus and eastern Poland, but no negative impact is expected on spring and winter crops. Severe flooding in the first half of May in southern Croatia, Serbia and Bosnia-Herzegovina destroyed the crops in the field and caused large damages to agricultural infrastructures. Above-average rainfall was recorded in western Turkey, where the precipitation was beneficial for spring crops and replenished the water reservoirs used for irrigating summer crops.

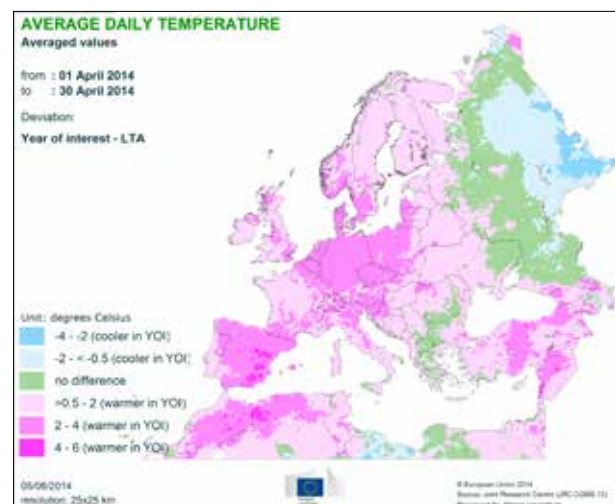
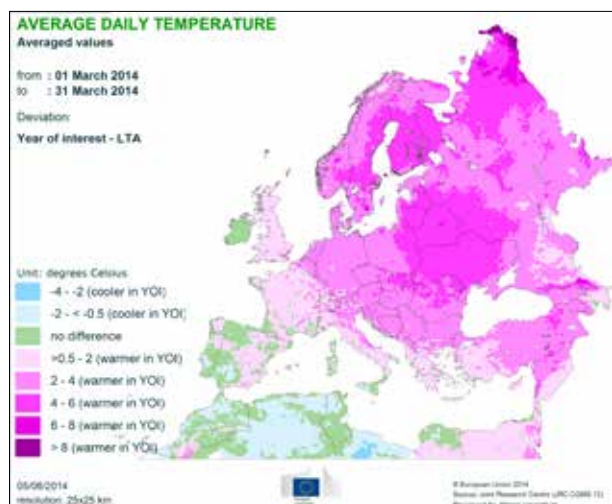
1.2 Meteorological review spring 2014 (March, April, May)

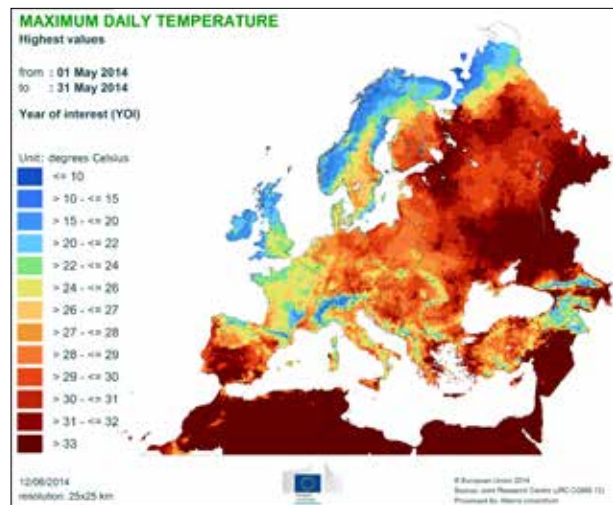
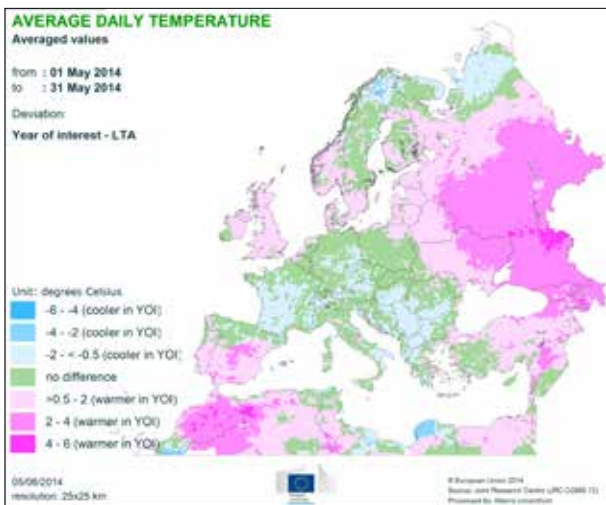


Observed temperatures

In **March**, positive thermal anomalies, mainly in the range of 2 to 4°C, prevailed over central and eastern Europe, while near-average or slightly above-average temperatures were observed over western Europe, the Mediterranean region and the UK. The unusually mild conditions were particularly pronounced in Ukraine, Belarus, the Baltic countries, northern Russia and the eastern part of the Scandinavian Peninsula, with average temperatures as much as 4 to 6°C above the long-term average. Warmer-than-usual conditions continued over central, central-eastern Europe and Turkey during the first half of **April**. During this period, positive thermal anomalies were also observed in western Europe and the western part of Mediterranean region, with average temperatures more than 4°C above the long-term average over parts of the Iberian Peninsula, Benelux and Germany. By contrast, colder-than-usual conditions affected Russia and the eastern part of Ukraine. In the second half of April, the warm anomalies shifted towards the East, thus displacing most of the cold anomalies over Russia. Above-average temperatures, in the range of 2 to 4°C, were observed over an area extending

from northern Germany to eastern Russia and delimited by Ukraine in the south, Turkey and the eastern coasts of the Black Sea. The first half of **May** was characterised by a sudden change to colder conditions over central and eastern Europe, while warmer-than-usual conditions were still observed over the Iberian Peninsula. Temperature anomalies of as much as 2°C (locally 4°C) below average affected the Scandinavian Peninsula, north-eastern France, Germany, the Czech Republic, Poland, Belarus, the Baltic countries and northern Russia. By contrast, during the second half of May positive thermal anomalies, up to 4 to 6°C above the average, prevailed over eastern Europe and the Scandinavian Peninsula, while above-average temperatures were observed in France and the Iberian Peninsula, and normal thermal conditions were recorded elsewhere. As a consequence of the warmer conditions recorded in March and April, the cumulated active temperatures ($T_{base}=0^{\circ}\text{C}$) since March are well above average (>150 GDD) in central-eastern Europe and in the western part of the Iberian Peninsula.



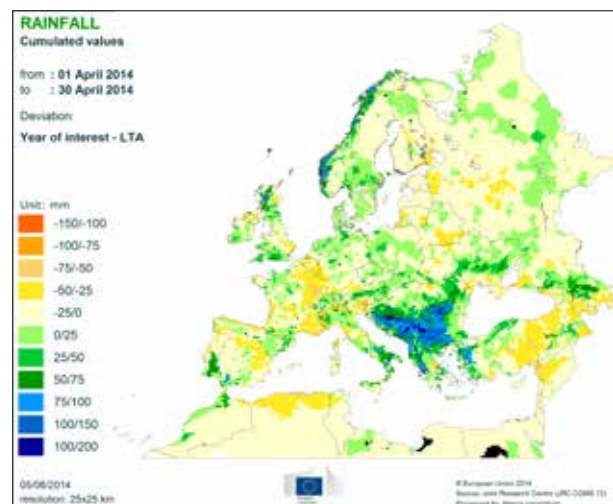
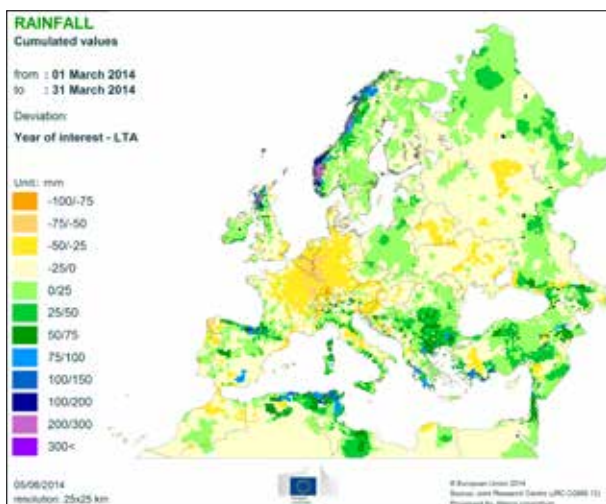


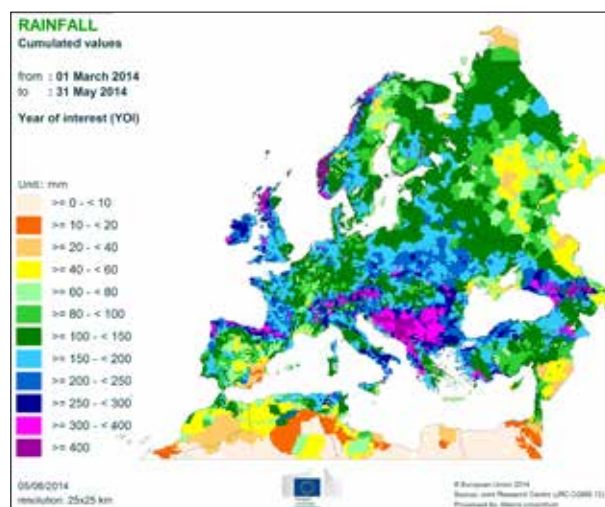
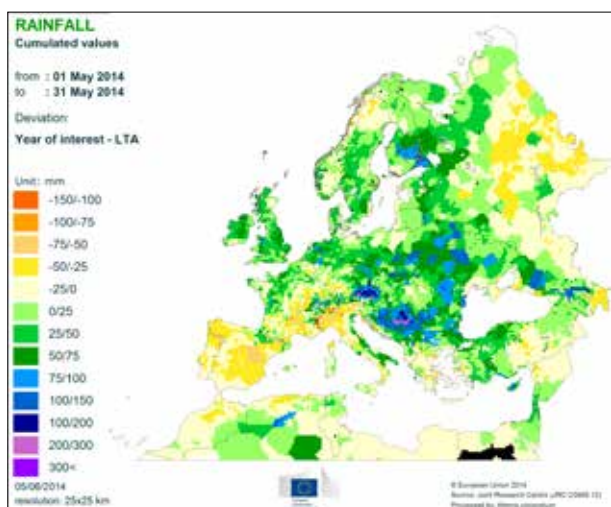
Observed precipitation

During **March**, drier-than-usual conditions persisted over Germany, Hungary, Ukraine, Belarus and the central part of Russia, with cumulated precipitation as much as 80% below the average. Below-average rainfall was also observed over eastern France, the Benelux countries, southern Spain and western Turkey. Hardly any days with significant precipitation were recorded over the aforementioned regions. By contrast, cumulated rainfall exceeded the average by more than 50 mm over north-western Scotland; Norway; some areas in Sweden, Poland and eastern Russia; some areas in Italy (especially in the south); southern Portugal and along the Pyrenees; a region covering southern Romania, Serbia, Bulgaria, Macedonia and the north-eastern part of Greece; southern Peloponnese and the central part of Turkey.

During **April**, wetter-than-usual conditions (with rainfall exceeding the long-term average by more than 30%) were observed over the Balkans and the Mediterranean/Black Sea coasts of western Turkey, eastern Italy, western Norway, central Ukraine and some areas of Portugal, the UK, central Europe, Sweden and Russia. By contrast, drier-than-usual conditions (below 30% the long term average) affected large

areas in western Europe (mainly Spain, France, Benelux), north-eastern Europe (mainly Belarus, Lithuania, Sweden, Finland and Russia) and eastern Turkey. Less than four days with significant daily rainfall (i.e. greater than 5 mm) were observed over the main agricultural production areas in central and eastern Europe during the first half of April, further contributing to the water deficit in eastern France, Germany, Poland, Hungary, Ukraine and Turkey. During **May**, wetter conditions continued over the Balkan Peninsula and Austria, where cumulated rainfall locally exceeded the long-term average by more than 100 mm. Above-average rainfall was also recorded in eastern Europe and Germany. Dry conditions prevailed in southern and eastern France, the Iberian Peninsula, south-western Germany, northern Italy and Tuscany, and over the north-eastern part of Russia, with cumulated rainfall as much as 50 mm below the long-term average. Dry conditions associated with above-average temperatures during spring led to a significant deficit in the water balance, mainly over the eastern part of the Iberian Peninsula and eastern France.





1.3 Meteorological review (1 June – 15 June)

During the first weeks of June, a significant heat wave occurred in central and northern Europe and over the western part of the Mediterranean regions. Warm and dry conditions continued over southern Germany, southern France and

northern Italy, while colder and wetter conditions prevailed in Turkey. In general, drier-than-usual conditions were observed in central and southern Europe, and slightly wetter-than-normal conditions occurred over northern Europe.

Observed temperatures

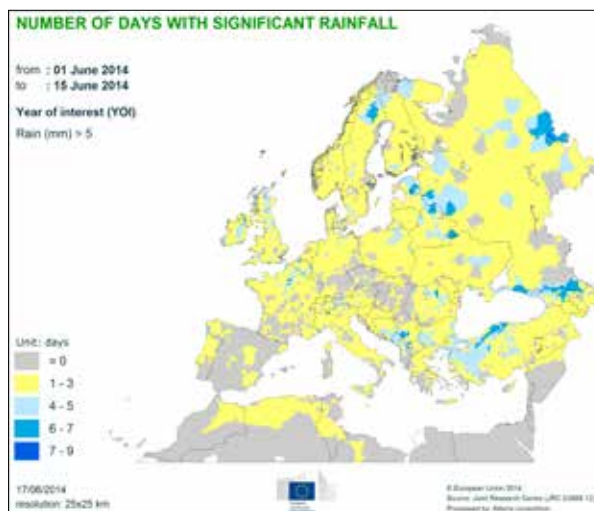
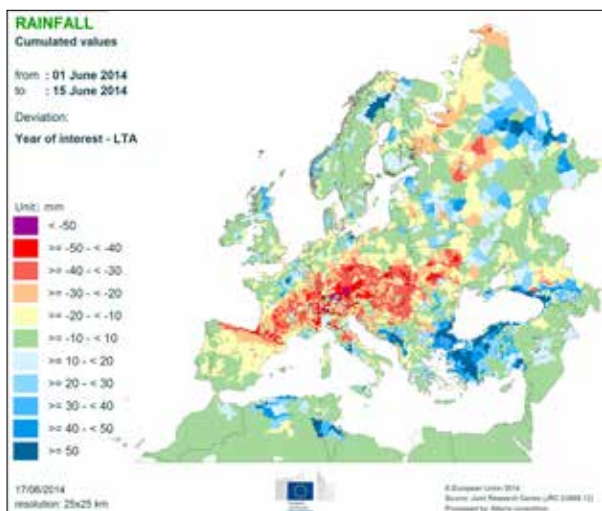
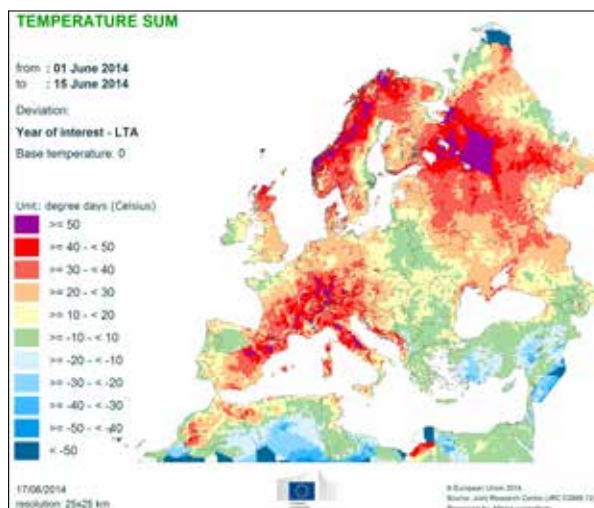
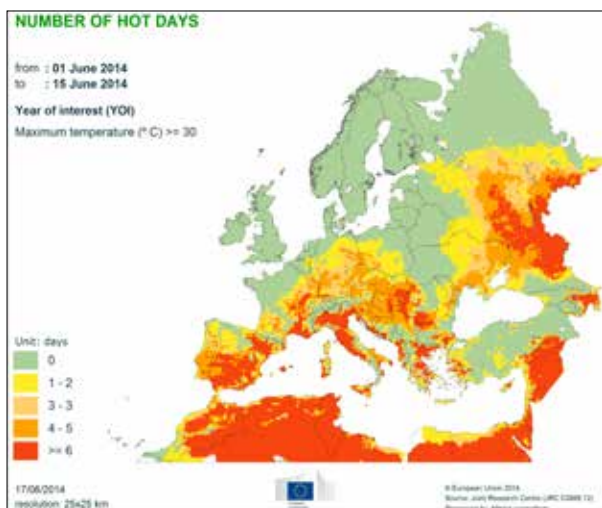
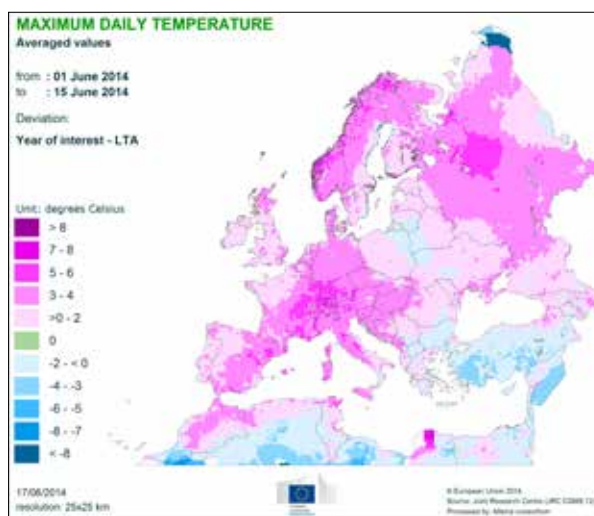
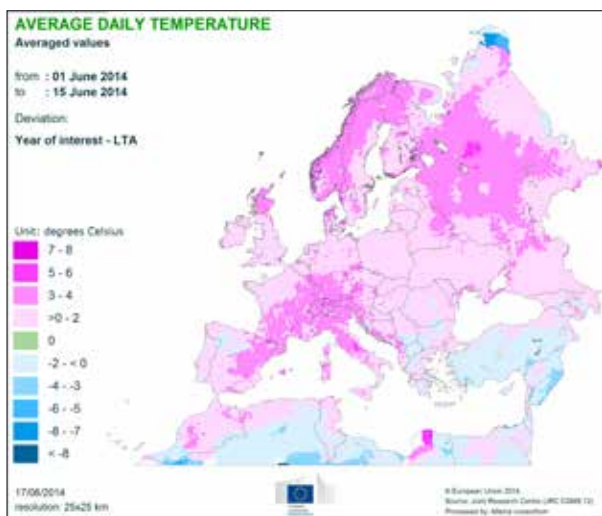
The period of review was characterised by generally warmer-than-usual conditions over Europe, with the exception of Turkey, Greece and the western part of the Iberian Peninsula, where recorded temperatures were near or slightly below average. The positive thermal anomalies were particularly pronounced in Russia, eastern Belarus, the Scandinavian Peninsula, southern Germany, the western part of the Czech Republic, Austria, northern and central Italy, southern and eastern France, and north-eastern Spain, with average temperatures as much as 2 to 4°C above the long-term average. Maximum

temperatures were higher than usual in most of these regions from 7 to 12 June, reaching daily values up to 4 to 6°C above the long-term average. Furthermore, more than six hot days (maximum temperatures >30°C) were observed over eastern Spain, southern France, northern and central Italy, Croatia, Albania and eastern Greece, and some areas in the western part of Romania and south-eastern Russia. This first heat wave of the season may have affected winter cereals during flowering over central regions and the grain-filling stage in southern regions.

Observed precipitation

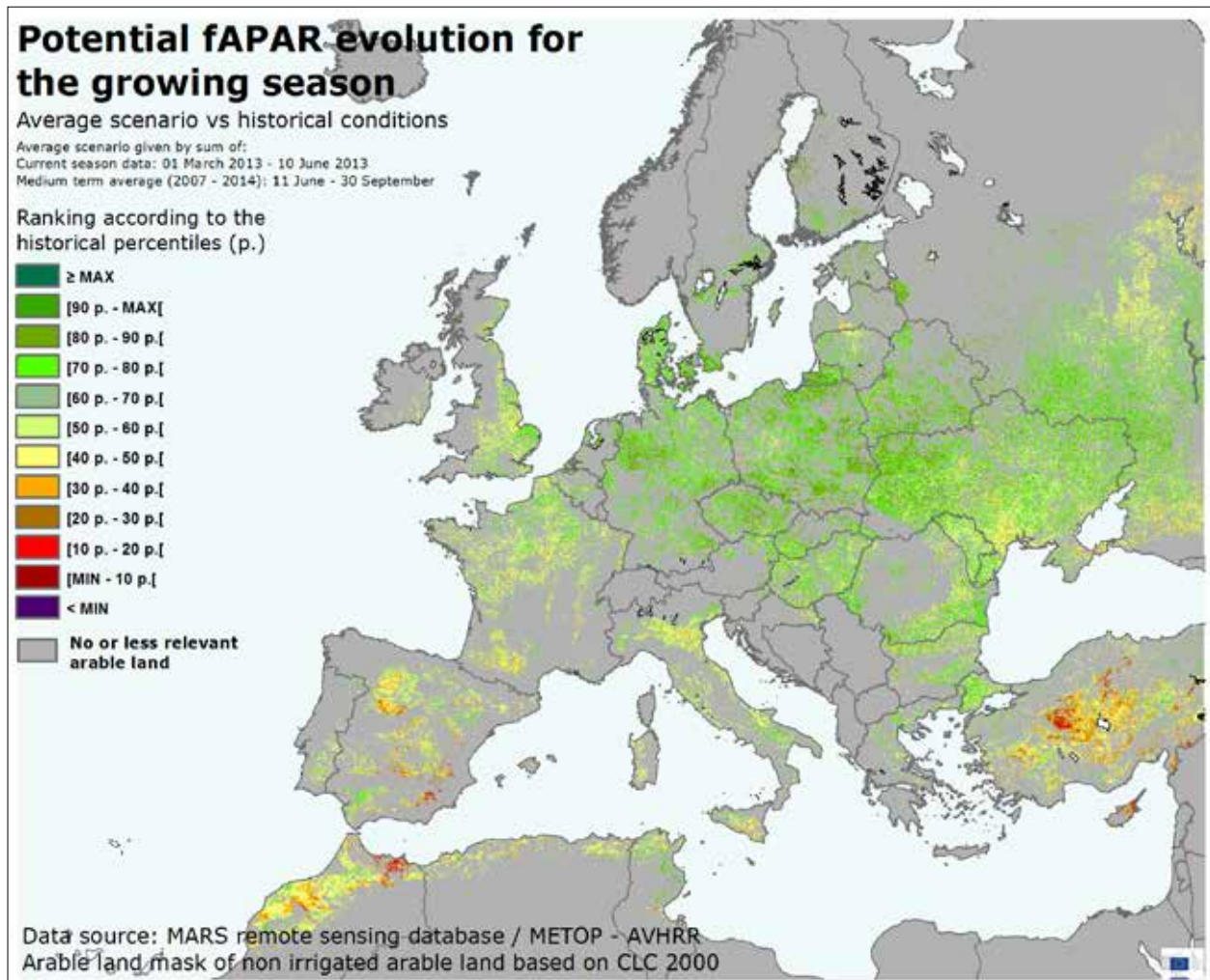
Drier-than-usual conditions persisted over Spain, south-western France, south-western Germany, central Russia and northern and central Italy. Hardly any days with significant precipitation were recorded locally over the aforementioned regions. In these regions, more rain is needed in the coming weeks to maintain good growth conditions for spring crops. During the period of review, below-average rainfall was also observed over the Czech Republic, southern Poland, Slovakia, Hungary, Austria, Slovenia, Croatia and western Ukraine,

with cumulated rainfall as much as 40 mm below the long-term average. By contrast, cumulated rainfall exceeded the average by more than 30 mm in Turkey. Cumulated rainfall in the range of 10 to 20 mm above the average was also observed locally in northern Germany, in the southern part of Finland, the Baltic countries, locally across the Scandinavian Peninsula, in the north-eastern region of France, the British Isles and eastern Ukraine.



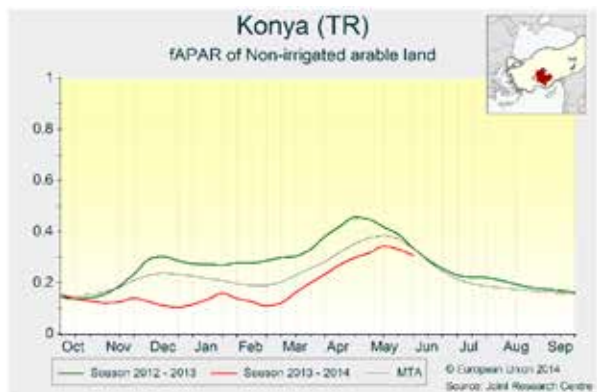
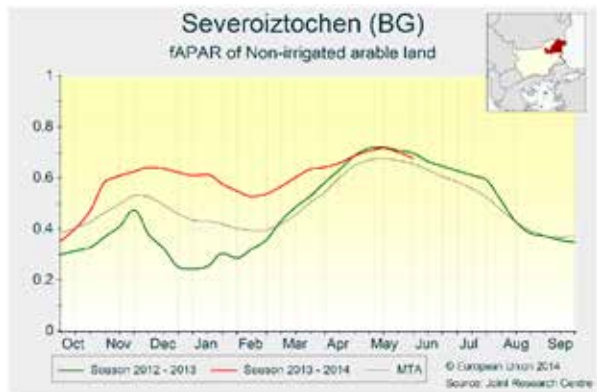
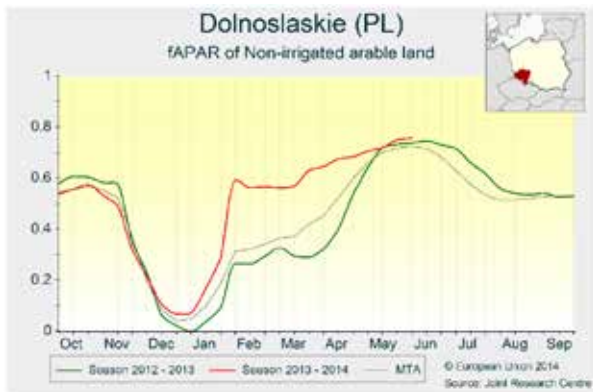
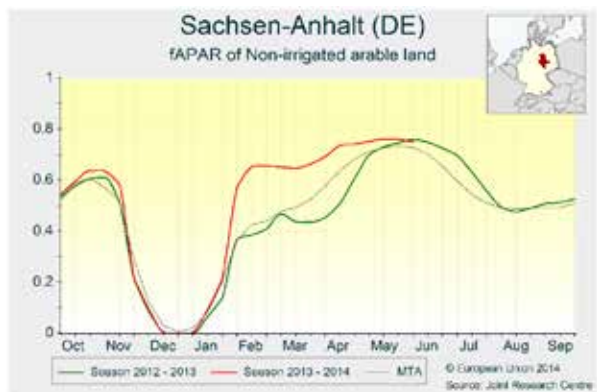
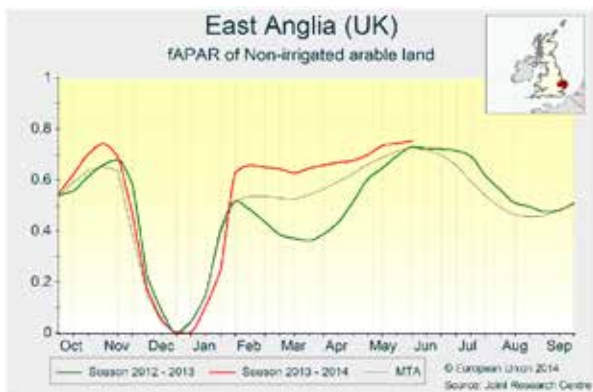
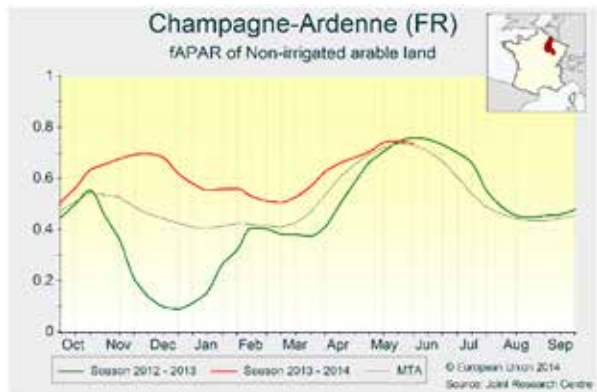
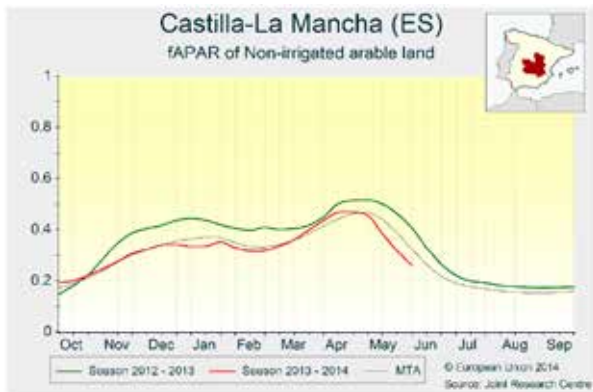
2. Remote Sensing – observed canopy conditions

Generally high biomass accumulation in Europe, but impacted by dry conditions in Spain and Turkey



The map displays the global biomass accumulation until the end of the growing season and, can be used to evaluate whether the ongoing season is extreme or close to normal values. The cumulated Fraction of Absorbed Photosynthetically Active Radiation (fAPAR) values for the end of the season were computed using the observed fAPAR values (01 March 2014 to 10 June 2014), and adding historical average fAPAR values (11 June to 30 September). The fAPAR-cumulated values obtained were compared with the historical series. In **Spain**, positive anomalies of fAPAR values are visible for the winter crop regions. On the contrary, the main spring crop regions present lower biomass accumulation (values below the 40th percentile) in conjunction with a critical early senescence (e.g. *Castilla la Mancha*), due to the high temperatures and the lack of rain. In **Italy**, the harvest has just started in the main durum wheat regions, while maize development in the northern regions is around normal or slightly advanced. In **France**, the biomass accumulation is around average, with the exception of the north-eastern regions where the spring crops had a positive canopy development in the past weeks, moving the fAPAR values from average to slightly positive anomalies

(e.g. *Champagne-Ardenne*). In the **United Kingdom**, the crop canopy is reaching its maximum development early compared to a normal year (e.g. *East Anglia*). In **Germany**, the cumulated fAPAR values range between the 70th and the 90th percentile of the time series: these values (e.g. *Sachsen-Anhalt*) are driven mainly by winter crop development; the biomass accumulation of summer crops is normal. A similar situation is depicted in **Poland**, where biomass accumulation values are above the average (e.g. *Dolnoslaskie*). In **central Europe**, the winter crops entered in the grain-filling stage under good conditions while the initial development of new summer is sub-optimal due to the chilly (Hungary) or wet conditions (Austria and Czech Republic). In **Romania and Bulgaria** (e.g. *Severoiztochen*), winter crops just started the senescence phase. In **Ukraine**, canopy conditions are good and overall biomass is above average (e.g. *Dnipropetrovs'ka*). In **Turkey**, (e.g. *Konya*) the winter crops, which were damaged by the dry conditions, entered into senescence with a biomass deficit that is close to the minimum of the historical time series.



3. Country analysis

3.1 European Union

France

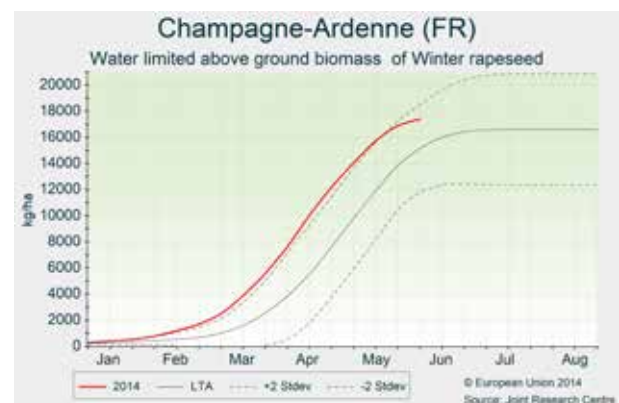
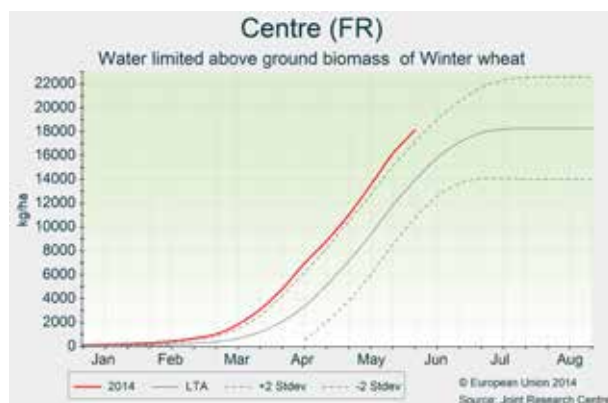
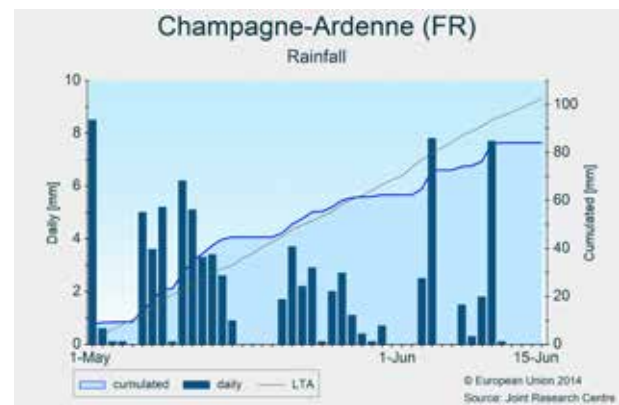
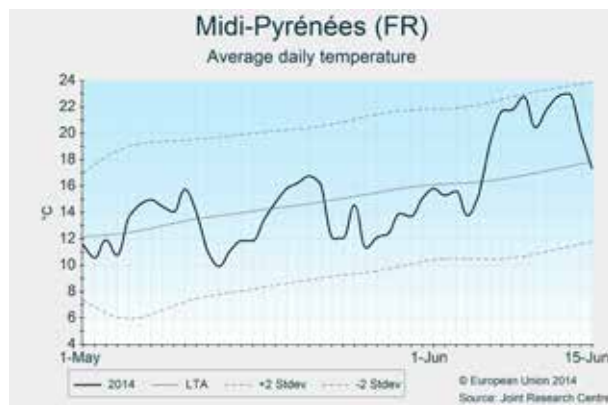
Contrasting conditions between west and east

May was particularly mild before temperatures went up to 30°C in eastern regions for three days. Rainfall was near average in the north-eastern regions that had previously been subjected to dry conditions. Overall conditions are good, and yields are forecasted to be slightly higher than average.

Temperatures stayed mild in May, being slightly below average from 1 May until 6 June, during which time most winter and spring cereals were reaching the flowering and grain-filling stages. Rainfall was varied, above average from Nord-Pas de Calais to Poitou-Charentes, close to average in Champagne-Ardennes and Lorraine (where soils were previously dry), and below average from Bourgogne to Midi-Pyrénées and in the southeast. These conditions reinforced the contrast between the western half of the country, where soil moisture is high and the risk of pest pressure is still great, and the eastern half which is dry and where yields could be impacted. After 6 June, temperatures increased and a record high was observed in eastern regions, with daily maximum temperatures reaching 35°C. In the meantime, thunderstorms and local hail storms were observed in western and northern regions. The hail is

expected to have slightly impacted yields, mostly those of summer crops: maize, sunflowers, potatoes and sugar beets. As a result of the wet winter and temperatures that were close to average during the most important development stages, overall conditions are good for winter and early spring crops. The rainfall in north-eastern regions limited the impact of the dry conditions previously observed, particularly in *Champagne-Ardennes*, whereas Lorraine is still drier than usual. *Bourgogne*, *Rhône-Alpes* and *PACA* had below average rainfall since 1 May, which impacted the flowering and grain filling of most cereals.

Winter crops are still ahead in development by two weeks and are expected to be harvested early, whereas the development of spring crops is that of an average year. Yields of winter and early spring crops are forecasted to be slightly above the average, even if the forecast has been lower than past weeks. Summer crops are benefiting from a good start to the season. The impact of hail storms is still not well determined.



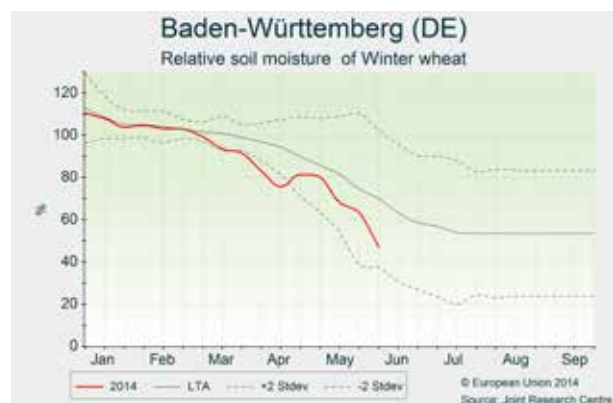
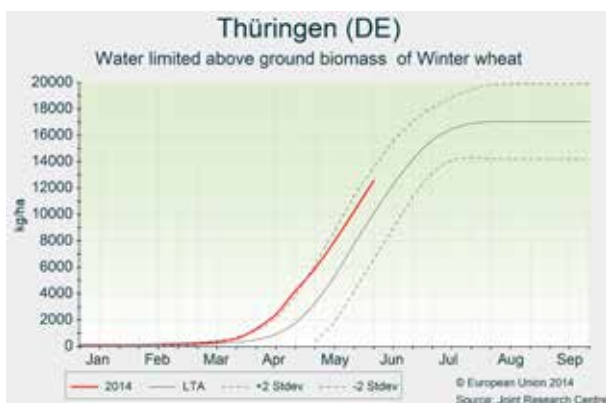
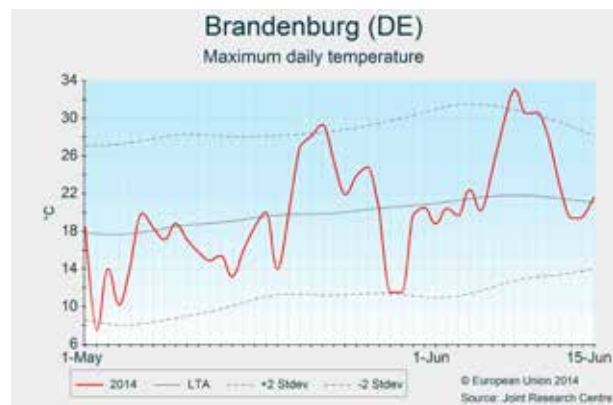
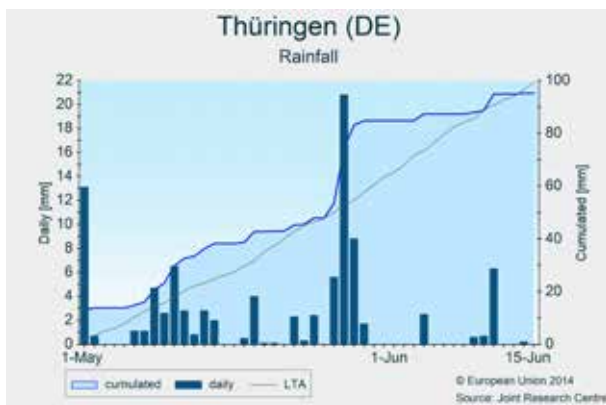
Germany

Good conditions during May provide positive outlook for the grain filling of cereals

Crop yield forecasts have been raised compared to our last bulletin because of good growth conditions during May for most of Germany, which experienced plentiful rain and adequate temperatures. A pronounced heat wave set in at the beginning of June.

In general, crop growing conditions during May were very beneficial. The first 15 to 20 days of May were colder than usual, with average maximum temperatures in the range of 15 – 20°C. The resulting below-average temperature accumulation for the whole month led to slow-down in crop growth, which helped extend length of the development cycle. Temperatures rose towards the end of May, exceeding 30°C in some parts of Bayern, Sachsen-Anhalt and Brandenburg. A second, much more pronounced, heat wave hit the whole country from 7 to 10 June, with daily maximum temperatures reaching above 35°C while soft wheat was at flowering in large parts of the country (e.g. Bayern). Severe thunderstorms and hail marked the end of this heat wave, locally damaging

crops, esp. in *Nordrhein-Westfalen*. In general, precipitation was abundant during May, which helped to replenish soils and create good conditions for the grain-filling period. Rainfall amounts during the period under review ranged from 80 mm to 150 mm for most of the country. Less rainfall occurred in *Mecklenburg-Vorpommern*, *Rheinland-Pfalz*, *Saarland* and *Baden-Wuerttemberg*, which also show a deficit compared to the long-term average. Soil moisture is running low in those regions, where more rain is needed in the coming weeks to sustain crop growth. Winter crops are still well advanced and have started grain filling in large parts of the country, while spring cereals and summer crops exhibit a more normal cycle. Tuber and root crops are also advanced. In general, crop yield forecasts have been increased compared to our last bulletin because of the good growing conditions during May.



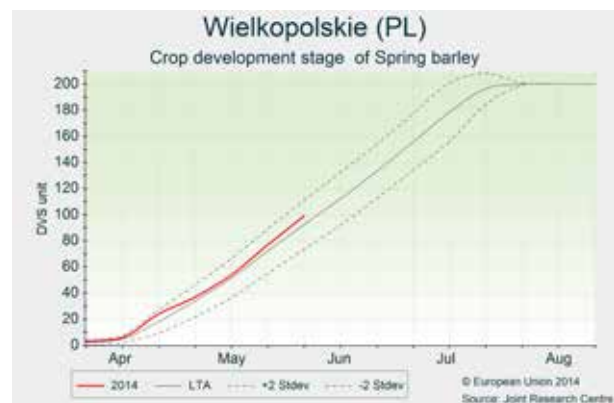
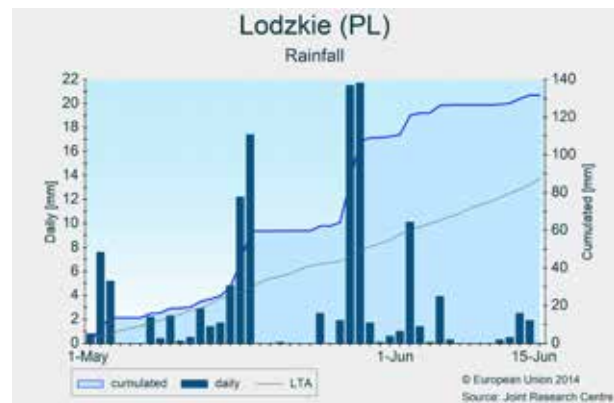
Poland

Optimal conditions for winter crops

May temperatures were characterised by large fluctuations. Soil moisture levels are high, and overall conditions are optimal since the beginning of the year. Yields are expected to be above average, particularly for winter crops.

Rainfall was mostly above the long-term average in May, except for the northern regions of *Pomorskie, Kujawsko-Pomorskie and Warminsko-Mazurskie*. In the regions of *Lodzkie, Swietokrzyskie and Lubelskie*, cumulated rainfall was 50 mm higher than the average. Temperatures fluctuated significantly since 1 May in all regions. During the first half of May, minimum temperatures of -4°C were observed locally during two nights. This cold spell was too short and shallow to significantly impact the crops. Temperatures rose in the second half of May to a high of 29°C on 26 May, and then dropped again to a daily average of 10°C by 30 May.

Temperatures went up for a second time at the beginning of June, with daily maxima locally reaching more than 30°C , but not for more than three days. The warm temperatures are thus not considered to have impacted the crop yields. As a consequence of the mild winter, winter crops are still advanced by 15 days, particularly in the south. Spring crop growth was boosted by the warm temperatures at the end of May and beginning of June. According to our model, biomass development is largely above average for winter crops. Remote sensing indicators also suggest above-average biomass. Thus, yields are forecast to be above average for winter crops and early spring crops. While the season started well, weather conditions over the coming weeks will be determinant for summer crops.



United Kingdom and Ireland

Continued favourable outlook

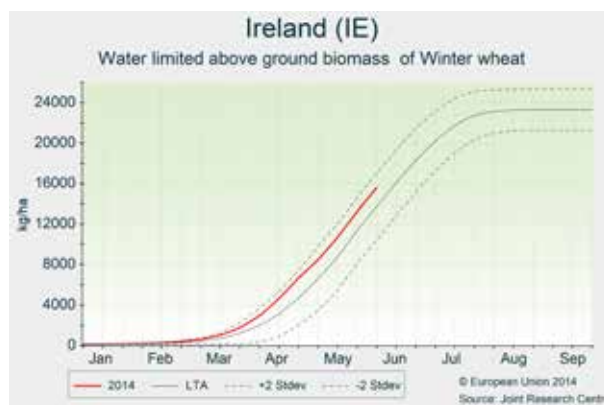
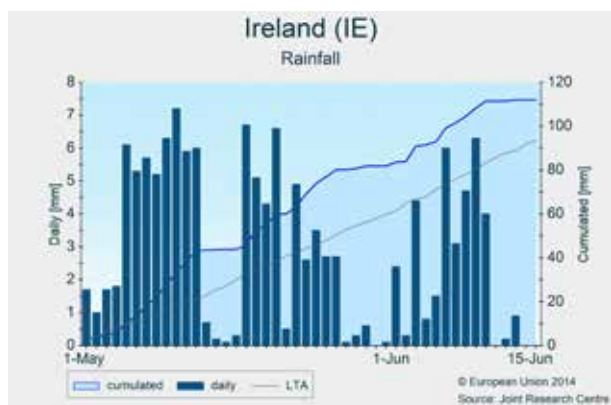
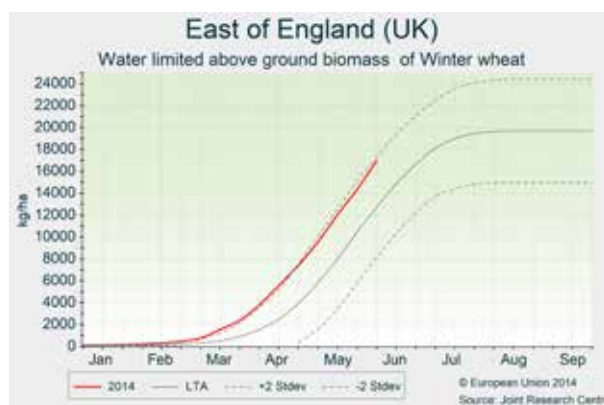
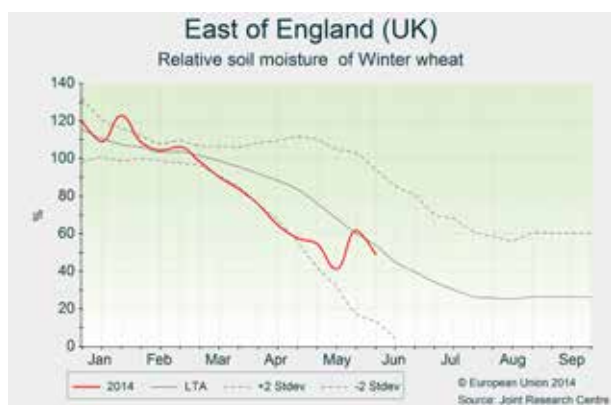
Weather conditions were generally favourable for the growth and development of winter and spring crops. Beneficial rains helped to restore soil water levels in the eastern UK, thus removing concerns of imminent risks of water stress.

Overall, the period under review (1 May – 15 June) was characterised by above-average temperatures across the main crop-producing regions of the British Isles, with average temperature anomalies of up to 2°C in the eastern

UK. The period was free of significant frosts, and, with very few exceptions, daily maxima stayed below 25° C. Rainfall levels tended to be well above average; locally by 50% or more. Below-average rainfall was recorded however, in the southernmost parts of Ireland. Solar radiation levels were around average.

These conditions have generally been favourable for crop growth and development. In the main crop-producing regions of the eastern UK, the seasonal conditions thus far could be characterised as being close to optimal. In the east of England, where dry conditions were starting to become a concern, soil

water levels were replenished, thus removing any imminent risk of water stress during the grain-filling period. In Ireland, crops are also faring reasonably well, despite the persistently above-average rainfall in most of the country, which has been hampering timely field interventions since early spring. The alert regarding a high risk of pests and diseases continues to apply to the region as a whole, and particularly for Ireland. Yield forecasts are now all based on scenario analyses. Compared to the May bulletin, most figures were revised slightly upwards for the UK, and slightly downwards for Ireland.



Spain and Portugal

Sparse rainfall and warm temperatures in May limit winter cereal yields

After a favourable start to spring, winter crop yield potentials in Spain decreased because of adverse weather conditions observed during May. Development of summer crops is earlier than usual due to the warm temperatures registered

Weather conditions have been adverse for winter crop yield formation in most of Spain. The unusually warm temperatures observed in April continued during the first half of May, increasing crop evaporative demand. Moreover, rainfall has been scarce, with no significant rainfall over a period of almost one month – from the last week of April until the last

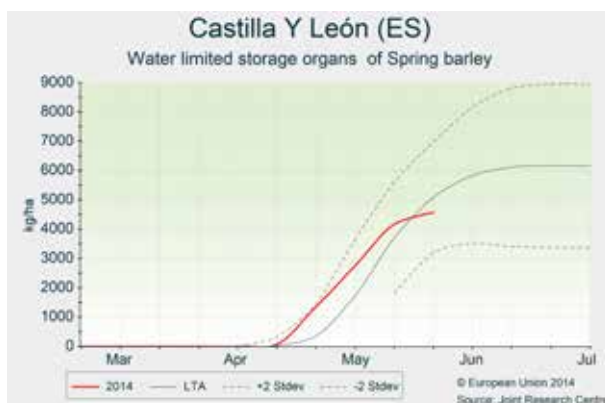
week of May – leading to a drastic reduction of soil moisture, especially in eastern (*Aragon*) and southern (*Castilla La Mancha, Andalucía*) Spain. After that dry period, some light rainfall was registered.

Winter cereal forecasts have therefore been revised downwards from our last bulletin. Wheat yield expectations (both durum and soft) for Spain are now close to the average of the past five years, but far from the exceptional results of 2013. The negative effects of hot and dry weather conditions were more relevant for spring barley, constrained

by low soil moisture during the critical grain-filling phase. The yield outlook is 10% below the average of the past 5 years. In Portugal, where weather conditions have been more favourable during the growing season, yield expectations for wheat and barley are high.

Summer crop development is progressing rapidly, thanks to the high temperatures registered during the first half of

May and the first week of June. The observed dry conditions are currently constraining sunflower vegetative growth, and rainfall is needed to improve crop conditions. The outlook for maize is for average yields as, thanks to a humid winter, there is sufficient water stored in reservoirs to support irrigation.



Italy

Durum wheat yield forecast revised downwards compared to the last bulletin

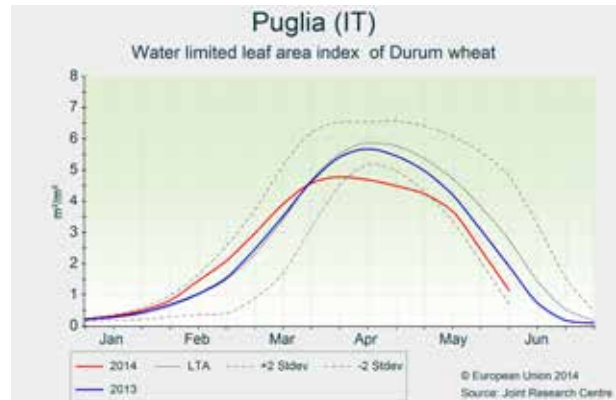
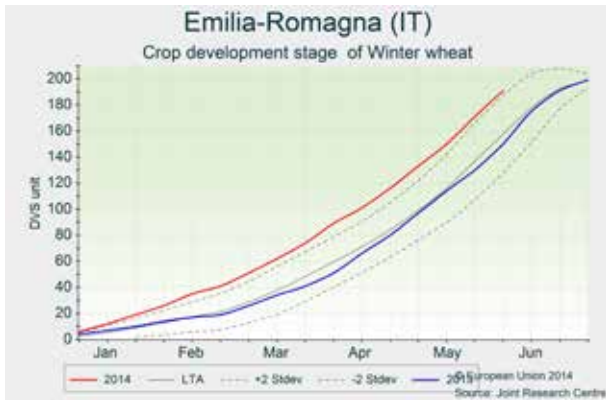
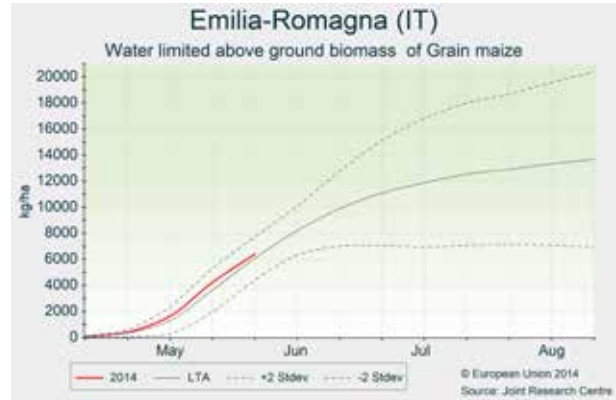
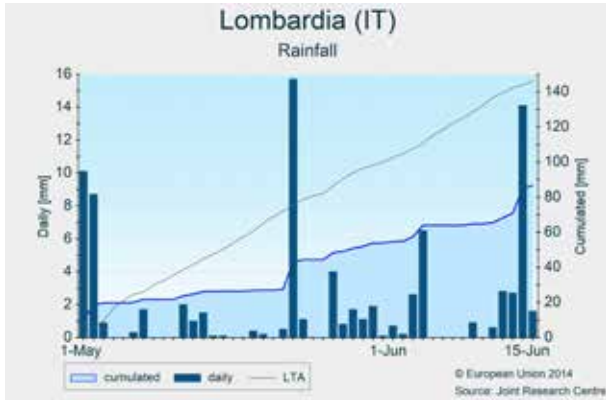
During the period of review, warmer and dry conditions prevailed in northern and central Italy, accelerating crop development and decreasing soil moisture levels. In southern regions, the harvesting of durum wheat has already started, and unfavourable weather conditions recorded during spring affected the final yield.

During May, normal thermal conditions prevailed over Italy, except in the western part of southern Italy, where negative thermal anomalies in the range of -2 to -4°C, were recorded. The first dekad of June was characterised by warmer-than-usual conditions across Italy, with average temperature well above average. During this period, daily maximum temperatures above 35°C were recorded in the north-eastern and the central-western part of Italy. In May, rainfall was

plentiful in Puglia, Basilicata and Abruzzo, with cumulated values in the range of 80-100 mm. Abundant precipitation was also recorded in the eastern part of Veneto and Emilia Romagna. By contrast, rainfall was scarce in northern and central-western regions, with cumulated rainfall as much as 50 mm below the long-term average. Rainfall was scarce or absent in most of Italy during the first half of June, further contributing to the water deficit in the northern and the central-western part of Italy. In these regions, more rainfall is needed in the coming weeks to maintain good growth conditions for spring crops. While according to our model the yield forecasts are currently close to the average of recent years for spring crops, the weather conditions during the next month will be crucial. Winter crops are still advanced and the latest heat

wave led to a shorter grain-filling period in the northern and central regions, which could affect the final yield. In southern regions, the harvesting of durum wheat has already started

and the yield forecast was revised slightly downwards due to the high pressure of diseases.



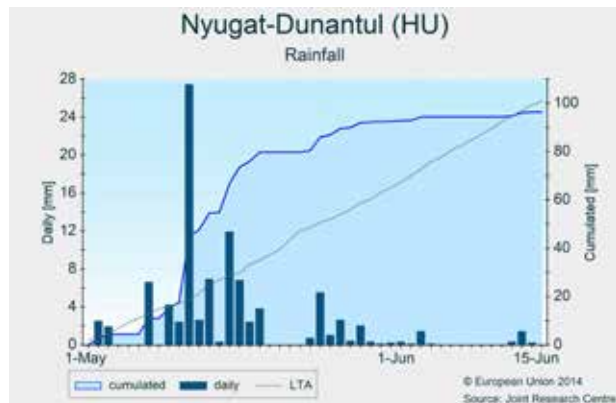
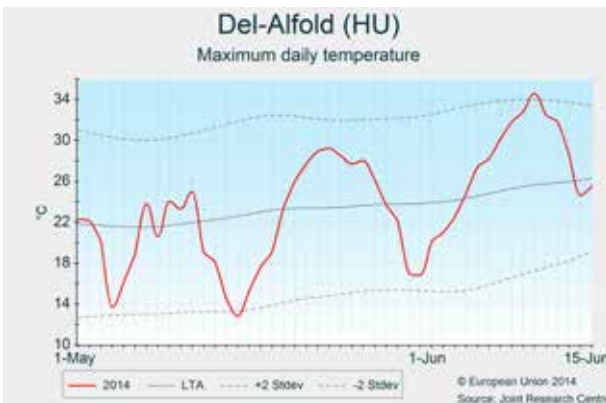
Hungary

Winter crops outlook potentially good despite early development

In early May, intense and plentiful rainfall replenished the soil moisture and created good conditions for the grain-filling phase. From mid-May onwards, the precipitation tendency decreased significantly, and temperatures increased. A heat wave hit Hungary in the first half of June.

In the first 20 days of May, abundant rainfall was recorded

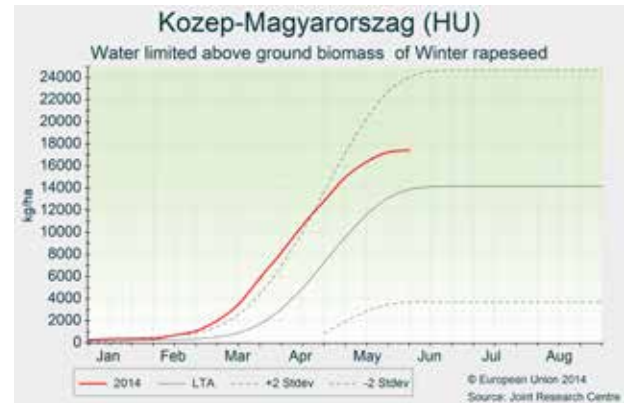
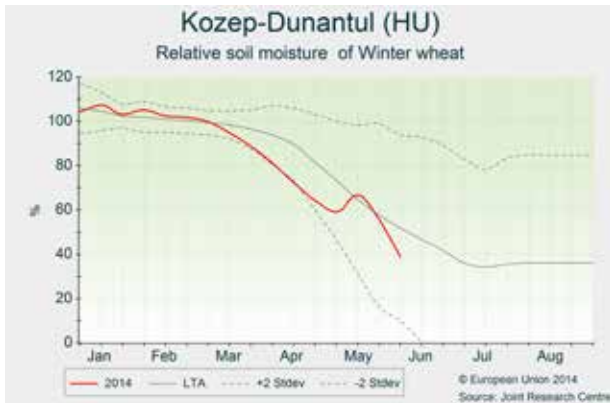
and daily temperatures mostly remained below the average. The precipitation sum was generally around 50 mm, and even exceeded 100 mm along the southern and western borders. The soil moisture content increased favourably, but the moist weather established good conditions for pests and diseases, especially for fungal infections. In the last dekad of May, the



weather became warmer and drier. On 7 June, a heat wave started. Daily maximum temperatures exceeded 30°C for five to six days, climbing on the hottest days to +35–38°C. This hot spell probably constrained the yield formation of spring barley and winter wheat, which were in earlier and later stages of the grain-filling phase respectively, but the yield expectations remain quite positive.

The development of winter crops is still ahead, with the highest precocity in the southern and eastern regions (15–20 days).

Winter rapeseed and winter barley are close to ripening, giving rise to expectations of an early start to the harvest this year. In June, the soil moisture content started to decrease because of a period with high evapotranspiration and low amounts of rainfall, but it is still near or above average under most crops. Our model simulations predict near-normal crop development for spring cereals and summer crops, with normal canopy expansion and biomass accumulation.



Romania

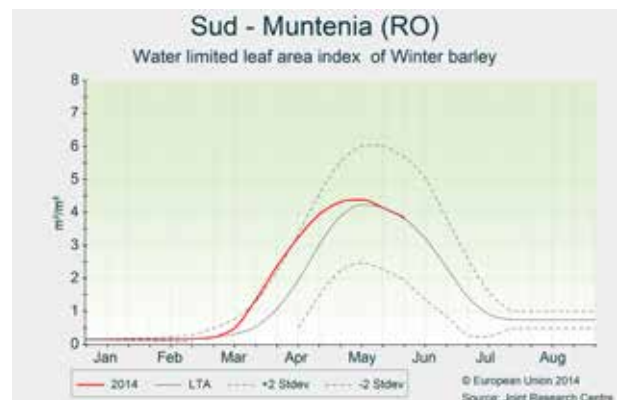
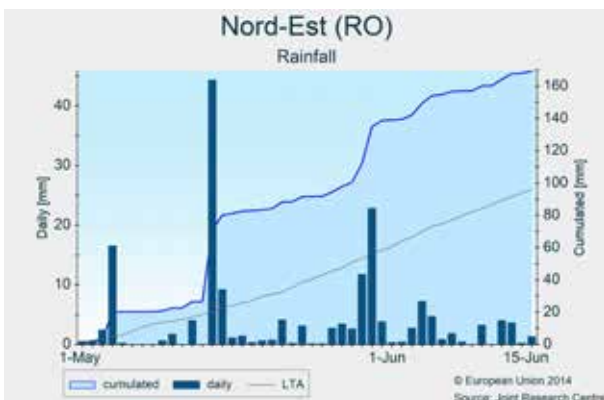
Forecasts revised upwards thanks to beneficial rains and favourable growing conditions

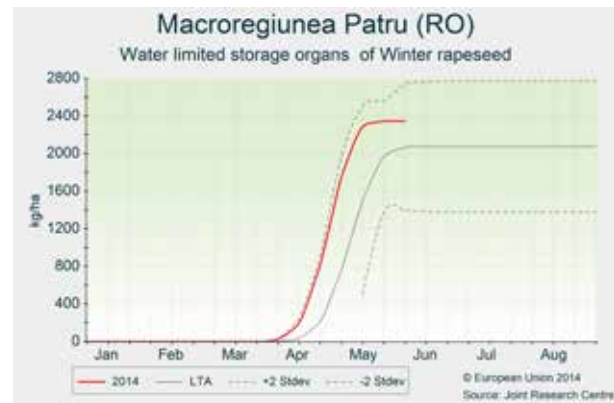
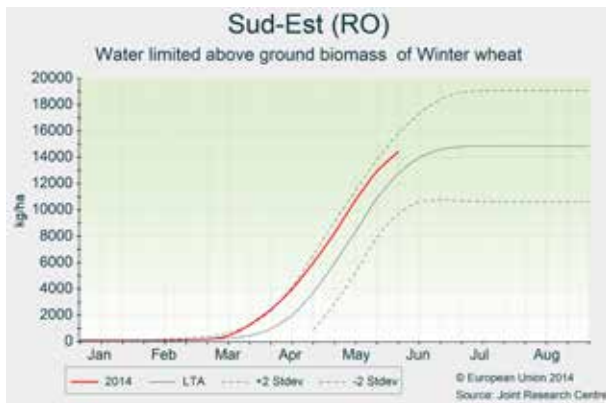
Favourable crop growth conditions typified May and the first half of June in Romania. Abundant rainfall kept the soil moisture content above the average, establishing exceptionally good water supply conditions for the grain-filling period of cereals and winter rapeseed. The crop model indicates very high biomass accumulation for winter crops.

Favourable crop growth conditions typified May and the first half of June in Romania. The active temperature sum (both for $T_{base}=0$ and 10°C) indicated no significant difference from the long-term average - while a perceptibly increasing thermal trend was evident, the temperatures remained within the normal range and only rarely reached +30°C. Precipitation was abundant and well distributed over time. The rainfall

sum exceeded the average predominantly by 40–80 mm, with the exception of the *Nord-Vest* region where levels remained below average. The intensive rain and overly wet conditions could have caused some delays to the late maize-sowing campaign and local crop damages. In spite of the increased evapotranspiration/crop water demand of the past 3 decades, an adequate level of soil moisture content was sustained for all crops.

Winter crop development is in advance by 1–2 weeks, but, as there was no further acceleration of the cycle during the past one and half months, the crop reproduction phase was only slightly shortened. According to our model simulations, the water-limited biomass accumulation and storage organ





weight of winter cereals are very positive in the southern and eastern areas. The analysis of METOP satellite images also confirms this fact. The actual yield forecast is above average, with a possible further revision upwards should no further extreme events occur. The growing season of summer crops is also promising due to high soil moisture reserves, but the

leaf area expansion of maize and sunflower is lower than usual so far due to cold and wet weather conditions around emergence.

Bulgaria

Rainy days

Frequent and sufficient rainfall kept the soil moisture content above the average in the main agricultural regions. The thermal conditions were also favourable, with temperatures remaining in the normal range. Winter crops are moderately ahead in development, and biomass accumulation is better than average. Growth of summer crops is weaker than usual so far, but the ample soil moisture reserves are beneficial.

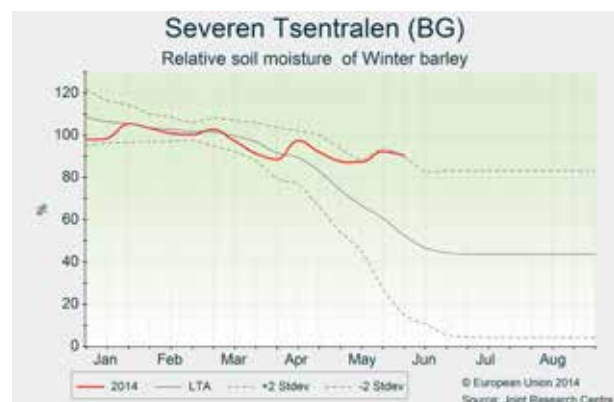
Bulgaria was characterised by near-average thermal conditions. No frost or extreme heat events that would constrain crop growth occurred since 1 May. Winter crops maintained their earlier advance in phenological development.

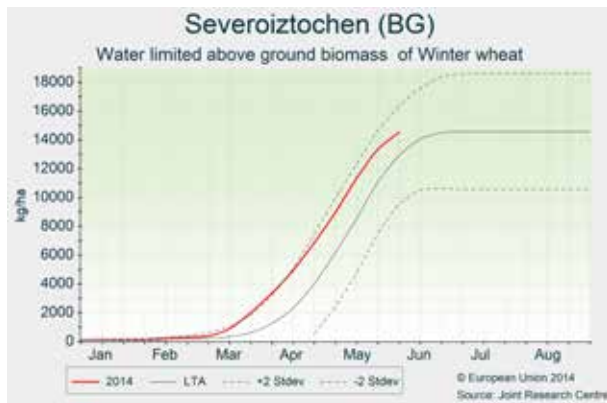
The spatial distribution of rainfall was rather heterogeneous. Some areas of *Severozapaden* and *Yuzhen Tsentralen* in central Bulgaria received near average amounts of rainfall, while cumulated precipitation was significantly above the average in eastern regions (by 80% to 200%) and along the

western border (by 60% to 100%). Rainfall was frequent during the whole period, with the wettest period occurring between 25-30 May, when heavy rainfall (60-100 mm) occurred primarily in the *Severoiztochen*, *Yugoiztochen* and *Yugozapaden* regions. The intensive precipitation events could have caused the lodging of cereals, therefore the harvest may be negatively affected. The moist weather conditions are also likely to have lowered the grain quality and increased the spread of fungal infections.

Crop model indicators as 'water limited total biomass' and 'weight of storage organs' of winter crops are simulated above average for most of the main agricultural areas, but it is difficult to estimate exactly the negative effect that the overly-wet conditions and intensified spread of crop diseases will have on yields.

The early development of maize and sunflowers was





below optimal considering leaf area expansion, and root development and biomass accumulation. The soil moisture exceeds the average (especially in the eastern part of

Bulgaria), creating favourable conditions for summer crops. The yield expectations for winter cereals are quite positive.

Austria, Slovakia and the Czech Republic

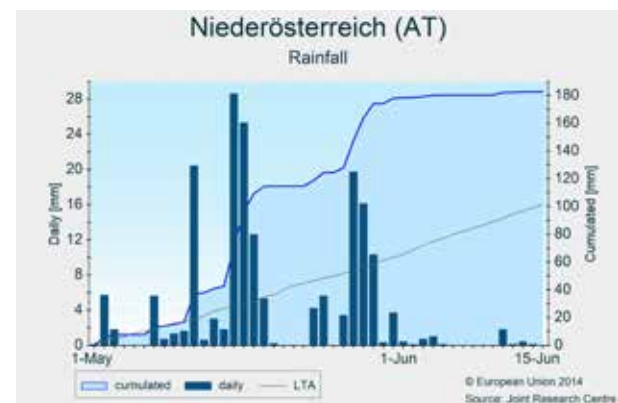
Rainfall in May replenished depleted soil moisture

Colder-than-usual weather with abundant rainfall prevailed during the second dekad of May. Beneficial rainfall replenished the depleted soil moisture. The forecast for winter crops was revised slightly upwards and remains close to the 5-year average. However, weather conditions have been favourable for the incidence of pests and diseases, which might affect the yields of winter and summer crops.

May started with normal air temperatures in Austria and Slovakia, whereas slightly colder weather prevailed in the Czech Republic. The second dekad of May was characterised by the inflow of a cold air mass in the region. Air temperatures dropped to between 1 and 4°C below the LTA. Warmer-than-usual weather prevailed during the end of May and the beginning of June, with a hot spell occurring during the first dekad of June. Rainfall conditions were spatially highly variable. May was generally wetter than usual. Abundant

rainfall was recorded in Austria during the second dekad of May. The beginning of June was dry over the main agricultural areas.

Rainfall during the second dekad of May has replenished the depleted soil moisture. The winter wheat forecast has therefore been revised slightly upwards from the previous bulletin. However, weather conditions have been favourable for the incidence of pests and diseases on summer and winter crops, especially in northern Austria and the Czech Republic, where winter wheat yields may be negatively affected by yellow rust. Winter crops in Slovakia are generally in good condition. Summer crop yields will depend mainly on the weather in the coming dekads, when the most sensitive development stages will occur. For these crops, the current forecast remains close to average.



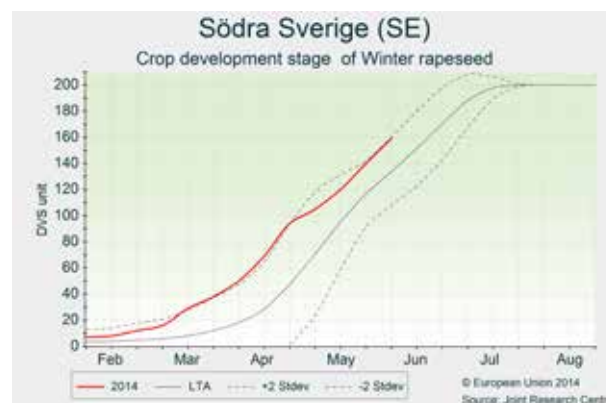
Denmark and Sweden

Positive outlook for winter crops. Good growing conditions for spring crops

Winter crop yield forecasts have been revised slightly upwards due to good growing conditions. Persistently warmer-than-usual weather led to a significant advance in crop development.

During the first half of May, relatively cool conditions prevailed across both countries. Daily temperatures were in the range of 2 to 4°C below the average in Sweden, and were slightly below the average in Denmark. After this period, temperatures increased, reaching daily mean values that were above the long term average by around 4 to 6°C in Denmark and 6 to 8°C in Sweden around 23 May. During the first dekad of June, another warm spell occurred in Denmark and in the southern part of Sweden, with daily maximum temperatures exceeding 25°C. Cumulated active temperatures ($T_{base}=0^{\circ}\text{C}$) since 1 March exceed the long-term average by more than

150 GDD in Denmark and southern Sweden. Consequently, the phenological development of winter crops is still significantly advanced. During the period of analysis, rainfall was plentiful in most regions, with cumulated values of more than 100 mm in central Denmark and in southern and western Sweden. Less rainfall was observed in central and northern Sweden. However, the generally good soil moisture content will be positive for winter crops, which are starting the grain-filling stage, and also for maintaining favorable growth conditions for spring crops. Simulated winter-crop indicators are well above the average, suggesting a generally positive outlook. Thanks to these good conditions, yield forecasts have been increased compared to the last bulletin.



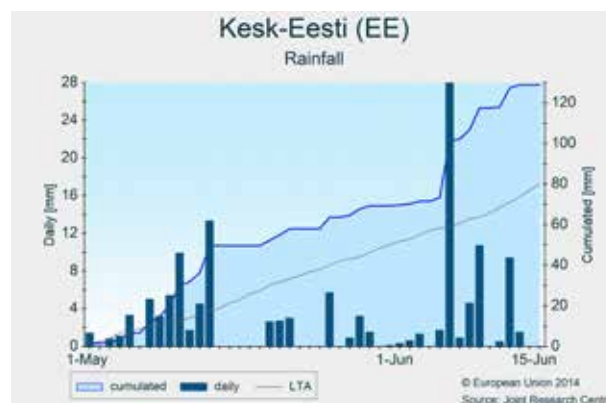
Finland, Lithuania, Latvia and Estonia

Positive outlook for winter crops, start of season moderately good for spring crops

Favourable accumulation of temperatures, precipitation and climatic water balance. The general wet conditions led soils to recover moisture levels sufficiently for all crops.

Cold temperatures at the beginning of May were followed by a warm period in the second half of the month during which

temperatures reached maximum values of 29°C (Latvia, Lithuania) and 31°C (Estonia, Finland). Despite temperatures dropping to long-term average values in mid-June, the cumulated temperature, up to now, is higher than the long-term average in all countries.



Unlike April, May was a rainy period, especially the first half of the month after which rainfall became scarce, excluding the first week of June in Estonia where heavy rains were recorded, particularly in the region of *Kesk-Eesti*. Nevertheless, considering the whole period under review, the accumulation of rainfall as well as the climatic water balance show positive seasonal average values in all countries. The development of winter crops is advanced: soft wheat is flowering while rye and rapeseed are into the grain-filling phase. In Finland and northern Estonia, spring crops are in the tillering stage,

while crops in Latvia, Lithuania and the rest of Estonia are in heading stage.

So far, the crop model indicates a good growth of biomass for all winter crops and, although it is still early in the season, spring crops show moderately favourable yield outlooks in the Baltic countries and, to a lesser degree, in Finland.

The weather in the coming weeks will be crucial for ensuring that the water supply is sufficient for good yields and good grain quality. Scenarios have been used to forecast both winter and spring crop yields.

Belgium, the Netherlands and Luxembourg

Favourable outlook for Belgium and the Netherlands, drought concerns for Luxembourg

Weather conditions were generally favourable for the growth and development of winter and spring crops. Beneficial rains helped to restore soil water levels, but insufficiently so in Luxembourg and some south-eastern parts of Belgium, where water stress has started to affect crop growth.

Overall, the period under review (1 May – 15 June) was characterised in most of the Benelux by slightly above-average temperatures and rainfall that was just below to well above average. Solar radiation levels were around average.

Temperatures tended to be below average during the first half of May and above average for the second half of May and the first half of June. Warmest maxima were reached on 9 June, with maximum temperatures just exceeding 30°C in the south-eastern parts of the region.

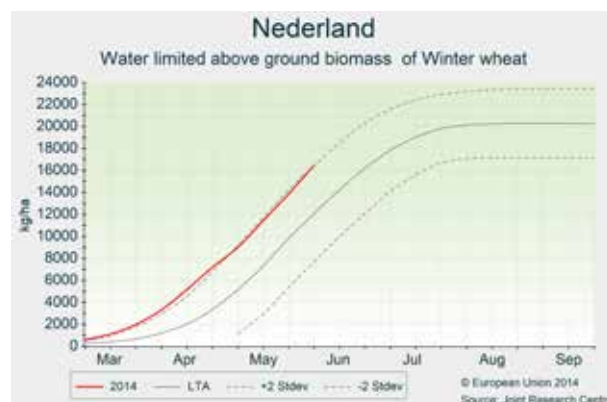
Precipitation patterns were characterised by alternating dry and rainy periods of around one week, leading to cumulative rainfall values of 10% to 30% below the average in Luxembourg and some parts of south-eastern Belgium, to around average in most of the rest of Belgium, and 30% or more above the average in the Netherlands and the coastal areas of Belgium. Some areas in the northern parts of the Netherlands even registered twice the normal amount of rainfall during the period of review.

The conditions described above have generally been

favourable for crop growth and development. In most of the Netherlands, the seasonal conditions thus far could be characterised as being close to optimal. In many areas in Belgium and southern parts of the Netherlands - where dry conditions were starting to become a concern - soil water levels were partially replenished, thus removing the risk of imminent water stress. In Luxembourg, however, as well as some bordering regions in Belgium, rainfall levels have been insufficient to cover the increasing crop water demands, and, according to our models, dry conditions are starting to constrain crop growth.

Winter crops and spring barley continue to be well advanced in phenological development, and are now in or entering the grain-filling stage. Any limitation to crop growth during this phase will have a direct effect on yield. The same holds for early-sown potato and sugar beet crops.

Yield forecasts are revised slightly upwards for most crops for Belgium, and more markedly for the Netherlands thanks to the ongoing favourable conditions and good soil water levels which provide a good buffer against possible drought during the coming weeks. For Luxembourg, the forecast was revised downwards as a consequence of the continued suboptimal soil-water conditions.



Greece and Cyprus

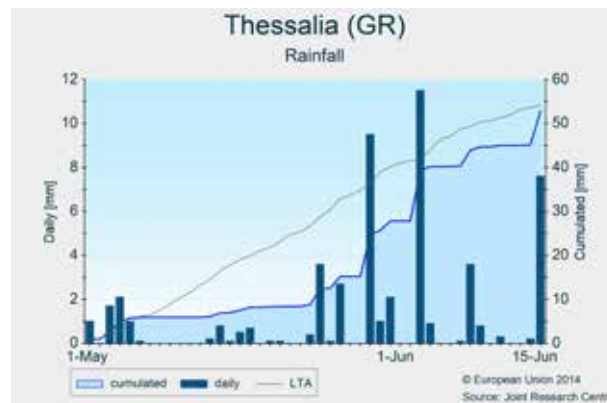
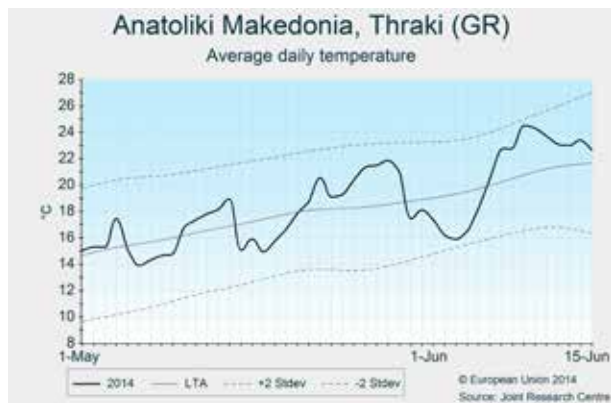
Positive outlook for winter cereals in Greece; Negative in Cyprus

The yields of winter cereals in Greece are expected to be above average. However, there are some concerns for quality degradation due late fungal diseases. Grain maize and spring crops are progressing well. In Cyprus, the initial harvest phase confirms poor yields as a result of a prolonged drought.

May and June were characterised by temperatures that fluctuated around the long-term average in Greece, bringing average values back to normal after a long warm period. Precipitation was scarce in May, aside from a few but significant rainy days recorded in the Central-Northern parts of the country. However, precipitation occurred in most of the country during the first days of June, considerably replenishing soil moisture levels. The resulting wet conditions triggered the outbreak of some fungal diseases, giving rise to concerns

about possible losses in quality and quantity, especially in central Greece. The harvesting of winter barley has started in some areas, and high yields are reported. The outlook for the harvest of winter wheat, which is set to start by mid-June, is positive. Grain maize and spring crops are progressing well. Scenarios have been used to forecast both winter and spring crops.

In Cyprus, where drought conditions continue, temperatures are close to the average but only very low levels of precipitation have been recorded around mid-May. The harvesting of winter barley has started but with very low yields. Yields are satisfactory in the area of *Paphos* but not sufficiently high to improve the average of the country. Scenarios have been used to forecast crop yields.



Slovenia and Croatia

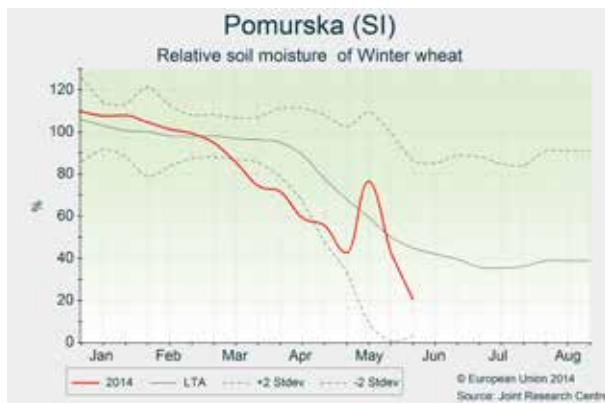
Abundant rainfall in the middle of May, hot spell at the beginning of June

Colder and wetter conditions in the middle of May were followed by warmer conditions at the end of the month. Rainfall partially replenished the soil moisture in eastern Slovenia. Abundant rainfall was recorded in eastern and central parts of Croatia in the middle of May. Locally, flooding and water-logging occurred in Slavonija. Wet conditions may have increased the incidence of disease. A hot spell in the beginning of June has exposed crops in Slovenia to mild levels of drought stress.

Normal or slightly warmer-than-usual weather conditions at the beginning and the end of May were interrupted by a fresh second dekad of May. A heat wave occurred during the first dekad of June, with maximum air temperatures exceeding 30°C. Rainfall was spatially and temporally highly variable. In general, the beginning of May was drier than usual in Slovenia, whereas abundant rainfall occurred in central and eastern parts of Croatia. A period of wet weather followed during the second dekad of May in both countries. Heavy rainfall in *Slavonija*, locally exceeding 80 mm in a 24-hour

period, resulted in overly wet conditions with local flooding and waterlogging. The end of May and beginning of June were drier than usual, except in central Croatia and south-western Slovenia.

Winter crops in Slovenia and Croatia are mainly in the ripening stage. The soil moisture deficit in north-eastern Slovenia has been replenished during the rainfall period in the second dekad of May. Nevertheless, hot and dry weather conditions in the beginning of June have exposed crops to mild levels of drought stress. The winter wheat forecast for Slovenia therefore remains slightly below average. Winter and summer crops on locally flooded areas of *Slavonija* were partially or completely damaged, depending on the duration of anaerobic conditions in the root zone. Abundant rainfall and warm weather increased the incidence of disease in the eastern part of Croatia, especially the yellow rust of wheat. The winter wheat forecast has therefore been revised slightly downwards. Average development is observed for summer crops in Slovenia and Croatia.



3.2 Black Sea Area

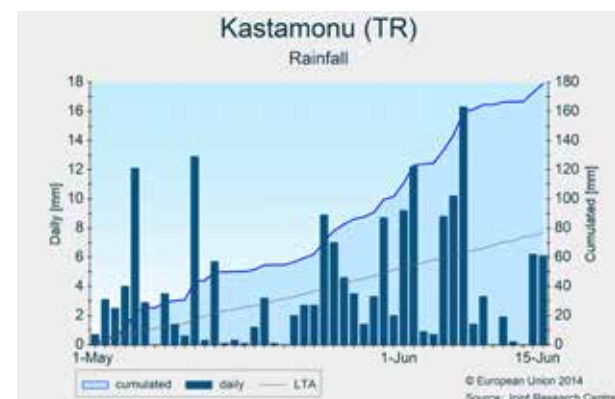
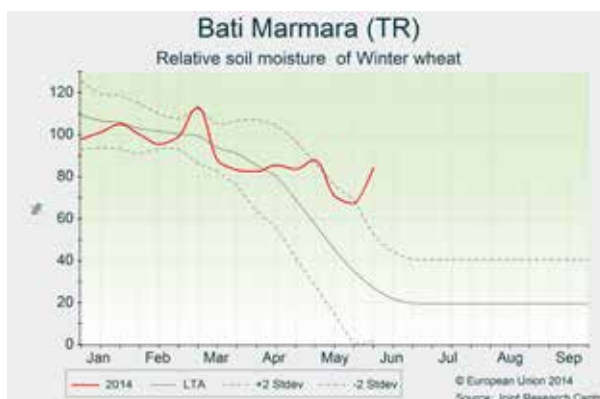
Turkey

Low yields for winter cereals

In Turkey, temperatures have been mainly above the long-term average. A lot of rainy days occurred during May and early June. The soil moisture improved but it is too late to positively impact on the yields of winter cereals which are expected to be lower than the 5-year average due to the previous drought conditions.

Temperatures in May and June mainly continued to fluctuate above the long-term average in the central-eastern areas of Turkey, where the recorded average daily temperature for May among those of the five warmest years in our database. However, moving towards the centre-west the temperature gradually approaches values that are closer to the long-term average. Regarding precipitation, a lot of rainy days were recorded during May and June. The cumulated rainfall for the period from 1 May to 10 June in most of the central-western

areas exceeded 120 mm in some areas (e.g. Ankara, Samsun, Bursa) and 160 mm in others (e.g. *Kocaeli, Zonguldak, Kastamonu*), and soil moisture improved significantly. However, southern areas were rather dry, as rainfall either didn't occur or wasn't sufficient to replenish the soil moisture, which still remains below average. Moreover, hail occurred in some areas (e.g. *Manisa*) causing significant damages. While this precipitation stopped a prolonged drought and is expected to have a positive impact on spring crops, it is too late for the winter cereals. The harvesting of winter barley and winter wheat has started in several areas, and the yields are reported to be low and even worse in southern areas. There are also reports of farmers having ploughed fields without harvesting. Scenarios have been used to forecast crop yields.



Ukraine

Substantial rainfall improved soil conditions

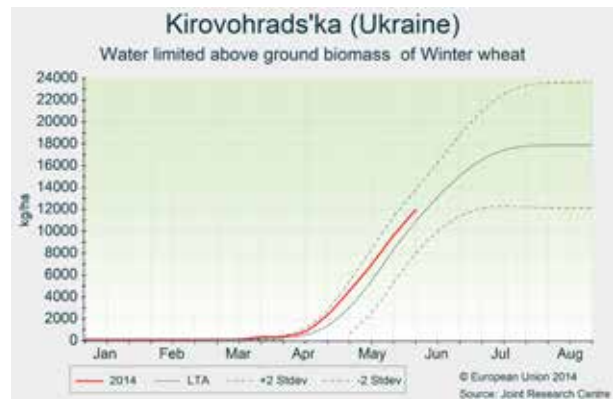
May was particularly rainy and allowed plants to recover from the exceptionally dry conditions previously observed. The intense precipitation may have slightly impacted yields due

to some pest pressure and lodging, but crop growth conditions are deemed to be generally fair.

May was particularly rainy, while winter cereals were reaching

the grain-filling stage and spring cereals the flowering stage. These conditions contrasted with the dry conditions observed in the previous months. Rainfall was largely above average in almost all regions, even reaching twice the average in central regions. The only exceptions were *Khersons'ka*, *Mykolayivs'ka*, *Krym* and central *Odes'ka*, where rainfall was close to the average. *Khersons'ka* is now the only region which may remain affected by dry conditions. After a particularly cold first dekad, with minimum temperatures below 0°C in western regions, the second half of May was exceptionally warm with maximum temperatures reaching 33°C in eastern regions. The warm weather continues in the east, whereas temperatures in the western half of the country close to the average during the first dekad of June. As a consequence of the mild winter,

winter crops are still in advance by one dekad compared to an average year. Spring cereals are slightly ahead of schedule due to the high temperatures recorded at the end of May. Whereas the border region of the Black Sea area may still be impacted by some dry conditions, the western and central regions may face some lodging due to the intensive rainfall, which reached more than 40 mm in one day in some regions. Forecasts for wheat and barley are expected to be higher than the 5-years average but slightly lower than last year due to the dry conditions in April. Maize is forecasted close to the 5-years average as the price of fertilizer and other inputs has increased a lot this year and grain maize yields strongly depends on it.



3.3 European Russia and Belarus

European Russia

Positive outlook

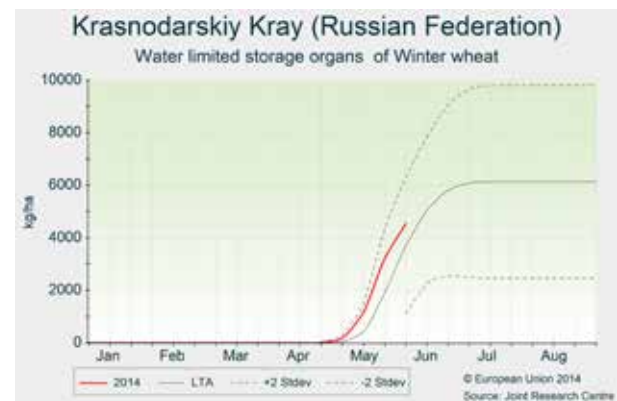
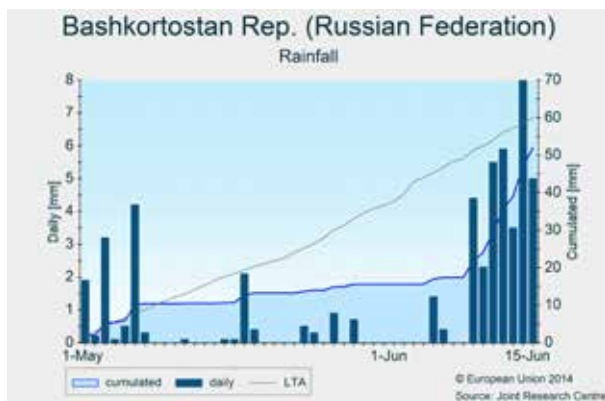
Warmer-than-usual thermal conditions and infrequent rains facilitated the successful ending of the spring sowing campaign. The development of winter crops is advanced by 1-2 weeks. Biomass accumulation of winter wheat is close to normal in the Central Okrug, but it is promisingly positive in the Southern Okrug. The rainfall deficiency has led to an accelerated decrease of the soil moisture under spring crops, primarily in the Near Volga Okrug.

The period of review started and ended colder than usual, but from 10 May until 10 June daily temperatures typically fluctuated well above the average, resulting in a positive thermal anomaly of between +2 and +4°C for the period of review in the central and southern agricultural areas of Russia.

Plentiful precipitation (60-100 mm) was experienced between the Baltic Sea and the Black Sea, along the western border of Russia. The rains during the last days of May in the Central Okrug were especially beneficial for spring and summer cereals, and favourably replenished the below-average soil moisture levels, just before the flowering phenophase of winter cereals. In contrast, scarce precipitation was observed in the wide southern areas of the Near Volga and Southern Federal

Okrugs. The Kalmykiya, Tatarstan and Bashkortan Republics as well as the Orenburgskaya, Saratovskaya, Volgogradskaya, Tambovskaya and Astrakhanskaya Oblasts experienced a precipitation deficit, though some rainfall arrived in mid-June and partially eased the situation.

The mild weather conditions accelerated the development of winter crops by 1-2 weeks. In the first dekad of June, winter cereals started flowering in the Black Soil Region, and have typically entered the grain-filling stage in the Southern Oblast. Our crop simulations indicate good total and storage organ biomass accumulation in the Southern District, mainly in Rostovskaya Oblast, Krasnodarskiy and Stavropolskiy Krays. In the Black Soil Region, biomass accumulation is near or slightly above average. The rainfall deficiency in the Near Volga Okrug has been unfavourable for the spring crops, but soil moisture reserves have probably been sufficient to avoid significant water stress so far.



Belarus

Abundant precipitation

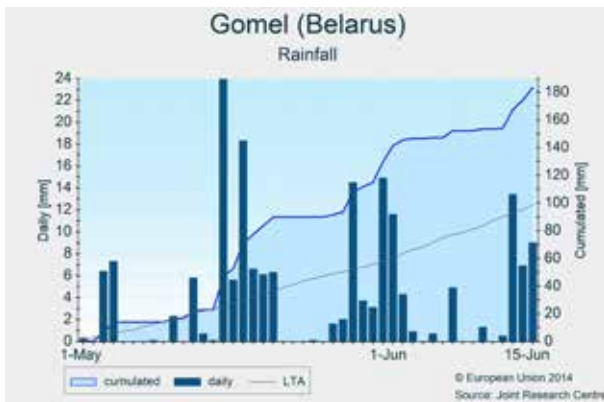
From the second dekad of May, precipitation was remarkably copious. Temperatures were close to normal, with large fluctuations. The development of winter wheat is still advanced, and biomass is above average. Conditions were also favourable for spring crops.

From 1 May to 15 June, average temperatures were close to normal in most of the country, but slightly warmer in the eastern regions. Large fluctuations occurred: temperatures reached a minimum of -1.4°C on 7 May in *Mogilev*, while a maximum of 30.4°C was reached only 12 days later in the province of *Vitebsk*. After the drier-than-usual conditions that were experienced during the previous months, abundant precipitation replenished soil water levels above the norm.

Rain was particularly copious in the southern regions: during the period analysed, 154 mm of rain was registered in *Gomel*, which is 64 mm higher than the long-term average.

According to our model simulations, winter wheat maintains an advanced development stage and biomass development is above average. Consequently, the yield forecasts for winter wheat are still above the historical trend.

Favourable conditions were also confirmed for spring barley, helped by an early sowing. The grain-maize forecast is still close to the average as it is in the early stage of the season, but soil water levels replenished by the abundant rain and favourable temperatures may improve the outlook.



3.4 Maghreb

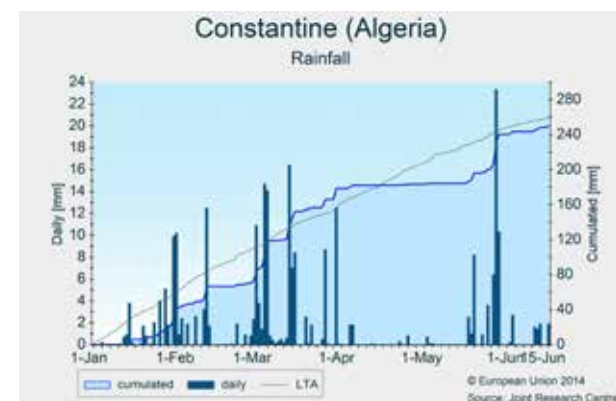
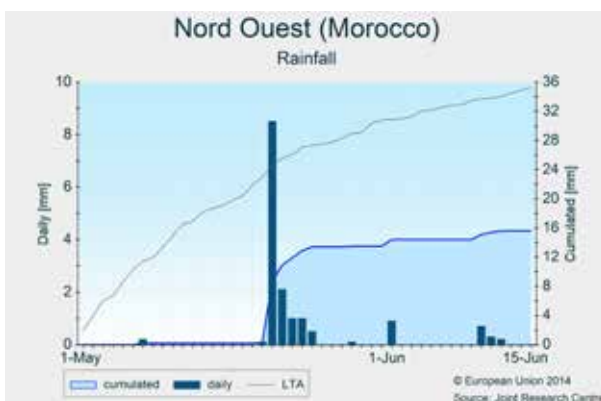
Morocco, Algeria and Tunisia

Dry conditions in Morocco, more positive conditions in Algeria and Tunisia

There has been relatively little rain in most agricultural areas of Morocco over the past couple of months. This is reflected in some of the modelled crop conditions, which show reduced growth from about the end of April. Whilst this suggests that cereals may no longer be filling grains at the rate they were, these drier conditions should not have a deleterious effect

on those yield components that have already developed, and so shouldn't serve to reduce yield levels from those already formed.

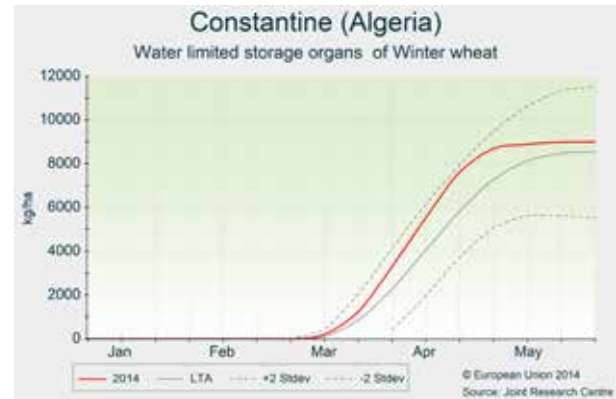
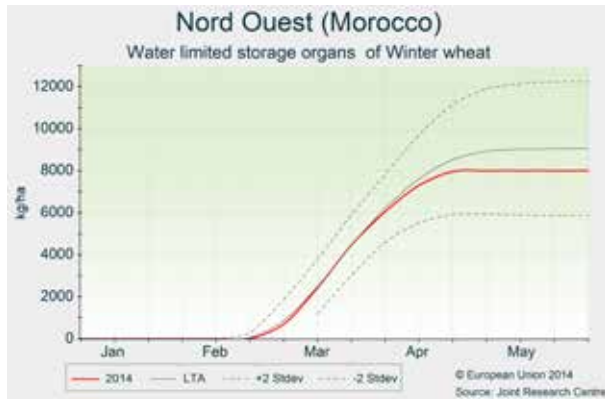
On the other hand, many parts of Algeria have again received average to above-average rainfall, following the reduced amounts of rain that fell in May. However, the reduced



rainfall during the previous month probably signalled the end of yield formation (modelled crop indicators suggest that cereals stopped filling grains towards the end of April), so this latter rainfall will have little positive effect on further yield development.

The picture in Tunisia remains much as it has been during the past few months. Agricultural areas in the north and the

centre of the country have received good amounts of rainfall over the agricultural season, and this has continued over the past month. Harvesting is now in progress, and good yield formation is expected.



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	5.58	5.56	5.33	-0.2	+4.4	4.85	4.55	4.49	-6.1	+1.4
AT	5.37	5.41	5.06	+0.6	+6.9	5.15	5.11	4.83	-0.8	+5.8
BE	8.93	8.43	8.74	-5.6	-3.5	8.58	8.33	8.52	-2.9	-2.2
BG	4.25	4.07	3.67	-4.2	+10.9	3.90	3.96	3.62	+1.5	+9.3
CY	-	-	-	-	-	1.44	0.98	1.69	-32.1	-42.0
CZ	5.67	5.32	5.23	-6.2	+1.7	4.57	4.61	4.35	+0.9	+6.0
DE	8.00	7.72	7.48	-3.5	+3.2	6.59	6.48	6.23	-1.6	+4.1
DK	7.28	7.68	7.14	+5.5	+7.6	5.77	5.58	5.54	-3.3	+0.7
EE	3.26	3.53	3.14	+8.5	+12.5	3.30	3.03	2.81	-8.1	+7.9
ES	3.58	3.07	3.05	-14.2	+0.9	3.63	2.60	2.81	-28.6	-7.6
FI	3.88	3.66	3.71	-5.6	-1.4	3.91	3.43	3.52	-12.4	-2.7
FR	7.25	7.24	7.02	-0.2	+3.1	6.30	6.37	6.42	+1.1	-0.8
GR	2.78	3.02	2.77	+8.6	+9.2	2.85	3.00	2.81	+5.4	+7.0
HR	4.95	4.70	4.82	-5.0	-2.4	3.84	4.21	4.11	+9.6	+2.4
HU	4.62	4.53	4.03	-2.0	+12.4	4.07	4.13	3.62	+1.4	+14.0
IE	8.97	9.01	8.53	+0.4	+5.6	7.49	7.31	7.05	-2.5	+3.7
IT	3.71	3.62	3.78	-2.5	-4.3	3.62	3.55	3.61	-2.2	-1.7
LT	4.30	4.51	4.03	+4.9	+11.9	3.27	3.13	3.04	-4.4	+2.7
LU	6.37	5.74	6.07	-9.9	-5.4	-	-	-	-	-
LV	3.89	3.64	3.68	-6.4	-1.0	2.73	2.69	2.65	-1.3	+1.6
MT	-	-	-	-	-	-	-	-	-	-
NL	8.72	8.61	8.74	-1.2	-1.5	6.95	6.77	6.41	-2.6	+5.7
PL	4.43	4.42	4.15	-0.2	+6.5	3.58	3.51	3.41	-1.7	+3.1
PT	1.71	1.77	1.43	+3.2	+24.0	1.69	1.75	1.54	+3.5	+13.6
RO	3.48	3.57	2.97	+2.6	+20.2	3.25	3.15	2.73	-3.1	+15.4
SE	5.79	5.97	5.77	+3.2	+3.5	4.62	4.72	4.46	+2.1	+5.8
SI	4.38	4.40	4.75	+0.3	-7.4	4.00	4.03	4.19	+0.8	-3.9
SK	4.58	3.80	4.00	-17.0	-5.1	3.91	3.74	3.42	-4.3	+9.4
UK	7.38	8.05	7.49	+9.1	+7.5	5.85	5.86	5.74	+0.2	+2.1

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	5.82	5.81	5.57	-0.3	+4.2	3.24	3.15	3.19	-3.0	-1.5
AT	5.39	5.47	5.10	+1.5	+7.2	5.09	4.00	4.33	-21.4	-7.6
BE	8.93	8.43	8.74	-5.6	-3.5	-	-	-	-	-
BG	4.25	4.07	3.69	-4.2	+10.3	4.23	4.12	2.58	-2.6	+59.7
CY	-	-	-	-	-	-	-	-	-	-
CZ	5.67	5.32	5.23	-6.2	+1.7	-	-	-	-	-
DE	8.00	7.72	7.48	-3.5	+3.2	-	-	-	-	-
DK	7.28	7.68	7.14	+5.5	+7.6	-	-	-	-	-
EE	3.26	3.53	3.14	+8.5	+12.5	-	-	-	-	-
ES	3.76	3.21	3.29	-14.6	-2.2	2.64	2.35	2.13	-11.2	+10.0
FI	3.88	3.66	3.71	-5.6	-1.4	-	-	-	-	-
FR	7.39	7.36	7.19	-0.4	+2.4	5.27	5.27	5.12	+0.0	+2.9
GR	2.94	3.00	2.99	+2.2	+0.5	2.72	3.03	2.69	+11.3	+12.6
HR	4.95	4.70	4.82	-5.0	-2.4	-	-	-	-	-
HU	4.63	4.54	4.03	-1.9	+12.5	4.43	4.01	3.84	-9.5	+4.6
IE	8.97	9.01	8.53	+0.4	+5.6	-	-	-	-	-
IT	5.22	5.22	5.34	-0.1	-2.2	2.97	2.86	3.08	-3.9	-7.2
LT	4.30	4.51	4.03	+4.9	+11.9	-	-	-	-	-
LU	6.37	5.74	6.07	-9.9	-5.4	-	-	-	-	-
LV	3.89	3.64	3.68	-6.4	-1.0	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-
NL	8.72	8.61	8.74	-1.2	-1.5	-	-	-	-	-
PL	4.43	4.42	4.15	-0.2	+6.5	-	-	-	-	-
PT	1.71	1.77	1.43	+3.2	+24.0	-	-	-	-	-
RO	3.48	3.57	2.97	+2.6	+20.2	-	-	-	-	-
SE	5.79	5.97	5.77	+3.2	+3.5	-	-	-	-	-
SI	4.38	4.40	4.75	+0.3	-7.4	-	-	-	-	-
SK	4.58	3.79	4.00	-17.2	-5.4	4.68	4.16	3.95	-11.0	+5.4
UK	7.38	8.05	7.49	+9.1	+7.5	-	-	-	-	-

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	4.30	4.22	4.07	-1.9	+3.4	3.10	3.21	3.07	+3.7	+4.8
AT	4.98	5.07	4.97	+1.9	+2.1	3.36	2.75	3.11	-18.3	-11.8
BE	-	-	-	-	-	4.27	4.32	4.23	+1.1	+2.1
BG	2.96	3.06	2.79	+3.4	+9.9	2.38	2.46	2.34	+3.2	+5.0
CY	-	-	-	-	-	-	-	-	-	-
CZ	4.58	4.41	4.33	-3.6	+2.0	3.45	2.82	3.03	-18.2	-7.0
DE	6.57	6.32	5.94	-3.9	+6.4	3.95	4.01	3.77	+1.6	+6.5
DK	5.71	5.46	5.14	-4.5	+6.1	3.87	3.89	3.68	+0.6	+5.7
EE	-	-	-	-	-	1.88	2.03	1.68	+7.9	+20.4
ES	2.79	2.30	2.26	-17.7	+2.0	2.62	1.87	2.06	-28.5	-9.1
FI	-	-	-	-	-	1.54	1.37	1.43	-11.2	-4.5
FR	5.31	5.44	5.39	+2.3	+0.9	3.04	3.44	3.39	+13.2	+1.4
GR	-	-	-	-	-	-	-	-	-	-
HR	3.41	3.47	3.65	+1.7	-4.9	2.60	2.70	2.61	+3.8	+3.5
HU	3.87	3.58	3.27	-7.6	+9.3	2.68	2.67	2.33	-0.6	+14.5
IE	-	-	-	-	-	3.50	3.52	3.46	+0.5	+1.6
IT	-	-	-	-	-	2.17	2.27	2.26	+4.3	+0.2
LT	3.13	3.31	3.00	+5.4	+10.1	2.20	2.17	2.07	-1.5	+4.5
LU	-	-	-	-	-	-	-	-	-	-
LV	2.60	2.90	2.72	+11.5	+6.3	2.21	2.37	2.15	+7.2	+10.5
MT	-	-	-	-	-	-	-	-	-	-
NL	-	-	-	-	-	-	-	-	-	-
PL	3.64	3.58	3.44	-1.7	+4.1	2.77	2.79	2.69	+0.8	+3.9
PT	1.55	1.45	1.21	-6.8	+19.2	-	-	-	-	-
RO	3.66	3.47	3.18	-5.1	+9.3	2.27	2.15	1.84	-5.4	+17.0
SE	4.90	5.35	4.82	+9.0	+10.9	2.64	2.89	2.75	+9.4	+4.9
SI	-	-	-	-	-	-	-	-	-	-
SK	3.35	2.92	3.06	-12.8	-4.6	2.81	2.25	2.28	-20.1	-1.5
UK	3.75	4.00	3.90	+6.5	+2.3	2.98	3.76	3.43	+26.2	+9.8

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	68.14	72.29	69.53	+6.1	+4.0	31.02	31.97	30.69	+3.0	+4.2
AT	68.16	71.45	69.07	+4.8	+3.4	28.59	33.84	31.65	+18.4	+6.9
BE	74.07	75.48	76.30	+1.9	-1.1	46.15	44.59	44.97	-3.4	-0.8
BG	-	-	-	-	-	12.14	14.97	14.19	+23.3	+5.5
CY	-	-	-	-	-	-	-	-	-	-
CZ	60.00	64.30	59.66	+7.2	+7.8	23.12	28.62	26.68	+23.8	+7.3
DE	63.88	70.47	68.06	+10.3	+3.5	39.83	43.29	42.95	+8.7	+0.8
DK	60.52	62.05	60.76	+2.5	+2.1	40.00	40.84	39.59	+2.1	+3.2
EE	-	-	-	-	-	-	-	-	-	-
ES	89.85	88.65	83.93	-1.3	+5.6	30.49	29.43	30.17	-3.5	-2.5
FI	38.78	35.61	36.19	-8.2	-1.6	27.56	25.01	26.03	-9.3	-3.9
FR	85.40	91.58	88.10	+7.2	+4.0	43.39	45.29	43.16	+4.4	+4.9
GR	-	-	-	-	-	25.36	26.07	25.69	+2.8	+1.5
HR	52.00	57.85	48.91	+11.2	+18.3	-	-	-	-	-
HU	47.00	56.71	50.36	+20.7	+12.6	21.83	26.26	23.66	+20.3	+11.0
IE	-	-	-	-	-	34.00	31.90	31.41	-6.2	+1.5
IT	53.25	55.62	56.21	+4.5	-1.0	25.60	24.88	24.78	-2.8	+0.4
LT	51.00	53.15	48.69	+4.2	+9.2	18.00	15.65	15.80	-13.1	-1.0
LU	-	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	19.00	17.67	17.40	-7.0	+1.5
MT	-	-	-	-	-	-	-	-	-	-
NL	76.00	79.60	77.43	+4.7	+2.8	41.50	45.26	44.13	+9.1	+2.6
PL	52.90	54.65	52.08	+3.3	+4.9	21.40	20.79	20.55	-2.9	+1.1
PT	-	-	-	-	-	18.00	17.19	16.39	-4.5	+4.9
RO	32.28	39.20	33.60	+21.4	+16.7	15.03	14.64	14.47	-2.6	+1.1
SE	64.20	59.07	59.07	-8.0	-0.0	33.79	32.10	31.93	-5.0	+0.5
SI	-	-	-	-	-	-	-	-	-	-
SK	-	-	-	-	-	-	-	-	-	-
UK	68.40	69.31	68.03	+1.3	+1.9	40.10	41.85	41.07	+4.4	+1.9

Country	SUNFLOWER t/ha				
	2013	2014	Avg 5yrs	%14/13	%14/5yrs
EU28	1.96	1.92	1.84	-1.7	+4.6
AT	2.35	2.70	2.58	+14.7	+4.7
BE	-	-	-	-	-
BG	2.40	2.13	2.05	-11.3	+4.0
CY	-	-	-	-	-
CZ	2.20	2.50	2.38	+13.6	+5.1
DE	2.10	2.40	2.19	+14.1	+9.2
DK	-	-	-	-	-
EE	-	-	-	-	-
ES	1.13	0.99	1.09	-12.0	-9.1
FI	-	-	-	-	-
FR	2.05	2.32	2.32	+13.2	+0.2
GR	2.54	2.21	2.19	-12.9	+1.0
HR	2.40	2.58	2.44	+7.3	+5.7
HU	2.48	2.53	2.25	+2.2	+12.4
IE	-	-	-	-	-
IT	2.09	2.15	2.11	+2.8	+1.7
LT	-	-	-	-	-
LU	-	-	-	-	-
LV	-	-	-	-	-
MT	-	-	-	-	-
NL	-	-	-	-	-
PL	-	-	-	-	-
PT	0.64	0.72	0.56	+12.0	+27.4
RO	1.88	1.83	1.61	-2.8	+13.3
SE	-	-	-	-	-
SI	-	-	-	-	-
SK	-	-	-	-	-
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 May 2014, received on 27/05/2014), EUROSTAT Eurobase (last update: 02/06/2014) and EES (last update: 13/05/2014)
2014 yields come from MARS CROP YIELD FORECASTING SYSTEM (CGMS output up to 10/06/2014)

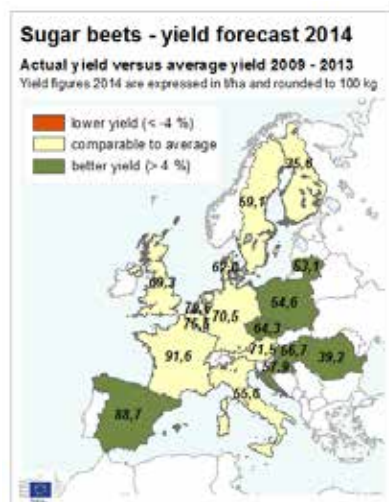
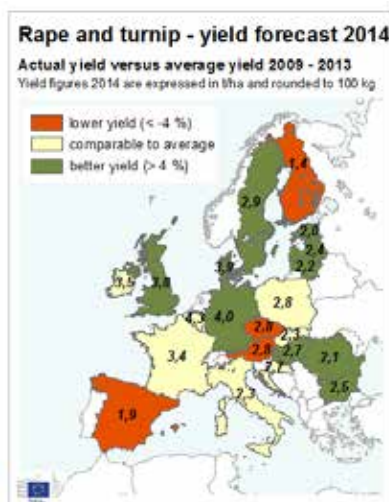
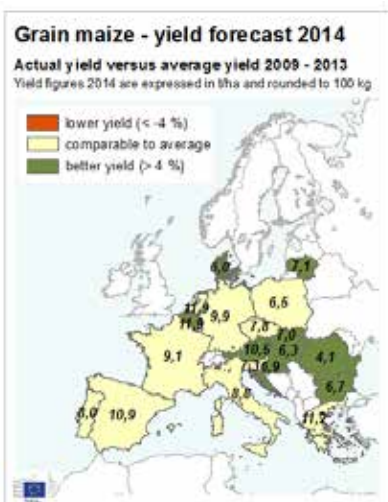
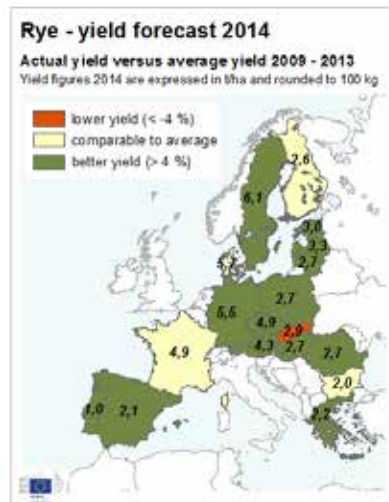
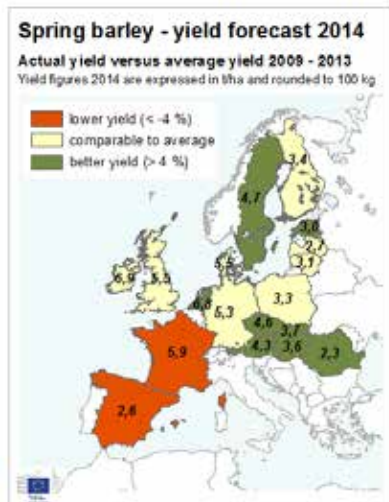
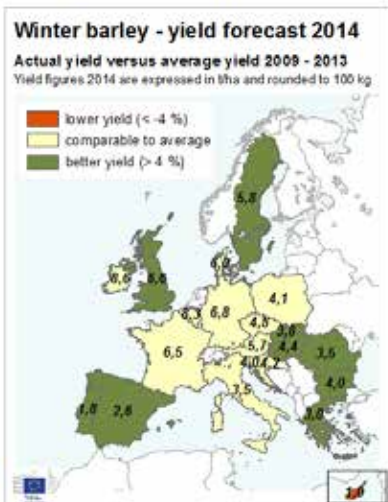
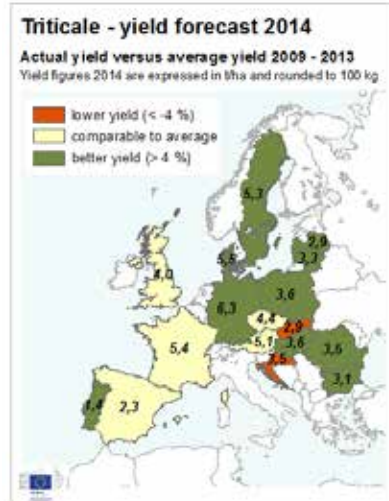
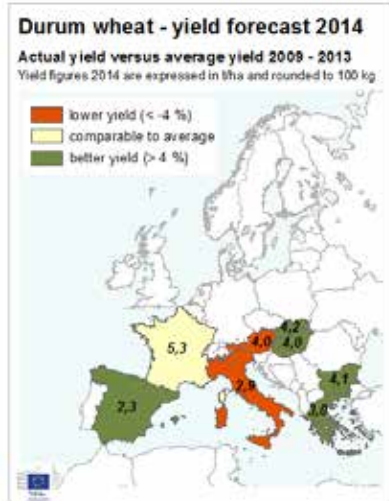
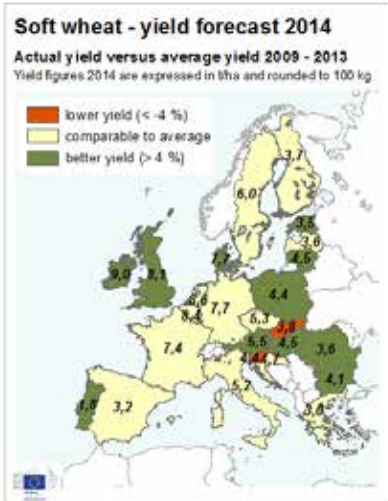
Country	WHEAT (t/ha)				
	2013	2014	Avg 5yrs	%14/13	%14/5yrs
BY	3.59*	3.64	3.36	1.50	+8.5
DZ	1.72*	1.69	1.62	-1.53	+4.4
MA	2.10*	1.71	1.75	-22.76	-2.3
TN	1.55*	2.09	1.92	34.71	+8.6
TR	2.78	2.52	2.63	-9.53	-4.3
UA	3.39	3.29	3.08	-2.83	+7.1

Country	BARLEY (t/ha)				
	2013	2014	Avg 5yrs	%14/13	%14/5yrs
BY	3.09	3.27	3.12	5.76	+4.6
DZ	1.65*	1.42	1.53	-14.12	-7.1
MA	1.24*	1.16	1.27	-6.45	-8.6
TN	0.94*	1.41	1.24	50.32	+13.5
TR	2.89	2.47	2.58	-14.46	-4.4
UA	2.34	2.45	2.25	4.70	+8.9

Country	GRAIN MAIZE (t/ha)				
	2013	2014	Avg 5yrs	%14/13	%14/5yrs
BY	5.92*	5.66	5.62	-4.41	+0.7
DZ	-	-	-	-	-
MA	-	-	-	-	-
TN	-	-	-	-	-
TR	8.95	8.08	7.62	-9.77	+6.0
UA	6.4	5.73	5.56	-10.47	+3.1

Notes: Yields are forecast for crops with more than 10000 ha per country
Sources: 2009-2013 data come from FAO, PSD-online, INRA Maroc, Min AGRI 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 10/06/2014)

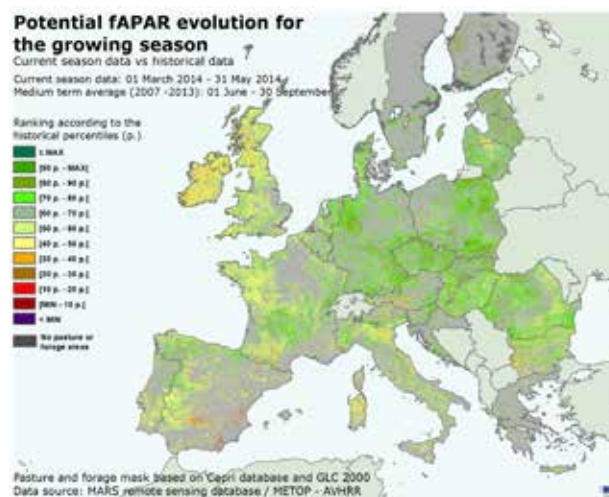
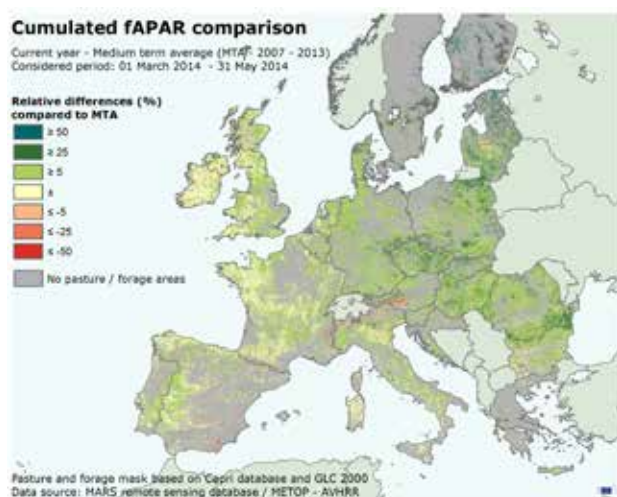
Yield maps



5. Pastures in Europe - Remote sensing monitoring update

Biomass production in most of Europe remains high thanks to rainfall during May

High biomass production levels have been observed since early spring in most of Europe due to mild weather conditions during winter and rainfall during May, especially in eastern Europe. In northern Italy, abundant rainfall at the beginning of May slightly delayed fodder maize sowings. Expectations are positive for the second half of the season.



The current season has been favourable in the Dehesa area in **Spain** and **Portugal**, with above-average biomass accumulation during most of the growing season. The warm temperatures and lack of rain observed in May, however, hastened the end of season. The summer outlook is positive in the Cantabrian basin, thanks to the rainfall during May. In central and southern **Italy**, precipitation during May was close to seasonal values, and grassland conditions are average. Fodder maize emerged during the first half of May in *Lombardia*, *Veneto* and *Piemonte*. Soil moisture levels were high during May, due to one of the rainiest springs of the past 40 years, leading to an optimal crop growth. As soil moisture levels have been decreasing since June, some rainfall in the coming weeks would help to maintain high biomass production levels, especially in non-irrigated areas.

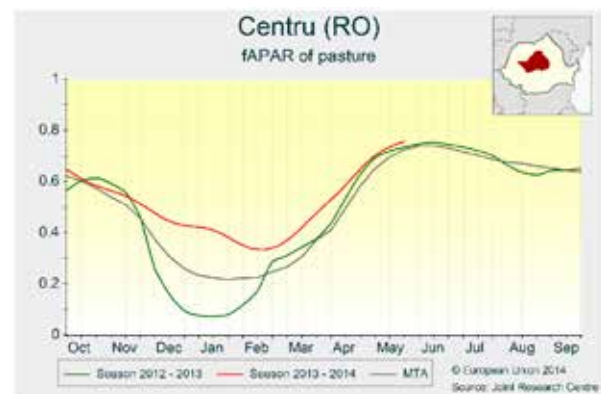
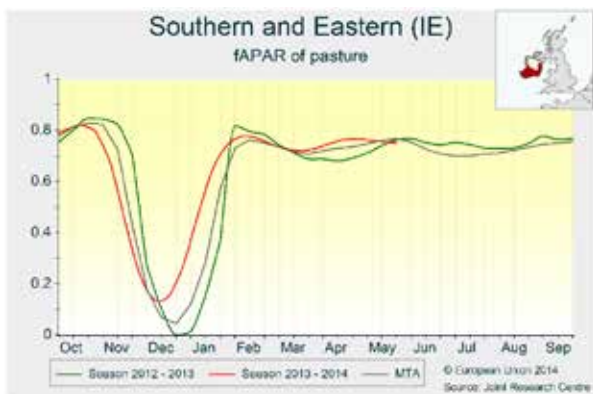
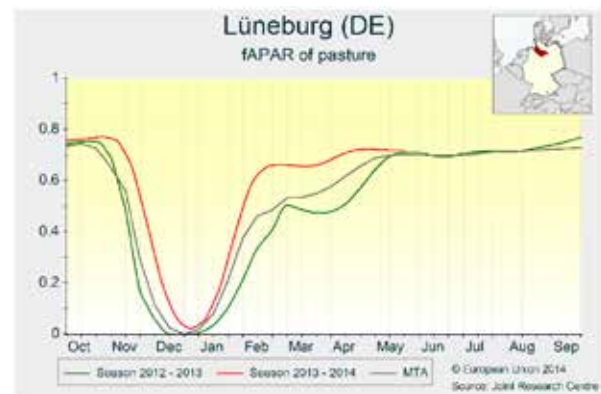
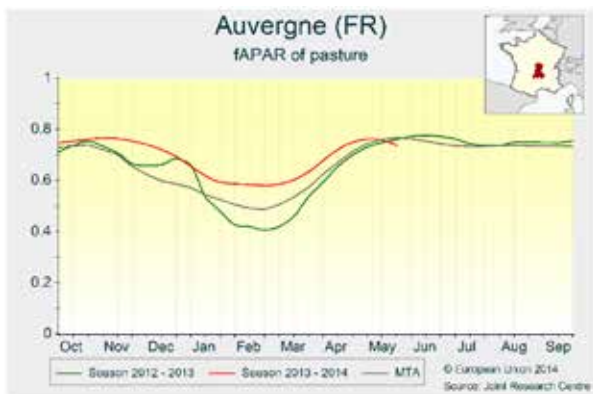
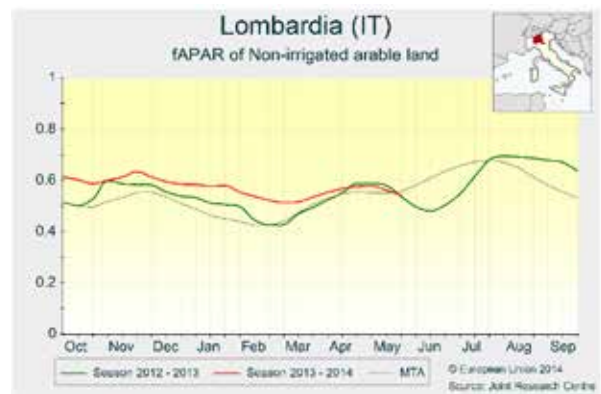
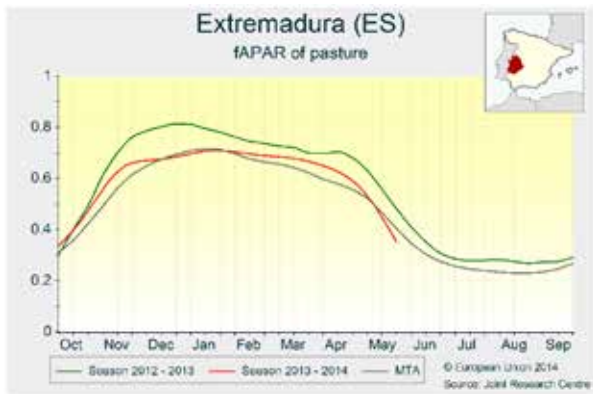
Overall, the outlook for pastures is quite positive for **France**. In northern regions (*Normandie*, *Bretagne*, *Poitou-Charentes* and *Pays de la Loire*), the abundant rainfall received during April and May will help to maintain the high biomass production levels observed up to now. Similar conditions have also been observed in the southern regions, where grassland development progresses adequately, despite slightly colder-than-average temperatures in May.

Warmer-than-average temperatures and abundant rainfall characterised the weather in the **UK** and **Ireland** during spring. Thanks to these favourable conditions, grassland growth is above seasonal values in both countries. Expectations for the summer months are quite positive, as current soil moisture

is sufficient to support biomass production for the coming months. In northwestern **Germany**, high biomass formation levels in pastures areas are supported by the unusually warm temperatures experienced in the second half of May and the abundant rainfall registered during the first half of the month. By contrast, after an extremely positive start to the season, biomass accumulation in the southern region of *Bayern* is close to seasonal values. The heavy rainfall registered there at the end of May will benefit grassland growth in the coming weeks.

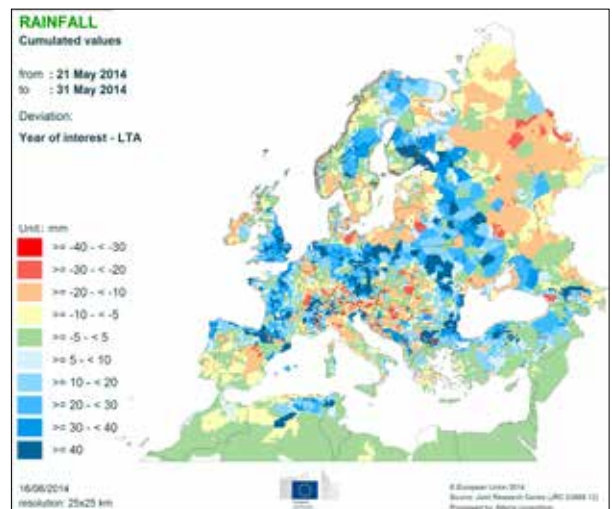
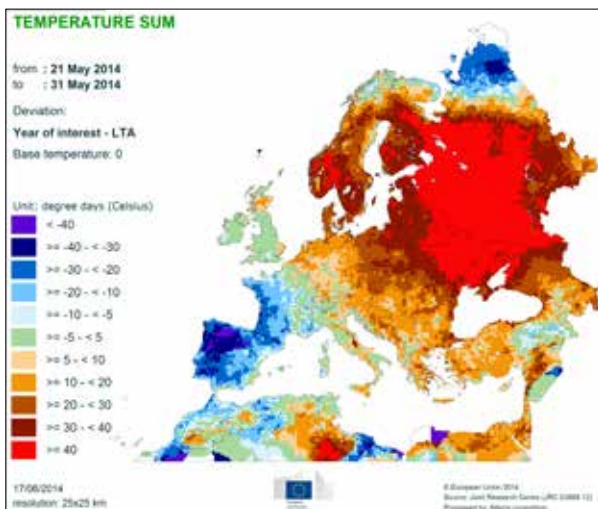
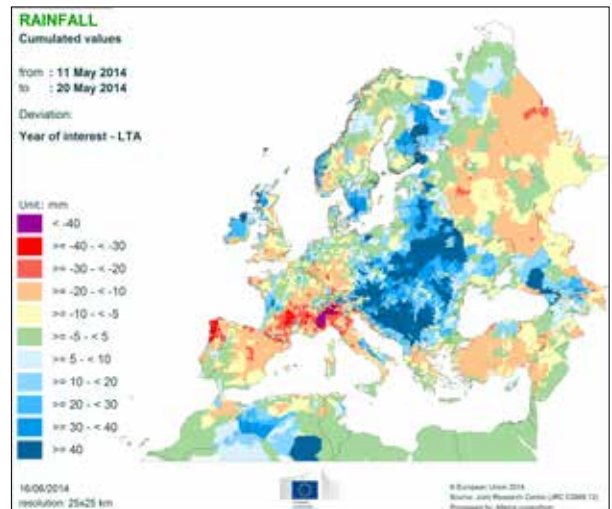
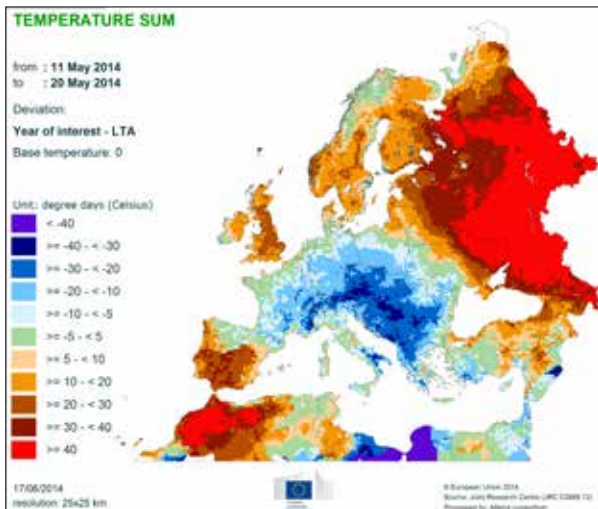
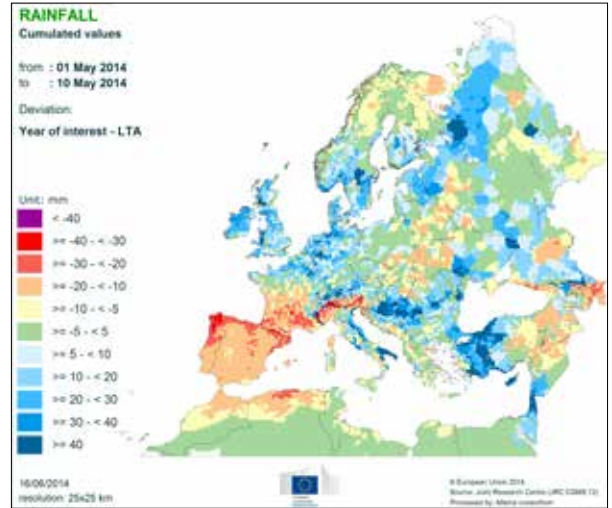
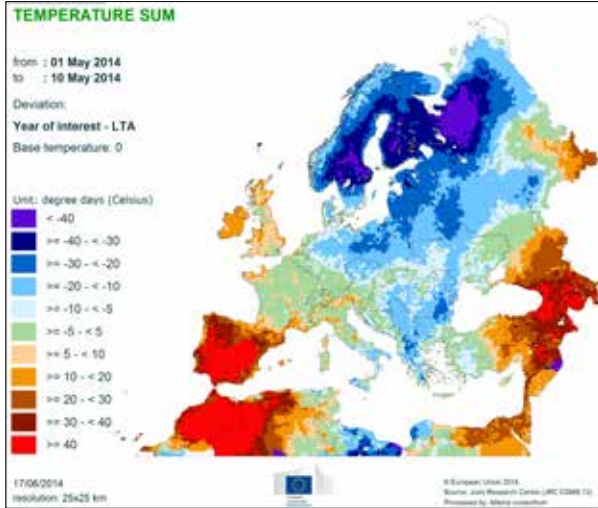
In central Europe, May was slightly colder than usual, especially during the first half of the month, and abundant rainfall occurred in **Slovakia**, the **Czech Republic** and **Austria**. This has helped to maintain the high biomass formation levels achieved after an unusually mild spring. Similar vegetative conditions were observed in the pasture areas of **Romania** and **Hungary**. Precipitation in both countries has been substantially above seasonal values during May, creating a favourable scenario for the vegetative growth of pastures in June.

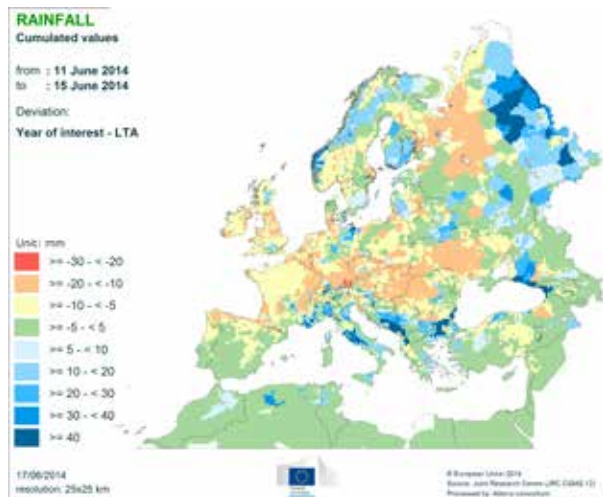
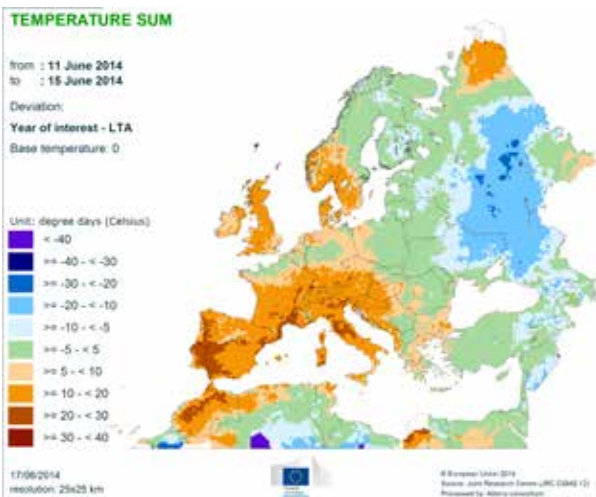
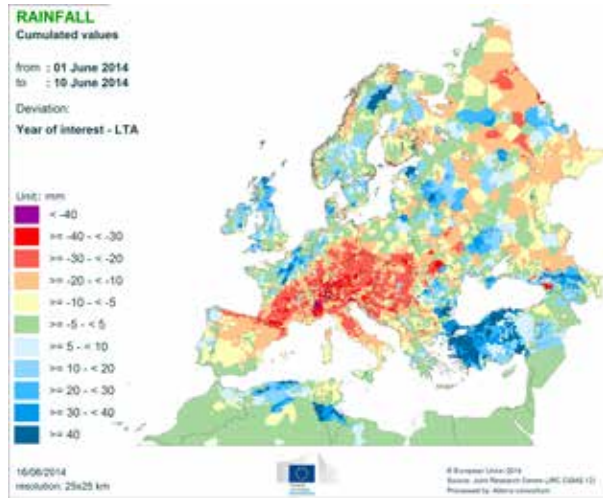
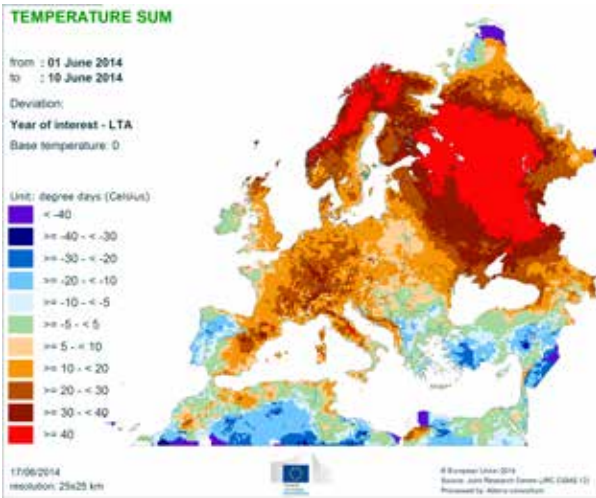
In **Poland**, **Estonia**, **Latvia** and **Lithuania**, following a rather chilly first two weeks, a sharp increase in temperatures was registered during the second half of May. The vegetative status of grasslands is progressing adequately after a favourable start to the season. Expectations for the summer months are currently positive in all of these countries.



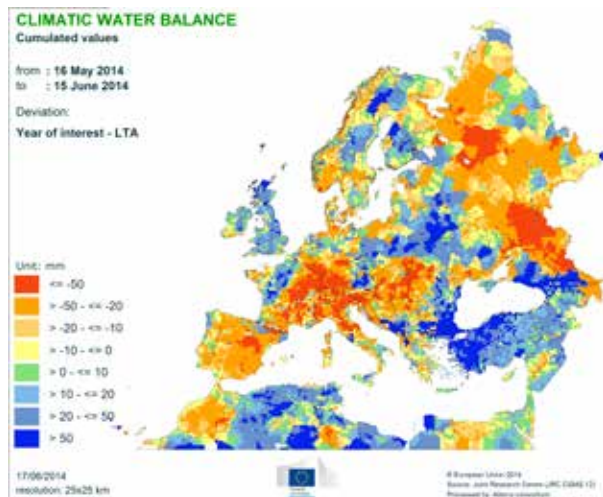
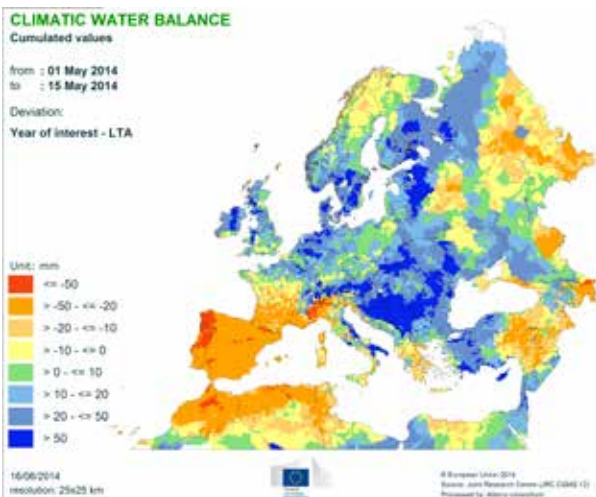
6. Atlas maps

Temperature sum and precipitation

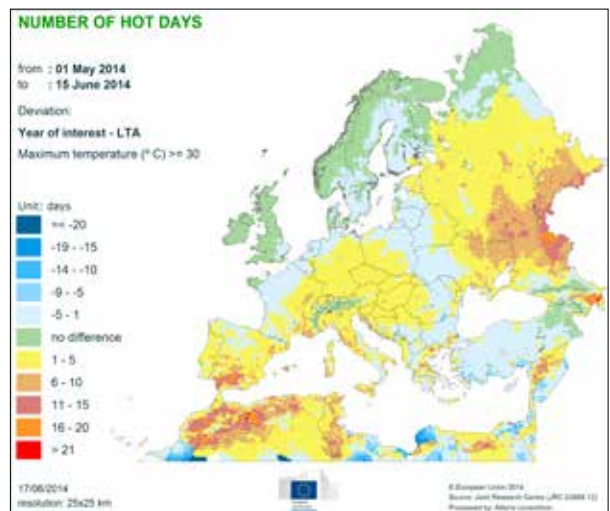
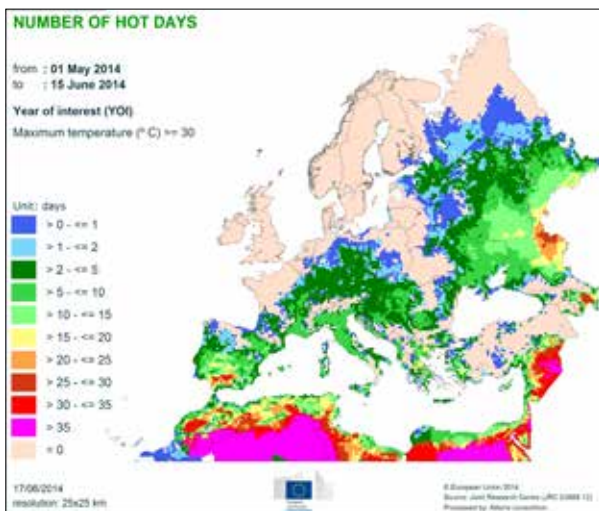
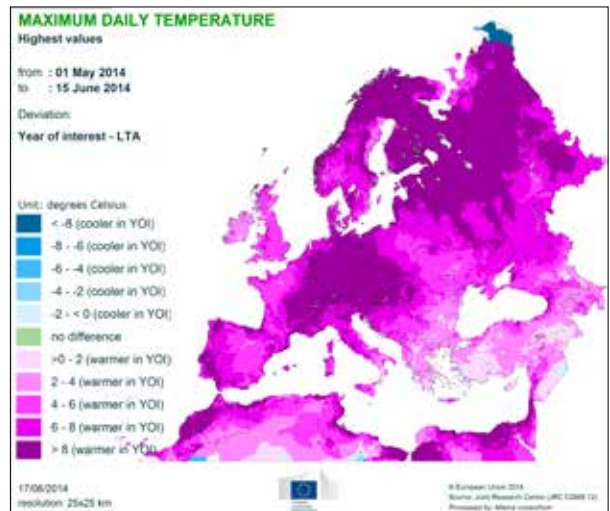
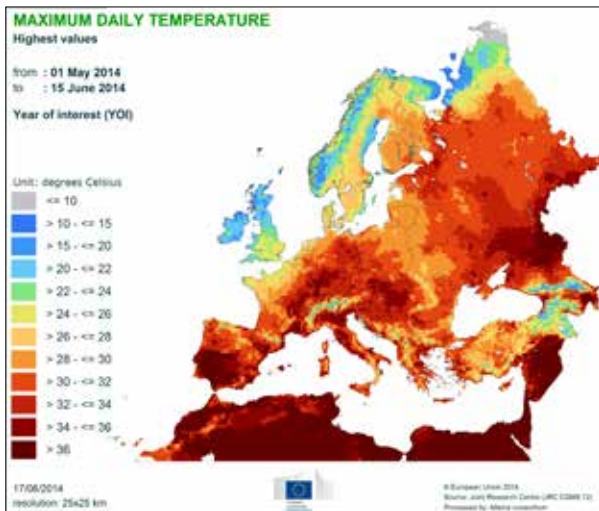
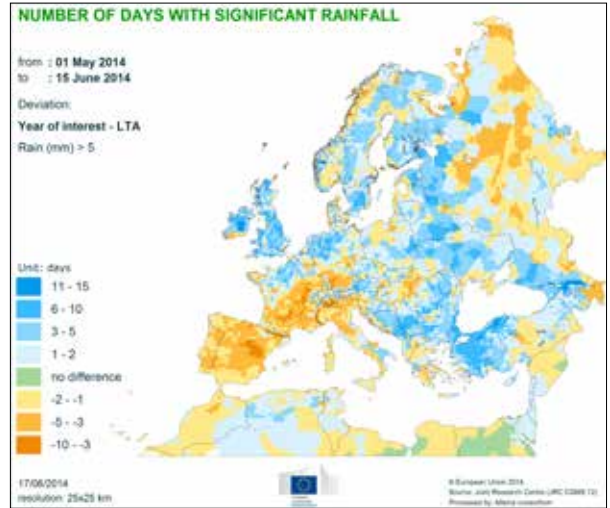
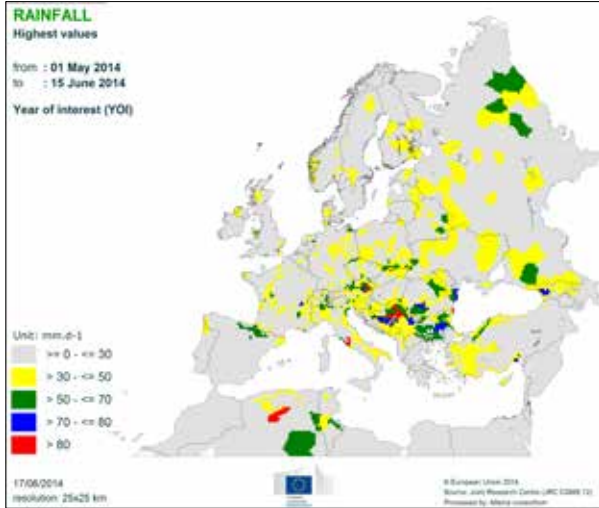




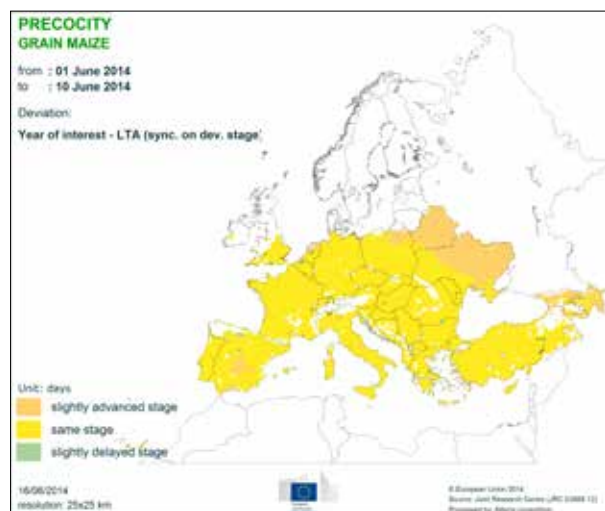
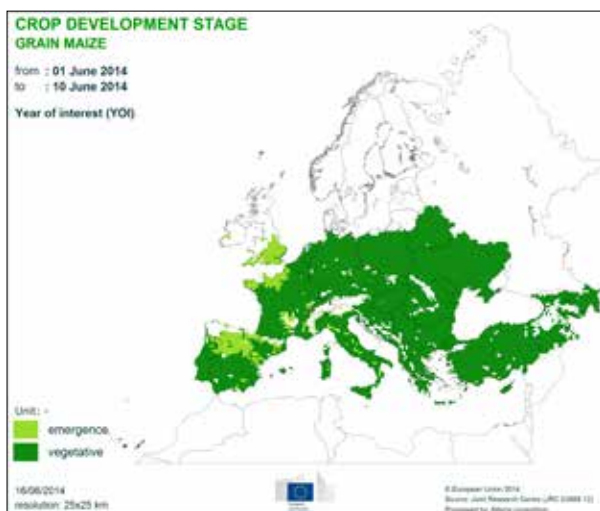
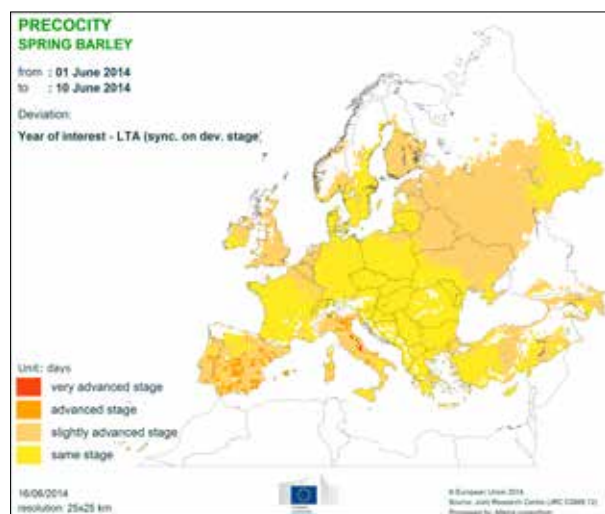
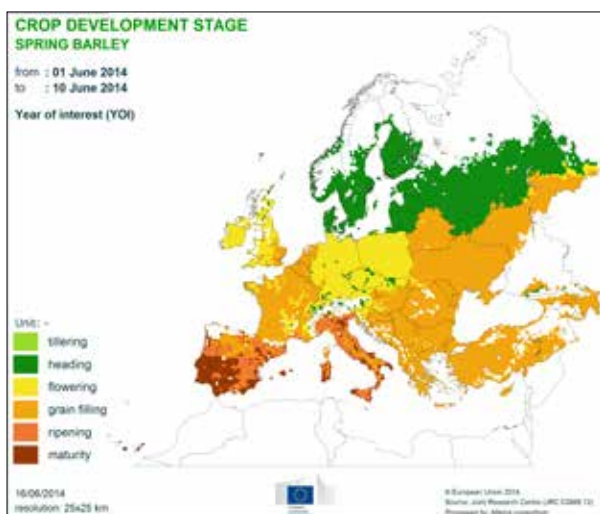
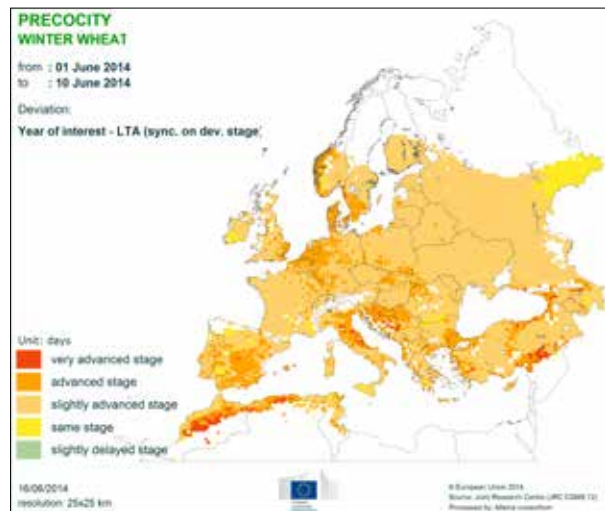
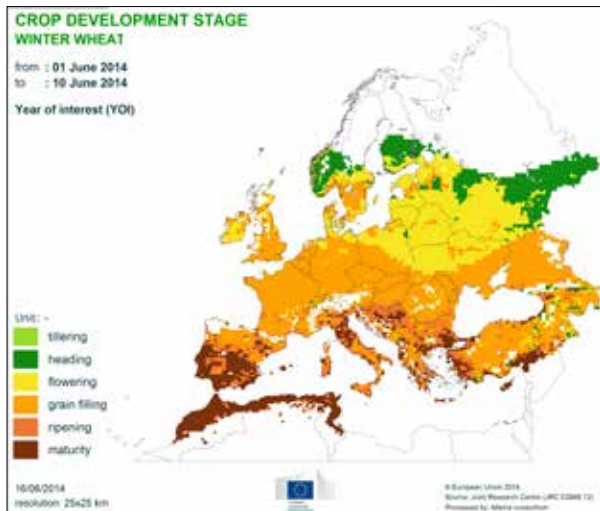
Climatic water balance

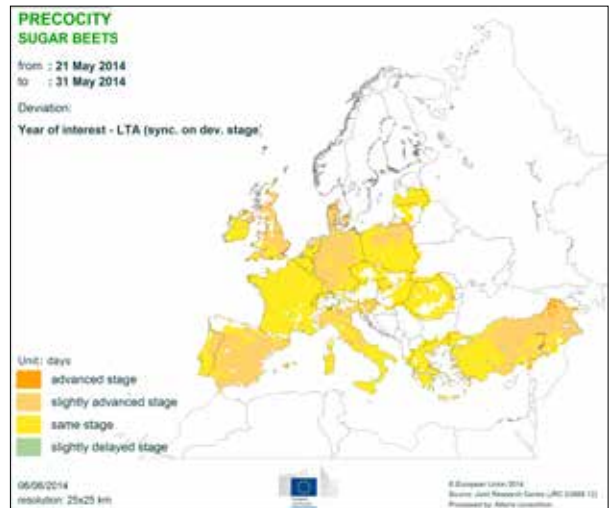
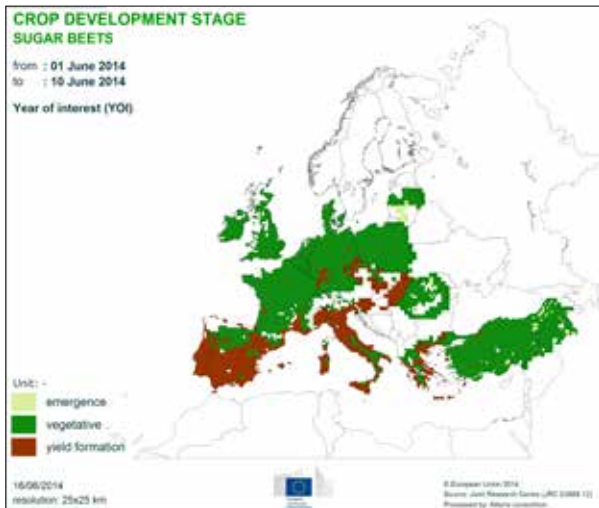
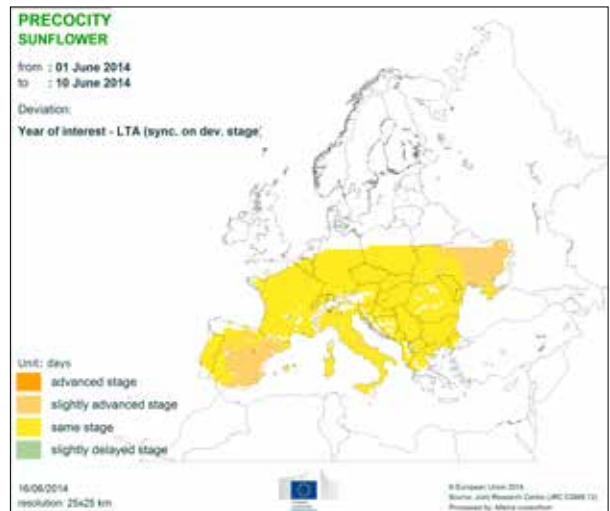
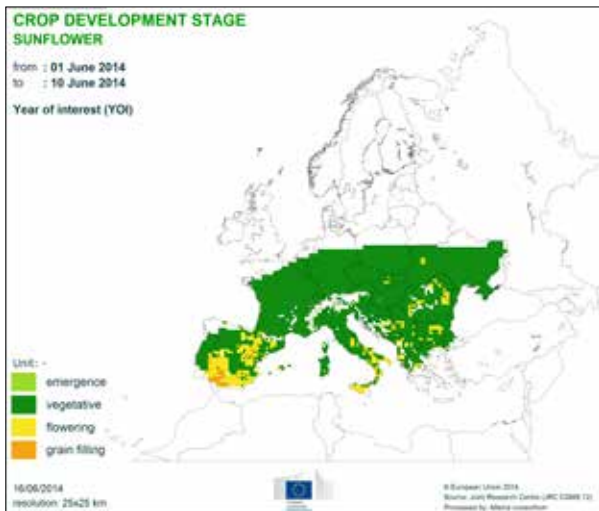
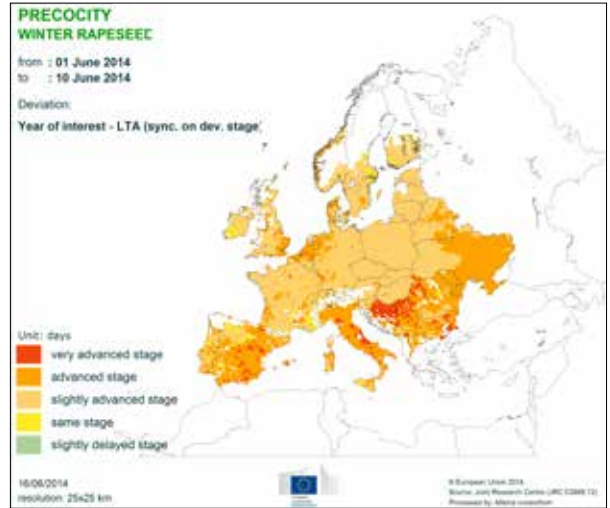
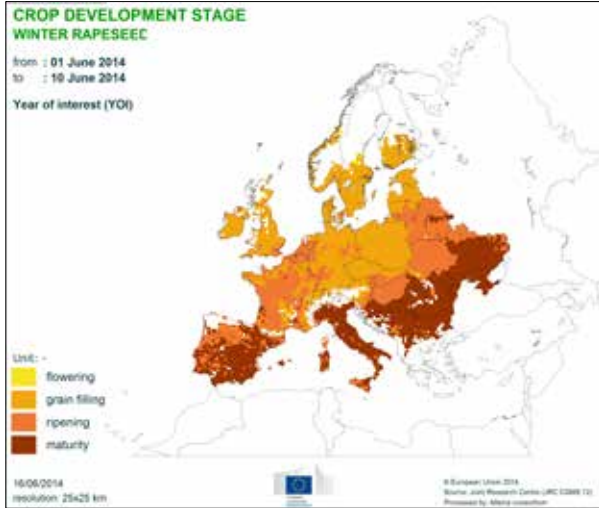


Weather events

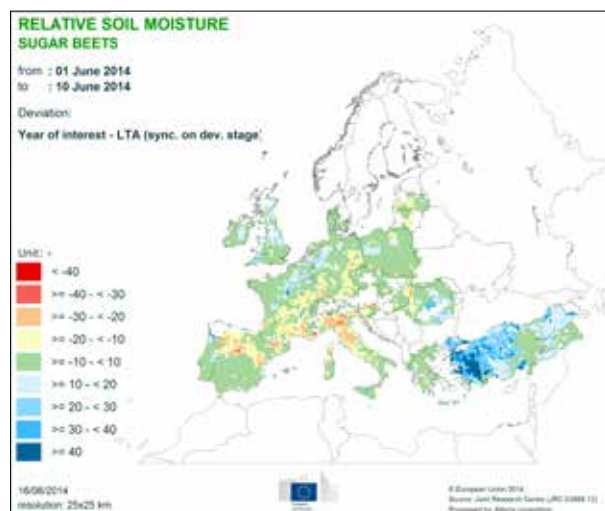
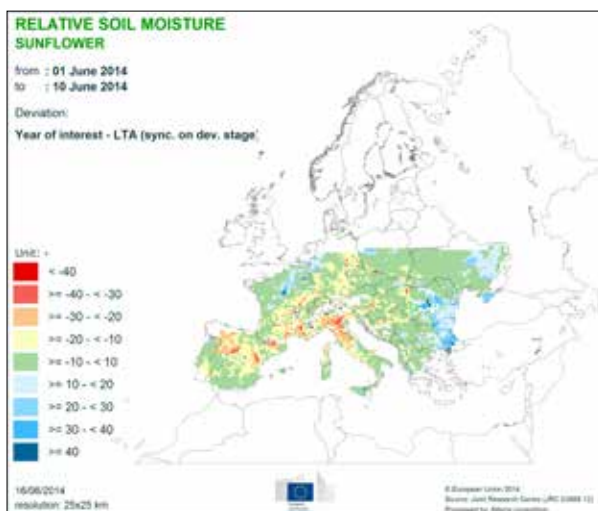
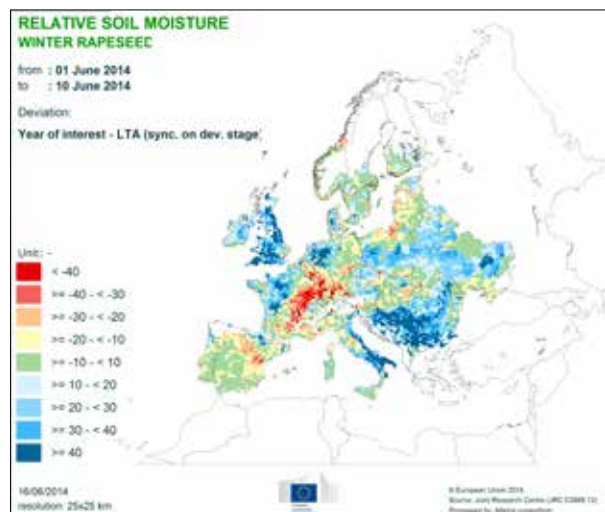
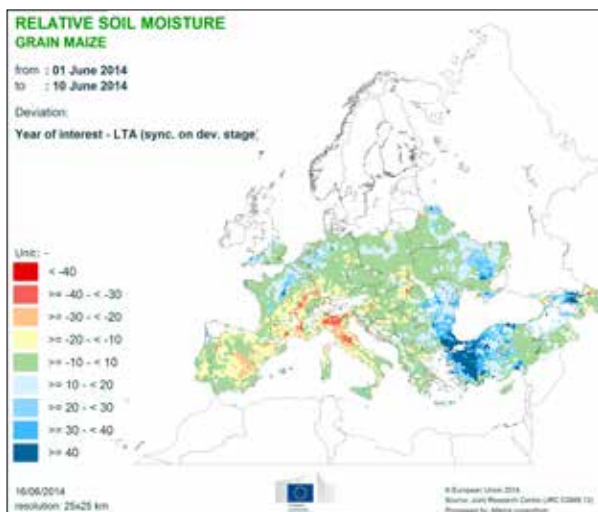
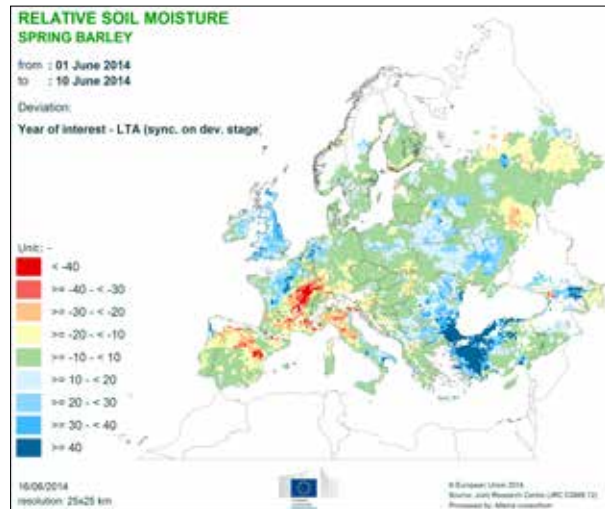
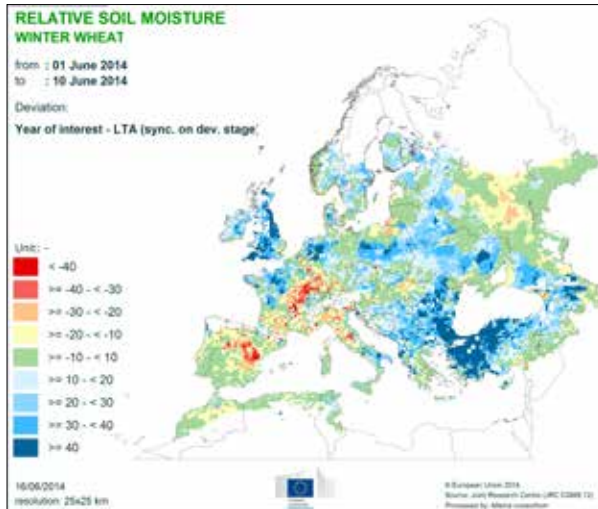


Crop development stages and precocity

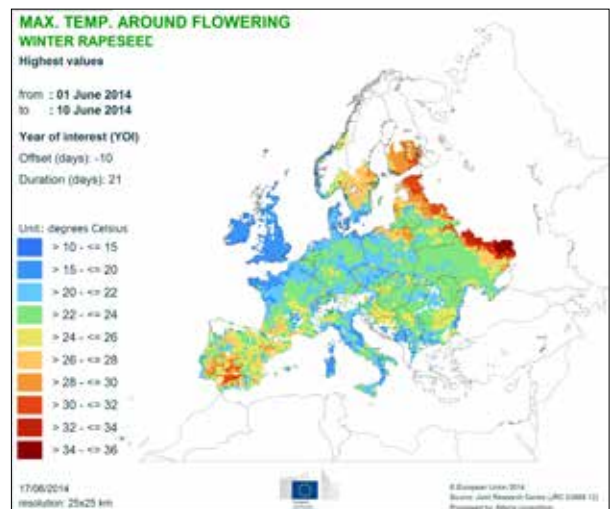
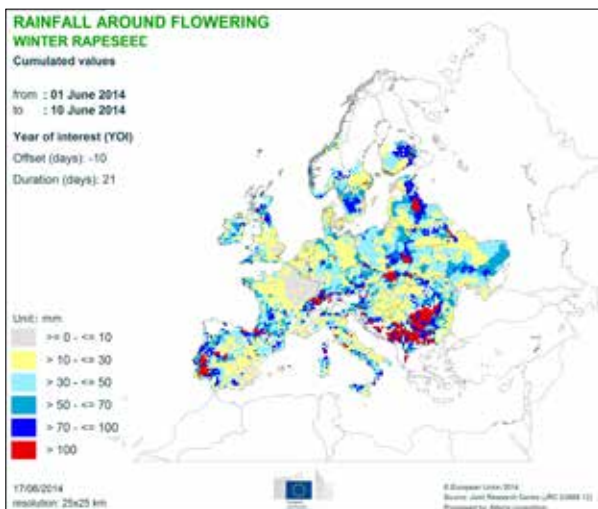
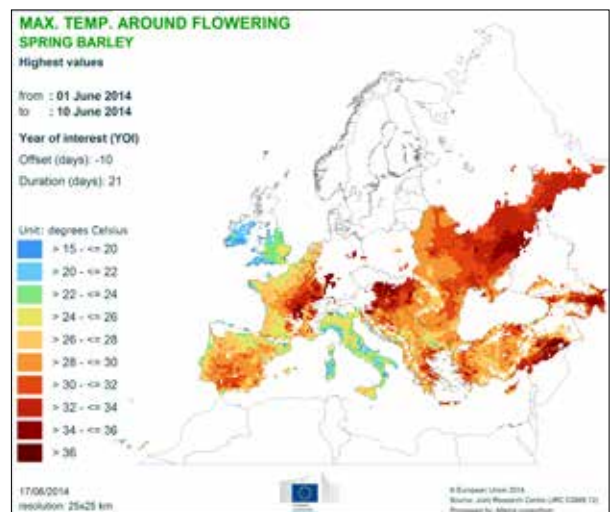
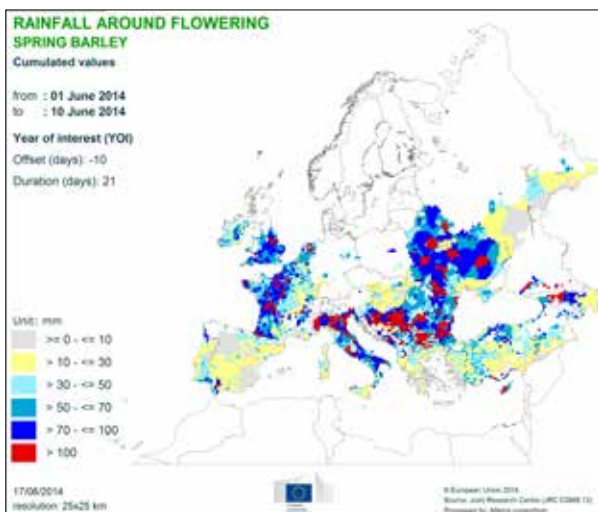
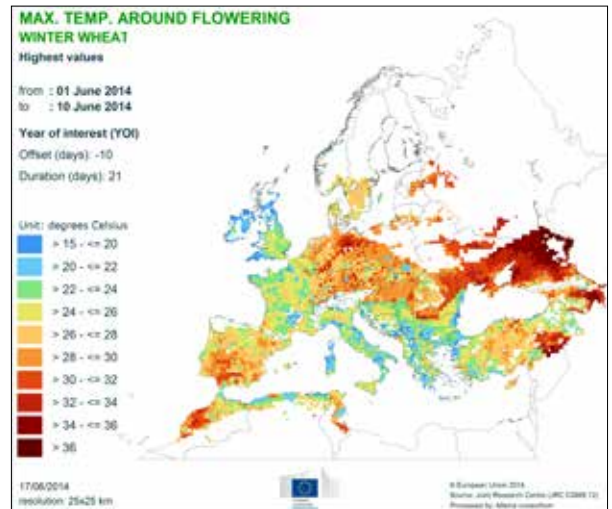
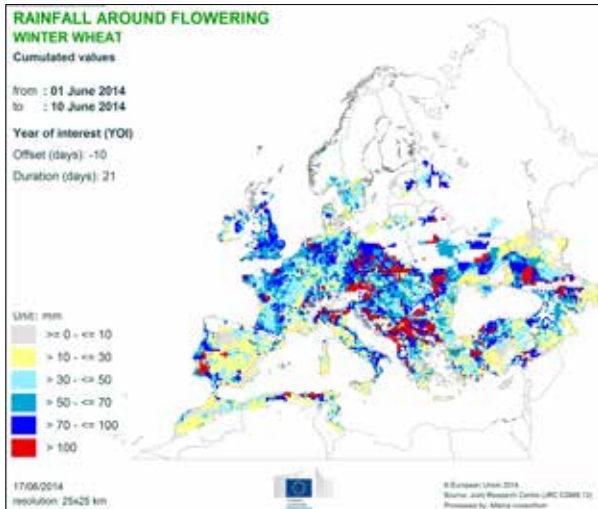




Relative soil moisture



Rainfall and maximum temperatures around flowering



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
21 Jul	Agromet analysis, remote sensing, yield forecast, pasture update and rice analysis	Vol. 22 No. 7
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
27 Oct	Agromet analysis, remote sensing, yield forecast, pasture analysis and rice analysis	Vol. 22 No. 10
24 Nov	Agromet analysis and yield forecast, sowing conditions	Vol. 22 No. 11
15 Dec	Agromet analysis	Vol. 22 No. 12

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