European Commission

Online version
Issued: 26 May 2015

Crop monitoring in Europe

MARS Bulletin Vol. 23 No. 5 (2015)

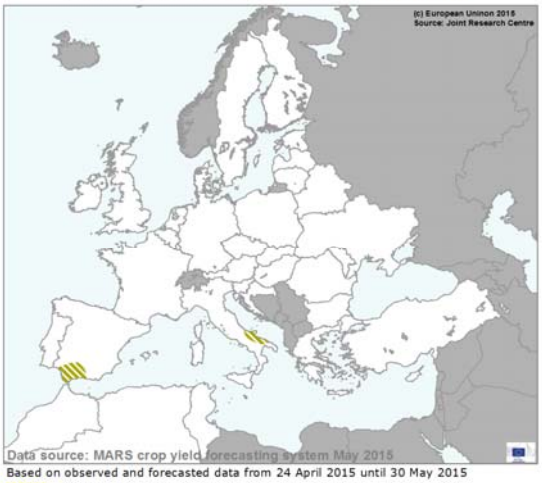
A season with no serious concerns so far

Winter crops continue to be in good shape and no major concerns for the spring sowing campaign have emerged. The yield outlook is predominantly positive. Moreover higher-than-usual temperatures since February and generally sufficient precipitation levels suggest a highly favourable start to the pasture season.

In general crop growth conditions throughout Europe are beneficial. This is reflected in our forecasts, which at EU-28 level are above average of the last five years. However, two regions with negative conditions impacting crop development are identified in Spain (Andalucia) and Italy (Puglia) mainly due to water scarcity. In general low rates of precipitation (less than 50% of the long-term average) were observed in eastern Spain, most of Italy, the western Balkan Peninsula, Hungary, southern Slovakia, and some regions of the Czech Republic and southern Turkey. South-western Europe, the Maghreb countries and northern Russia experienced significantly warmer-than-usual weather conditions, while temperatures in Turkey and southern Russia remained below the long-term average.

Content:

AREAS OF CONCERN - WINTER CROPS



Based on observed and forecasted data from 24 April 2015 until 30 May 2015

Storage organs impacted

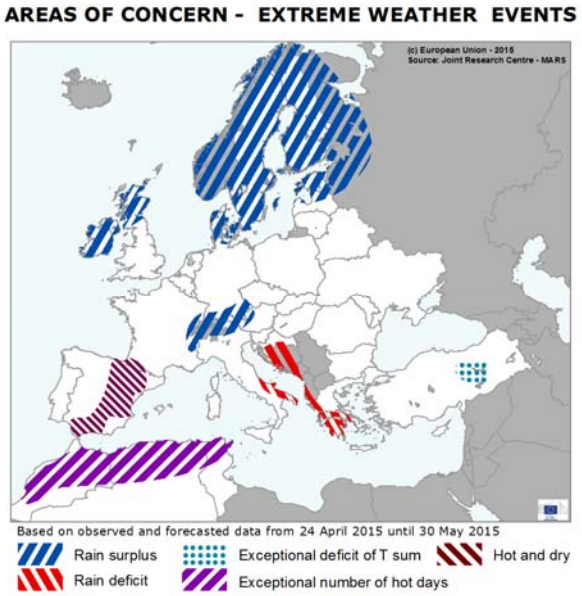
Crop	Yield t/ha				
	2014	MARS 2015 forecasts	Avg 5yrs	%15/14	%15/5yrs
TOTAL CEREALS	5.60	**5.33**	5.19	-4.8	+2.7
Total Wheat	5.84	**5.69**	5.43	-2.6	+4.9
soft wheat	6.07	**5.93**	5.66	-2.4	+4.8
durum wheat	3.36	**3.30**	3.26	-2.0	+1.1
Total Barley	4.89	**4.75**	4.51	-2.8	+5.4
spring barley	4.14	**4.15**	3.90	+0.3	+6.5
winter barley	5.91	**5.58**	5.39	-5.6	+3.4
Grain maize	7.93	**7.22**	6.99	-8.9	+3.3
Rye	4.22	**3.78**	3.58	-10.6	+5.6
Triticale	4.52	**4.27**	4.15	-5.5	+3.0
Other cereals	2.49	**2.39**	3.34	-4.2	-28.5
Rape and turnip rape	3.59	**3.42**	3.13	-4.8	+9.4
Potato	33.47	**32.84**	31.18	-1.9	+5.4
Sugar beet	77.42	**72.87**	70.52	-5.9	+3.3
Sunflower	2.14	**1.98**	1.91	-7.3	+3.8

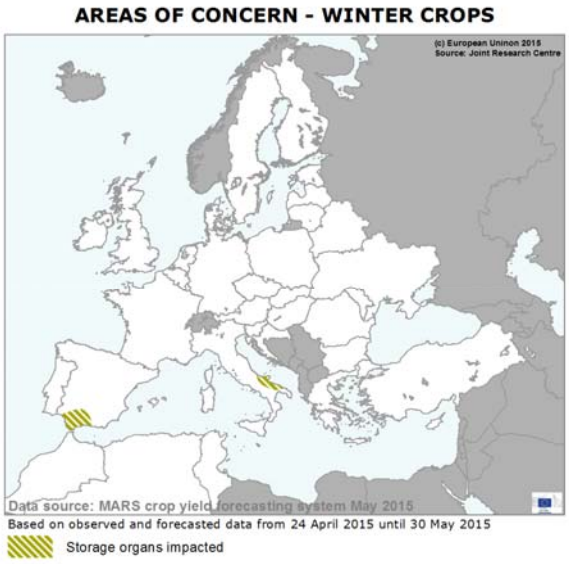
Issued: 22 May 2015

Joint Research Centre

1. Agro-meteorological overview

1.1 Areas of concern





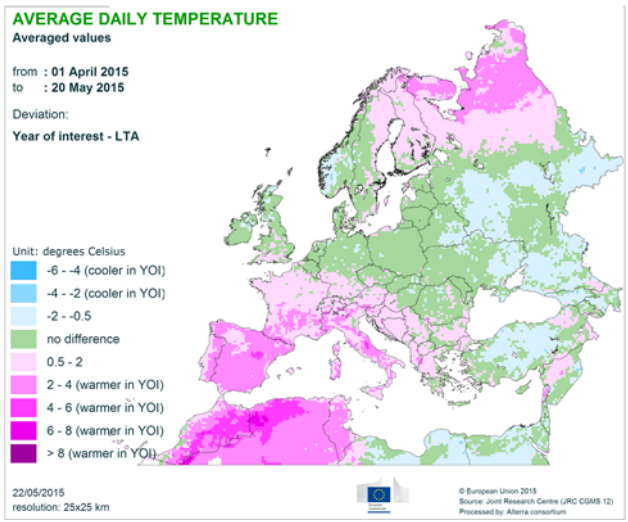
In general crop growth conditions throughout Europe are beneficial. However, two regions with negative conditions impacting crop development can be singled out. In Spain, during the period under review, a substantial lack of rain was registered coupled with temperatures significantly above the seasonal ones. Nevertheless, winter crops in northern Spain are still benefiting from the residual soil moisture. In *Andalucia*, however, where the cycle is more advanced and crops are already in grain filling, dry conditions are affecting storage organs formation reducing the yield expectations. The main durum wheat-producing region of Italy, *Puglia,* is also affected by water scarcity. With more than one month without relevant precipitation, the crops, in grain filling stage, started to suffer. A significant rain surplus is recorded for the central Alps and towards the southern regions of Germany (*Bayern*); here no significant impact is registered. The same situation is found in *Scotland* (UK) and in Ireland. In Sweden, Denmark, Finland and in Estonia the rain of late April and May did not cause any negative impact on winter and spring crops; nevertheless the weather forecast for the next week foresees more precipitation that finally could negatively impact future crop stages. In the Maghreb countries, were crops are almost at the end of their cycle, an early heat wave hit the crops in their late grain filling or senescence stages causing modest impact from the yields perspective.

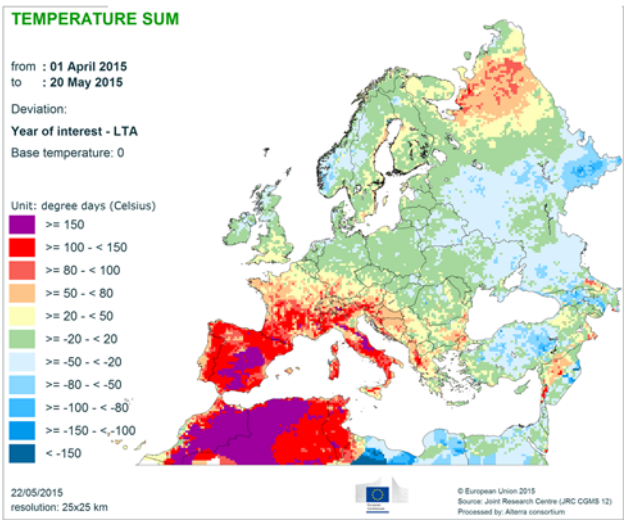
1.2 Meteorological review (1 April – 20 May)

South-western Europe, the Maghreb countries and northern Russia experienced significantly warmer-than-usual weather conditions, with thermal anomalies exceeding +2°C, while temperatures in Turkey and southern Russia remained below the long-term average. Low rates of precipitation (less than 50% of the long-term average) were observed in eastern Spain, most of Italy, the western Balkan Peninsula, Hungary, southern Slovakia, and some regions of the Czech Republic and southern Turkey.

Observed temperature

April started with a cold air intrusion into central and south-eastern Europe, with average daily air temperatures ranging from 2 to 5°C below the long-term average. Frost events were detected in these regions, but absolute minimum daily temperatures remained above -5°C and therefore did not cause any severe frost-kill damages. By contrast, warmer-than-usual thermal conditions prevailed in the British Isles, Spain, Portugal, north-western Africa, eastern Turkey and northern Europe. During the second dekad of April, warmer-than-usual conditions prevailed in major parts of Europe, with the exception of the south-eastern Mediterranean, Turkey and most of Russia. The third dekad of April was characterised by warmer-than-seasonal weather in the western Mediterranean areas and a large part of eastern Europe, with temperature anomalies reaching up to 4°C above the long-term average. Turkey and northern Europe remained colder than usual, with air temperature anomalies as much as 4°C below the long-term average. The first dekad of May was substantially warmer than seasonal in southern Europe. Temperature anomalies up to 6°C above the long-term average were recorded in the eastern part of the Iberian Peninsula, Italy and the western Balkans. Maximum daily air temperatures reached above 30°C in many areas of the Balkans, southern Italy, southern Spain and the Maghreb countries. In the second dekad of May, the warmer-than-usual weather persisted in the Maghreb countries, southern Europe and the very northern territories of Russia. Between 10-14 May, the southern half of the Iberian Peninsula experienced an exceptional heat wave, with daily maximum temperatures reaching or exceeding 35°C. Meanwhile Scandinavia, the surrounding areas of the Baltic Sea and Belarus, Ukraine as well as southern Russia and eastern Turkey experienced a negative thermal anomaly. Considering the review period as a whole (1 April-20 May), the cumulated active temperatures (Tbase=0°C) exceeded the long-term average for more than 50 growing degree days in Spain, Portugal, southern and western France, Italy, the western Balkans and the Maghreb countries. By contrast, a delay in crop development was recorded in Turkey, Belarus, most of Ukraine and the southern half of Russia. Winter wheat in the Mediterranean region was mainly in the flowering or grain-filling stage during the first and second dekads of May, when it may have been affected by heat stress in regions where maximum daily temperatures exceeded 30°C.

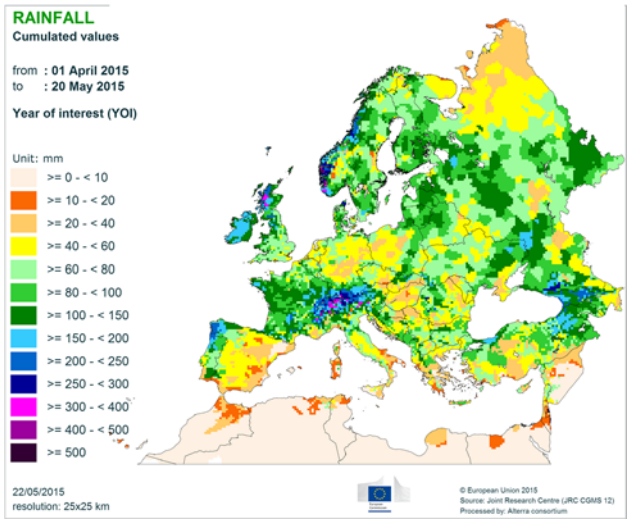


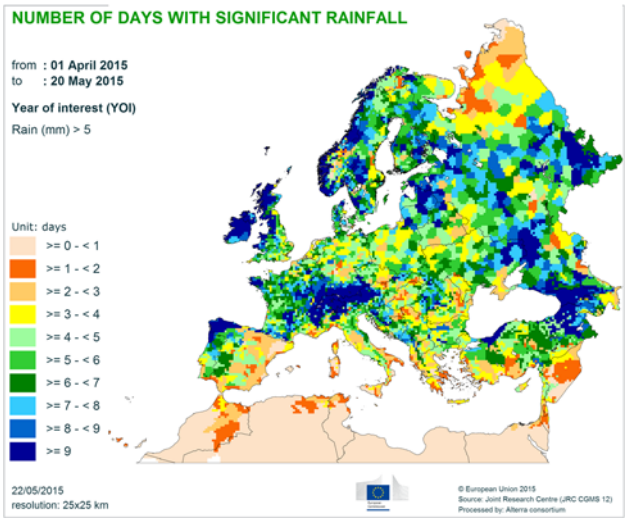


Observed precipitation

The first and second dekads of April were characterised by drier-than-usual weather conditions in western Europe, Italy, the western Balkans, and the western part of Turkey. By contrast, abundant rainfall was recorded in eastern Ukraine, southern Russia and the Baltic countries. Rainfall during the third dekad of April was more abundant in western Europe, as opposed to the first two dekads. Rainfall was especially plentiful in western and central France, the north-western Iberian Peninsula, the Alps and northern Europe. Drier conditions continued in the western and northern Balkans and Hungary. Rainy weather continued in western and central France, the British Isles and northern Europe during the first dekad of May. In the second dekad of May, Scotland, the Alps, the northern Balkans, Finland, southern regions of the Scandinavian Peninsula, northern Ukraine, western and south-eastern Russia and eastern Turkey experienced substantial (>30 mm) precipitation.

Considering the review period as a whole, abundant rainfall, reaching more than 50% above the long-term-average, was recorded in western France, Ireland, Scotland, some Alpine regions, Scandinavia, eastern Ukraine and large areas of Russia. Abundant rainfall in these areas may have hampered the sowing of spring crops. A substantial rainfall deficit was present in the eastern Iberian Peninsula, Italy, the western and northern Balkans, Hungary, and south-western Turkey. The soil-moisture deficit is increasing, especially in the northern Balkans and Hungary, with the effect of limiting the growth of winter and spring crops.





1.3 Weather forecast for the coming days: 22 May – 30 May

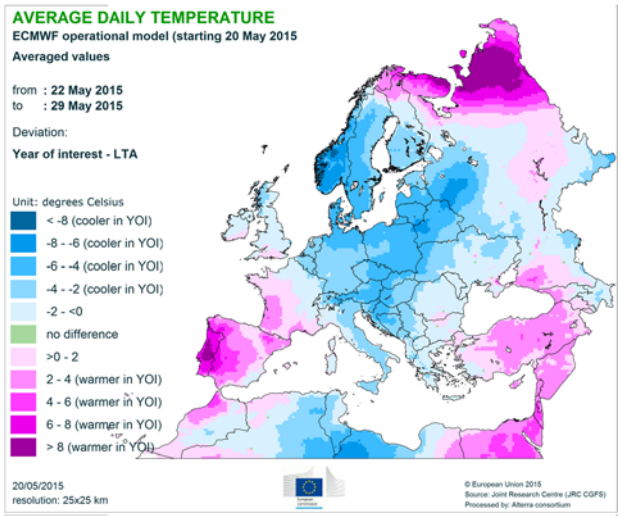
Colder than usual conditions are forecast over northern and central-eastern Europe, Italy and the north-western Balkans with cold anomalies between -2 and -6 °C. Warmer than usual conditions, locally exceeding the long term average by more than 8 °C, are expected over the Iberian peninsula, France and north-western Russia. Abundant and locally intense precipitation events are expected over large areas of northern and central-eastern Europe as well as over Italy, Austria, the north-western Balkans, Turkey and Maghreb countries.

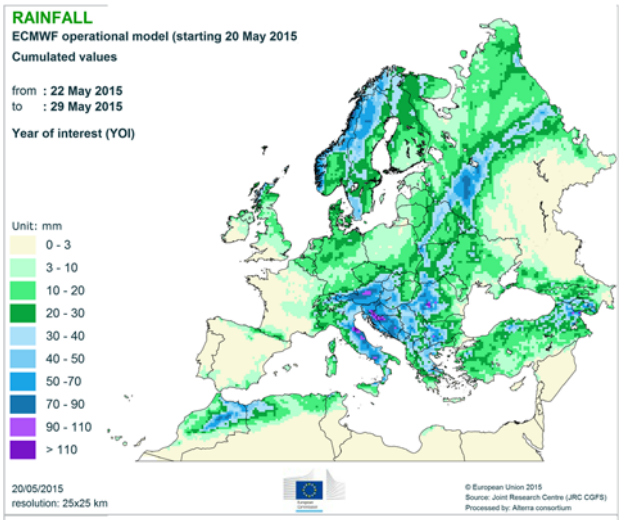
Weather during the forecast period will be dominated by a large trough extending from the Norwegian Sea to Italy. This synoptic configuration will mainly affect northern Europe, central-eastern Europe, Italy and the Balkans. It will promote cold air flow over those areas and will lead to significant rainfall. Mean daily temperatures will be lower than usual in these regions with cold anomalies that will be mainly comprised between -2 and -6 °C, but local extremes (with anomalies below -6 °C w.r.t. the long term average) can be expected in the north-eastern regions. On the contrary, the Iberian Peninsula and western France will experience warmer than usual conditions, with anomalies (w.r.t. the long term average) up to 6 °C in France. Higher warm anomalies (locally exceeding 8 °C) will affect Portugal and western Spain. Warm anomalies will also characterise the weather of the

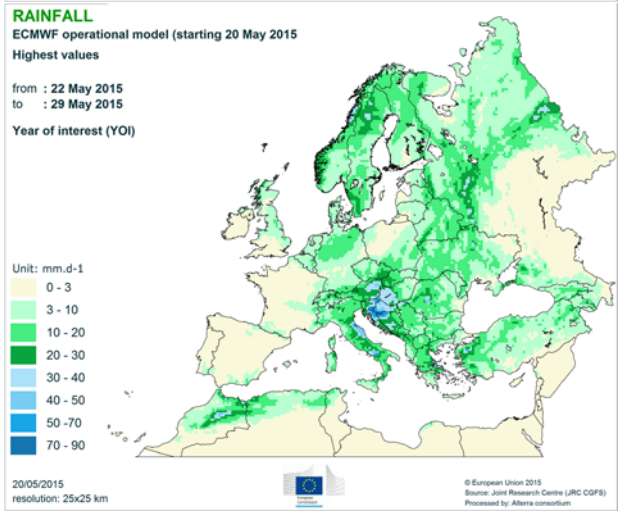
coming days over north-western Russia.

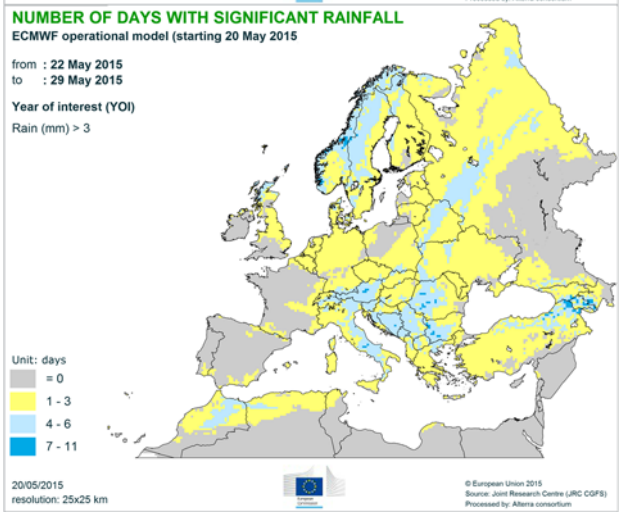
Significant precipitation is expected over the areas affected by the aforementioned synoptic configuration, especially over the Scandinavian peninsula, Italy, Austria, Hungary, Romania and the Balkan Peninsula as well as in Turkey and the Maghreb countries. Cumulated rainfall over these areas during the forecast period is expected between 30 and 90 mm, although locally higher values (up to 110 mm) can be expcted especially over Austria, eastern Italy and the north-western Balkans.

Intense daily precipitation events are expected over large regions in northern and central-eastern Europe. Particularly heavy rains (daily cumulated values higher than 40 mm) will mainly affect eastern Italy, Austria and the north-western Balkans, especially on 22 and 23 May. Almost no precipitation (less than 3 mm over the forecast period) are expected over the Iberian Peninsula, most of France, and southern Russia.



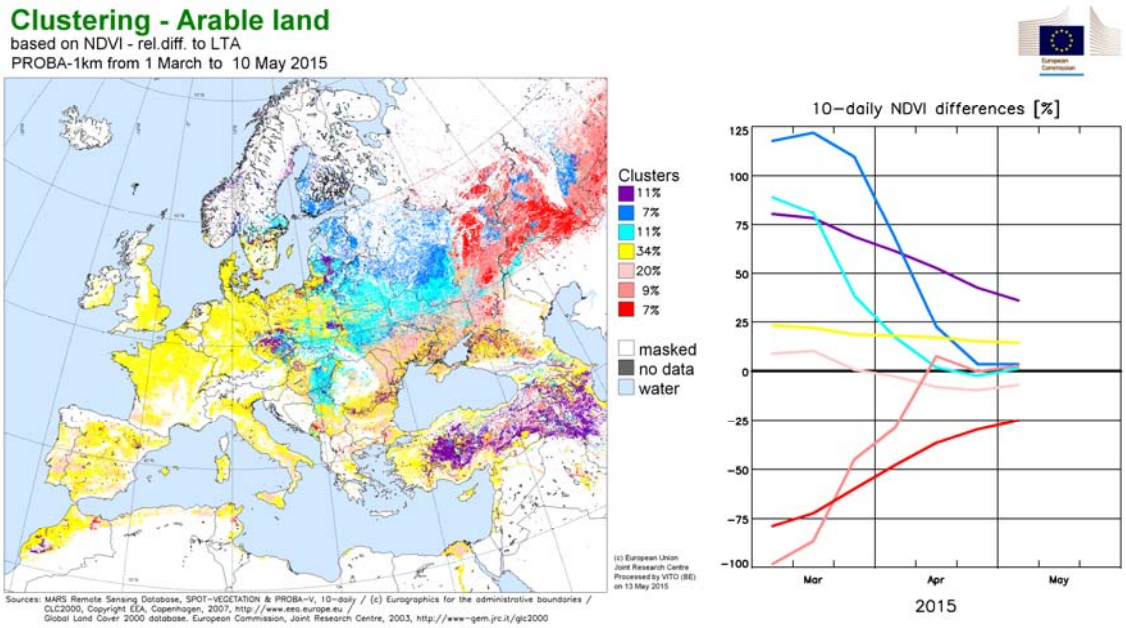






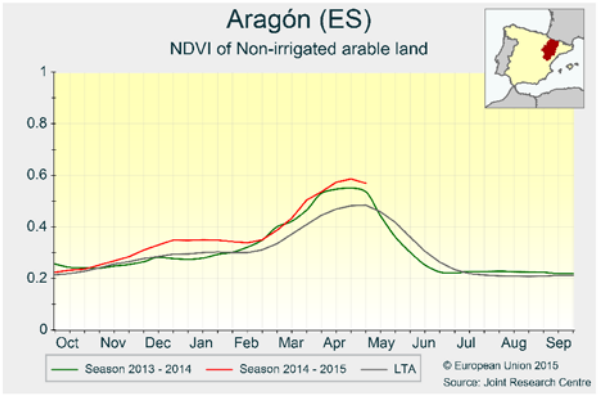
2. Remote Sensing - Observed canopy conditions

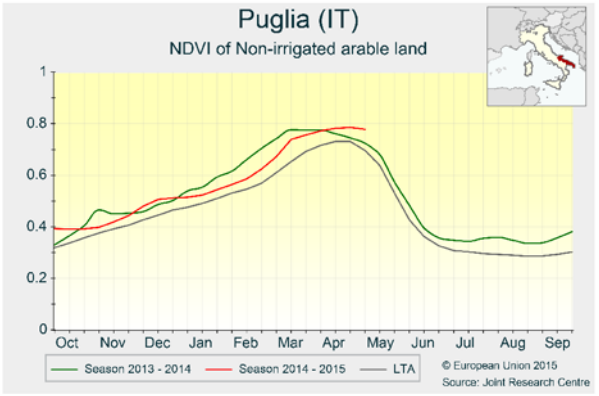
Higher-than-usual biomass accumulation in the main winter crops producing countries.

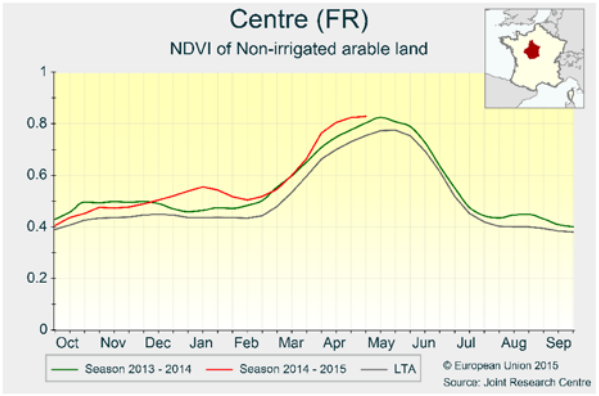


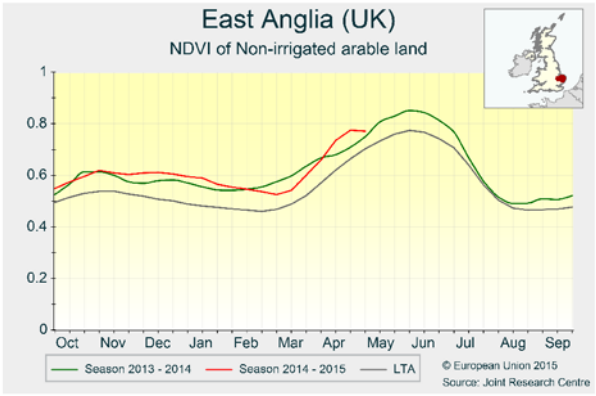
The cluster map displays the NDVI (Normalized Difference Vegetation Index) behavior from the beginning of the current season, 1st of March, to the 10th of May, as compared to the long-term average (LTA, 1998-2014) of these values.

A large portion of the European arable land belongs to the yellow class and suggests above-average biomass accumulation. In Spain, the winter crops profited from sufficient soil moisture for optimal canopy development and are now entering the grain filling stage:yield perspective tend to be good but some rain is needed to sustain the storage organs formation (e.g. Aragon profile). In Italy the winter crops show advanced phenological development and optimal canopy development in the main winter wheat crops regions (e.g. Puglia). In France, the winter crops are significantly advanced: in the northern regions, winter crops are already in flowering while in the southern croplands the grain-filling phase has started. The United Kingdom and Germany present similar crop behavior: the crops profited from the mild temperatures and the higher-than-usual spring radiation levels and accumulated significantly more biomass than usual (e.g. East Anglia in UK and Sachsen-Anhalt in DE). In Romania, winter crops development is described by both yellow and violet profiles: crops that where advanced during early spring now present average development due to the average temperatures since the beginning of the spring. The violet class also includes the main winter crops producing regions of Turkey: here the combination of mild winter temperatures and abundant spring rain determined optimal canopy growth (e.g. Kirikkale). The light pink class represents two distinct situations: (1) in Bulgaria it represents the regions affected by over-wet conditions where the sowing of summer crops was delayed; (2) in Ukraine it describes regions in which the sowing of winter crops was delayed (e.g. Kirovohrads'ka). The regions highlighted in dark blue are the northern European arable lands. In these areas the early spring temperatures were mild and determined an early growth of the winter crops. During the spring months the winter crops growth slowed down while the spring crops developed normally. The light blue profile describes areas where crop development was advanced but slowed down recently due to the cold temperatures of late March and beginning of April. The classes in red and dark pink are present only in Russian arable lands and indicate suboptimal crop status (red profile) or crop areas that recently recovered from slightly delayed stages(dark pink).


Aragón (ES)
NDVI of Non-irrigated arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre


Puglia (IT)
NDVI of Non-irrigated arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre


Centre (FR)
NDVI of Non-irrigated arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre


East Anglia (UK)
NDVI of Non-irrigated arable land
1
0.8
0.6
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0.2
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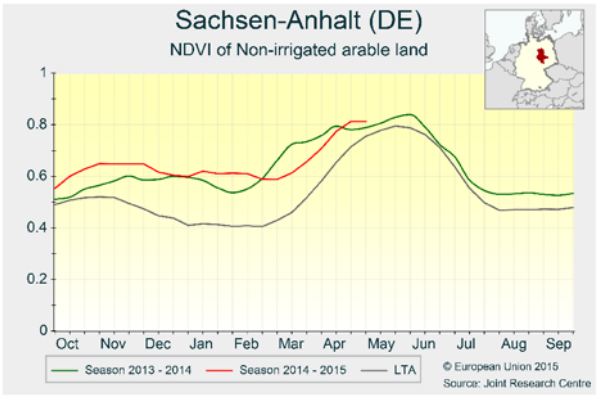
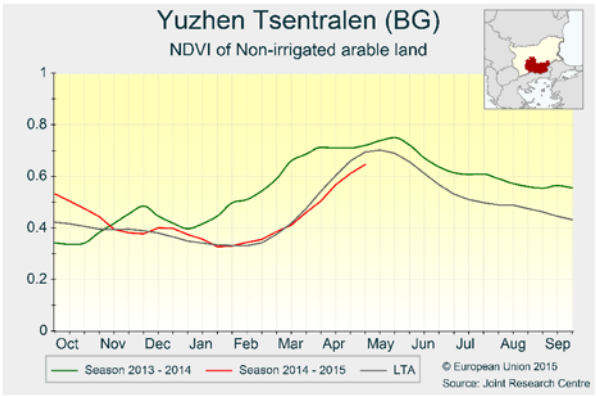
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre


Sachsen-Anhalt (DE)
NDVI of Non-irrigated arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre


Yuzhen Tsentralen (BG)
NDVI of Non-irrigated arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre

3. Sowing conditions

Spring barley

Thanks to favourable conditions, the sowing of spring barley has practically been completed in Europe, with the exception of central Ukraine.

Drier-than-usual conditions in Spain from mid-February allowed for a rapid progression of sowing activities, which were completed in the first two weeks of March. Weather conditions were also favourable in France – especially in the northeast – where the absence of rainfall for three weeks from the end of February allowed for the sowing to be completed by mid-March.

In the UK and Ireland, sowing started by mid-March but was interrupted by rain at the end of the month. Weather conditions since then were satisfactory, with only sparse rainfall events which facilitated the completion of sowing activities. Similar conditions were observed in Germany and the Czech Republic, where the sowing of spring barley was completed by the end of April, despite substantial precipitation in the last week of March – especially in the northwest.

In the central regions of Ukraine, persistent rainfall since 20 March caused significant delays to the sowing of spring barley, and some fields may not have been sown. By contrast, sowing conditions were favourable in western Russia, with the exception of some areas in Volgograd where intense rainfall in April may have delayed sowing activities.

In Denmark, the sowing has already been completed thanks to a relatively dry April, after a rather humid end of March. In Sweden, Finland and the Baltic countries, the sowing of spring barley started at the end of April and is now about to finish, thanks to favourable weather conditions created by near-average precipitation since mid-April.

Grain Maize

The sowing of grain maize was generally trouble-free in most EU countries. The warm and dry conditions that prevailed in Europe since the second half of March (except for a short interruption during the end of March and early April) allowed farmers to undertake the sowing of grain maize in a timely fashion or even earlier than usual. However, the aforementioned dry conditions also caused some concerns about the emergence of the plants in some countries (e.g. Greece, Hungary).

Sowing activities in France and Germany encountered no difficulties, and were completed in April. Rainfall in western and central regions of Romania during the sowing window did not cause much delay - sowing activities got underway mainly in the third dekad of April and were completed in early May. Sowing activities proceeded normally in Hungary, but dry conditions in April caused delays to emergence in some central regions. Farmers sowed during mid-April in Italy, where the plants are now at the two-leaf or tillering stages. Considerable delays occurred in Bulgaria due to high levels of precipitation that caused water logging in several areas. In some cases, fields dedicated to grain maize are still flooded or overly wet, and will remain fallow. Delays also occurred in Greece because of continuous rainfall in March in most agricultural areas. This was followed by a dry April, which caused delays in emergence due to dry topsoils in several areas (e.g. *Thessaly*).

Potatoes

The warmer and drier-than-usual conditions that prevailed in large parts of Europe since the second half of February allowed farmers to start the timely or even advanced planting of potatoes, albeit much less early than in 2014. The two main EU producers, Germany and Poland, started planting during mid-March. The long

planting window for potatoes was interrupted in these countries at the end of March and in early April because of rainfall. Planting activities were completed in the second half of April. No delays were observed in France and Spain. In southern Italy and Greece, planting activities got underway quite early (in February) without any problems, and harvesting has already started.

In Bulgaria, however, prolonged wet weather conditions extended into early April, causing delays to planting activities. Hungary experienced problems locally in south-eastern regions due to water logging in late March and early April. In Romania, moderate delays occurred locally because of wetter-than-usual conditions in north-eastern areas. Conditions have since improved in all of these areas, allowing planting activities to progress as normal. In the northern EU countries, as well as in Russia, Ukraine and Belarus, the sowing campaign has just started or is about to start.

Sugar beet

In general weather conditions have been favourable for the sowing of sugar beet. Thanks to the prevalence of mild temperatures and extensive periods with dry conditions, sowings have been performed within the normal window, or even advanced compared to an average year in the main EU sugar beet producing regions of France, Germany, Poland, the UK and the Benelux, albeit not free of difficulties. In most areas, sowing was interrupted due to rain in the last week of March and the first week of April, and the downside of the long periods with dry conditions before and after this rainy period in many areas were delays in germination where seeds had been planted in dry soils, delays in emergence where they had been planted deeper to avoid dry top soils, or uneven emergence in soils that were affected by crusting due to quick drying of top soils after sowing. This would have resulted in some delay in emergence (compared to the time of sowing) and less uniform stands. Cold snaps after emergence, in early May, also caused some damage. In some areas fields with uneven stands or impacted by frosts were re-sown. Nevertheless, on the balance, reports suggest a fairly good start of the cycle, but not as promising as in 2014. Weather conditions have also allowed timely sowing in major non-EU producers, such as Russia, Ukraine and Turkey.

Sunflowers

There were contrasting sowing conditions for sunflowers in Western and Eastern Europe. While good conditions were observed in Western Europe, substantial rainfall delayed sowing activities in Eastern Europe.

In the main sunflower regions of Western Europe (Spain, France and Italy), temperatures were at least 2°C above the long-term average since April, and no substantial rainfall that could have hampered farm work was recorded. Even though dry conditions prevailed in southern Spain, no concerns are reported. It rained abundantly from the end of March to the beginning of April in the main planting areas of Eastern Europe (except Hungary). Although temperatures were near average, the overly wet conditions diminished the bearing capacity of soils and delayed sowing activities. The main concerns are for Bulgaria and Greece, where cumulated rainfall from the beginning of the year until 15 May is locally twice the long-term average. In Hungary, while sowing activities got underway on time as soils were dry, emergence is slightly delayed.

4. Country headlines

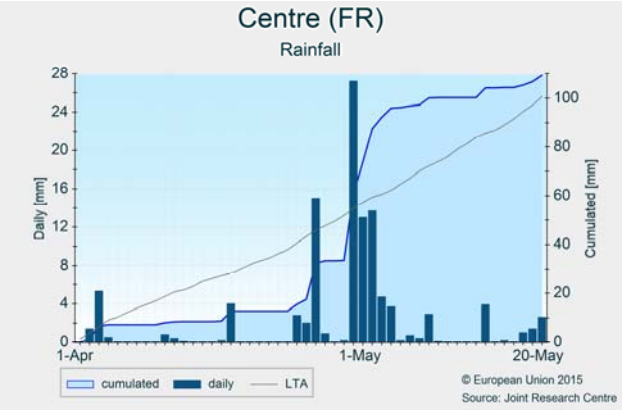
4.1 European Union

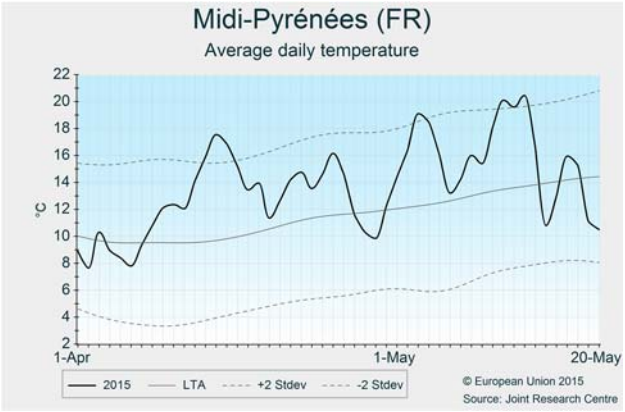
France

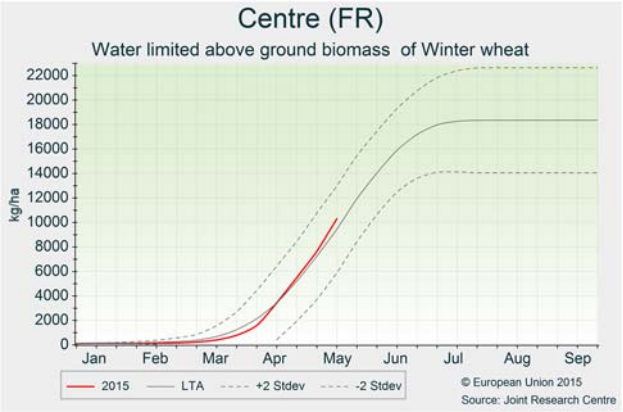
Exceptionally good conditions

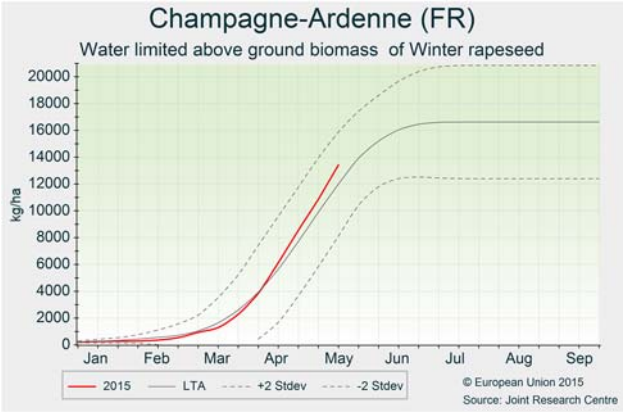
The favourable conditions observed since the beginning of the season have continued. Temperatures have remained mostly above average since 1 April. Substantial rainfall was observed in central regions. All crops are benefiting from good conditions, and the outlook for winter and spring cereals is excellent.

Temperatures remained above the average since 1 April, particularly in the southern half of the country. For the period of analysis, this year has been one of the mildest after 2011 and 2007 in the southern half of the country and the Atlantic coastal regions. Substantial rainfall was observed in the central regions (*Bretagne*, *Pays de la Loire*, *Centre*, *Bourgogne*) at the beginning of May. These rainfall events were particularly favourable as some regions (e.g. *Centre*) only had a few rainfall events in April. Rainfall in the north (*Picardie*, *Nord Pas de Calais)* as well as in the south was slightly below average, but the soil water content is still high and not critical for crop growth. The warm temperatures and substantial rainfall in central regions are beneficial for winter and spring cereals, which are reaching the grain-filling and flowering stages respectively. Conditions are also beneficial for the emergence of summer crops, which were sown on time. Yields of winter and spring cereals are forecast to be above the five-year average, and close to record levels. Even though conditions are favourable for summer crops, forecasts are maintained close to the average as yields will depend upon summer conditions.









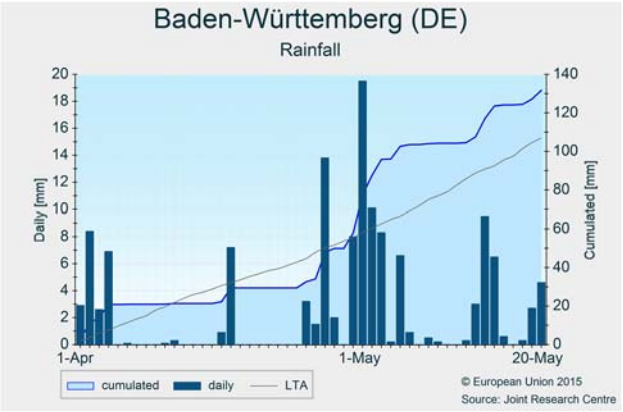
Germany

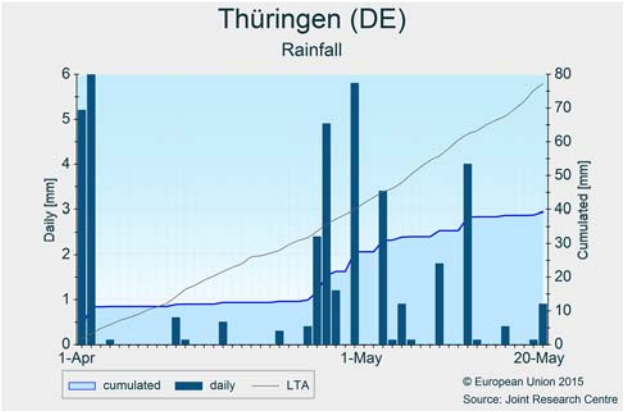
Continued favourable outlook

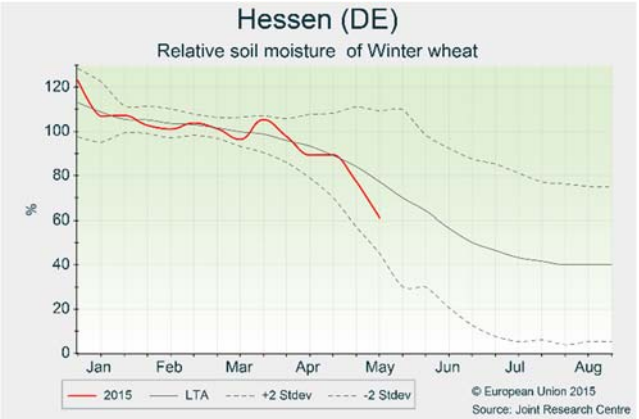
Crop growth conditions in Germany continued to be beneficial due to seasonal temperatures and well distributed rainfall. In general the south experienced warmer and wetter conditions than the west and north of the country. Forecasts are well above the five-year average for winter cereals and rape seed, but currently not at the level of the record year 2014.

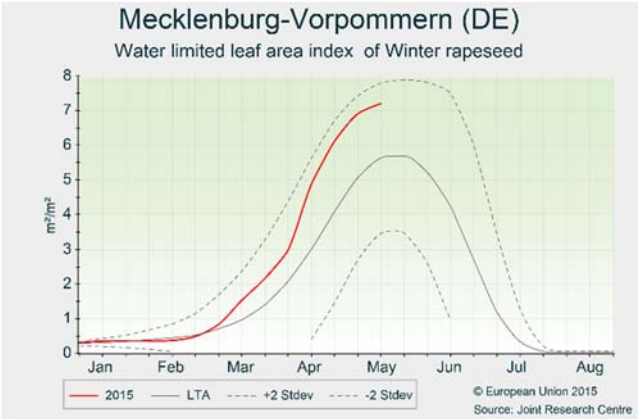
The period under review was characterized by a seasonal course of temperatures, on average slightly warmer in the south and colder in the north. Temperature sums were 40 – 60 °Cd above average in the south and mostly around 20 °Cd below average in the south. Light frosts occurred in the beginning of April. Colder periods alternated with two warm phases, around 10 to 15 April and 5 to 11 May. Except *Bayern, Baden Wuerttemberg* (both large surplus) and *Mecklenburg Vorpommern* (moderate surplus) all regions show a rainfall deficit for the period under review, which is most pronounced in *Hessen, Rheinland Pfalz* and *Thüringen*. But as there has been beneficial rainfall in all these regions by the end of April and beginning of May , relative soil moisture contents are still at a satisfactory level even though decreasing sharply.

Regarding crop development, in general crops are slightly advanced or on average, without explicit differences between northern and southern Germany. A boost of leaf area expansion is simulated for winter cereals in the west and north- west of the country. The remaining regions show a normal leaf area expansion. Winter wheat is currently mostly at heading stage while winter rape seed has almost passed the flowering stage and starts grain filling in the south of the country. It exhibits an unusual high leaf area expansion with the exception of *Bayern* and *Baden Wuerttemberg* where a modest leaf area is simulated. Forecasts for winter cereals and winter rape seed are well above the average due to the good conditions and based on scenario analysis. For summer crops at this stage of the season only trends are used.







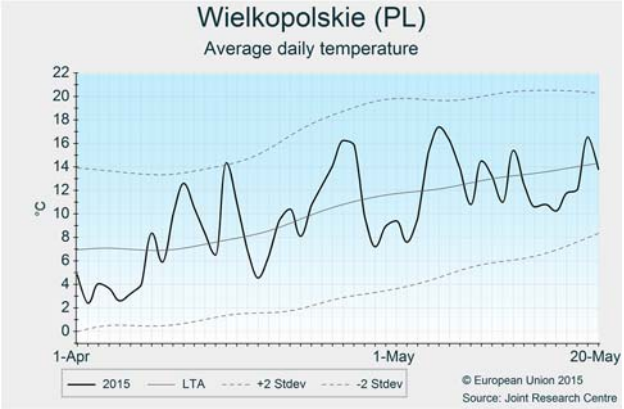


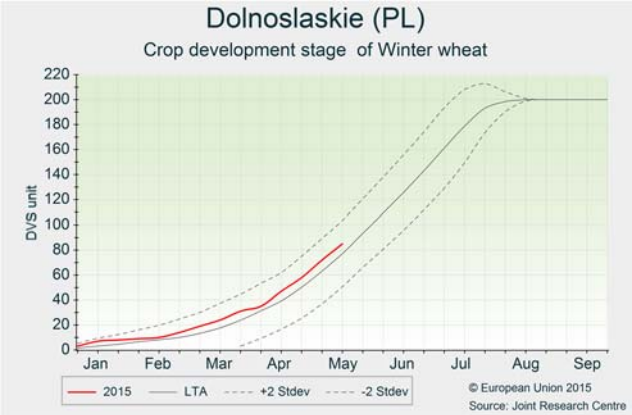
Poland

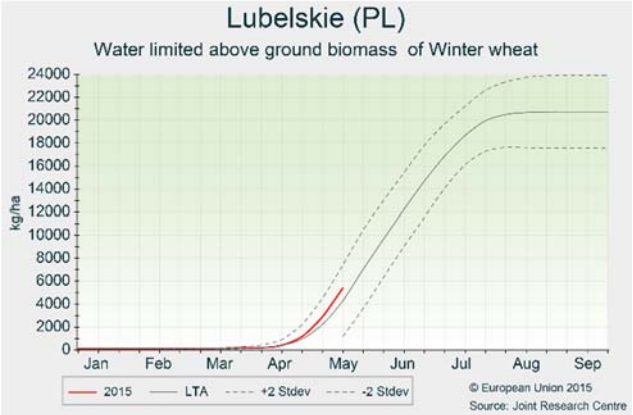
Positive outlook

After a mild winter, temperatures were closer to the average in April and May. Cumulated rainfall since the beginning of the year is close to the average in the east, but remains below average in western regions. Forecasts for all crops follow the long-term upward trend.

Temperatures fluctuated around the average during the period of review, ranging from a minimum of -2°C to a maximum of 24°C. During the first dekad of April, average temperatures were close to 0°C, which led to a slow-down in the previously advanced crop growth. Crop development subsequently returned to its advanced stage due to a sharp rise in temperatures to levels that were greatly above average. Substantial rainfall was observed during the first dekad of April, followed by two dry dekads. Some rainfall events were recorded throughout the country since the beginning of May, the cumulated amount of rain being below 20 mm in the south-western regions (*Dolnoslaskie*, *Wielkopolskie*), and more than 30 mm in the southeast (*Podkarpakie*, *Malopolskie*). Cumulated rainfall since the beginning of the year is still below average except in the eastern and northern parts of the country. The deficit is currently not critical as water demand is still relatively low and soil water content is only slightly below the long-term average. The yields of all major crops are still forecast to be above the five-year average and to follow the trend. Given the good conditions since the beginning of the season, crops are slightly advanced, and sowing activities were completed under good conditions. Substantial rainfall is forecast for the next two weeks.







United Kingdom and Ireland

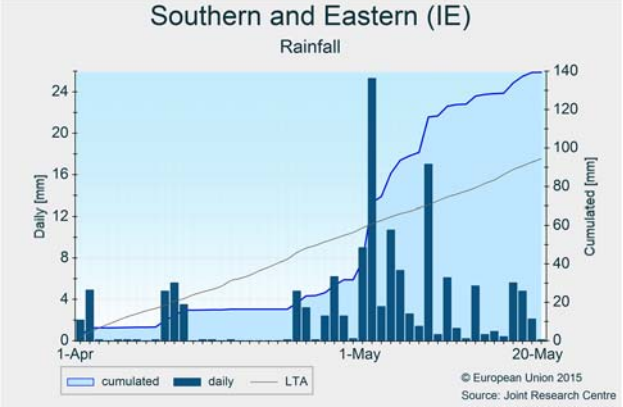
Continued favourable conditions

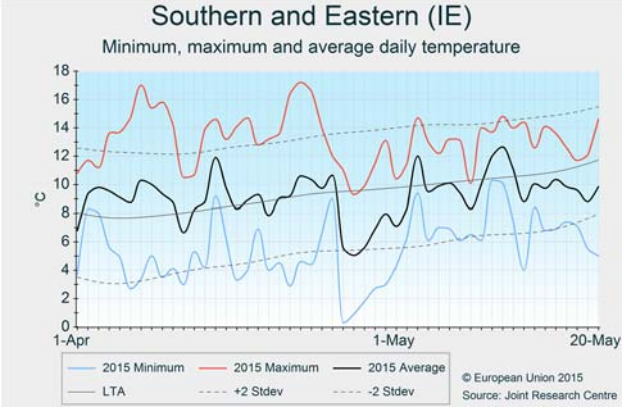
Mild weather continued to provide good conditions for crop development. Substantial rain since the end of April helped to restore soil water levels, which were starting to raise concerns, especially in the southern UK. Yield forecasts of winter crops and spring barley were slightly revised upward.

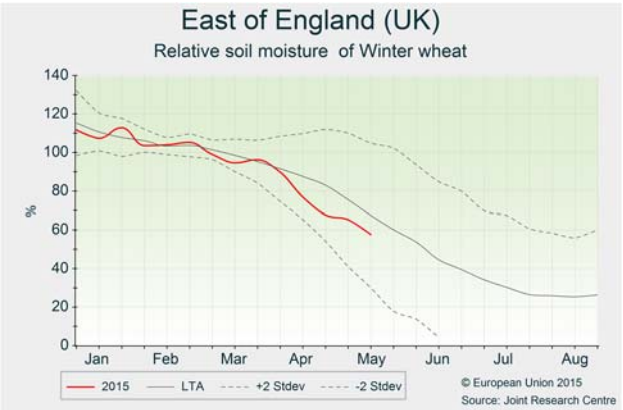
Temperatures during the period of review (1 April – 20 May) followed a more or less common pattern in the region: most of April was warmer than usual. This was interrupted by cold snaps (locally with light frosts) during the end of April and the beginning of May and another period of mainly below-average temperatures from about 14 May until the end of the review period. For the period as a whole, temperature sums were somewhat higher than average in southern Britain and close to average over most crop land areas in Ireland and the rest of Britain.

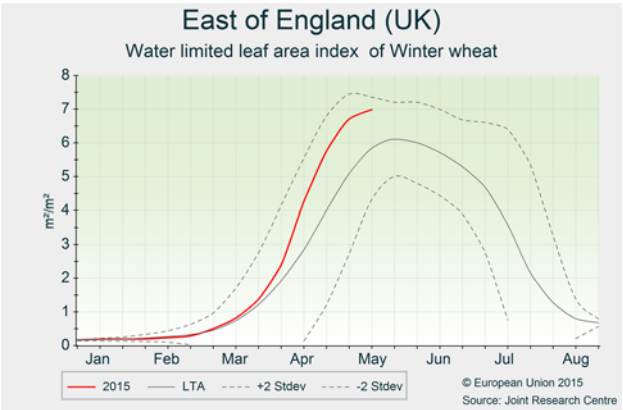
April started with a few rainy days but then remained practically dry until the onset of a rainy period from about 25 April until 9 May. The remainder of the review period presented more or less average rainfall. For the period as a whole, this resulted in up to 75 mm above-average rainfall in Ireland, Scotland and the central-western areas of the UK, and 0 to 25 mm below average rainfall in the rest of the region. Radiation levels were above average, especially in April.

Overall, these weather conditions have been favourable to crops. The end-of-April rains were particularly welcomed in the southern UK, where soil water levels were close to critical for winter crops and dry top soils were hampering the emergence and early development of spring crops. Late spring sowings experienced some difficulties, however, first due to dry top soils until the last week of April, then due to frequent rains. In Britain, winter crops remain slightly advanced, and our models indicate above-average canopy development and biomass accumulation. In Ireland, winter crop development is close to an average year.









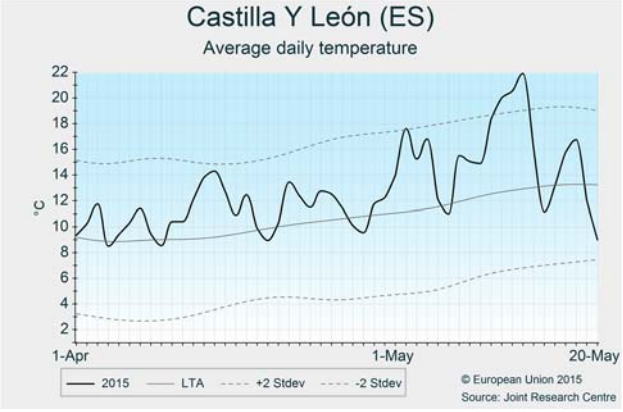
Spain and Portugal

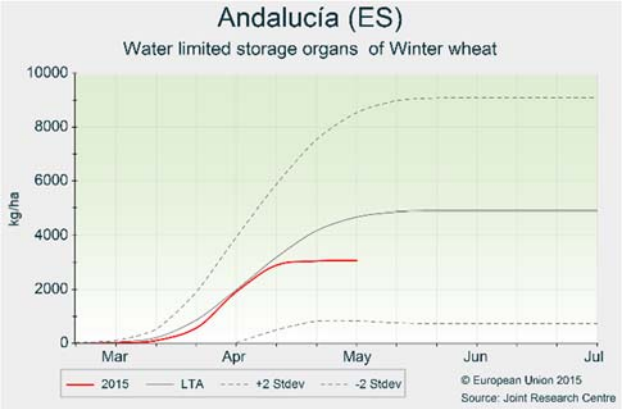
A spring warmer than usual

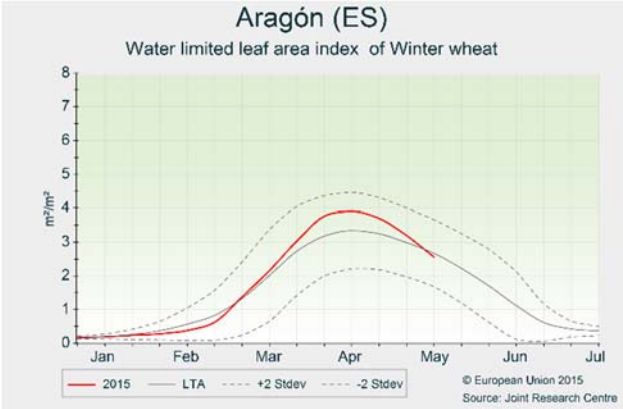
Weather conditions are being warmer than usual in April and May across the Iberian Peninsula. Winter cereals are starting the critical grain filling phase. Substantial rainfall in the coming weeks is needed to achieve satisfactory yields.

Since April, daily temperatures have been 2-3°C above seasonal values in practically all the regions, with maximum temperatures around 30°C during the second week of May, unusually warm for that period of the year. Rainfall was close to average throughout the review period in the western half of the Peninsula, and mainly concentrated in the second half of April and the first days of May. Since then, no significant precipitation has been registered. In the eastern half of the Peninsula, rainfall in April-May has been scarce, leading to a sharp decrease in soil moisture levels after a humid end of March.

In the southern regions winter cereals are currently in the grain filling phase. The present conditions of high temperatures and lack of rainfall are constraining yield potentials of durum wheat in Andalucia. In Alentejo, the intense precipitations registered in mid-April permitted to improve soft wheat conditions and increased yield expectations. In central and northern Spain soft wheat and barley are currently flowering. Up to now, the favourable weather conditions observed in early spring have permitted a leaf area expansion above the average. However, in the current scenario of high temperatures and low soil moisture, substantial rainfall in the coming weeks will be necessary to avoid serious water constraints during the critical phase of grain filling. The current yield forecasts are around the five-year average, but they may decrease significantly in June if dry conditions persist.







Italy

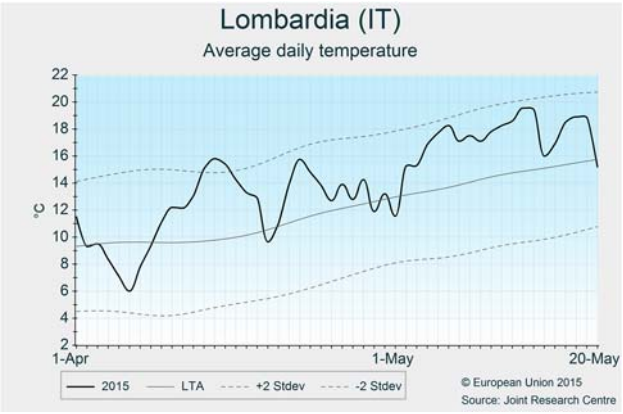
Generally positive outlook

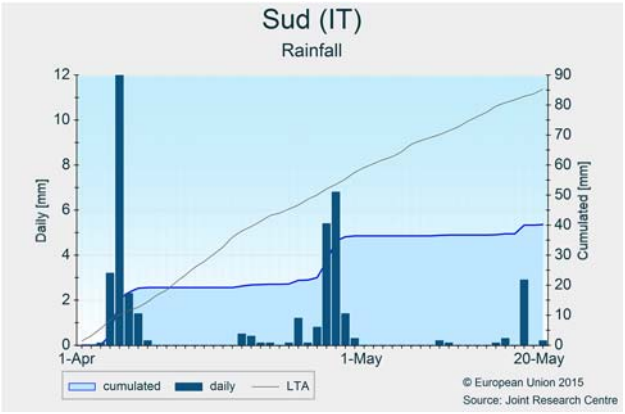
Above-average cumulated active temperatures allowed for the good development of winter crops. Low levels of precipitation from the beginning of April decreased soil water content, particularly in the south. Spring sowing activities were completed under good conditions.

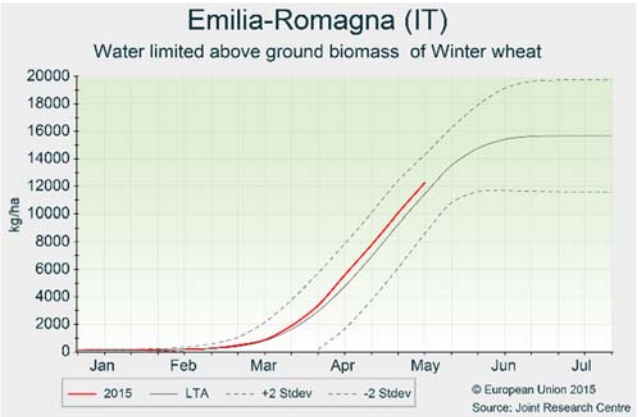
Average temperatures from 1 April to 20 May were well above the long-term average (by about 2°C) across the country. In particular, the first half of May was the second warmest on our database records, with maximum temperatures reaching 30°C in many areas of southern and central Italy. As a consequence, the cumulated active temperature (Tbase=0°C) for the review period is considerably above average in all regions. These conditions boosted the development of winter crops: wheat and barley are at the end of the flowering stage, grain filling is beginning (watery ripe stage) in northern and central regions, and mealy ripening is starting in the early sown fields in the south.

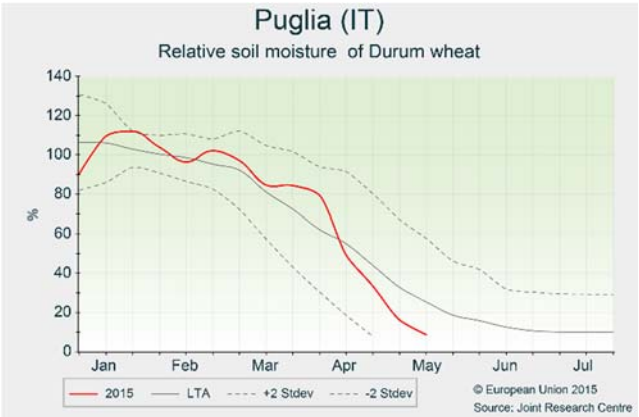
Rainfall was scarce in many regions of the country from early April to mid-May: cumulated rainfall was more than 50 mm lower than the long-term average in *Piemonte, Veneto, Puglia, Basilicata, Calabria and Sardinia*. This rain deficit is particularly relevant in southern regions, where it represents a drop of more than 60% compared to average levels. As a consequence, a sharp decline in soil water content is simulated, particularly in *Puglia*. However, adequate soil moisture levels persisted until the first dekad of April, providing good growing conditions for winter crops in all regions. In addition, abundant precipitation is forecast in northern and central regions for the coming days.

As confirmed by remote sensing analyses, the simulated winter crop leaf area index and biomass accumulation are slightly above average, suggesting a general favourable outlook for crop yields. However, the water balance deficit (particularly in *Puglia*) could affect durum wheat yields, so rainfall over the coming weeks will be essential to maintain the yield potential and determine kernel size and weight. Yield forecasts for winter cereals and rapeseed were produced after a scenario analysis. For the other crops, only trends were used at this stage.









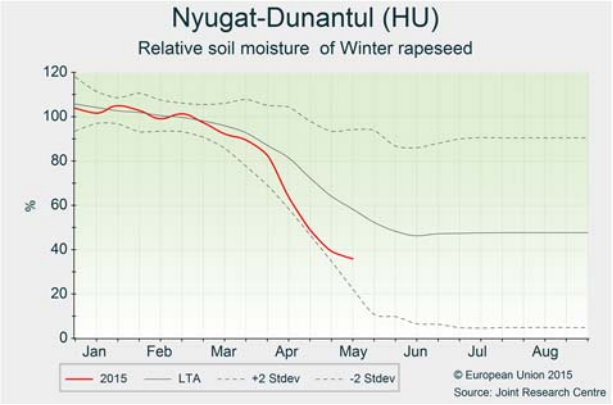
Hungary

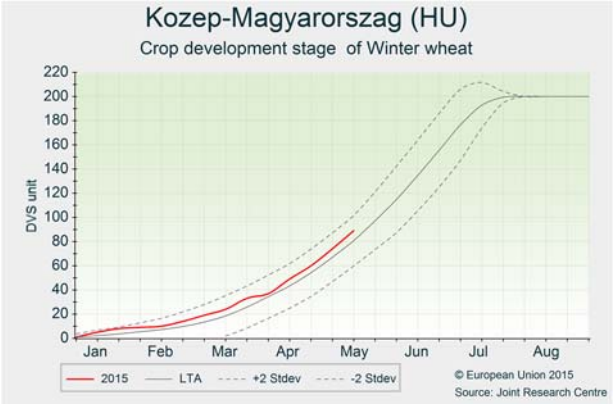
Dry spring conditions reduce yield expectations

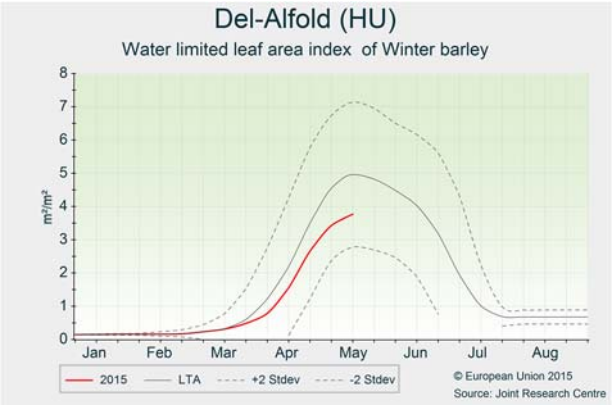
Hungary is experiencing one of its driest springs on record. Sharply decreasing soil moisture levels could constrain the yield formation of winter crops unless abundant rainfall occurs in the near future. The sowing of maize and sunflowers was trouble-free.

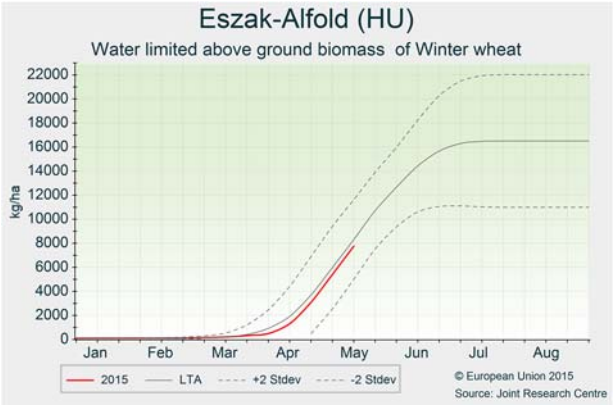
Temperature conditions were close to normal for the review period as a whole (1 April – 20 May), but showed considerable day-to-day variability. The last spring frost events, which fortunately were moderate, occurred around 19 April. After a dry March, precipitation continued to be scarce in April. Cumulated rainfall in April reached approximately 10 mm in central Hungary, with slightly higher levels being experienced only the western and north-eastern regions. The cumulated climatic water balance since 1 March indicates a deficit of 60-100 mm. Precipitation increased in May, reaching near-seasonal levels and providing better growing conditions for spring and winter crops.

The dry weather allowed for the timely sowing of maize, sunflowers and potatoes, but sprouting and emergence were affected in areas with very dry topsoil conditions. The development of winter cereals is advanced by 1-2 weeks. The soil water supply for winter crops is still more or less adequate, but soil moisture reserves are close to critical levels and water scarcity could limit growth in the near future. The canopy expansion is much weaker than usual this year, but the simulated biomass accumulation is only slightly less than normal levels. Based on model simulations, the current yield forecast of winter cereals has been downgraded since April. As it is still early in the season, the forecast for spring crops is close to the trend.







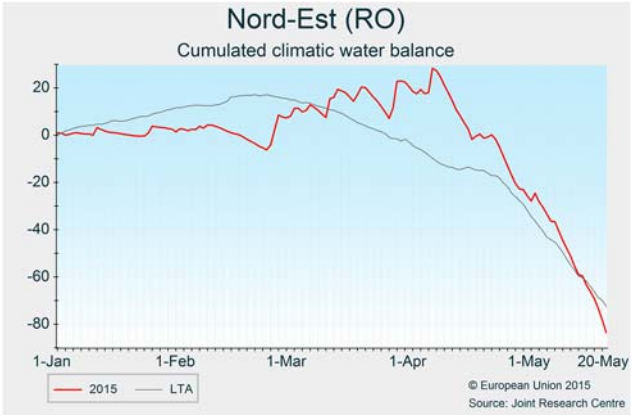


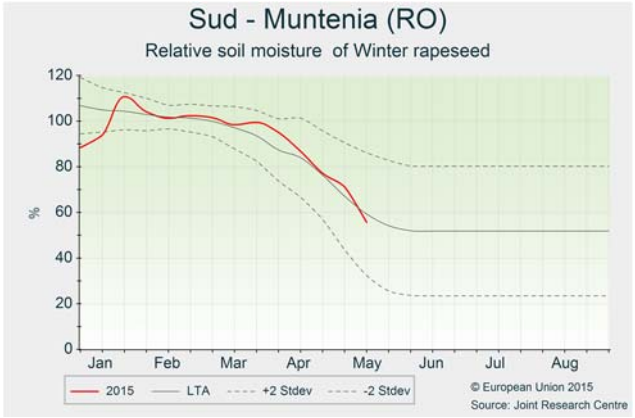
Romania

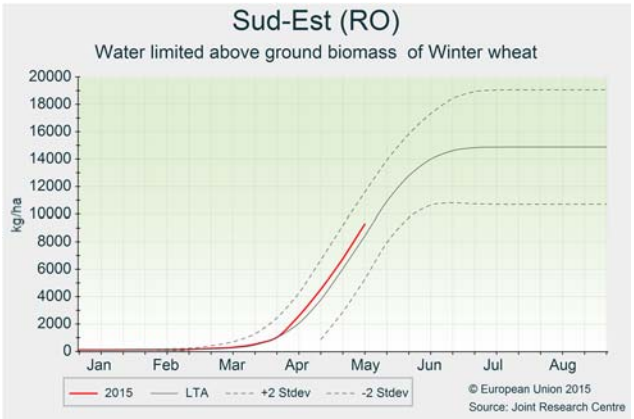
Favourable crop conditions

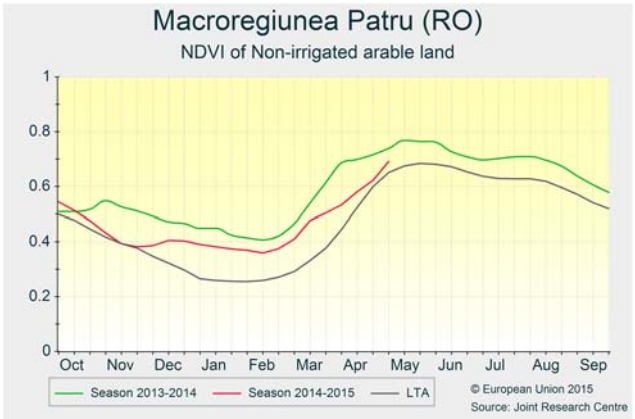
For most of Romania, overall thermal conditions were near normal, but precipitation was somewhat below-average during the review period. Soil moisture levels are still sufficient to meet crop water requirement. The biomass accumulation of winter crops is slightly above average. The yield outlook is positive, especially for oilseed rape.

A cold spell affected the country in early April, with daily temperatures 3-5°C below the long-term average. The second dekad of April was warmer than usual by 2-3°C. After 19 April, a short cold air intrusion occurred, but since late April daily temperatures have mostly exceeded the long-term average by 1 or 2°C. In the first days of April substantial rainfall occurred especially in the eastern regions. Since 10 April, the rainfalls became less frequent in eastern and southern Romania where the precipitation sum indicates 20-40 mm deficiency. Soil moisture levels are still close to average, though. Winter crops present moderately advanced phenological development. Simulated leaf area index of winter wheat and winter barley is close to or slightly below the average. The biomass accumulation of winter cereals, and especially of oilseed rape exceeds the average in the southern and eastern areas, but remains below average in *Centru* and *Nord-Vest* regions. In southern Romania the difference of NDVI profiles between the current year and the long term average indicates also a positive difference of 4-10 %. The summer crops sowing locally suffered some delay due to rains in April. The establishment of summer crops is adequate so far. The yield forecast of winter cereals was based on crop simulation, but primarily trend analysis was used for spring and summer crops being in the early phase of the season.







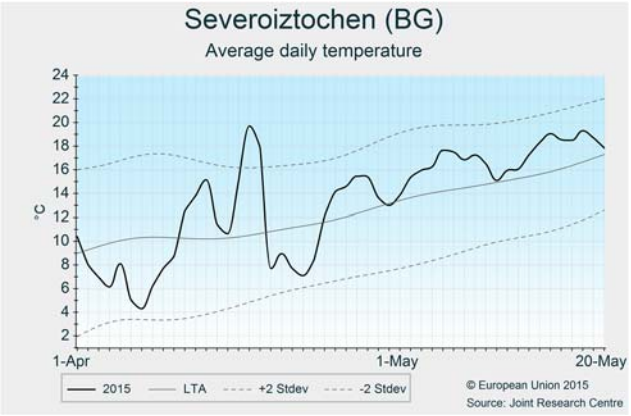


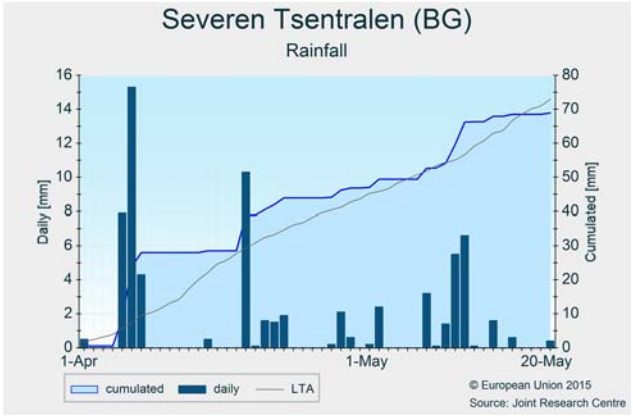
Bulgaria

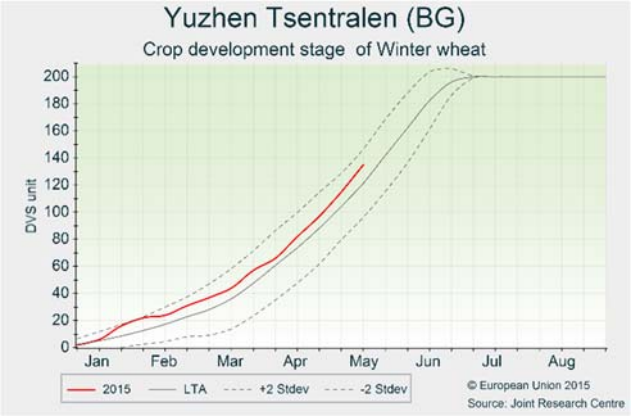
Decreasing precipitation tendency

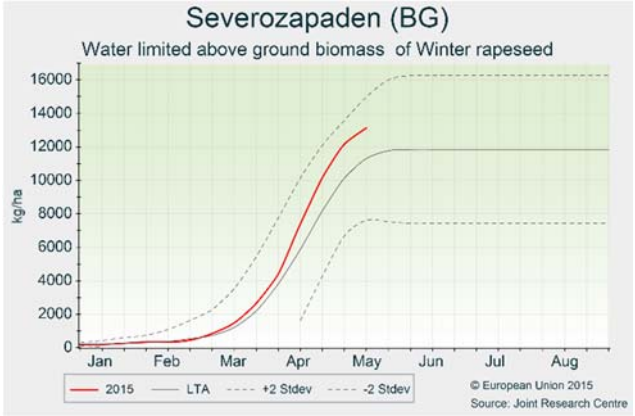
Cold and rainy weather during late March and early April, hampering the sowing of sunflower, was followed by warmer and drier than usual weather since the second dekad of April. Winter crop development is advanced by 1-2 weeks. Modelled biomass accumulation is near average for winter cereals, but well above-average for oilseed rape.

The first dekad of April was colder than climatologically expected by 3-4°C, after which a perceptible warming started, reaching above-average temperatures by mid-April. Since then, with the exception of a short colder spell between 19 and 24 April, daily temperatures continuously exceeded the long-term average until 20 May. The temperature sum indicates a significant surplus with respect to the long-term average, of some 30-80 °Cd since 10 April. Following the very wet March, precipitation remained plentiful in early April, but since 6 April the rainfall tendency decreased. For the review period as a whole, precipitation typically reached 70 mm, but 100-120 mm was recorded in the *Severo-Zapaden* region. Soils were excessively wet during the sowing window of sunflower, delaying this work or making it impossible. The weather conditions were more adequate later, during the sowing campaign of maize. It is likely that the sowing area of grain maize has expanded, to areas where sunflower sowing did not succeed, as well as to compensate for the decrease in acreage of winter cereals due to the adverse winter conditions, Soil moisture levels are close to the average under winter crops in mid-May. Winter crops development is advanced by 1 to 2 weeks. Model simulations indicate near or slightly above average biomass accumulation in winter cereals. Simulations for oilseed rape indicate well above-average biomass levels and a positive yield outlook. The yield forecast of summer crops is based on the historical trend.









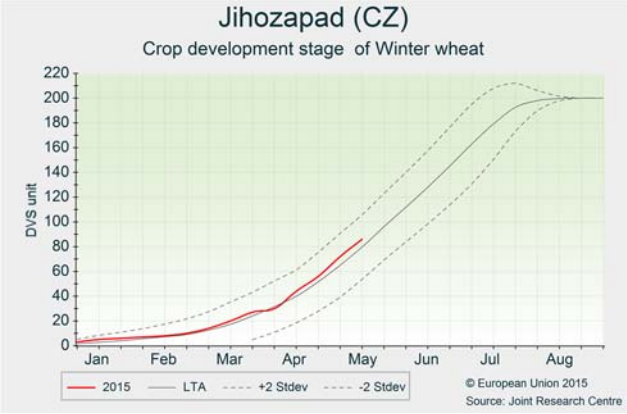
Austria, Slovakia and the Czech Republic

Beneficial rain at the beginning of May

Warmer-than-usual conditions prevailed over most agricultural areas. Winter crops are generally in good condition. April, which was drier than usual, was followed by a rainy start to May. This was beneficial for both winter crops, which are entering the flowering stage, and summer crops.

April started with a cold air intrusion into the region, lowering air temperatures to 4°C below the long-term average. The second and third dekads of April and the first dekad of May were substantially warmer than seasonal, more than compensating for the slower winter crop development during the first dekad of April. During the second dekad of May, thermal conditions were near or below average in Slovakia and the Czech Republic, but warmer-than-usual conditions continued in Austria. Rainfall cumulates since the beginning of April are generally below the long-term average. The highest rainfall deficit was recorded over the south-eastern part of the Czech Republic, eastern Slovakia and southern and eastern Austria.

Winter crops are generally in good condition. Winter wheat is slightly advanced in development, entering the flowering stage in the second dekad of May. The mild soil moisture deficit that occurred due to a rainfall shortage in April was reduced by rainfall events that occurred during the first dekad of May. Winter crop yields will be determined mainly by the weather conditions during the coming two dekads, when the flowering will occur and the grain-filling period will begin. Winter wheat yield forecasts are close to or slightly above the five-year average. The rainfall during the beginning of May was also beneficial to summer crops, which were sown mainly in April due to warm and relatively dry conditions after the beginning of the month. Yield potentials for summer crops will be determined later in the season. Long-term trend values are therefore currently maintained.



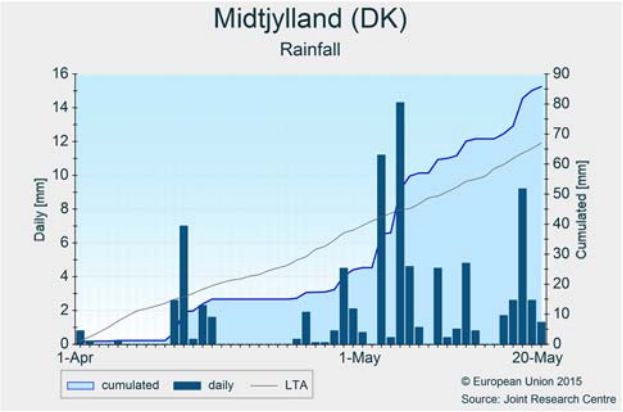
Denmark and Sweden

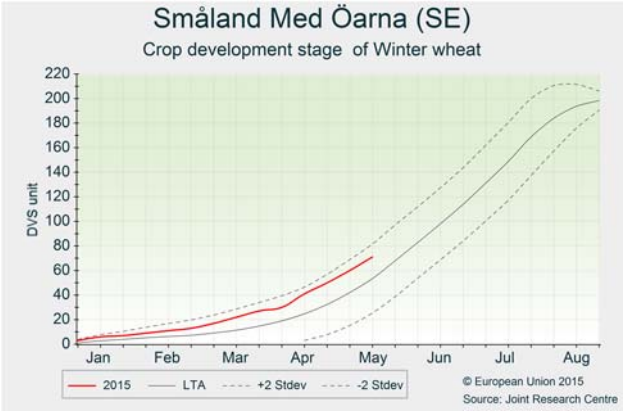
Overall good growing conditions for winter crops and spring sowing

While April was warmer and drier than usual, the first half of May was mild and rainy. The generous rainfall experienced by all regions in May improved soil moisture levels. These conditions were good for crops, boosting the growth and development of winter cereals and the germination of spring crops.

In all regions, the temperatures were above average for most of April and slightly below average during the first part of May. While accumulated rainfall was below average in April, mainly in the central areas of both countries, abundant rainfall led to above-average rainfall accumulation in the first half of May. Thus, soil moisture conditions recovered in all regions, presenting slightly above-average levels by mid-May. These were good conditions for crop growth and development, as evidenced from the leaf area index of winter crops which reached above-average levels, particularly for rapeseed in *Syddanmark*, Denmark, and in *Småland Med Öarna* and

Östra Mallansverige, Sweden. Crop development simulations suggest that most winter crops are still advanced, albeit with a slight decline, but that rapeseed development in Denmark is around average. These favourable conditions may indicate good yields for winter crops. Also, favourable conditions for field preparations have encouraged an early start to the sowing of spring crops; the sowing of sugar beet commenced as early as the middle of March in Sweden, and the planting season for spring barley also got underway by 20 April. The recent wetter conditions in the first half of May do not seem to have hampered sowing activities, which are currently being completed. The current yield forecasts for cereals are based on scenario analyses, while for summer crops the forecasts are based on statistical trends using the yield data of previous years.



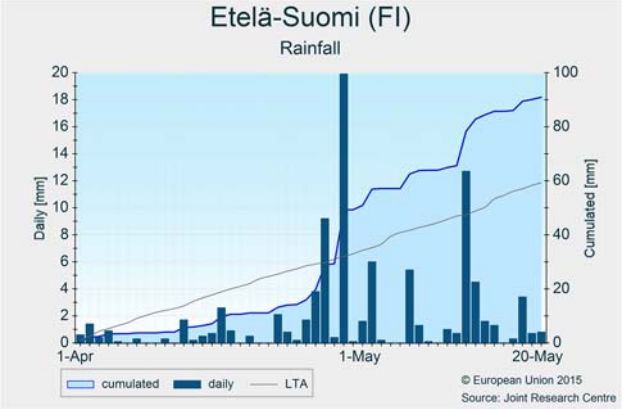


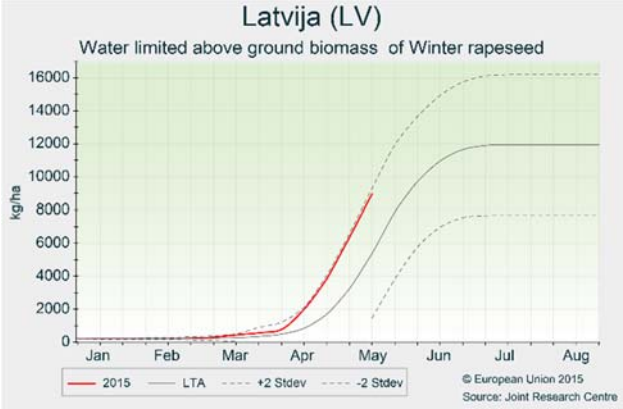
Finland, Lithuania, Latvia and Estonia

Continued good development of winter crops

Advanced crop development due to higher than usual temperatures continued in April, with an above average rainfall accumulation in all regions. Overall, spring sowing will be completed within the optimal window.

Throughout the region, temperatures fluctuated around the long term average with some higher than normal peak temperatures in the middle of April (about 5ºC above the LTA) and the beginning of May (2.5-4 ºC higher than LTA). The last days of the review period presented slightly lower temperatures compared to the long term average. Precipitation in April was below-average in Finland and above-average in the Baltic countries. In May, precipitation was above-average in all four countries. However, rainfall events have mostly been moderate in intensity and well distributed, particularly during May, and alternated with periods of dry days. The favourable soil moisture (around average) and warm temperature conditions led to an early start of sowing activities in Finland (closer to seasonal timing in the Baltic countries) which are expected to be accomplished within the optimal window. These were also good growing conditions for winter crops, as reflected in model simulations, which indicate advanced development stage and above average biomass accumulation for winter crops in all regions, especially in Lithuania and Latvia. Our current yield forecast for winter crops is based on scenario analyses using crop simulation indicators. For spring crops the forecast is still based on historical trends. Overall, the yields forecast are close to the long term average.





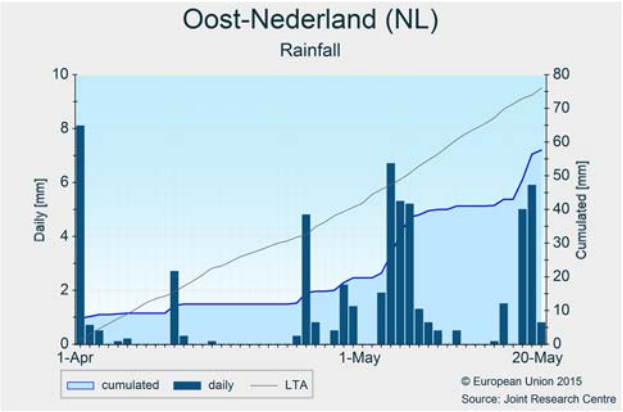
Belgium, the Netherlands and Luxemburg

Fairly positive outlook

Temperature and rainfall during the review period fluctuated strongly but were close to average for the period as a whole. Overall, weather conditions during the season thus far are free of serious concerns, but have not been exceptionally favourable either. Yield forecasts are close to the trend.

The period of review (1 April – 20 May) presented fairly large temperature fluctuations, with predominantly above-average temperatures from 8 to 26 April and from 3 May to 12 May, and mainly below-average values during the first week of April, from 27 April to 2 May and after 12 May. Several light frost events were recorded during the end of April and beginning of May. For the period as a whole, temperature sums were close to average throughout the region. Rainfall was 20 to 30 mm below average, and concentrated during the beginning and the end of April, the first dekad of May, and the last days of the review period. The period from about 5 to 22 April was practically dry in most areas. Radiation levels were somewhat above average, especially in April.

Overall, weather conditions during the season thus far have not raised concerns, but have not been exceptionally favourable either. Winter crops development is following the seasonal trend. Modelled leaf area index and biomass accumulation are somewhat higher than average. Soil water levels stayed mostly below average but well above critical levels. Spring sowings and emergence encountered some difficulties due to the cold snap around early May and the alternating dry and wet conditions in March and April, locally leading to soil crusting. The yield forecasts for winter crops and spring barley are now based on scenario analysis, but remain very close to last month's figures which were based on trends.

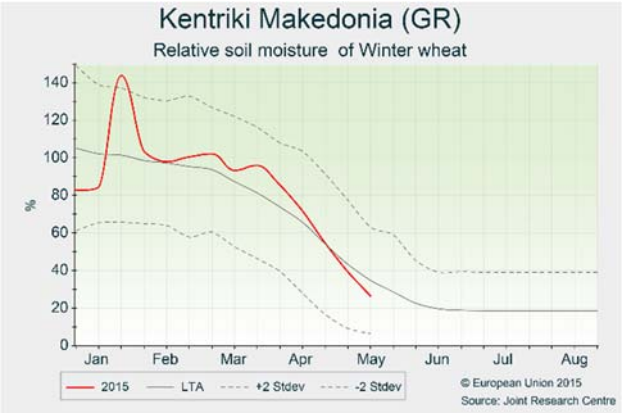


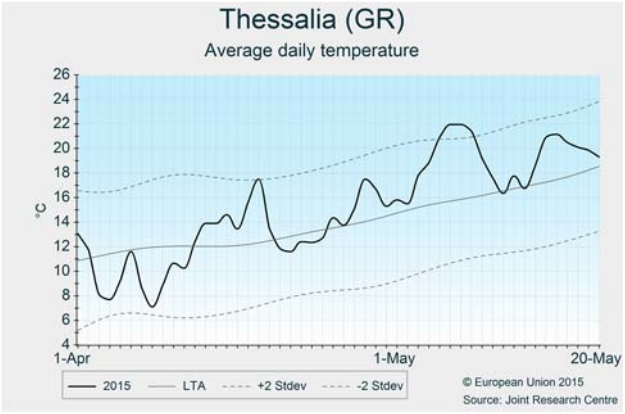
Greece and Cyprus

Dry period at a crucial development stage for winter cereals

In Greece, dry conditions since mid-April are starting to affect winter cereals, due to increased water demands during the grain-formation phase. The sowing of maize and sunflowers was completed with some delay, and emergence was hampered. In Cyprus, the harvesting of the winter barley is about to start.

In the first half of April, temperatures in Greece fluctuated below average values, whereas the second half of April and May were warmer than usual. From 1 April to 20 May, the thermal sum is around average. Some precipitation events occurred during the first dekad of April, but since then the whole country has been almost dry. This dry period came at a very crucial development stage for winter cereals, which are completing flowering and entering the grain-formation phase, which brings with it increased water demands. Soil moisture levels are gradually decreasing, and rain would be welcomed in the coming days. There was a delay to the sowing of grain maize because of continuous rainfall in March in most agricultural areas, whereas the dry period that followed in April caused emergence delays in several areas (e.g. *Thessaly*). The sowing of sunflowers in northern Greece (the main production area) was also impacted significantly. Farmers either sowed with considerable delays or they changed to a different crop, such as cotton. In Cyprus, temperatures were mainly below average in April, but in May they are fluctuating above average. Rainfall was sparse. The precipitation that occurred around 10 May is expected to have little effect on winter barley because it is at the end of the cycle. Nevertheless, the yield outlook is better than in 2014, which was characterised by continuous drought. Generally, the outlook for winter cereals is around average for both countries. At this early stage of development, spring crop yield forecasts are based on trends.





Slovenia and Croatia

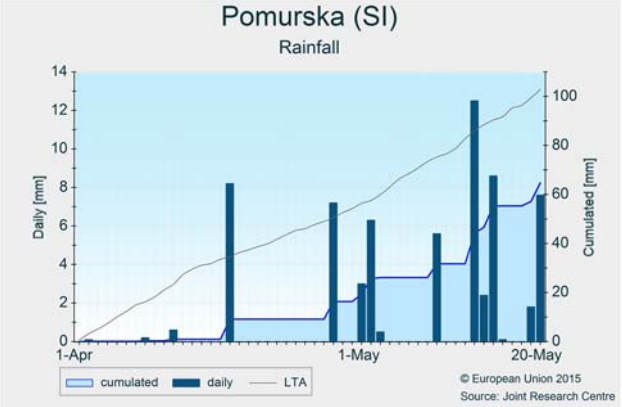
Rainfall deficit affecting crop growth

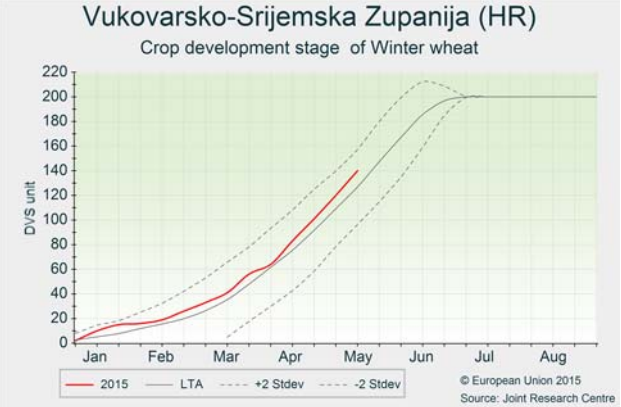
Drier- and warmer-than-usual conditions prevailed. Maximum daily air temperatures at the beginning of May exceeded 30°C in central and eastern Croatia. Depletion of soil water reserves in north-eastern Slovenia and northern Croatia is affecting the growth of winter and spring crops.

April started colder than usual, with air temperatures as much as 4°C below the long-term average. The situation changed after the first dekad of April, when weather conditions were significantly warmer than seasonal. Air temperatures during the second half of April were nearly 2°C above the long-term average. The first two dekads of May continued with significantly warmer-than-seasonal weather, with air temperatures up to 4°C above the long-term average. Maximum air temperatures of over 30°C were already experienced in central and eastern Croatia at the beginning of May. Rainfall in April was sparse: less than 50% of the long-term average over the major agricultural areas. This situation slightly improved during

the first and second dekads of May, when some beneficial rainfall events occurred.

Winter crops are advanced due to warmer-than-usual conditions after the beginning of April. The sowing of summer crops took place early due to the warm weather conditions and drier-than-usual soils during the second dekad of April. The soil moisture deficit is limiting winter crop growth, especially in north-eastern Slovenia. The current yield forecast for winter wheat is therefore slightly below the five-year average for Slovenia. The yield outlook for Croatia is somewhat better. The forecast for summer crops is based on historical trends.





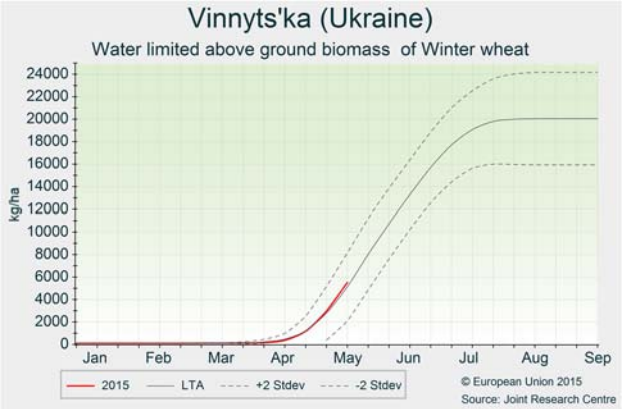
4.2 Black Sea Area

Ukraine

Contrasting conditions

Heavy rainfall in southern and eastern Ukraine replenished the water-depleted soils in the south but slightly delayed the sowing of spring crops. The yield outlook for winter wheat remains positive, with a forecast above the five-year average.

Heavy rains in eastern and southern Ukraine were recorded during the last dekad of March and the first dekad of April, with cumulated rainfall reaching more than 70 mm. In south-western oblasts such as *Kirovohrads'ka*, the rain was beneficial as the soil had been dry since last summer. Remote sensing images show a clear contrast between the south-western oblasts, where the sowing of winter crops was impacted by the dry conditions in autumn (*Mykolayivs'ka*, *Kirovohrads'ka*, *Vinnyts'ka*), and the south-eastern oblasts (*Donets'ka*, *Luhans'ka*, *Dnipropetrovs'ka*), where autumn conditions were favourable. The heavy rainfall had the side-effect of delaying the sowing of spring crops in the east. Rainfall levels returned to normal after the first dekad of April. Temperatures stayed close to the average throughout the period of analysis. Minimum temperatures close to 0°C were recorded during the last dekad of April, but these caused no damage to crops. The development and biomass accumulation stages of winter crops are close to the average. The outlook is still positive as the water content levels rose before the flowering of winter cereals in regions affected by dry autumn conditions. Winter wheat yields are forecast to be above the five-year average and to follow the trend, while grain maize yields are forecast to be close to the five-year average.

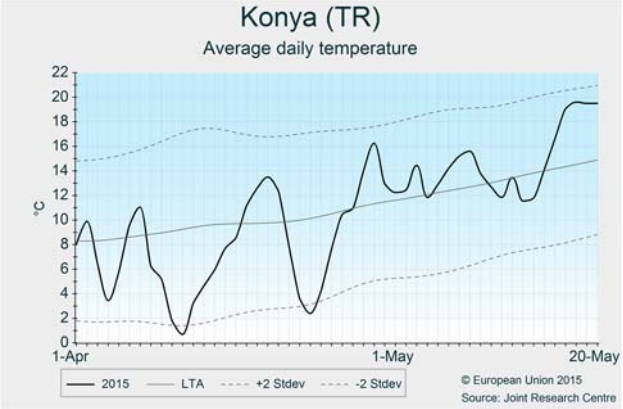


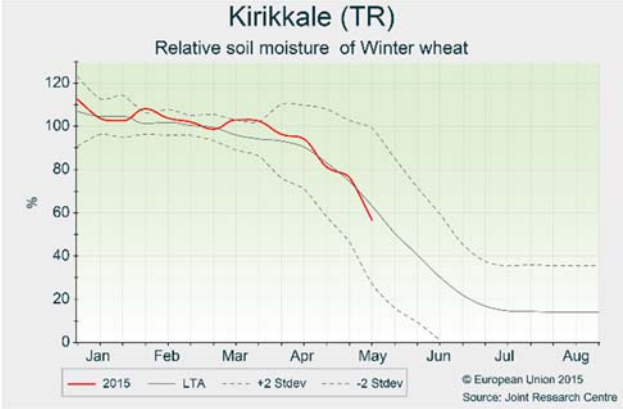
Turkey

Rain needed to maintain positive outlook for winter cereals

Low precipitation levels since early April are causing concerns about the development of winter cereals in the grain-filling stage. Grain maize has mainly been sown on time, and is progressing well.

Temperatures in April were mainly below the long-term average in central-western areas, whereas in eastern areas they were slightly above average. Temperature fluctuations were strong, with changes of 10 to 15°C over periods of two or three days. Minimum temperatures around 10 and 25 April reached -8°C in *Ankara, Eskisehir, Kutahya* and -10°C in most eastern areas. Since the beginning of May, temperatures are mainly above average and have experienced fewer fluctuations. Even though frequent rainfall events occurred during the period from 1 April to 20 May, cumulated levels are below average except in *Kuzeydogu Anadolu, Dogu Marmara* and *Bati Marmara*, where they are slightly above average. Moreover, in some areas of *Bati Marmara* (e.g. *Tekirdag, Karahalil*), hail was registered in the first days of May, causing significant damage to crops. The rain deficits and gradually increasing temperatures are driving soil moisture to below-average levels. This comes during a crucial period for winter cereals, because they are simulated to be in advanced development stages, passing from the flowering to the grain-formation and grain-filling stages. Any water-stress conditions at this stage of development could impact yields. Grain maize is progressing well, having been mainly sown on time and emerged successfully. Currently, the outlook for winter cereals is still positive; however, replenishment of the soil moisture is needed in the coming period in order to keep the positive outlook.





4.3 European Russia and Belarus

European Russia

Rainy period

Since early April, temperatures have been mostly slightly lower than the long term average for the central and southern regions of Russia. The southern half of the country received significantly more precipitation than usual. These rains were beneficial for winter cereals, but delayed the sowing of spring crops. Winter wheat yield expectations are slightly below average.

During the review period (1 April – 20 May), the southern half of European Russia experienced near normal or slightly colder than usual thermal conditions (thermal anomaly less than -2°C), whereas the far northern areas were 2-4°C milder than usual. The cumulated active temperature sum (Tbase=0°C) for the review period is 20-50 °Cd below average in the *Central*, *Southern* and *Near Volga Okrugs* with the exception of *Volgogradskaya*, *Voronezskaya* and *Saratovskaya Oblasts* where it is close to average. Precipitation exceeded the average by 30-80 % in most regions, and by 100 % or more in *Samarskaya* and *Orenburgskaya Oblasts* and in the *Bashkorstan Republic*. Only some areas along the western border, and the northern territories of Russia received below average precipitation. The wet and cold weather conditions slowed down the progress of the spring sowing campaign. Nevertheless, spring crop acreage is likely to increase, considering the reduction of the winter crop area due to unfavourable winter and autumn weather conditions. The winter crop development is mostly following the seasonal trend, with some advance in the vicinity of the Black Sea coast, while it is somewhat behind in the southern-eastern part of *Near Volga Okrug*. According to our model simulations winter wheat is flowering and in smaller areas north of the Caucasus grain filling has started. Soil moisture is at or above average level and no significant water deficiency is detected in southern Russia. The modelled winter wheat only has good biomass accumulation most of the *North Caucasus Okrug* and in *Krasnodarskiy Krays* while the other main wheat producing regions of the *Southern*, *Near Volga* and *Central Okrug* including the Chernozyem Belt still shows below average biomass. This spatial distribution is confirmed by the NDVI profiles compared to the long term average and previous years.

Belarus

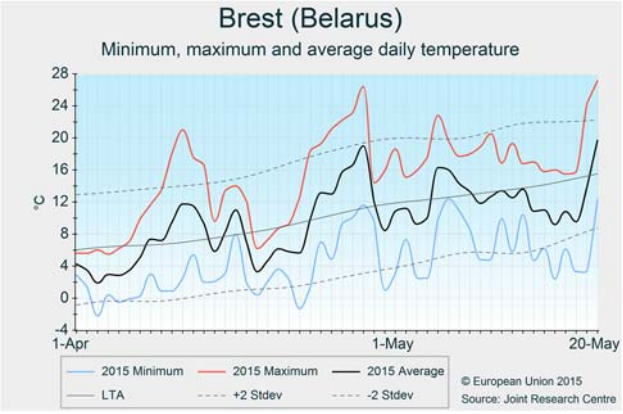
Favourable conditions for crop growth

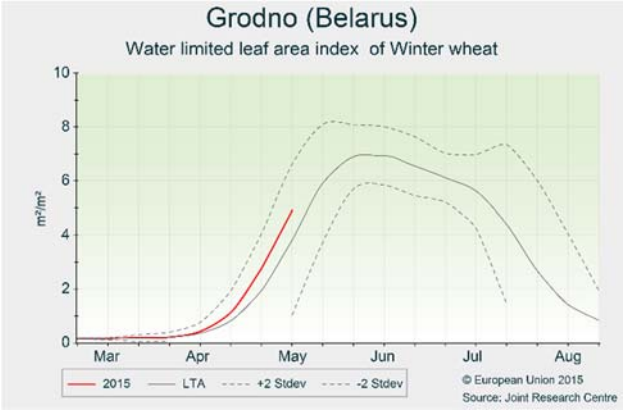
Near-average weather conditions allowed winter crops to maintain an advanced development gained during previous months. Spring crop sowings were hampered by some rain, however good conditions promoted quick emergence. Thus, the overall outlook is positive.

After a mild winter, weather conditions in Belarus were close to the long-term average during the review period (from 1 April until 20 May). Average daily temperatures never dropped below 0°C and maximum temperatures reached 26°C at the end of April. Since 1 January, cumulated active temperatures (base temperature 0°C) have remained above the long-term average, thus winter crops present an advanced development.

Slightly drier-than-usual conditions were recorded in south-eastern provinces such as *Mogilev, Gomel and Brest*: about 60 mm of rain was cumulated in these areas, which is 15 to 20 mm less than usual. The rest of the country received close to average rainfall, thus soil moisture conditions are still favourable across the country.

Spring barley and maize sowings were locally hampered due to some rainy days in April and the first dekad of May, but good thermal conditions during the early phenological stages promoted quick emergence for both crops. According to our model simulations and as confirmed by remote sensing indicators, winter wheat presents above-average biomass and leaf area index. Consequently, the yield forecasts for winter wheat are above the historical trend and the outlook for spring crops is also positive.





4.4 Maghreb

Morocco, Algeria and Tunisia

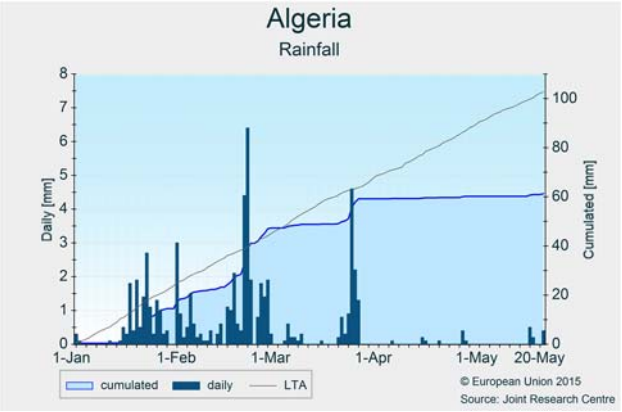
Exceptionally hot and dry conditions

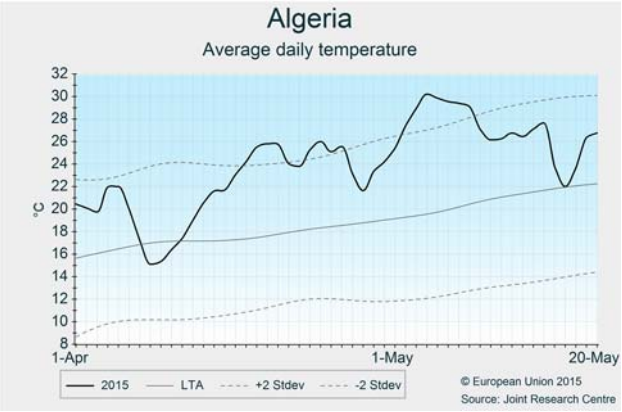
Morocco, Algeria and Tunisia have all experienced unusually hot and dry conditions since the beginning of April 2015. These are expected to constrain yields in all three countries.

April and May have been very hot and dry in Morocco with maximum daily temperatures above 35°C in the second dekad of May, and no significant rainfall events over the same period. This represents a large part of the grain-filling phase for winter cereal, and this absence of rain (in combination with the high temperatures) will be expected to constrain yield levels. Yield forecasts are still above average, but there is great deal of uncertainty around these given these recent conditions.

Algeria has experienced even more extreme conditions, with exceptionally high temperatures and the absence of precipitation since the start of April (it is, in fact, the warmest and driest April and May of the last 40 years). This is similar to last year, where there had been good rainfall and growth earlier in the season, but the absence of rainfall in the latter stages of the season reduced yields substantially. April and May of this year have been even drier and warmer. Yield forecasts are still above average but, again, recent conditions introduce a great deal of uncertainty in these.

Tunisia is no different. There had been positive rainfall through much of the season, but hot and dry weather conditions experienced since the start of April, and so for much of the crop reproductive phase, may limit yield potentials. Yield forecasts remain above average, but are again subject to substantial uncertainty.





5. Crop yield forecasts

Country	TOTAL WHEAT t/ha					TOTAL BARLEY t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU28	5.84	5.69	5.43	-2.6	+4.9	4.89	4.75	4.51	-2.8	+5.4
AT	5.92	5.38	5.26	-9.1	+2.4	5.80	5.44	5.03	-6.2	+8.2
BE	9.41	8.91	8.75	-5.3	+1.9	9.30	8.96	8.65	-3.7	+3.6
BG	4.19	4.09	3.93	-2.3	+4.2	4.00	3.93	3.72	-1.8	+5.6
CY	-	-	-	-	-	1.63	1.71	1.83	+4.7	-6.4
CZ	6.50	5.75	5.48	-11.5	+5.0	5.64	4.71	4.57	-16.5	+2.9
DE	8.63	8.04	7.63	-6.8	+5.4	7.35	6.59	6.36	-10.3	+3.6
DK	7.46	7.30	7.00	-2.2	+4.2	5.95	5.70	5.55	-4.1	+2.9
EE	3.99	3.48	3.37	-12.8	+3.4	3.64	2.99	2.94	-17.9	+1.8
ES	2.99	3.22	3.09	+7.5	+4.1	2.49	2.96	2.66	+19.0	+11.5
FI	3.85	3.74	3.65	-3.0	+2.4	3.18	3.54	3.29	+11.1	+7.5
FR	7.35	7.41	7.00	+0.8	+5.8	6.65	6.66	6.37	+0.1	+4.5
GR	3.08	2.88	2.85	-6.3	+1.2	3.05	2.86	2.96	-6.4	-3.4
HR	4.14	5.27	4.81	+27.4	+9.7	3.82	4.80	4.14	+25.7	+16.0
HU	4.71	3.98	4.21	-15.5	-5.5	4.45	3.70	3.88	-16.7	-4.4
IE	9.99	9.21	8.84	-7.9	+4.1	8.00	7.85	7.37	-1.9	+6.4
IT	3.81	3.85	3.84	+1.1	+0.1	3.79	3.70	3.69	-2.6	+0.2
LT	4.56	4.09	4.13	-10.4	-1.0	3.80	3.22	3.21	-15.5	+0.2
LU	6.13	6.47	5.98	+5.4	+8.2	-	-	-	-	-
LV	3.75	3.66	3.60	-2.3	+1.6	3.56	2.79	2.94	-21.6	-5.0
MT	-	-	-	-	-	-	-	-	-	-
NL	9.11	8.88	8.80	-2.6	+0.9	6.75	6.38	6.19	-5.5	+3.1
PL	4.91	4.53	4.34	-7.7	+4.4	4.05	3.74	3.49	-7.8	+7.0
PT	1.77	1.63	1.43	-8.2	+13.4	2.18	1.63	1.57	-25.2	+4.0
RO	3.52	3.25	3.20	-7.6	+1.4	3.30	2.88	2.90	-12.8	-0.7
SE	6.80	6.27	5.95	-7.8	+5.5	4.78	4.68	4.45	-2.2	+5.2
SI	5.23	4.71	5.02	-9.9	-6.0	4.85	4.45	4.48	-8.3	-0.8
SK	5.36	4.30	4.32	-19.8	-0.4	4.70	3.71	3.62	-21.0	+2.5
UK	8.62	8.14	7.64	-5.5	+6.6	6.51	6.16	5.86	-5.4	+5.1

Country	SOFT WHEAT t/ha					DURUM WHEAT t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU28	6.07	5.93	5.66	-2.4	+4.8	3.36	3.30	3.26	-2.0	+1.1
AT	5.98	5.43	5.30	-9.3	+2.4	4.78	4.52	4.50	-5.4	+0.4
BE	9.41	8.91	8.75	-5.3	+1.9	-	-	-	-	-
BG	4.20	4.11	3.94	-2.3	+4.2	3.20	3.02	3.16	-5.8	-4.5
CY	-	-	-	-	-	-	-	-	-	-
CZ	6.50	5.75	5.48	-11.5	+5.0	-	-	-	-	-
DE	8.64	8.05	7.64	-6.8	+5.4	-	-	-	- -	-
DK	7.46	7.30	7.00	-2.2	+4.2	-	-	-	-	-
EE	3.99	3.48	3.37	-12.8	+3.4	-	-	-	-	-
ES	3.04	3.36	3.31	+10.4	+1.6	2.67	2.37	2.09	-11.3	+13.6
FI	3.85	3.74	3.65	-3.0	+2.4	-	-	-	-	-
FR	7.48	7.54	7.15	+0.8	+5.4	5.20	5.29	5.14	+1.8	+2.9
GR	3.31	3.04	3.04	-8.3	+0.0	2.96	2.81	2.78	-5.2	+1.1
HR	4.14	5.27	4.81	+27.4	+9.7	-	-	-	-	-
HU	4.71	3.98	4.21	-15.5	-5.6	4.55	4.07	4.03	-10.4	+1.1
IE	9.99	9.21	8.84	-7.9	+4.1	-	-	-	-	-
IT	5.16	5.46	5.35	+5.8	+2.0	3.17	3.13	3.13	-1.4	-0.2
LT	4.56	4.09	4.13	-10.4	-1.0	-	-	-	-	-
LU	6.13	6.47	5.98	+5.4	+8.2	-	-	-	-	-
LV	3.75	3.66	3.60	-2.3	+1.6	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-
NL	9.11	8.88	8.80	-2.6	+0.9	-	-	-	-	-
PL	4.91	4.53	4.34	-7.7	+4.4	-	-	-	-	-
PT	1.77	1.63	1.43	-8.2	+13.4	-	-	-	-	-
RO	3.52	3.25	3.20	-7.6	+1.4	-	-	-	-	-
SE	6.80	6.27	5.95	-7.8	+5.5	-	-	-	-	-
SI	5.23	4.71	5.02	-9.9	-6.0	-	-	-	-	-
SK	5.36	4.30	4.32	-19.8	-0.4	-	-	-	-	-
UK	8.62	8.14	7.64	-5.5	+6.6	-	-	-	-	-

Country	SPRING BARLEY t/ha					WINTER BARLEY t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU28	4.14	4.15	3.90	+0.3	+6.5	5.91	5.58	5.39	-5.6	+3.4
AT	4.68	4.86	4.13	+3.8	+17.6	6.67	5.93	5.87	-11.1	+1.1
BE	-	-	-	-	-	9.30	8.96	8.65	-3.7	+3.6
BG	-	-	-	-	-	4.00	3.93	3.72	-1.8	+5.6
CY	-	-	-	-	-	1.63	1.71	1.83	+4.7	-6.4
CZ	5.60	4.65	4.53	-16.9	+2.6	5.73	4.84	4.68	-15.5	+3.3
DE	5.98	5.54	5.38	-7.2	+3.0	7.73	6.90	6.71	-10.7	+2.9
DK	5.88	5.61	5.45	-4.5	+2.9	6.26	6.11	5.93	-2.4	+2.9
EE	3.64	2.99	2.94	-17.9	+1.8	-	-	-	-	-
ES	2.58	3.05	2.70	+18.4	+13.2	1.91	2.46	2.44	+28.5	+0.9
FI	3.18	3.54	3.29	+11.1	+7.5	-	-	-	-	-
FR	6.10	6.27	6.02	+2.7	+4.1	6.88	6.81	6.52	-1.0	+4.4
GR	-	-	-	-	-	3.05	2.86	2.96	-6.4	-3.4
HR	-	-	-	-	-	3.82	4.80	4.14	+25.7	+16.0
HU	3.89	3.32	3.36	-14.5	-1.2	4.67	3.87	4.15	-17.2	-6.7
IE	7.50	7.20	6.97	-4.0	+3.3	9.30	9.14	8.85	-1.8	+3.3
IT	-	-	-	-	-	3.79	3.70	3.69	-2.6	+0.2
LT	3.80	3.22	3.21	-15.5	+0.2	-	-	-	-	-
LU	-	-	-	-	-	-	-	-	-	-
LV	3.56	2.79	2.94	-21.6	-5.0	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-
NL	6.75	6.38	6.19	-5.5	+3.1	-	-	-	-	-
PL	3.82	3.58	3.34	-6.2	+7.1	4.67	4.33	4.07	-7.4	+6.4
PT	-	-	-	-	-	2.18	1.63	1.57	-25.2	+4.0
RO	2.23	2.33	2.05	+4.1	+13.7	3.68	3.13	3.28	-15.0	-4.7
SE	4.71	4.60	4.40	-2.4	+4.5	6.41	6.27	5.46	-2.3	+14.7
SI	-	-	-	-	-	4.85	4.45	4.48	-8.3	-0.8
SK	4.59	3.66	3.57	-20.4	+2.6	5.13	3.91	3.96	-23.7	-1.1
UK	6.02	5.81	5.41	-3.4	+7.4	7.25	6.73	6.58	-7.2	+2.2

Country	GRAIN MAIZE t/ha					RYE t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU28	7.93	7.22	6.99	-8.9	+3.3	4.22	3.78	3.58	-10.6	+5.6
AT	10.79	10.49	10.16	-2.8	+3.2	4.87	4.38	4.25	-10.1	+2.9
BE	10.50	11.24	10.98	+7.0	+2.3	-	-	-	-	-
BG	7.07	5.78	5.66	-18.3	+1.9	-	-	-	- -	-
CY	-	-	-	-	-	-	-	-	-	-
CZ	7.74	7.77	7.61	+0.4	+2.1	5.37	5.00	4.67	-6.8	+7.1
DE	10.69	9.83	10.00	-8.0	-1.7	6.12	5.60	5.31	-8.4	+5.6
DK	-	-	-	-	-	6.13	5.95	5.77	-2.9	+3.2
EE	-	-	-	-	-	3.22	2.58	2.67	-20.0	-3.5
ES	11.24	11.10	10.90	-1.3	+1.8	1.72	2.06	2.05	+19.7	+0.5
FI	-	-	-	-	-	3.01	2.83	2.84	-6.0	-0.2
FR	10.38	9.33	9.25	-10.1	+0.8	4.90	5.17	4.91	+5.3	+5.2
GR	11.96	11.01	11.53	-8.0	-4.6	2.10	1.94	2.11	-7.6	-8.1
HR	8.11	6.74	6.06	-16.9	+11.1	-	-	-	-	-
HU	7.74	6.54	5.92	-15.5	+10.5	2.91	2.49	2.52	-14.6	-1.2
IE	-	-	-	-	-	-	-	-	-	-
IT	9.71	9.16	9.04	-5.7	+1.3	-	-	-	-	-
LT	-	-	-	-	-	2.25	2.28	2.17	+1.3	+4.9
LU	-	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	3.57	2.89	2.90	-19.1	-0.3
MT	-	-	-	-	-	-	-	-	-	-
NL	13.06	11.41	11.35	-12.6	+0.5	-	-	-	-	-
PL	6.59	6.66	6.47	+1.1	+2.9	3.19	2.91	2.72	-8.8	+7.0
PT	8.44	8.48	8.05	+0.5	+5.3	0.94	0.90	0.87	-4.1	+3.5
RO	4.50	3.97	3.71	-11.7	+7.1	-	-	-	-	-
SE	-	-	-	-	-	6.51	6.06	5.75	-6.8	+5.5
SI	9.09	8.02	7.77	-11.8	+3.1	-	-	-	-	-
SK	7.93	6.77	6.36	-14.7	+6.3	3.51	3.29	3.26	-6.3	+0.9
UK	-	-	-	-	-	-	-	-	-	-

Country	TRITICALE t/ha					RAPE AND TURNIP RAPE t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU28	4.52	4.27	4.15	-5.5	+3.0	3.59	3.42	3.13	-4.8	+9.4
AT	5.90	5.26	5.16	-10.9	+1.8	3.75	3.32	3.26	-11.5	+1.9
BE	-	-	-	-	-	4.80	4.39	4.33	-8.6	+1.4
BG	3.26	3.04	2.90	-6.7	+4.9	2.80	2.68	2.47	-4.3	+8.3
CY	-	-	-	-	-	-	-	-	-	-
CZ	5.08	4.53	4.52	-10.9	+0.2	3.95	3.36	3.19	-14.9	+5.3
DE	7.11	6.31	6.12	-11.3	+3.1	4.48	4.40	3.80	-1.8	+15.8
DK	5.55	5.44	5.19	-2.0	+4.8	3.88	3.99	3.68	+2.8	+8.4
EE	-	-	-	-	-	2.08	1.78	1.76	-14.6	+0.9
ES	2.33	2.29	2.28	-1.7	+0.3	2.44	2.38	2.22	-2.4	+7.3
FI	-	-	-	-	-	1.48	1.42	1.38	-4.3	+2.8
FR	5.22	5.47	5.30	+4.8	+3.1	3.70	3.55	3.38	-4.1	+5.0
GR	-	-	-	-	-	-	-	-	-	-
HR	3.63	3.70	3.76	+2.1	-1.5	3.10	2.97	2.68	-4.3	+10.8
HU	3.96	3.58	3.56	-9.7	+0.5	3.19	2.43	2.52	-23.8	-3.6
IE	-	-	-	-	-	-	-	-	-	-
IT	-	-	-	-	-	2.40	2.40	2.36	+0.2	+1.9
LT	3.29	3.03	3.03	-7.9	+0.0	2.00	2.08	2.03	+4.0	+2.4
LU	-	-	-	-	-	-	-	-	-	-
LV	2.72	2.82	2.74	+3.6	+2.7	2.00	2.26	2.11	+12.9	+6.7
MT	-	-	-	-	-	-	-	-	-	-
NL	-	-	-	-	-	-	-	-	-	-
PL	4.02	3.71	3.53	-7.8	+5.0	3.39	3.13	2.77	-7.8	+13.0
PT	1.48	1.50	1.25	+1.0	+19.7	-	-	-	-	-
RO	3.73	3.41	3.37	-8.7	+1.0	2.55	2.53	2.13	-0.8	+18.8
SE	5.92	5.60	5.14	-5.5	+8.9	3.38	3.11	2.82	-8.1	+10.1
SI	-	-	-	-	-	-	-	-	-	-
SK	3.65	3.25	3.26	-11.1	-0.3	3.34	2.46	2.48	-26.3	-0.8
UK	4.45	4.07	3.98	-8.6	+2.2	3.71	3.63	3.49	-2.2	+3.9

Country	SUGAR BEETS t/ha					POTATO t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU28	77.42	72.87	70.52	-5.9	+3.3	33.47	32.84	31.18	-1.9	+5.4
AT	83.87	71.03	71.96	-15.3	-1.3	35.10	33.17	32.15	-5.5	+3.2
BE	81.75	77.92	76.05	-4.7	+2.5	54.00	45.67	46.89	-15.4	-2.6
BG	-	-	-	-	-	13.00	14.64	14.23	+12.6	+2.9
CY	-	-	-	-	-	-	-	-	-	-
CZ	70.28	65.56	62.19	-6.7	+5.4	29.07	28.72	27.25	-1.2	+5.4
DE	84.36	73.00	71.24	-13.5	+2.5	47.42	44.79	43.54	-5.6	+2.8
DK	52.50	60.13	61.35	+14.5	-2.0	41.60	40.03	39.62	-3.8	+1.0
EE	-	-	-	-	-	-	-	-	-	-
ES	92.21	92.47	85.06	+0.3	+8.7	31.89	31.40	30.14	-1.5	+4.2
FI	38.21	39.07	36.25	+2.2	+7.8	27.93	25.92	25.80	-7.2	+0.5
FR	93.26	89.95	88.11	-3.6	+2.1	44.16	44.38	43.23	+0.5	+2.7
GR	-	-	-	-	-	24.51	25.13	25.59	+2.5	-1.8
HR	63.60	55.19	51.03	-13.2	+8.1	-	-	-	-	-
HU	66.37	54.01	53.47	-18.6	+1.0	26.27	26.08	23.82	-0.7	+9.5
IE	-	-	-	-	-	39.00	35.31	33.72	-9.5	+4.7
IT	57.01	58.05	57.44	+1.8	+1.1	26.20	25.72	25.07	-1.8	+2.6
LT	53.00	50.78	50.90	-4.2	-0.2	18.00	16.18	16.07	-10.1	+0.7
LU	-	-	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	18.00	17.61	17.45	-2.1	+0.9
MT	-	-	-	-	-	-	-	-	-	-
NL	87.40	81.26	79.19	-7.0	+2.6	45.00	44.87	43.88	-0.3	+2.3
PL	54.80	55.39	52.16	+1.1	+6.2	23.60	21.75	21.40	-7.8	+1.6
PT	-	-	-	-	-	19.73	18.52	17.12	-6.2	+8.2
RO	40.99	35.97	34.61	-12.2	+4.0	16.73	15.72	14.60	-6.0	+7.7
SE	59.77	60.17	58.91	+0.7	+2.2	32.51	31.78	32.08	-2.2	-0.9
SI	-	-	-	-	-	-	-	-	-	-
SK	-	-	-	- -	-	-	-	-	-	-
UK	72.49	69.63	67.71	-3.9	+2.8	30.01	41.06	38.22	+36.8	+7.4

Country	SUNFLOWER t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU28	2.14	1.98	1.91	-7.3	+3.8
AT	2.81	2.67	2.58	-4.9	+3.5
BE	-	-	-	-	-
BG	2.40	2.11	2.12	-11.9	-0.4
CY	-	-	-	-	-
CZ	2.27	2.38	2.36	+4.8	+0.8
DE	2.30	2.13	2.12	-7.5	+0.1
DK	-	-	-	-	-
EE	-	-	-	-	-
ES	1.18	1.11	1.13	-6.2	-1.8
FI	-	-	-	-	-
FR	2.40	2.36	2.32	-1.7	+1.5
GR	3.43	2.68	2.27	-21.7	+18.3
HR	2.40	2.60	2.41	+8.2	+7.6
HU	2.63	2.55	2.32	-3.0	+10.2
IE	-	-	-	-	-
IT	2.20	2.23	2.22	+1.4	+0.4
LT	-	-	-	-	-
LU	-	-	-	-	-
LV	-	-	-	-	-
MT	-	-	-	-	-
NL	-	-	-	-	-
PL	-	-	-	-	-
PT	0.89	0.64	0.63	-27.8	+2.5
RO	2.13	1.80	1.71	-15.4	+5.1
SE	-	-	-	-	-
SI	-	-	-	-	-
SK	2.66	2.39	2.29	-10.2	+4.3
UK	-	-	-	-	-

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

Sources: 2009-2015 data come from DG AGRICULTURE short term Outlook data (dated March 2015, received on 13/04/2015), EUROSTAT Eurobase (last update: 29/04/2015) and EES (last update: 11/02/2015)
2015 yields come from MARS CROP YIELD FORECASTING SYSTEM (output up to 20/05/2015)

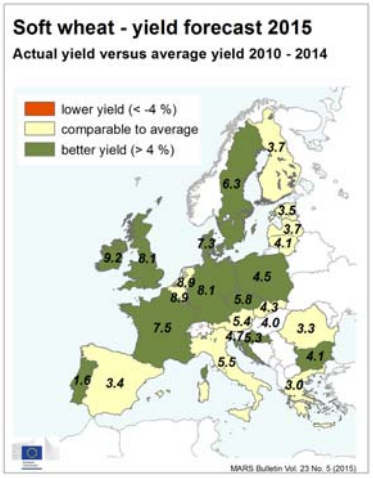
Country	WHEAT (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	4.00	3.58	3.39	-10.4	+5.9
DZ	1.48	1.72	1.59	+16.2	+8.0
MA	1.71	1.93	1.65	+13.1	+17.2
TN	2.09*	2.21	1.91	+5.9	+15.9
TR	2.40	2.67	2.59	+11.3	+3.1
UA	4.03	3.45	3.29	-14.4	+4.9

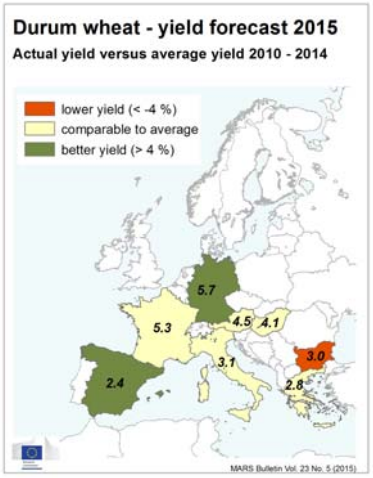
Country	BARLEY (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	3.60	3.41	3.15	-5.3	+8.2
DZ	1.18	1.65	1.39	+39.9	+18.4
MA	0.97	1.06	1.10	+8.9	-4.0
TN	1.41	1.65	1.19	+16.9	+38.8
TR	2.31	2.60	2.56	+12.6	+1.7
UA	3.1	2.63	2.38	-15.2	+10.5

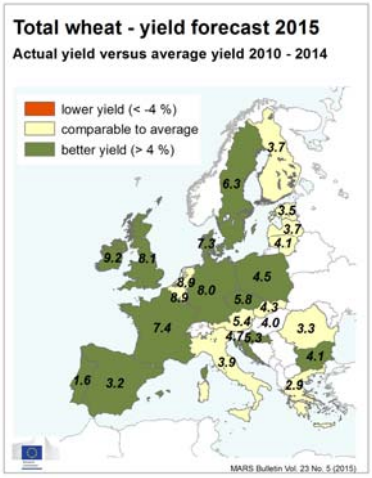
Country	GRAIN MAIZE (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	5.43	5.84	5.57	+7.5	+4.7
DZ	-	-	-	-	-
MA	-	-	-	-	-
TN	-	-	-	-	-
TR	9.07	8.92	7.98	-1.6	+11.8
UA	6.02	5.60	5.68	-7.0	-1.3

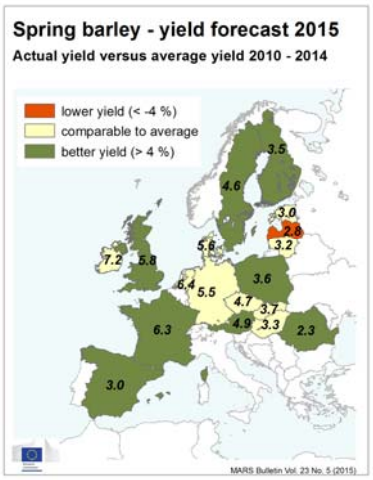
Note: Yields are forecast for crops with more than 10000 ha per country

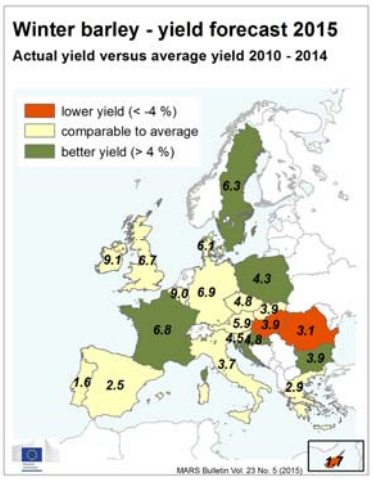
Sources: 2010-2014 data come from FAO, Turkish Statistical Office, PSD-online, INRA Maroc, MinAGRI Tunisia and DSASI Algeria
*2014 yields come from MARS CROP YIELD FORECASTING SYSTEM as reported values were not available
2015 yields come from MARS CROP YIELD FORECASTING SYSTEM (output up to 20/05/2015)

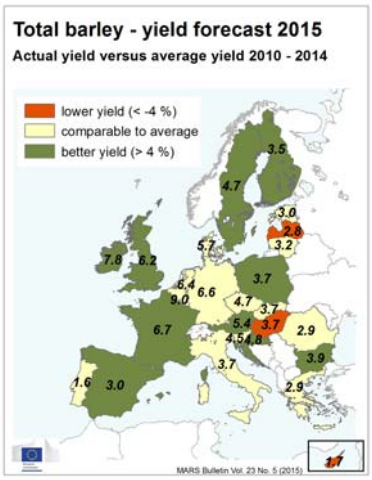

Soft wheat - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

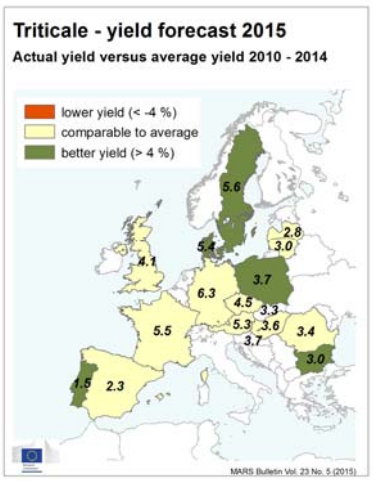

Durum wheat - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

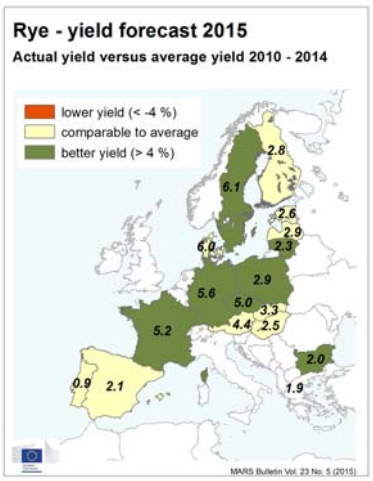

Total wheat - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

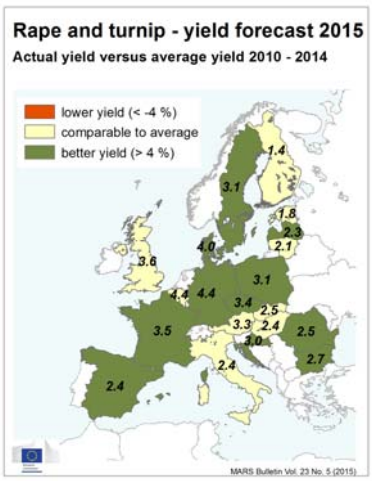

Spring barley - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Winter barley - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Total barley - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Triticale - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

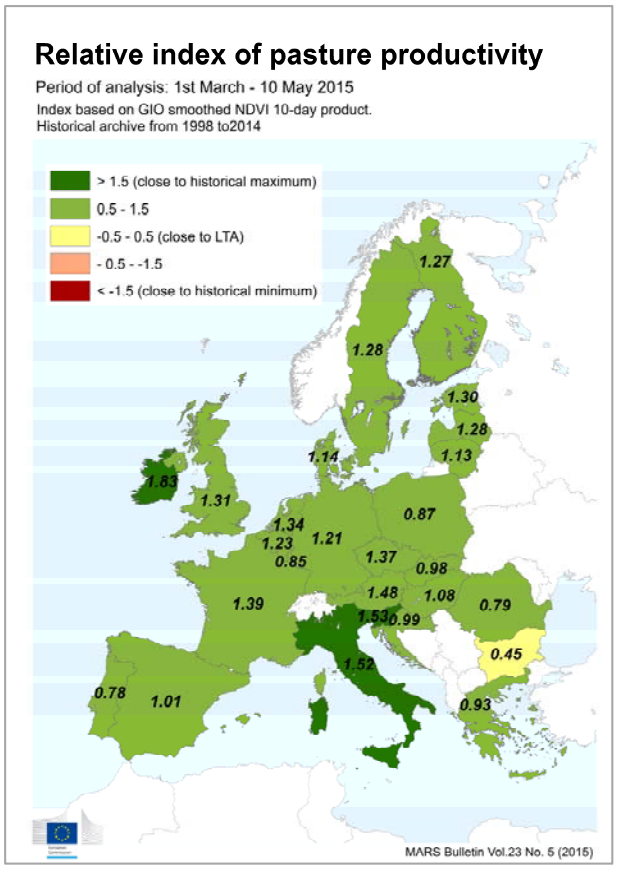

Rye - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)


Rape and turnip - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (< -4 %)
comparable to average
better yield (> 4 %)

6. Pastures in Europe – Regional monitoring

A highly favourable start to the season

Higher-than-usual temperatures since February and generally sufficient precipitation levels depict a highly favourable start to the pasture season. Biomass production is above the long-term average in practically all of Europe.



Methodological note

The relative index of pasture productivity is an indicator of biomass formation based on the integration of the NDVI remote sensing product over pasture areas at country level over a period of interest (in this bulletin, from 1 March to 10 May). The spatial aggregation from remotely sensed image pixels to a country-level index has been made using a pastures mask developed using the Common Agricultural Policy Regionalised Impact model (CAPRI, http://www.capri-model.org). The index shows the relative status of the current season compared to the historical series from 1999 to 2014, and its values range approximately from -3 to 3. A value of 0 indicates that biomass production in the current season is similar to the long-term average. Values greater than 2 and less than -2 indicate that biomass production in the current season is close to, respectively, the historical maximum and minimum of the period 1999-2014.

Contrasting conditions in the Iberian Peninsula, humid start to the season in Italy

Biomass production from February in the *Dehesa* area between **Spain** and **Portugal** has been close to the average, constrained by the scarcity of precipitation during spring. In northern Spain, by contrast, rainfall since the beginning of the season has been abundant (especially in January and February), and higher-than-usual temperatures since mid-March led to the rapid growth of grasslands. The outlook for these northern areas is positive.

Highly favourable conditions have also been observed in **Italy**. Grasslands in the southern half of the country and *Sardegna* have benefited from a very humid period from mid-January to March and warmer-than-usual conditions since April. In northern areas, fodder maize has already emerged, and soil moisture levels are quite high as rainfall has been abundant since the start of the season, which will permit adequate growth in these initial stages of development.

Mild weather in north-western Europe

Weather conditions have also been favourable for grasslands in **France**. Temperatures have been higher than usual, especially in April and May, boosting biomass formation in central and north-western regions. Precipitation during the start of the season was close to the long-term average, with abundant rainfall at the end of April, depicting a positive outlook for biomass production at the beginning of summer. In the **Benelux** region, leaf area formation in grasslands is also above that of an average year, favoured by the higher-than-usual temperatures in mid-April.

In the **UK** and **Ireland**, the vegetative status of pastures

is also quite positive. Warmer-than-usual conditions during February and March promoted the rapid growth of grasslands. In April, by contrast, temperatures remained below seasonal values, leading to a slight decrease in biomass production rates. Rainfall during the past three months has been quite abundant in Ireland, Scotland and western England, ensuring good soil water reserves that will sustain pasture growth through the start of summer.

Favourable start to the season in central Europe

Biomass formation levels in Germany are well above the long-term average, mainly thanks to a favourable start to the season, with higher-than-usual temperatures in February leading to the rapid development of grasslands. Cumulated precipitation levels in the three previous months were close to the average in all the main producing areas, which indicates a good outlook for biomass production in the coming months. The situation is especially favourable in the southern region of *Bayern*, where high temperatures and abundant rainfall in the second half of April resulted in unusually high biomass production levels at the beginning of May.

Similarly favourable conditions have been observed in the Czech Republic, Slovakia and Austria, where the leaf area formation in grasslands is greatly above that of an average year as a consequence of the warm conditions from mid-February onwards.

High temperatures led to the rapid development of pastures in northern Europe

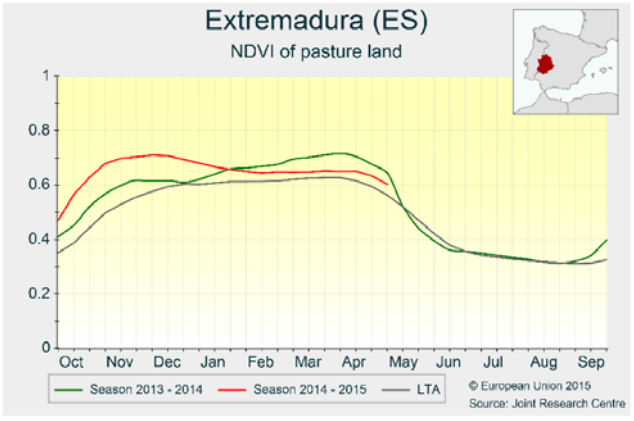
Milder-than-usual weather conditions in the second half of February and March promoted the early development of pastures in Denmark. Daily temperatures during that period were about 3 to 4°C above the long-term average, triggering the vegetative growth phase of grasslands. As a consequence, biomass formation levels are currently above average, and the rainfall registered in the previous weeks will help to maintain high growth rates in the coming months.

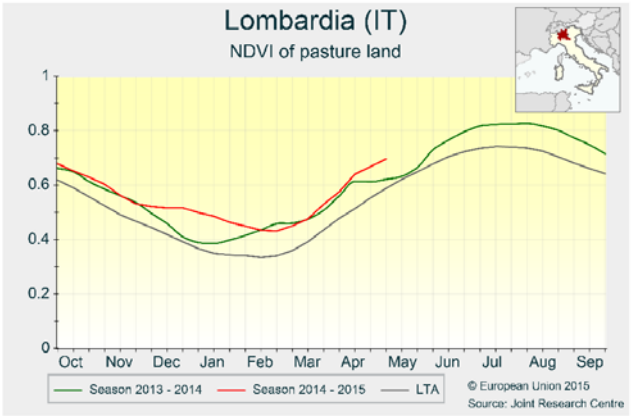
In northern Poland, Latvia, Lithuania and Estonia, temperatures above the long-term average in February and March led to the early melting of the snow cover and start of the vegetative growth of grasslands. In these initial stages of development, biomass production rates are substantially higher than in an average year. Cumulated precipitation over the past two months is sufficient to support adequate growth in May and June. Similar conditions have been observed in Finland and Sweden.

Above-average biomass production in south-eastern Europe

The start of the growing season in Romania was affected by extremely high precipitation levels from December onwards, especially in southern and eastern regions. Temperatures were slightly above seasonal values, favouring the earlier-than-usual development of grasslands. Biomass production levels are currently substantially above those of an average year, and soil moisture levels are high, practically guaranteeing the good growth of pastures in the coming months.

The start to the season was also positive in Hungary, with unusually high temperatures in January and the second half of February leading to the early vegetative growth of grasslands. Although the winter was quite humid, precipitation since mid-February has been sparse. If the dry conditions persist, biomass production may be constrained in June.


Extremadura (ES)
NDVI of pasture land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre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NDVI of pasture land
1
0.8
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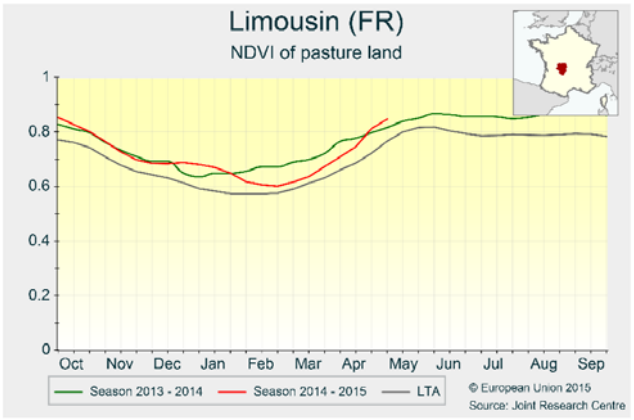
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre


Limousin (FR)
NDVI of pasture land
1
0.8
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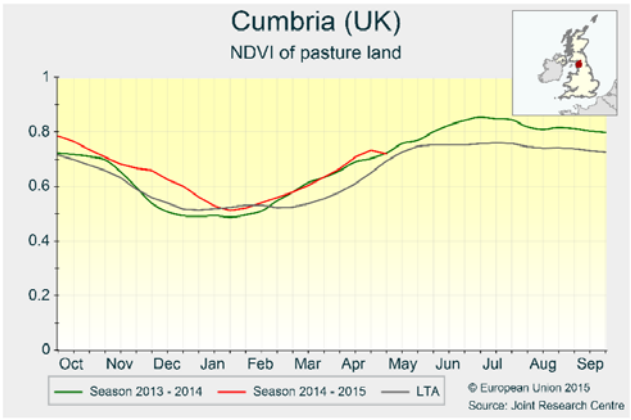
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre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NDVI of pasture land
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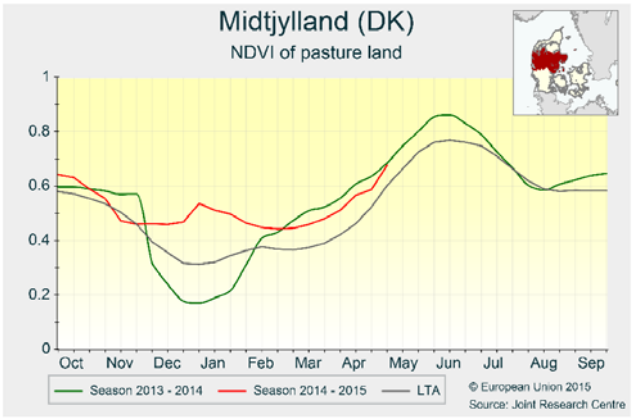
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre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NDVI of pasture land
1
0.8
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0.2
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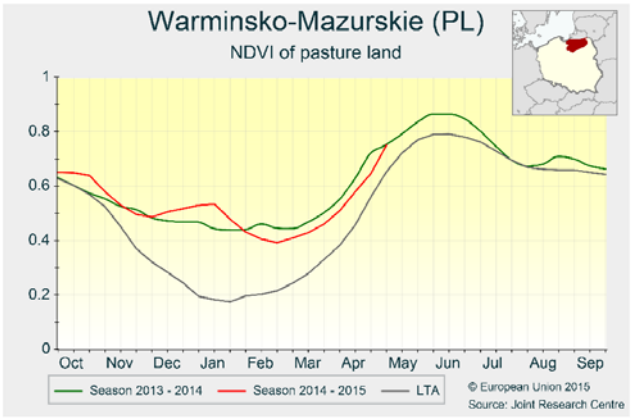
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre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NDVI of pasture land
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Season 2013 - 2014
Season 2014 - 2015
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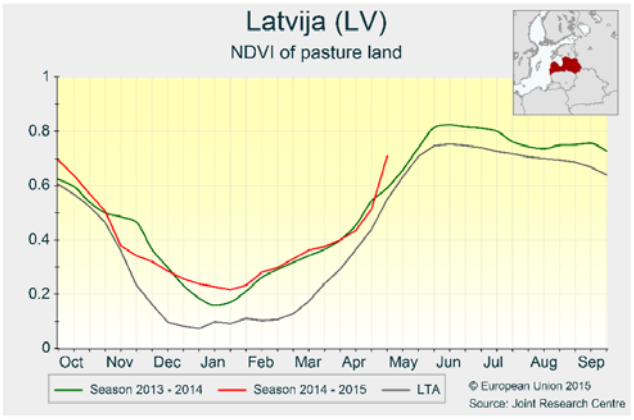
© European Union 2015
Source: Joint Research Centre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NDVI of pasture land
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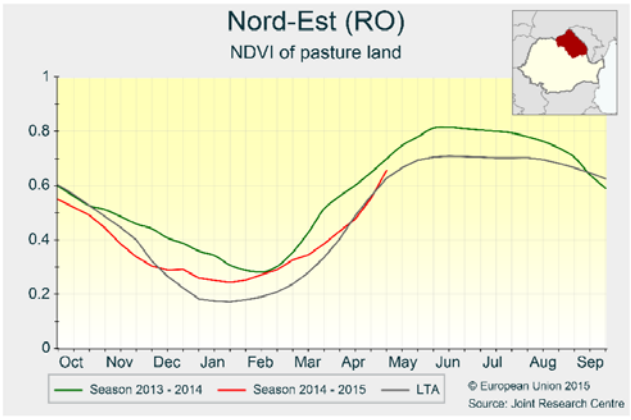
Season 2013 - 2014
Season 2014 - 2015
LTA
© European Union 2015
Source: Joint Research Centre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Season 2013 - 2014
Season 2014 - 2015
LTA
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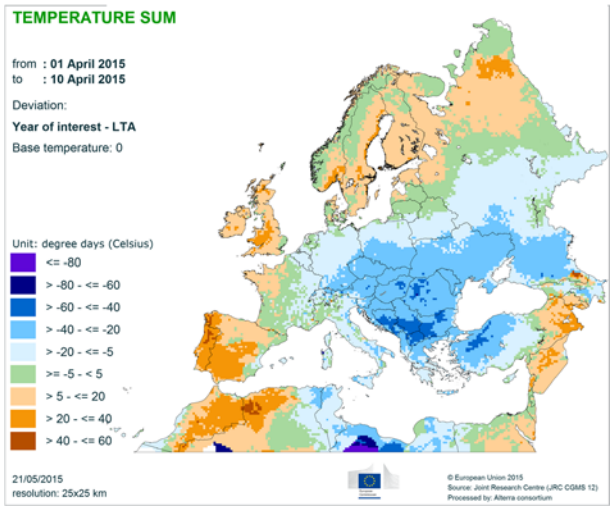
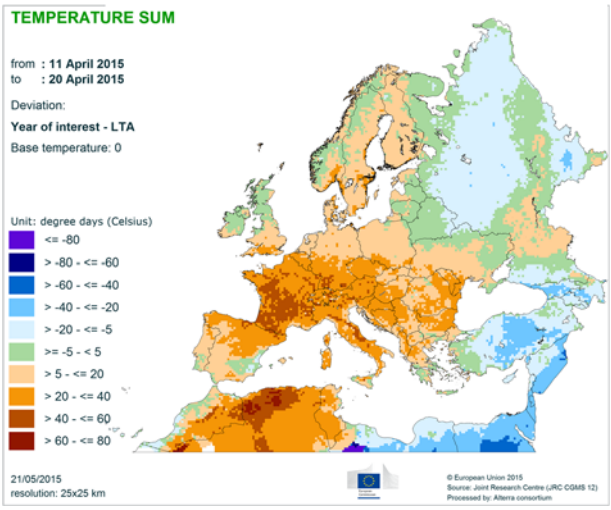
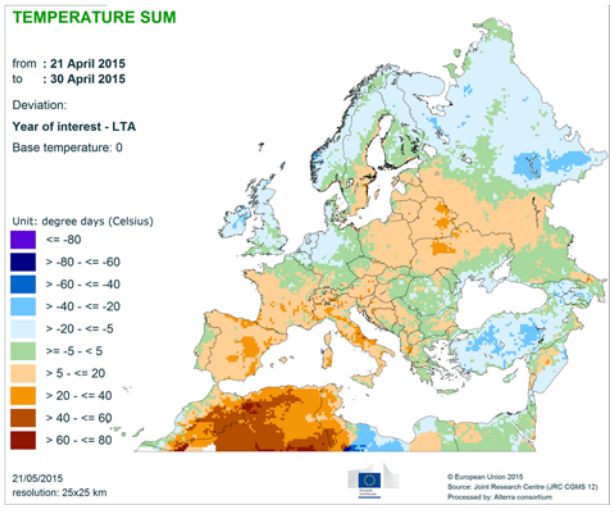
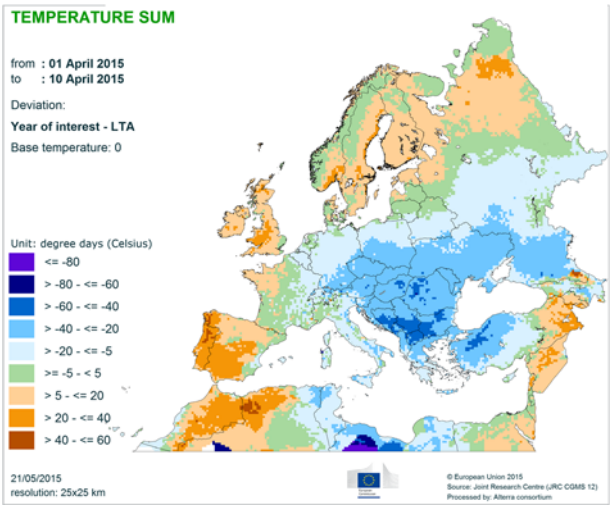
7. Atlas

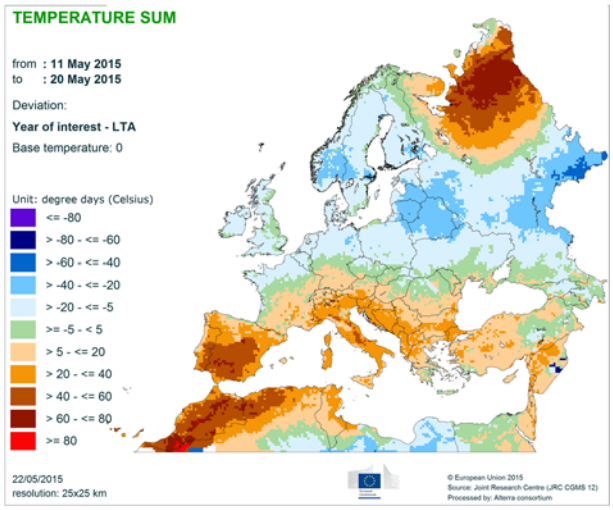
Temperature

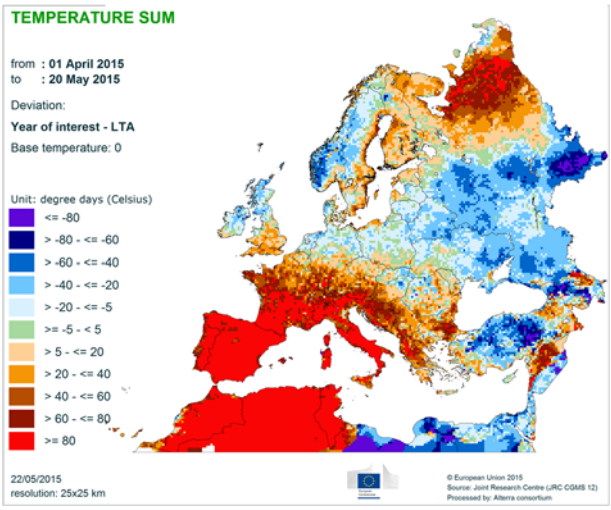












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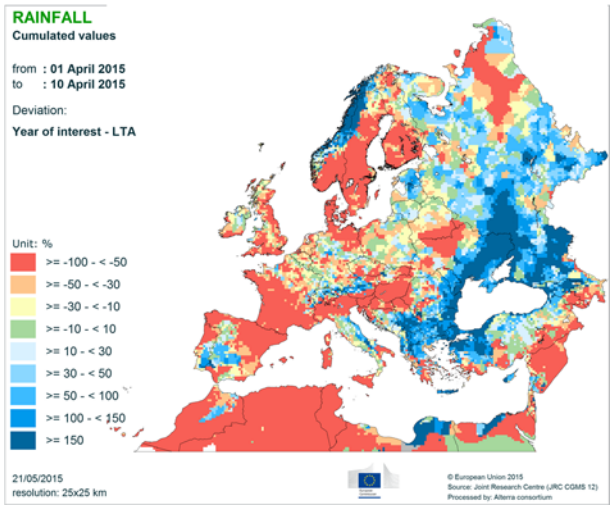
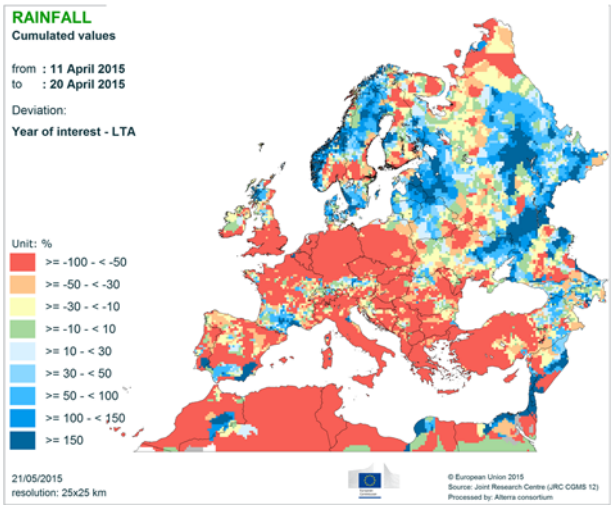
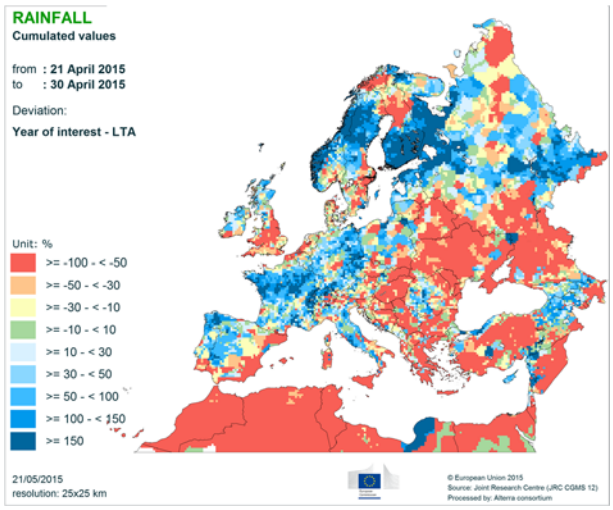
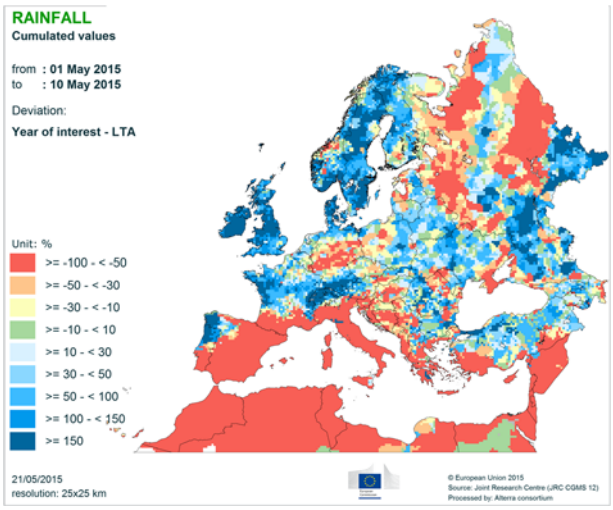
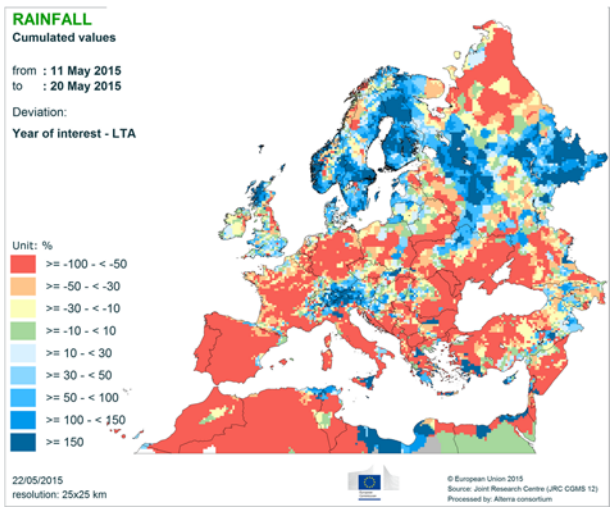
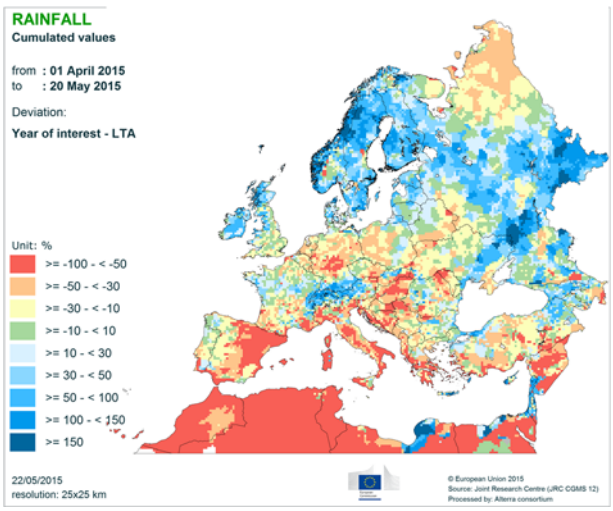




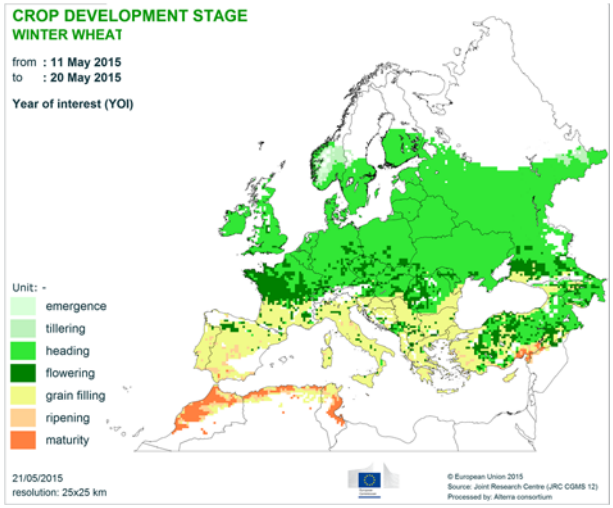


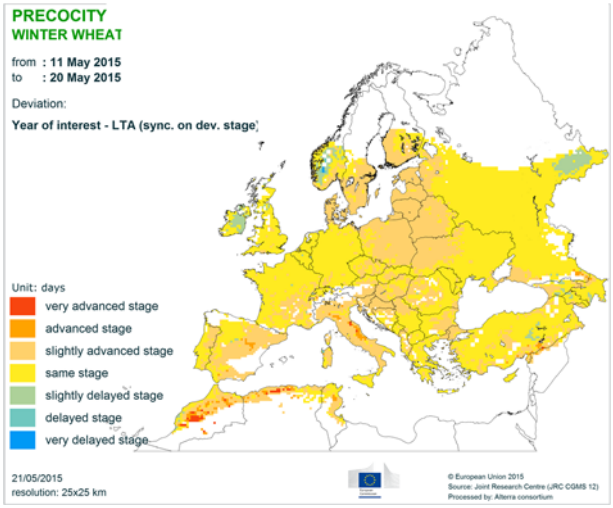


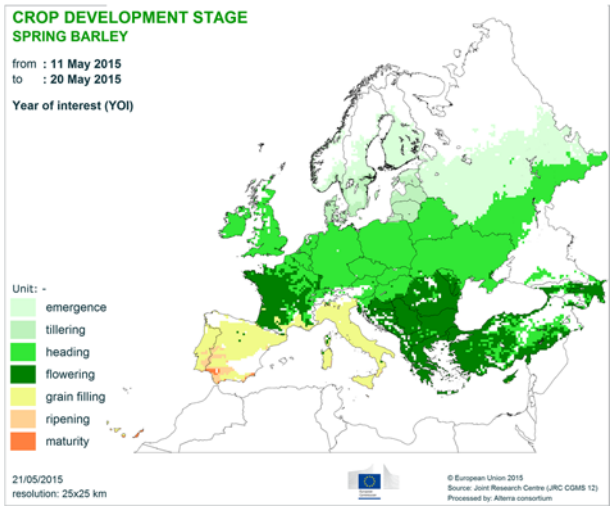


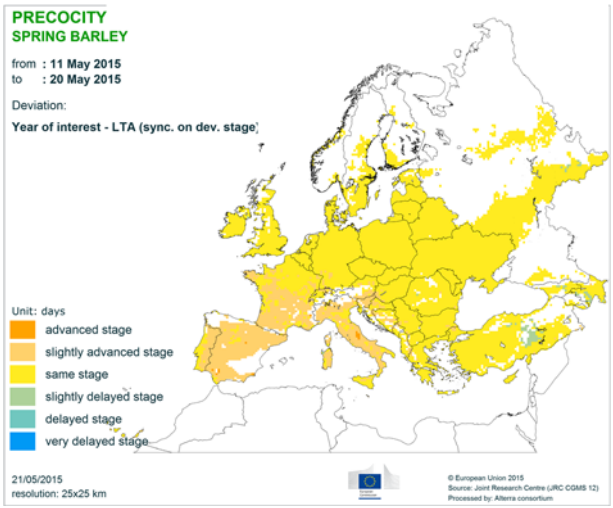


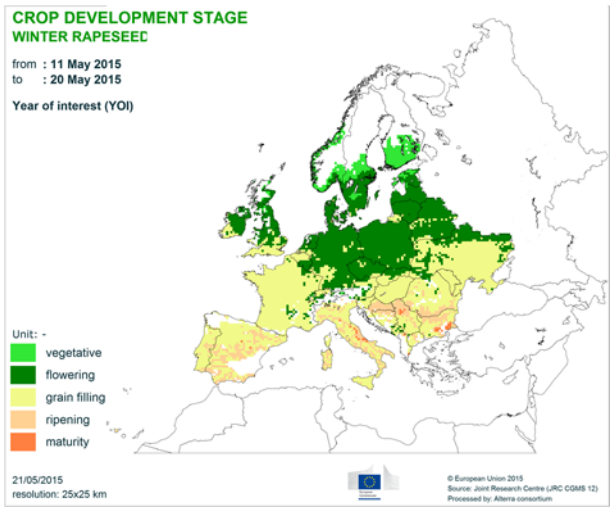
Development stage and precocity

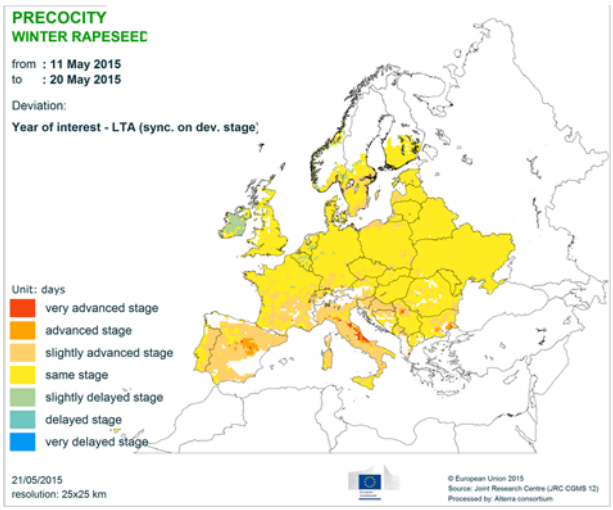




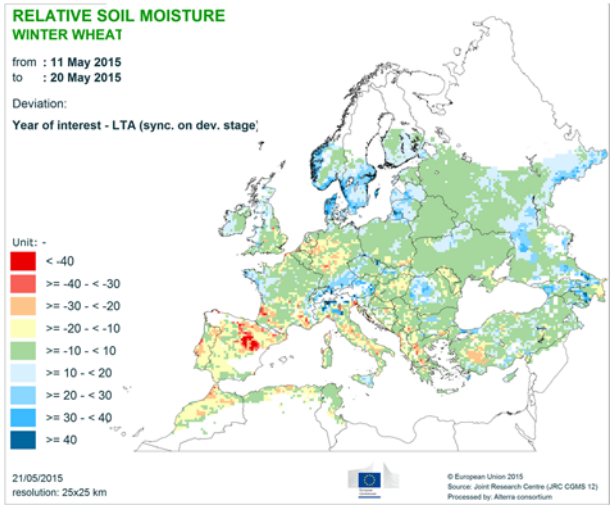


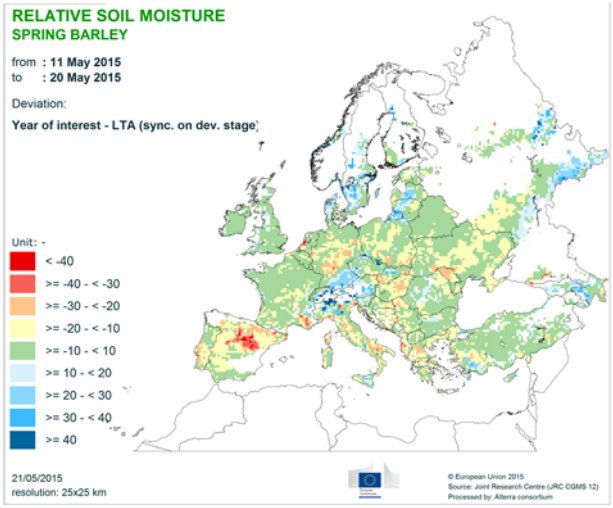


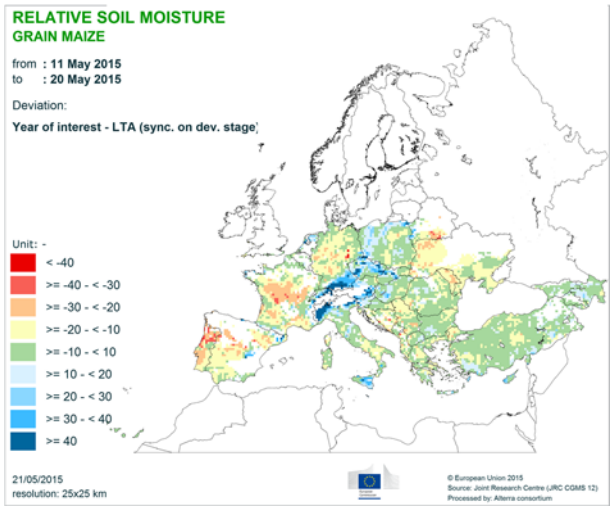


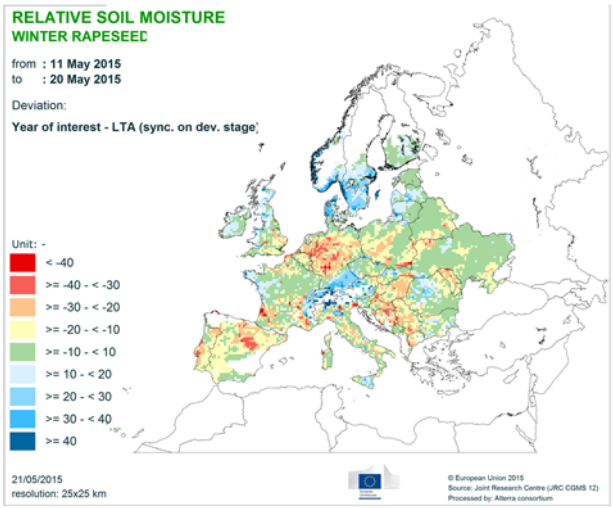


Soil moisture









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

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Reporting support
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Edition
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Data production
MARS unit AGRI4CAST/JRC, ALTERRA (NL), Meteogroup (NL), VITO (BE) and CMCC (IT)

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*MARS stands for Monitoring Agricultural Resources

Technical note:

The long-term average (LTA) used within this Bulletin as a reference is based on an archive of data covering 1975-2013.