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Period covered: 1 April 2018-15 May 2018
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JRC MARS Bulletin
Crop monitoring in Europe
May 2018

Warm April accelerates crop development

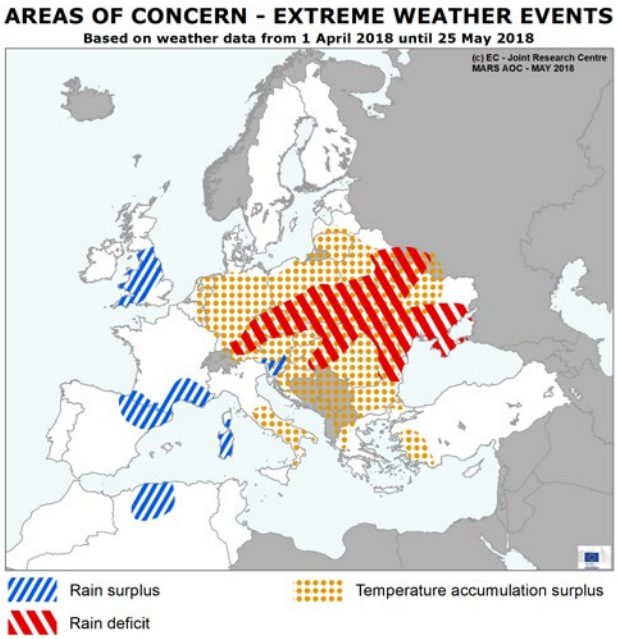
Rapeseed outlook revised downwards

In sharp contrast to the weather conditions prevailing until March, warm and relatively dry weather in most of Europe boosted crop development and allowed spring sowing to accelerate, but also brought challenges to winter crops during the current review period.

Northern, central, and eastern Europe faced an exceptionally warm April, with average temperatures + 3 °C to + 6 °C above the long-term average. The warm weather boosted biomass accumulation and increased crop water demand, which was not always supported by sufficient soil moisture. Large parts of central and eastern Europe are affected by lack of precipitation, but so far mostly without serious effects on winter cereals.

However, in large parts of central Europe, the exceptionally warm and drier-than-usual April conditions negatively affected the flowering of rapeseed that was just recovering from the adverse conditions earlier in the season.

Abundant precipitation in the United Kingdom, southern France, southern Austria and Slovenia hampered field activities, but was mostly beneficial for soil moisture and the emergence of summer crops in northern Spain and Algeria.

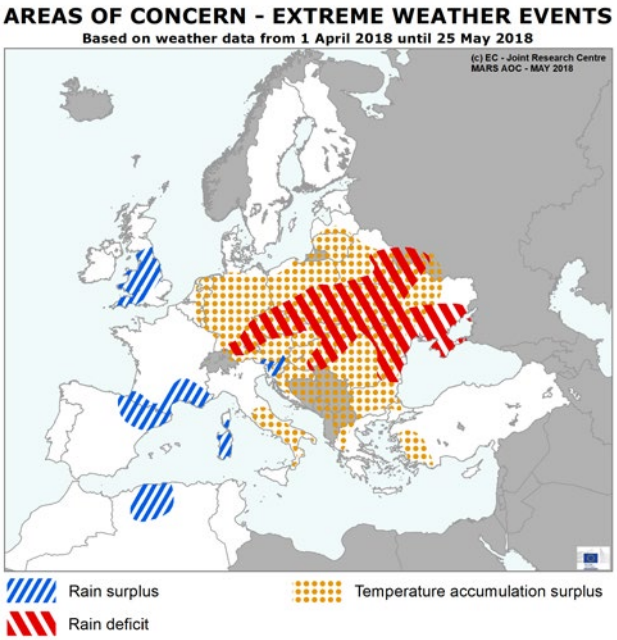


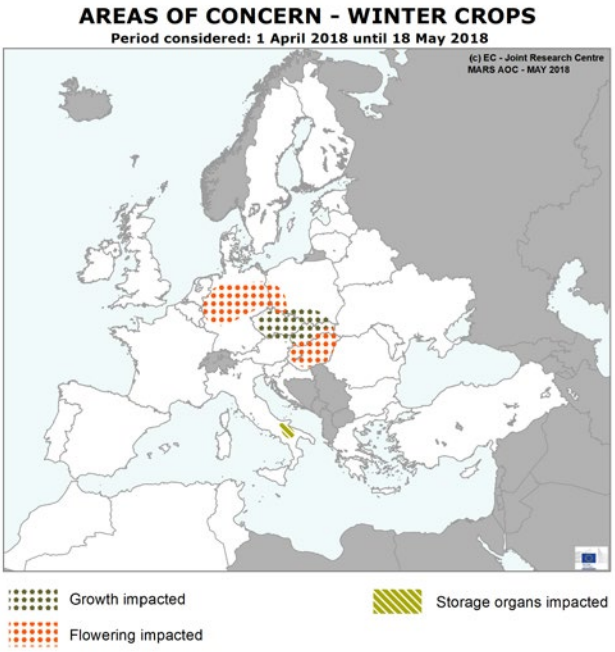
Crop	Yield (t/ha)				
	Avg 5yrs	April Bulletin	MARS 2018 forecasts	% Diff 18/5yrs	% Diff April
TOTAL CEREALS	5,55	5,66	**5,64**	+1,5	−0,4
Total Wheat	5,73	5,97	**5,93**	+3,5	−0,7
soft wheat	5,97	6,23	**6,19**	+3,6	−0,6
durum wheat	3,40	3,52	**3,56**	+4,8	+1,1
Total Barley	4,91	5,03	**5,04**	+2,6	+0,2
spring barley	4,25	4,27	**4,31**	+1,3	+0,9
winter barley	5,79	6,08	**6,05**	+4,5	−0,5
Grain maize	7,29	7,65	**7,64**	+4,8	−0,1
Rye	3,93	3,89	**3,83**	−2,6	−1,5
Triticale	4,23	4,32	**4,29**	+1,6	−0,7
Rape and turnip rape	3,28	3,33	**3,19**	−2,9	−4,2
Potato	33,6	34,3	**34,5**	+2,7	+0,5
Sugar beet	74,5	76,3	**76,1**	+2,2	−0,2
Sunflower	2,10	2,31	**2,31**	+9,7	+0,0

Issued: 18 May 2018

1. Agrometeorological overview

1.1 Areas of concern





The delays in spring and summer crops sowing were already mentioned in our April Bulletin and are not repeated here.

Northern, central and eastern Europe faced an exceptional warm anomaly, especially during April, with a monthly average temperature + 3 °C to + 6 °C above the long-term average. The warm weather boosted biomass accumulation and increased crop water demand, which was not always supported by sufficient soil moisture. For example, in the Czech Republic crop growth has started to be affected by the dry conditions. Other large parts of central and eastern Europe are also affected by lack of precipitation (southern Poland, Slovakia, Ukraine, Moldova and northern and eastern Romania), but these weather conditions are not yet negatively affecting crop growth. In Hungary, the warm and dry weather moved the yield outlook from extremely favourable to favourable. Strong positive temperature anomalies were recorded even in southern Italy, shortening the grain filling of durum wheat.

However, in large parts of central Europe, the exceptionally warm and drier-than-usual April conditions negatively affected flowering rapeseed crops, which were just recovering from the suboptimal conditions earlier in the season.

Abundant precipitation in the United Kingdom, southern France, and northern Spain, mostly between 1 and 20 April, hampered field activities. In Spain, heavy showers even caused local floods, but were also beneficial for soil moisture and the emergence of summer crops in late April. Rain also had a positive effect on crops in Algeria. In May, some very intense rain events were observed in southern Austria and Slovenia.

1.2 Agro-meteorological review (1 April–15 May)

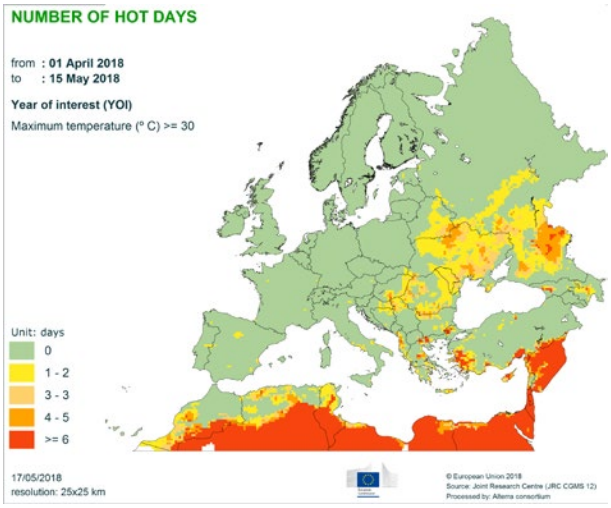
Warmer-than-usual temperature prevailed in most parts of Europe. The air temperature was between 4 °C and 6 °C above the long-term average (LTA) in central and south-eastern Europe. Positive anomalies between 1 °C and 4 °C prevailed elsewhere. Exceptions were the Iberian Peninsula and north-eastern Europe, where seasonal temperatures were recorded. For large parts of central and south-eastern Europe, the temperatures recorded were **the highest in our records** (since 1975) for the period analysed. On the warmest days, maximum temperatures above 30 °C were observed in Romania, northern Serbia, Ukraine and southern European Russia.

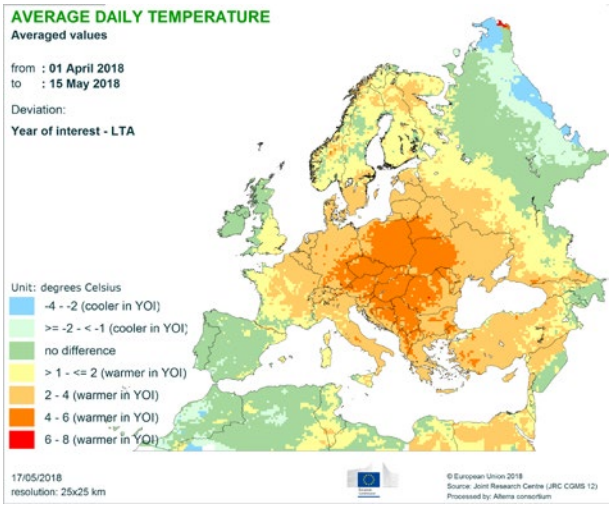
Minimum temperatures below 0 °C, after the first dekad of April, were mainly confined to north-eastern Europe and mountainous regions. During the first dekad of April, frost was also common in large parts of central and south-eastern Europe.

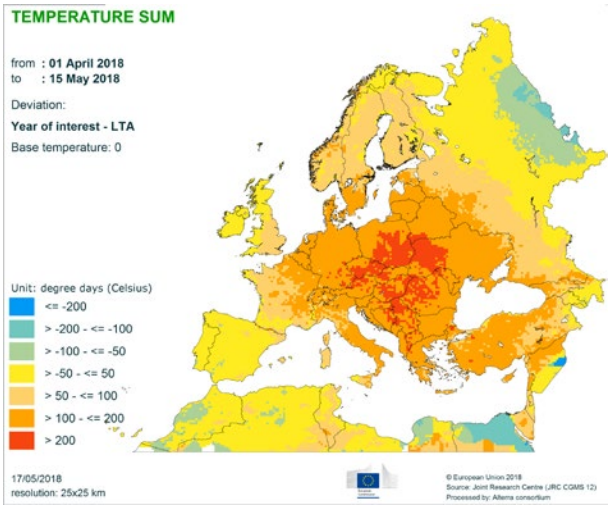
Drier-than-usual conditions occurred in most parts of central, south-eastern and eastern Europe. These regions mainly recorded less than 40 mm of rainfall during the period under analysis (locally even less than 20 mm). The lack of rainfall and high air temperatures, leading to high atmospheric evapotranspirative demand, contributed to a substantially negative climatic water balance in these regions.

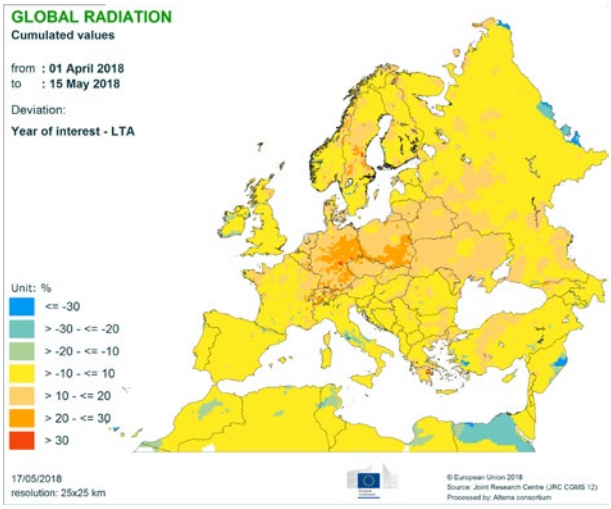
Wetter-than-usual conditions prevailed in southern France, regionally in the Iberian Peninsula, Sardinia, north-western Italy, Slovenia, southern Austria and the British Isles. Several of these regions recorded more than 150 mm of rainfall cumulates.

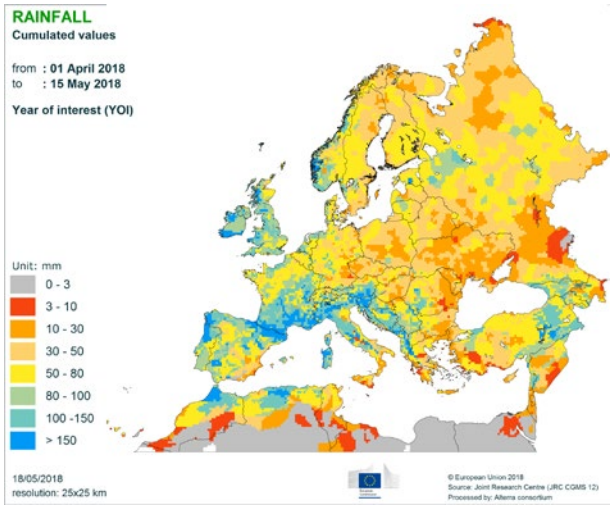
Heavy rainfall events, with daily cumulates above 40 mm, partly often in the form of hail, occurred locally in southern France, northern Spain, central and northern Italy, the western Balkans, southern Austria and western Germany. In north-eastern Slovenia, a storm event at the beginning of May resulted in daily rainfall of more than 100 mm.

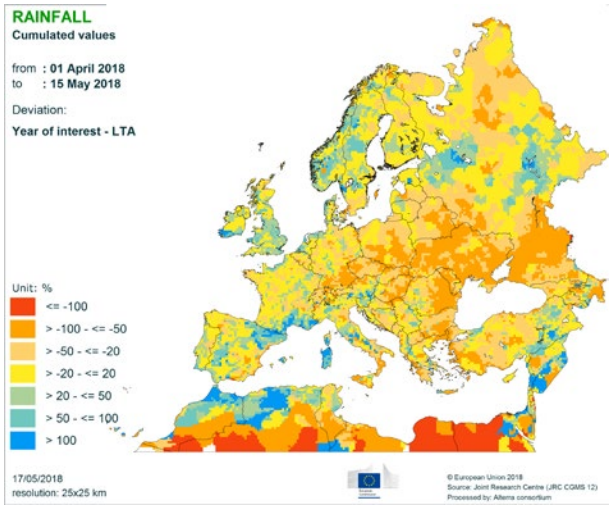


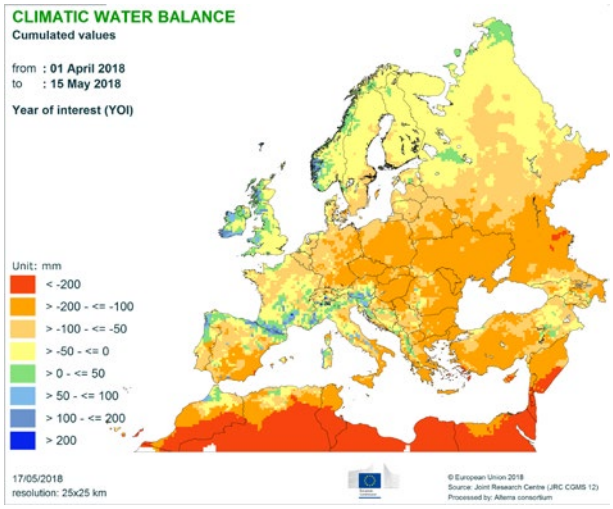


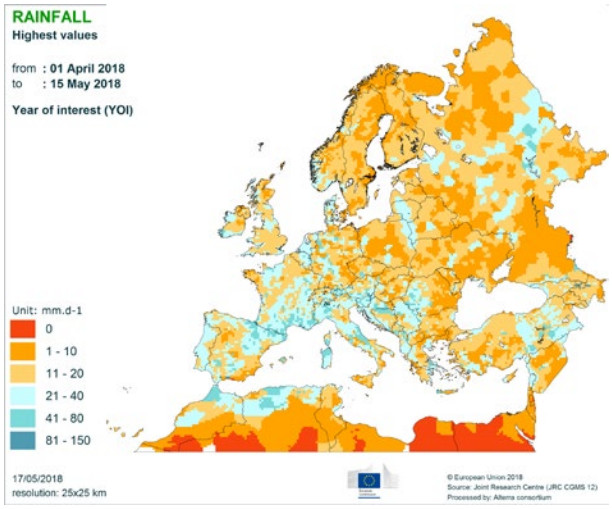





RAINFALL
Cumulated values
from : 01 April 2018
to : 15 May 2018
Year of interest (YOI)
Unit: mm
0 - 3
3 - 10
10 - 30
30 - 50
50 - 80
80 - 100
100 -150
> 150
18/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

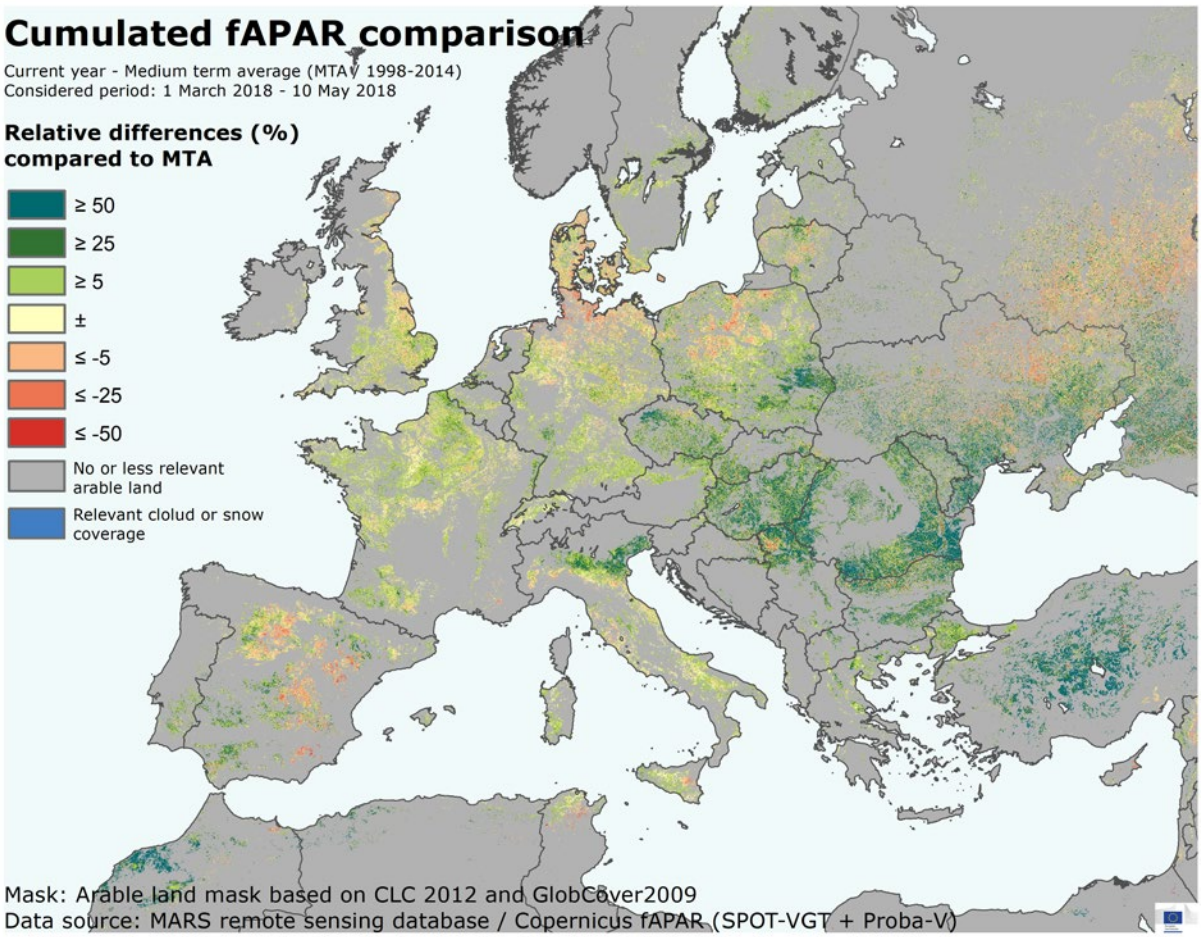

RAINFALL
Cumulated values
from : 01 April 2018
to : 15 May 2018
Deviation:
Year of interest - LTA
Unit: %
<= -100
> -100 - <= -50
> -50 - <= -20
> -20 - <= 20
> 20 - <= 50
> 50 - <= 100
> 100
17/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium


CLIMATIC WATER BALANCE
Cumulated values
from : 01 April 2018
to : 15 May 2018
Year of interest (YOI)
Unit: mm
< -200
> -200 - <= -100
> -100 - <= -50
> -50 - <= 0
> 0 - <= 50
> 50 - <= 100
> 100 - <= 200
> 200
17/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

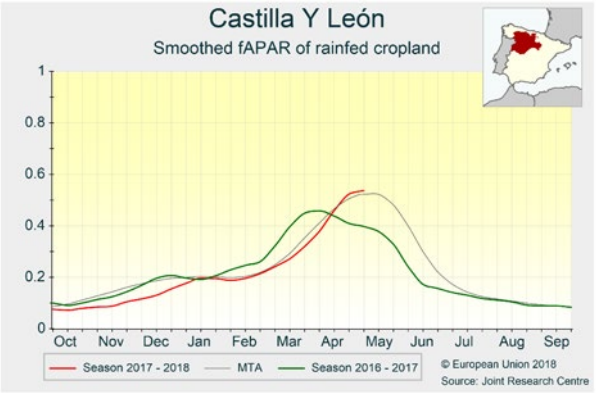

RAINFALL
Highest values
from : 01 April 2018
to : 15 May 2018
Year of interest (YOI)
Unit: mm.d-1
0
1 - 10
11 - 20
21 - 40
41 - 80
81 - 150
17/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

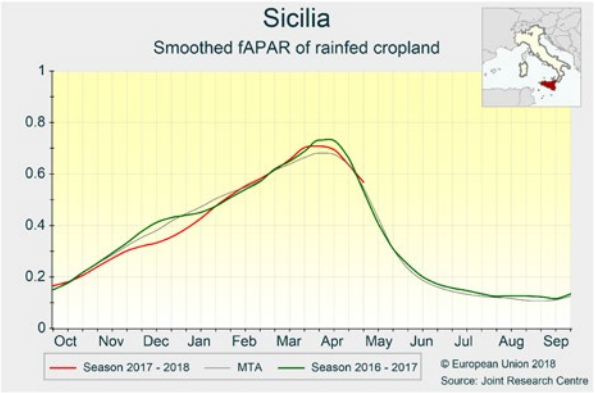
2. Remote sensing — observed canopy conditions

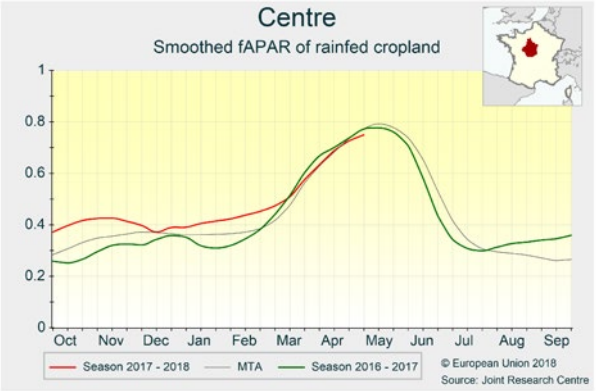
Favourable biomass accumulation in eastern Europe continues

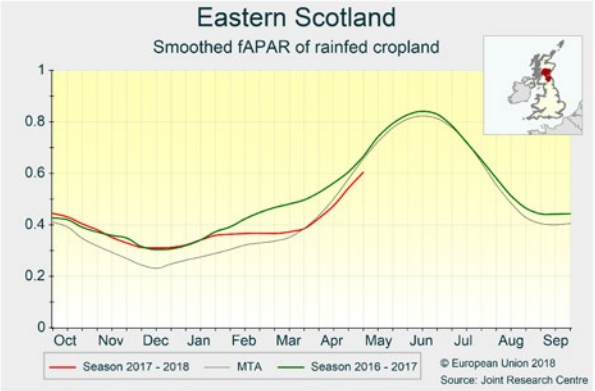


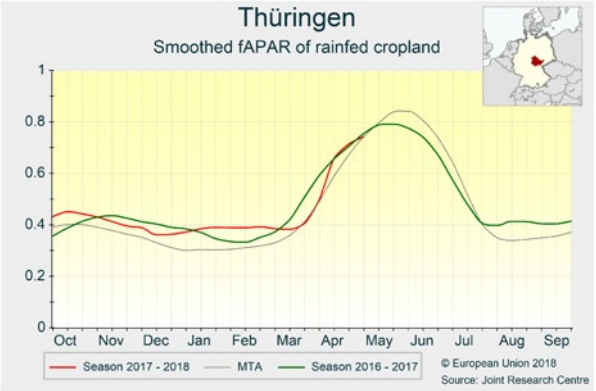
The map displays the differences between the fraction of Absorbed Photosynthetically Active Radiation (fAPAR), cumulated from 1 March to 10 May 2018, and the medium-term average (1998–2014) of fAPAR for the same period. Positive anomalies (in green) reflect above-average canopy density or early crop development, while negative anomalies (in red) reflect below-average biomass accumulation or late crop development. In **Spain**, the delay in winter crop development was generally recovered thanks to the warm April (green colour on the map, see graph of *Castilla y León*). In some regions of eastern Spain, crops are still behind the usual development (red colour on the map), although there are currently no concerns about final yield. In southern **Italy**, winter crops are in the grain-filling stage. The favourable spring development led to flowering being moved forwards slightly, and sufficient soil moisture and a warm April favoured grain formation (e.g. in *Sicilia*). In northern Italy, winter and summer crop development is optimal and much advanced, thanks to high temperatures in April. In **France**, the weather in late April and May was drier and warmer than in March and this favoured crop development. Overall, crop biomass remains around the average (e.g. in *Centre*). In the **UK**, overly wet conditions were partly counter-balanced by the warmer-than-usual temperatures in April and May. Nevertheless, crop development and biomass accumulation are still lagging behind, especially in northern regions (e.g. in *Eastern Scotland*). In northern **Germany** and **Denmark**, winter crops are still lagging behind the usual development, in spite of favourable weather conditions in April and May. In the central and southern regions (e.g. in *Thüringen*), crop development is advanced or around average. In northern **Poland**, temperatures have constantly been above average since April, allowing crop development to catch up to the usual stage, while biomass remained below average in places. In contrast, in the southern regions, crops remain well advanced with optimal biomass accumulation (e.g. in *Lubelskie*). In most of central Europe (**Czech Republic**, **Slovakia** and **Austria**), crop development is still advanced thanks to the constantly warm spring. In **Hungary**, biomass accumulation is optimal throughout the country and winter crop development is well advanced (e.g. in *Dél-Alföld*). In **Bulgaria** and southern **Romania**, the crop season has been continuing under very advantageous weather conditions, which led to very favourable crop growth just before flowering. In western and southern **Ukraine**, crops are well advanced in development, with winter crops approaching flowering and showing favourable biomass accumulation. In the northern and eastern regions of the Ukraine, the late crop development has almost recovered to average conditions (e.g. in *Poltavs'ka*).

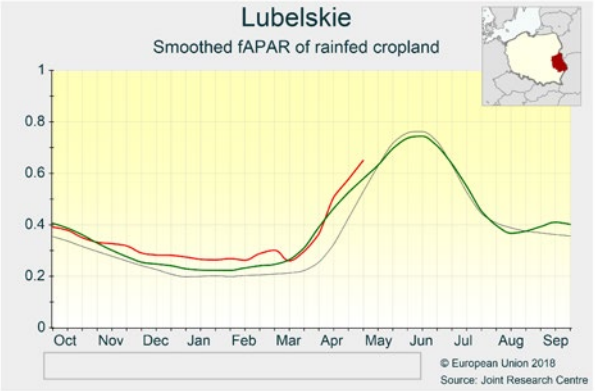

Castilla Y León
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017 - 2018
MTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre

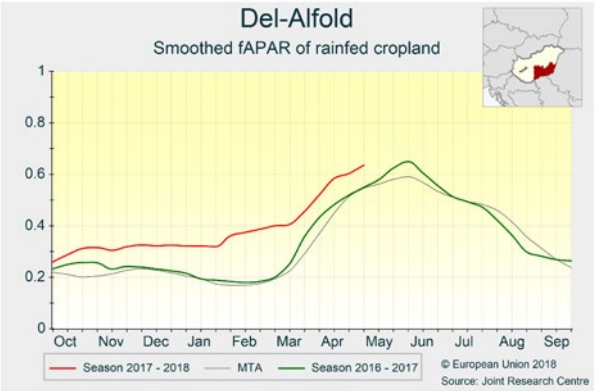

Sicilia
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017 - 2018
MTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre

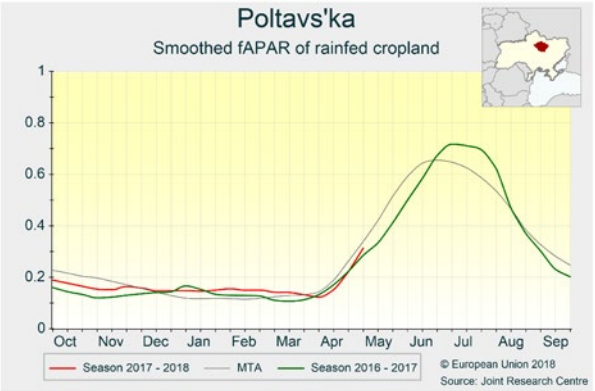

Centre
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017 - 2018
MTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre


Eastern Scotland
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017 - 2018
MTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre


Thüringen
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017 - 2018
MTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre


Lubelskie
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
© European Union 2018
Source: Joint Research Centre


Del-Alfold
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017 - 2018
MTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre


Poltavs'ka
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017 - 2018
MTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre

3. Country analysis

3.1 Sowing conditions

Spring barley

Weather conditions improved in the first dekad of April, allowing sowing to be completed across all of Europe.

Sowing conditions became optimal in the first dekad of April across Europe, thanks to increased temperatures and the favourable rainfall distribution with dry windows for sowing, allowing the sowing campaign to be completed across all of Europe. In general, warmer seedbed conditions were adequate to ensure an optimal emergence.

However, in Ireland, some farmers still experienced delays due to wet conditions, extending the sowing into May, with an expected negative effect on yields. The difficult start of the sowing campaign in Hungary led to a reduction in the sown area of spring barley in the country.

In France and Poland, adequate temperatures and soil water levels allowed sowing to be concluded by mid-April, while in Denmark sowing is expected to be concluded by mid-May without significant consequences on crop yield. In Sweden and the Baltic countries, sowing is progressing well and is expected to be finished in May, within the usual period for these countries.

In Finland, average temperatures are still low and sowing is expected to start in mid-May, as is usual for this country.

Sugar beet and potatoes

Overly wet top soils and colder-than-usual weather conditions caused delays to the sowing of sugar beet in most of Europe until 10 April. In March, below-average temperatures did not allow the adequate warming of the soil, hampering the timely start to the sugar beet sowing campaign. Additionally, precipitation was typically above average and frequent, leading to restricted field accessibility and inadequate soil conditions for sowing in several countries. The situation improved substantially from mid-April onwards, when above-average temperatures and scarce rainfall provided favourable conditions to speed up the sowing campaign and for the emergence and early development of the seedlings. At the same time, the warmer-than-usual thermal conditions increased the pest and disease pressure.

More specifically, in the main EU producing regions of Germany, the sowing of sugar beet was delayed by one to two weeks, primarily on account of persistent very wet soil conditions in March. In Poland, soil temperatures remained below 5 °C until late March, causing a similar delay, but in April perceptible warming started and the sowing progress speeded up thanks to the drier soil conditions. In France, the above-average precipitation during winter, which continued in March, also resulted in wet seedbed conditions, significantly hampering the start and progress. However, in April, the improved weather conditions allowed the accomplishment of sowing works. Similar difficulties and delays to the start of sowing occurred in most of the UK, the Benelux countries, Austria, Hungary, Slovakia, Croatia, Romania and southern Ukraine. In Italy and northern Spain, the sowing of sugar beet was less problematic; however, the early development of the seedlings was negatively affected by heavy rains in Spain and low temperatures in Italy. In Turkey, above-average temperatures and dry periods between the rainy periods supported the timely sowing of sugar beet.

In Ukraine and Belarus, the sowing campaign started in the first dekad of April and progressed well thanks to the mild and dry weather. Southern Russia was also free of major concerns, but in the Central and *Volga* districts sugar beet sowing suffered significant fallback during April because of frequent and abundant rainfall. The tendency for precipitation to decrease in May speeded up the progress of the campaign, which is still ongoing.

For potatoes, the situation in the main producing regions was similar as for sugar beet. Early sowing was hampered until the first dekad of April, after which the main plantings could be performed at a near-normal pace, and in most regions concluded by the first or second week of May.

Maize

After a wet first quarter of the year, precipitation decreased during April, favouring maize sowing, particularly in southern countries. In most regions, delays incurred as a result of unfavourable early spring conditions are not expected to have a significant impact. Warm weather conditions allowed quick emergence and early development.

Maize sowing is concluding in **Romania**, **Hungary** and **Bulgaria**, thanks to a decrease in rainfall since April after an exceptionally humid first quarter of the year. Field activities started delayed, in the second half of April, once farmers could access the fields; sowing progressed rapidly during the second half of that month. The adequate soil moisture favours a positive emergence. Delays incurred because of the late start of the sowing campaign are most pronounced in Bulgaria. This means that, on average, flowering will also occur later than usual during the season, with a somewhat increased risk of exposure to hot and dry conditions during this phase. In **Turkey** and **Ukraine**, relatively warm and dry April weather allowed sowing to progress rapidly with no significant delay compared with an average season.

In eastern **France** (*Alsace*, *Champagne-Ardenne*), maize sowing progressed duly during April and is almost complete. By contrast, in the Atlantic basin (*Aquitaine*, *Bretagne*) humid conditions persisted until the first half of April, which delayed the start of sowing until the end of that month, which means a delay of about two weeks compared with an average year. In the main producing regions of **Italy** (*Veneto*, Po Valley), rainfall during April was scarce and this favoured quick progress of sowing, which was practically completed in the first week of May. Weather conditions for crop emergence in these regions were positive, as soil moisture was sufficient and temperatures were higher than usual. Compared with an average season, sowings in **Spain** were delayed by about two weeks compared with an average year on account of overly

wet conditions until mid-April. After then, sowing progressed rapidly and is now almost complete. The delay is not expected to have any appreciable effect on crop growth.

In **Austria**, the relatively dry and unusually warm weather conditions during April were favourable for early maize sowing, which was completed by the first week of May. In southern **Germany** (*Bayern*), sowing was also concluded early thanks to mild and dry conditions during most of April. In north-eastern areas (*Weser-Ems*, *Münster*), the sowing season is about to be finished. In **Poland**, weather conditions since March have been dryer than usual and this has caused farmers to start the campaign earlier than usual in April, when temperatures were adequate and soil moisture was still sufficient to achieve an adequate emergence.

Sunflower

Adverse meteorological conditions delayed sunflower sowing in most countries. The weather was favourable in April, but farmers had to wait for the soils to drain the excess water before sowing. In most production regions, sowing is now or almost completed.

Early sowing, which usually takes place at the end of March and the beginning of April, was previously delayed in the Black Sea area, Bulgaria and Romania. With the soils being wet, farmers had to wait for the soil to dry before sowing sunflowers. Similarly, in Hungary, soils were too wet to sow on time and the sowing campaign was further delayed. In Greece, conditions were similar to the Black Sea area, but improved in April, allowing sowing to resume. In Spain, conditions in the south allowed farmers to sow on time, but the rainy weather in *Castilla y León* caused substantial delays to sowing. In Italy, a rain-free period from the middle to the end of April allowed farmers to make some progress, but the rainy conditions since then have delayed late sowings. In France, sowing was delayed in the south and west, as soils were not sufficiently drained to proceed with the fieldwork, and further rainfall did not allow the soils to dry. Conditions have been favourable only in the east of France, where rainfall was below average for the period of analysis. Sowings are currently on the way to being completed in all regions.

3.2 European Union

France

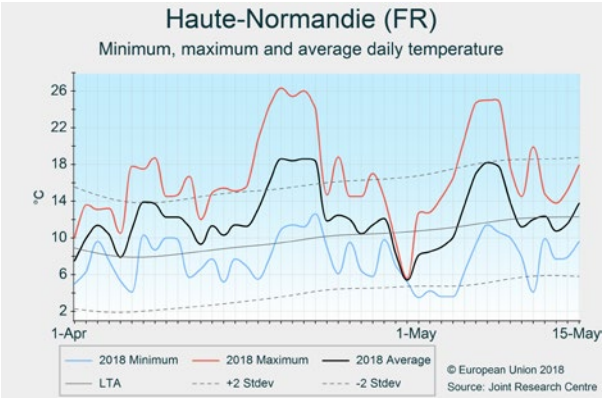
Fieldwork and crop growth negatively affected by wet soils

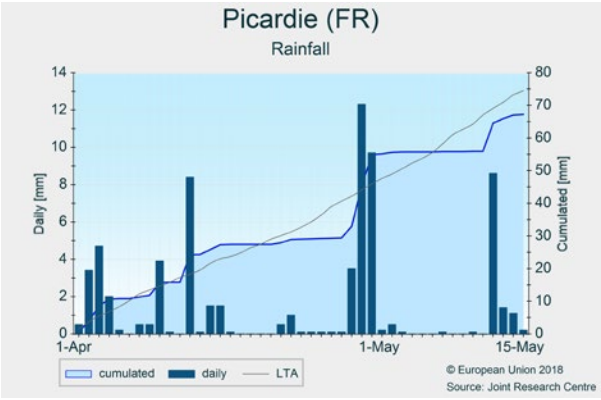
The rainy weather during winter and the beginning of spring is responsible for several negative impacts on crops. Leaf diseases are widely observed on soft wheat and winter barley. Sugar beet, potato and spring barley sowings have been completed with substantial delay. Maize and sunflower sowings are still ongoing and have also been delayed.

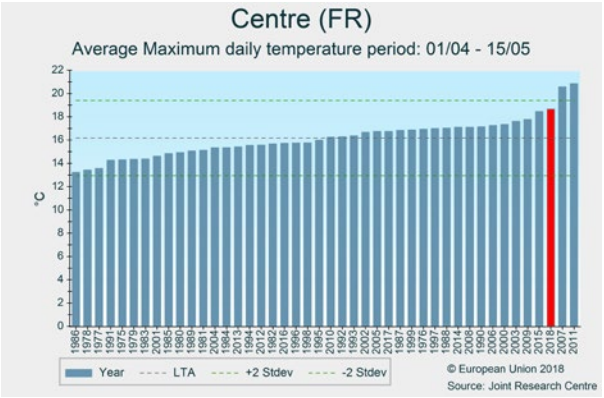
Temperatures remained well above the average for the period of analysis, particularly in the north, and a hot spell was observed around 20 April, accelerating the phenological development of crops. Temperatures briefly dropped below the average at the end of April, followed by substantial precipitation (locally snowfall in the north). Soils were highly humid at the beginning of the period of analysis, and continued warm and humid conditions favoured further development of diseases, in particular *Septoria* on soft wheat and *Rhynchosporium* and *Helminthosporium* on winter barley. It is noted that conditions are highly heterogeneous and some fields in poor condition are surrounded by fields in good condition. Rapeseed was exposed to several unusual meteorological conditions earlier this season. For the current period, corresponding to flowering, negative impact were reported locally, attributed to the large temperature amplitude, heavy rains, hailstorms and snowfall, and strong wind. However, the extent of the impacts is unclear and plants can still partly recover.

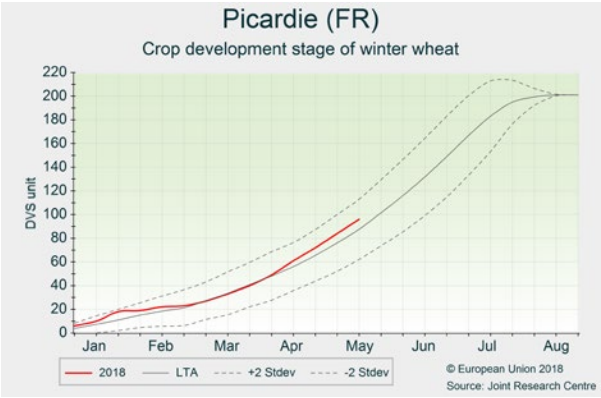
A delay of 20 days was generally observed in the sowing of sugar beet, and potato sowing was also delayed (a wet soil also favours diseases and compaction). Spring barley, which was sown with a 10-day delay, is now advanced thanks to the warm temperatures. The sowing campaign of grain maize, sunflower and soybean is still ongoing, with some delays due to wet conditions.

Winter cereal yield forecasts remain unchanged compared with last month and still follow the trend. Despite the abovementioned challenges, high yields are still possible. The weather conditions during flowering will be determinant, particularly with regard to rainfall, as it can propagate diseases to the upper part of the plants, which would affect the yield.









Germany

Warm conditions boost crop development — rapeseed forecast revised downwards

Warmer-than-usual weather conditions boosted crop development, which now ranges from advanced in the south to average in the north. Rapeseed flowering was of shorter duration and less intensity, with negative effects expected on yields. Sugar beet sowing occurred later than usual; maize sowing occurred according to the LTA.

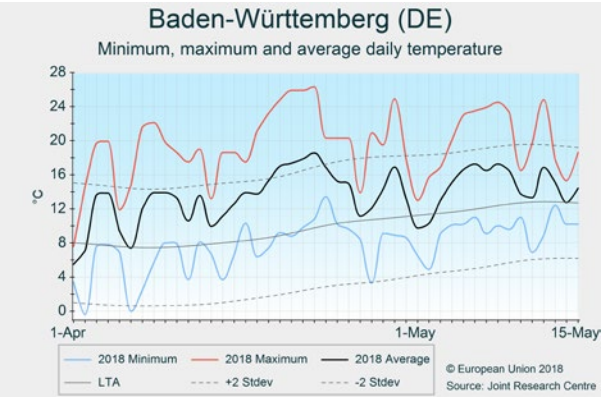
Warmer-than-usual conditions boosted temperature sums to + 30 % compared with the LTA in almost the entire country (except the north coast). Rainfall was around the LTA except in the south (including *Rheinland-Pfalz*), which experienced a rain deficit; however, rain has fallen recently.

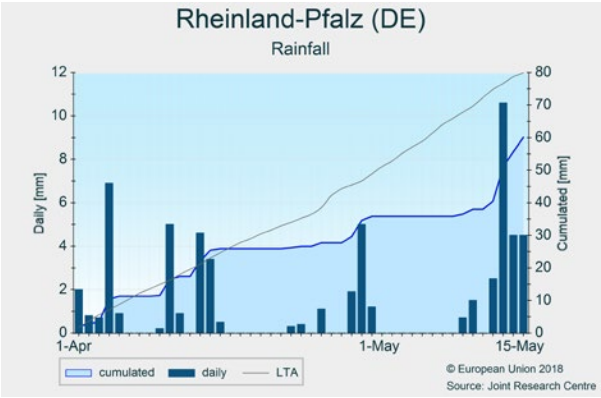
Except in the areas close to the north coast, the favourable conditions led to accelerated phenological development, which was most pronounced in the south. This was not necessarily accompanied by an equivalent regain of biomass accumulation, as remote sensing reveals.

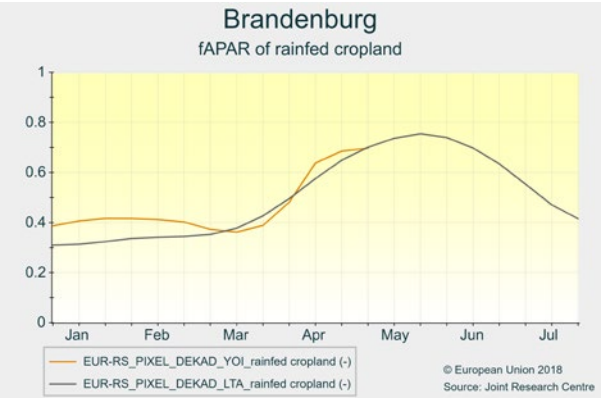
Winter cereals benefited from high temperatures and are generally in fairly good condition. However, the performance of winter rapeseed is suboptimal. After the difficult conditions around sowing and during early spring, followed by a promising start of April, several reports now mention rapeseed stands with poor flowering, short duration of flowering, flower abortion and/or bud desiccation, which are mainly attributed to a combination of weak plant status and unfavourable weather followed by exceptionally warm conditions around flowering. Central Germany (including *Niedersachsen*) is most affected, particularly rapeseed stands on sandy soils. In *Niedersachsen,* a significant part (> 5 %) of rapeseed has been ploughed out; the yield forecast has been revised downwards.

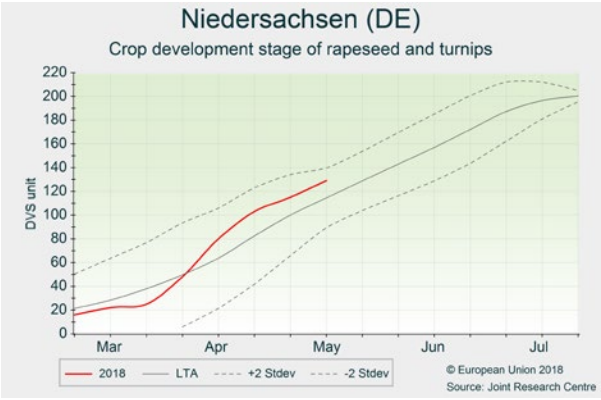
Spring crop sowing suffered delays due to wet conditions. In most areas, conditions improved after the beginning of April, though *Schleswig-Holstein* only improved after mid-April. Late sowing tends to have negative effects on yield, but, so far, crops are developing well.

After initial delays, the sowing of summer crops started after early or mid-April under mostly favourable conditions. Sugar beet was sown almost two weeks later than usual, and early potatoes were also delayed. Maize sowing followed an average course.









Poland

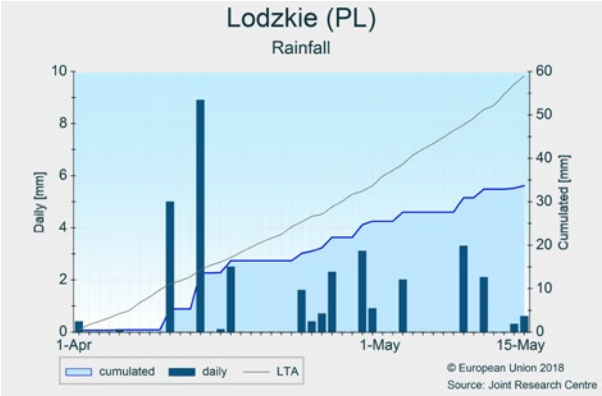
Warm weather favoured spring sowing campaign and crop development

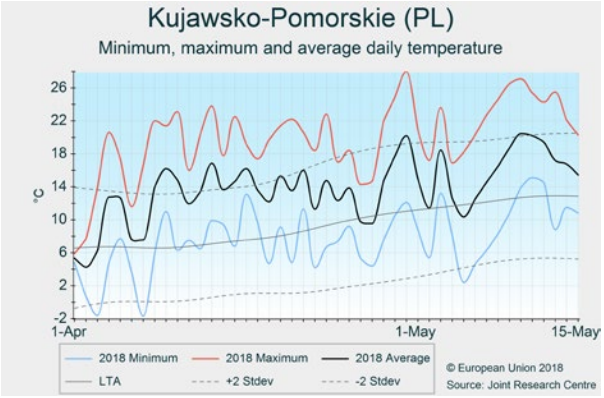
Temperatures in April and the beginning of May were substantially above the average, which accelerated the development of winter crops. Weather conditions were favourable for the sowing of spring and summer crops. The yield forecast for rapeseed was revised downwards.

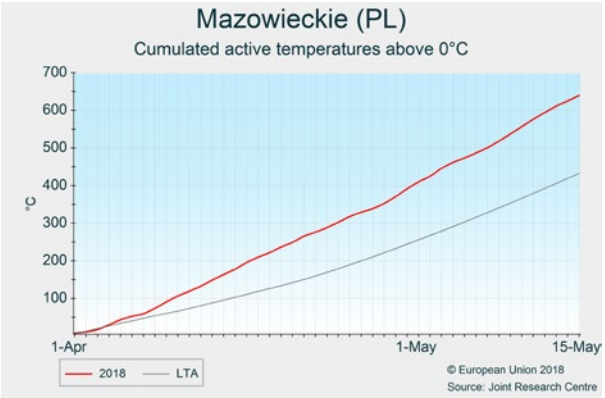
Substantially warmer-than-usual temperatures were recorded in April and at the beginning of May. Precipitation was considerably below the seasonal average, most markedly in the *Mazowieckie*, *Opolskie*, *Dolnośląskie* and *Łódzkie* regions. As a consequence of the predominantly high temperatures in April, the simulated phenological development of winter crops became noticeably advanced compared with an average year. The cold spell that was observed in February and March did not damage winter cereals. However, rapeseed crops (especially the late-sown fields) were partly damaged by these cold spells in *Kujawsko-Pomorskie*, *Mazowieckie*, *Wielkopolskie* and *Warmińsko-Mazurskie*. Additionally, the warm temperatures recorded during the period under analysis favoured the development of rapeseed pests and diseases.

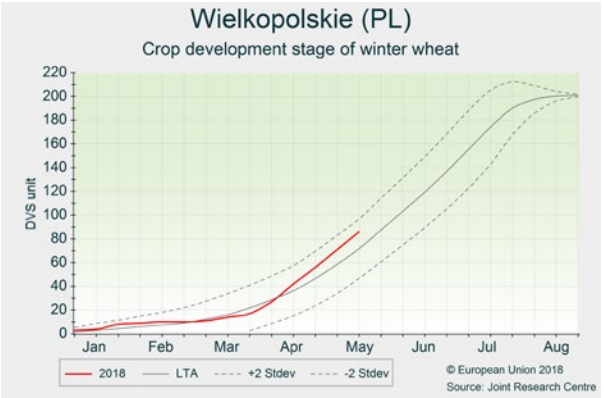
The warm temperatures and the rain deficit allowed to advance the spring crops sowing operations, which had been delayed after the cold recorded in March. The warm temperatures have also been favourable for the sowing of grain maize, which could be sown earlier than usual.

The yield forecast for grain maize, sugar beet, potatoes, and winter and spring cereals remains unchanged compared with last month and follows the historical trend. The yield forecast for rapeseed is revised downwards.









United Kingdom and Ireland

Favourable conditions for winter crops. Spring sowing extended into May

Winter crops are generally faring well, despite a cold and wet start to the season. April and the first half of May presented favourable conditions, allowing winter crops to accelerate development and spring sowings to be completed.

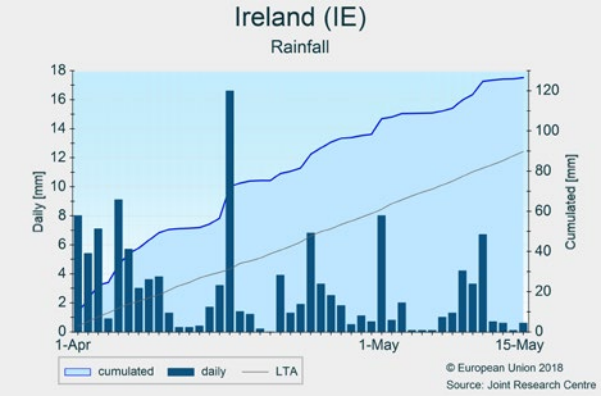
Temperatures during the review period (1 April to 15 May) were predominantly above average in both countries and most distinctly in the southern UK. Below-average temperatures occurred only for a few days at the beginning and at the end of April, frosts were sparse and light, and these temperatures were confined to Ireland and the northern UK during these same periods.

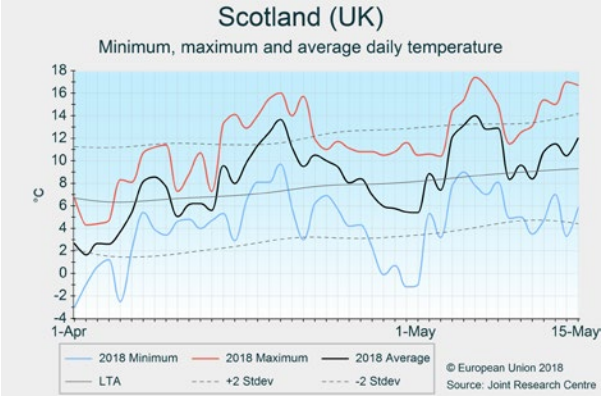
Rainfall continued to be above average in both countries, with few dry days in Ireland and Scotland, whereas periods of several consecutive dry days were more common in the rest of the UK. Cumulative global radiation levels were generally close to average in the UK and below average in Ireland.

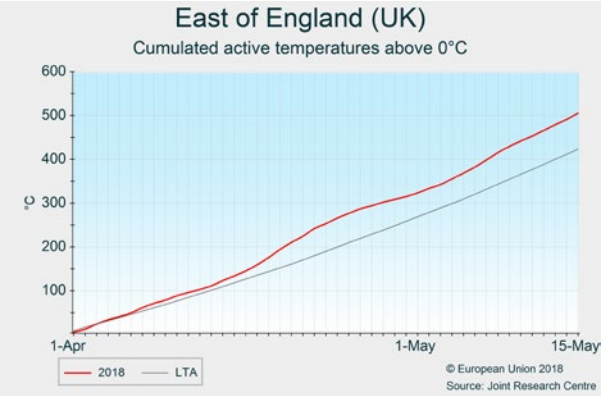
Most winter cereals recovered the delayed development during May, reaching almost the end of the jointing phase. Most rapeseed crops started flowering at the end of April.

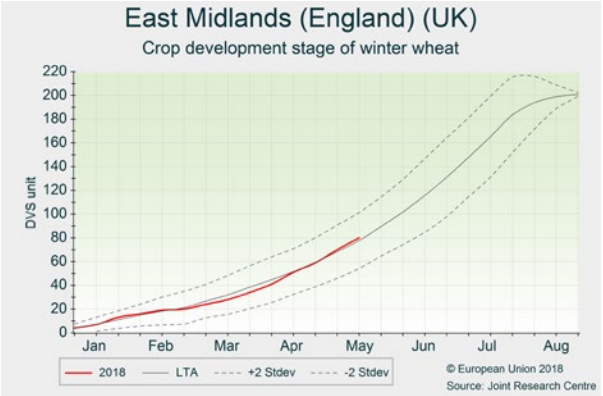
Planting of spring barley and sugar beet progressed well in April, but the situation is variable, with most of the fields finished while some farmers still experienced delays due to wet conditions, especially in Ireland, extending the sowing into May. However, in the lighter soils, the late spring drilling was compensated by warmer seedbeds with adequate moisture, resulting in quick emergence and high vigour. The last crops sown on heavier soils might be more seriously affected by the delayed sowings. For potatoes, by the first week of May only half of the planting was realised in the UK.

The yield forecasts for winter crops remain close to the 5-year average. The forecasts for spring crops are still based on the long-term trends.









Spain and Portugal

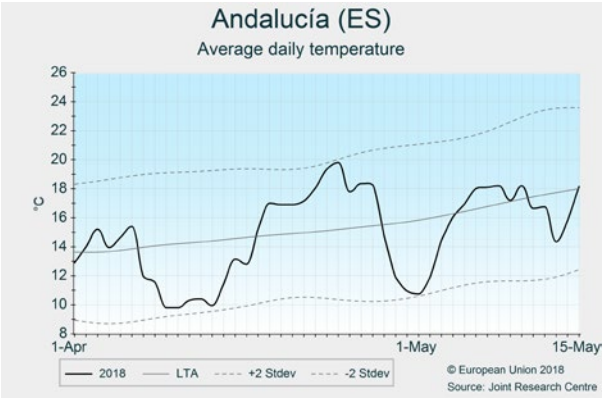
Winter cereals grain filling under positive conditions

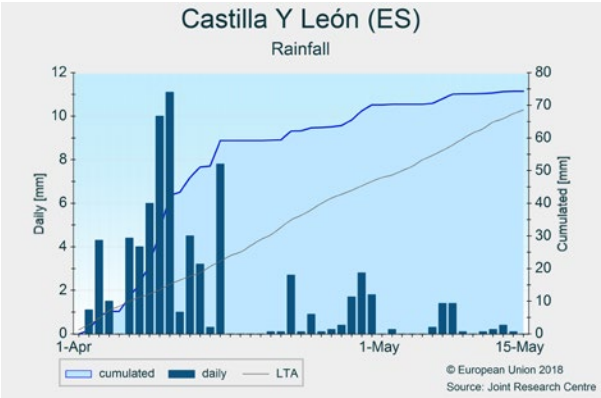
Spring is unusually humid across the Iberian Peninsula, leading to a higher-than-usual soil water content in the main cereal-producing regions, which is favouring winter cereals during the grain-filling phase. The sowing of summer crops is almost concluded.

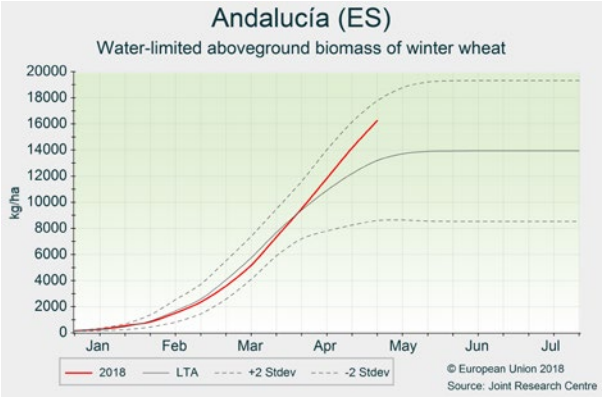
Humid and colder-than-usual weather conditions are prevailing during spring across the Iberian Peninsula. Abundant rainfall was registered during the first half of April in practically all regions. In the north-east (*Navarra, Zaragoza*), the high level of the Ebro River caused some local floods in mid-April. The lower-than-usual temperatures observed in the first quarter of the year persisted until the first week of May, with the exception of a short period during the second half of April when daily temperatures substantially exceeded the seasonal values.

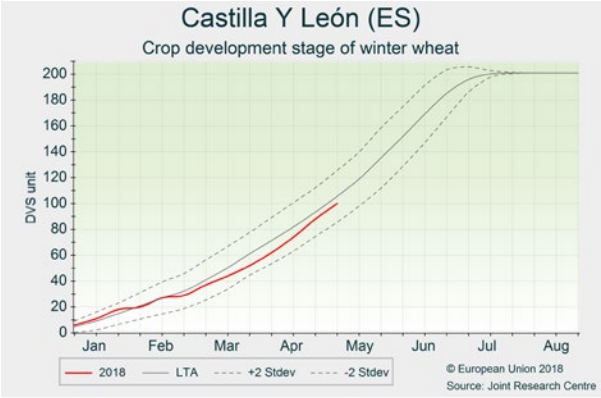
Winter cereals reached the grain-filling stage in the centre and southern half of the Peninsula. Thanks to the humid conditions experienced, soil moisture is higher than usual and crop conditions are positive, especially in Andalucía and Alentejo. In the north (*Castilla y León*, *Aragón*), winter crops present a slight delay compared with an average season due to the lower-than-usual spring temperatures, but overall growing conditions are favourable. Wheat and barley yields have been revised upwards.

The sowing of summer crops advanced rapidly in most regions during the second half of April, thanks to the high temperatures and sparse rainfalls. Maize and sunflower sowings are almost concluded and soil moisture levels are adequate for emergence.









Italy

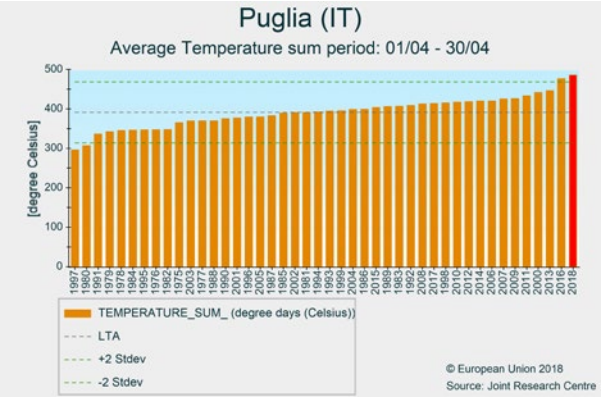
Warm weather favoured early summer crop growth but locally jeopardised winter crop yield

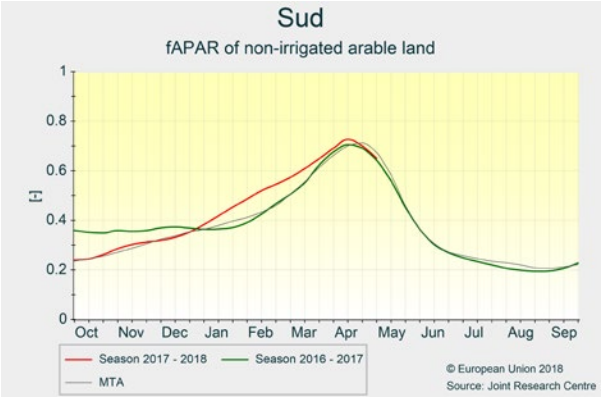
In southern Italy, winter crops are entering their last stages of development slightly earlier than usual. The early development of summer crops continues under favourable conditions throughout the country.

In April, temperatures moved from average to clearly above average throughout the country, rendering April 2018 one of the three warmest Aprils in the past 40 years for most of the regions of Italy (e.g. *Puglia*). The strongest anomalies were observed from 18 April to the first days of May, with temperatures that locally peaked at 30 °C in southern Italy. In most of those regions as well as in eastern areas of the Po valley, April was drier than usual.

The warm anomaly accelerated wheat development and negatively affected grain formation and grain filling in *Puglia* and *Basilicata*. In *Sicilia,* the less extreme warm weather in April did not compromise winter crops yield formation, and in May wheat and barley are in the latest stage of grain filling under favourable conditions. In northern Italy, winter crops are proceeding under average to favourable conditions, and grain filling started in May without relevant concerns.

In northern Italy, summer crop development was favoured by the warm anomalies of April, and the leaf area expansion was sustained by the abundant precipitation of early spring. In central Italy, where sowing activities could have been delayed by the rain of early April, sunflowers developed rapidly and with favourable biomass accumulation.





Hungary

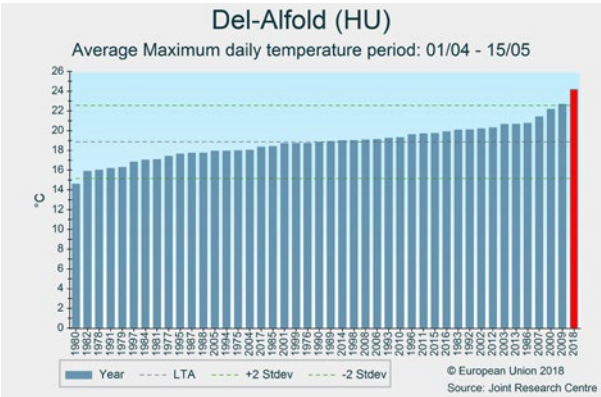
More rain needed to sustain promising winter cereal outlook

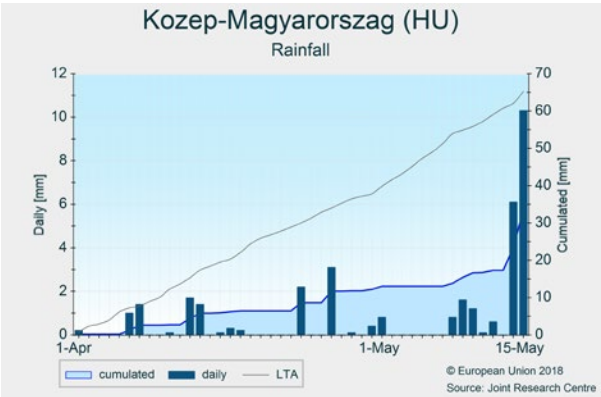
Warmer- and drier-than-seasonal weather conditions since 1 April improved conditions for the sowing of summer crops. The outlook for winter cereals is promising, but more rain is needed to sustain adequate water supply. Rapeseed crops were negatively affected by the unusually warm conditions.

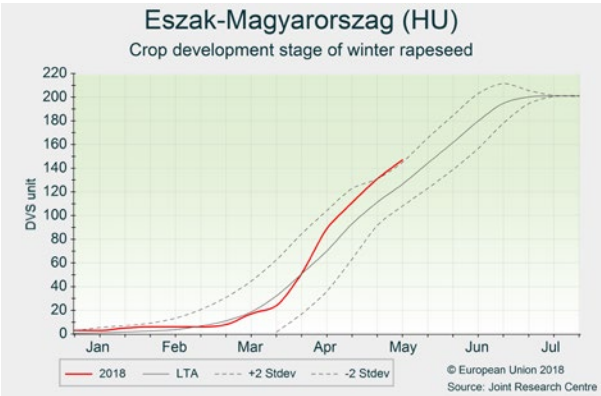
Both daily minimum and maximum temperatures persistently and highly exceeded the long-term average (LTA) throughout the review period, resulting in an overall positive thermal anomaly of 4–5 °C, making this the warmest 1 April to 15 May period in our records (since 1975). No frost event occurred. After the wet March, precipitation has decreased considerably since early April. The cumulative rainfall deficit (compared with the LTA) was moderate in *Nyugat-Dunántúl* (< 20 mm), but reached 30–60 mm elsewhere, being most intense in southern and eastern Hungary.

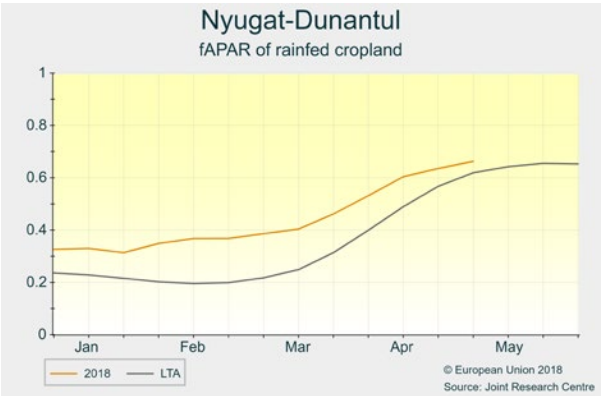
Phenological development of winter crops was accelerated by the warm weather conditions and is now advanced. The flowering period of rapeseed was unfavourably shortened by hot weather not allowing time for the plants to grow side branches. Biomass accumulation of winter cereals is promising, being on or above the average level. The latest remote sensing images confirm the current high yield potential. However, the situation is fragile because of scarce rains. Soil water reserves are still above critical levels, but more rain will be needed to sustain adequate water supply during yield formation.

The spring sowing campaign, which started under difficult conditions, benefited from the sparse rains since the beginning of April. Maize and sunflower sowings were concluded with no severe delay.









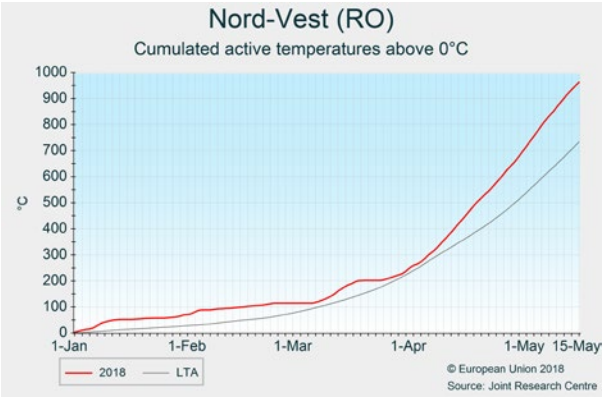
Romania

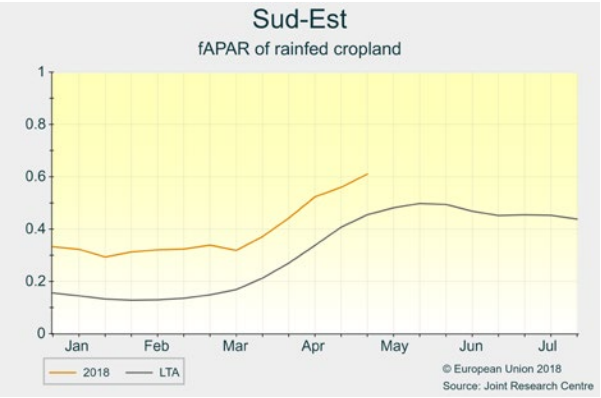
Winter crops are in good shape, but more rain is needed

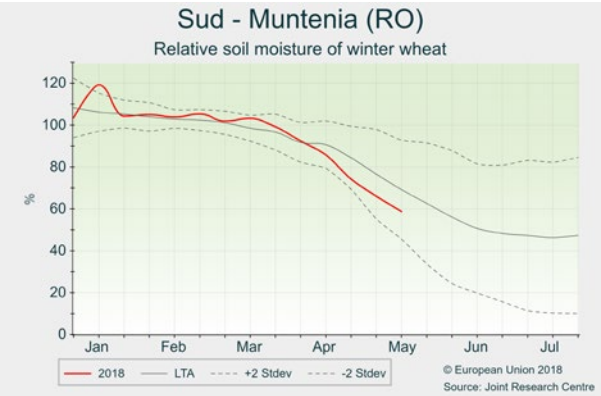
It was much warmer than usual during the review period (1 April to 15 May). Consequently, winter crop development was accelerated by one to two weeks. Overly wet top soil conditions hampered spring sowing until mid-April, after which sowing progressed substantially.

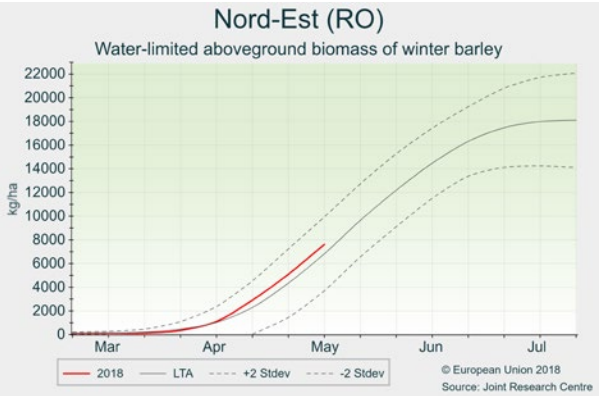
Daily temperatures continuously and highly exceeded the LTA during the review period. The active temperature sum (T_{base} = 0 °C) gained a surplus of 140 to 220 GDD, resulting in advanced development of winter crops. After the abundant precipitation of late winter and early spring, rain practically stopped in April in the eastern part of Romania (< 10 mm) and also remained scarce elsewhere (10–30 mm). Precipitation increased somewhat in May, but mostly remained below average. Soil moisture levels decreased consistently as the result of the higher-than-seasonal water consumption by plants due to high temperatures and irradiation levels.

The sowing of spring crops was delayed by the overly wet first half of April. Drier weather conditions experienced later allowed good progress of sowing. Our crop model simulations present above-average biomass levels of winter cereals, but depict a less positive picture for rapeseed. In most of Romania (especially in the southern regions), the satellite fAPAR profiles persistently exceed the average course by more than 6 %. Our yield forecast was revised slightly downwards because of current dry conditions in south-eastern Romania, but is still above average. Further revision will be possible depending on rain water supply in the coming weeks









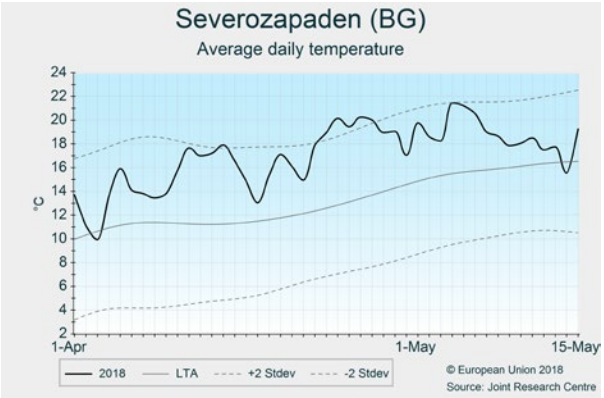
Bulgaria

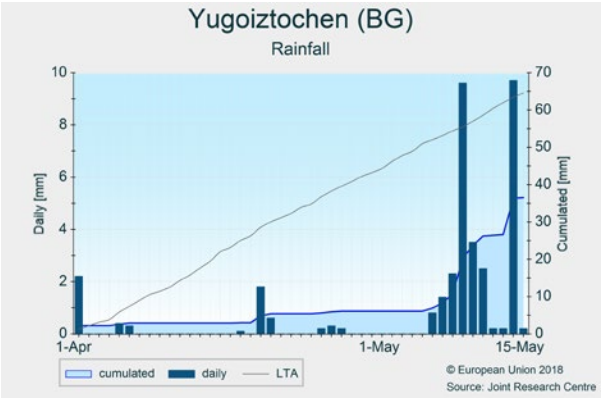
Delayed spring sowing campaign raises concerns for summer crops

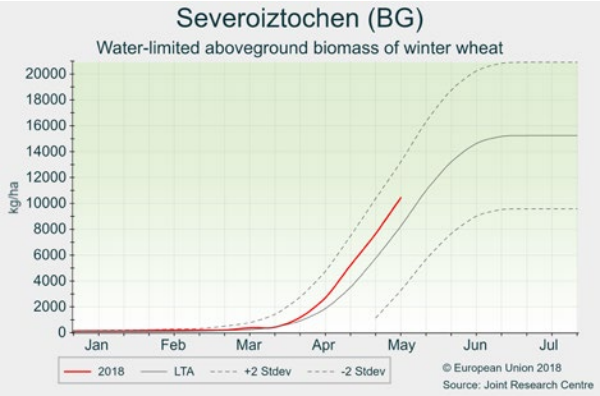
Bulgaria experienced an extremely warm period with sparse rainfall from early April. This allowed spring sowing to be nearly completed, albeit with substantial delay. Phenological development of winter crops is advanced. The yield outlook for winter cereals is promising, but rain is needed to sustain adequate grain filling.

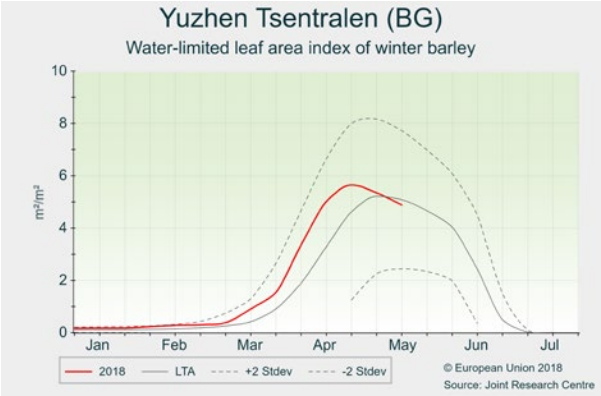
In Bulgaria, an unusually cold and wet (even snowy) spell in the second half of March hampered the opening of the spring sowing campaign. In the last days of March, perceptible warming begun and the daily mean temperatures have typically fluctuated 3–5 °C above the LTA since then. The current review period was the warmest 1 April to 15 May period in our records (since 1975). In April, scarce precipitation (3–20 mm) and high insolation facilitated the drying and warming of top soils. The sowing of summer crops accelerated and was nearly completed in mid-May. However, on average, this year's spring sowings occurred substantially later than usual. The delayed spring sowing campaign can mean an overall forward shift of the maize and sunflower growing season, implying that these crops may be more exposed to summer heatwaves and water scarcity during flowering.

The warm and sunny weather boosted the winter crop development but also the crop water demand. Moderate rain arrived in May, but this was insufficient to substantially increase the soil moisture levels. The water content under winter crops presents a moderate deficit and is above the critical level in northern Bulgaria, but in the south-eastern regions the moisture supply became limited. Leaf area expansion and biomass accumulation of winter crops mostly exceed the average. Therefore, the yield expectations are moderately positive, but more rain is needed to realise the potential.









Austria, the Czech Republic and Slovakia

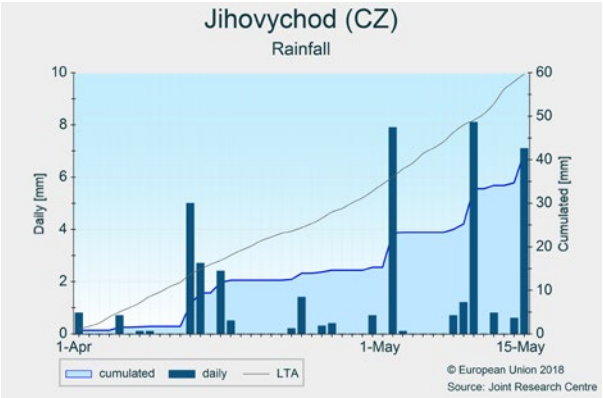
Warmest April in our records

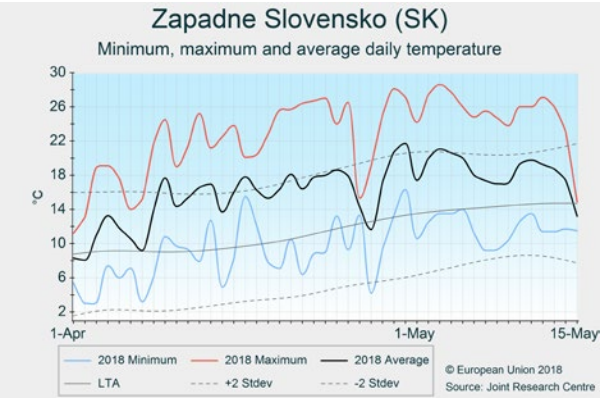
The period under analysis was characterised by a substantial warm weather anomaly. The lack of rainfall in many agricultural regions is rapidly depleting soil water levels. The winter crop yield forecasts were revised downwards slightly for Austria and more markedly for Slovakia and the Czech Republic.

The warmest April weather conditions in our records were recorded, with air temperatures exceeding the LTA by between 4 °C and 6 °C. Locally, maximum air temperatures reached nearly 30 °C. May was also warmer than usual so far. Concerning precipitation, drier-than-usual conditions prevailed north of the Alps. Rainfall cumulates for the period as a whole rarely exceeded 30 mm in important agricultural regions of western Slovakia, northern Austria and the Czech Republic. This contrasted with the situation in southern Austria, where rainfall cumulates exceeded 100 mm during the period under analysis. Heavy precipitation events, partly in the form of hail, were recorded locally in *Kärnten*, *Steiermark*, *Burgenland*, *Niederösterreich*, *Bratislavský Kraj* and *Jihozápad*.

The summer crops sowing campaign is now mainly finished. Warm weather conditions in April have been favourable for the spread of pests, affecting especially emerging sugar beet stands. The abovementioned heavy rainfall events caused plant dieback locally. In these cases, summer crops were resown.

Regarding winter crops, the unusually warm weather during the period under analysis accelerated development, but also caused sharply decreasing soil water levels in major parts of the Czech Republic, Slovakia and the northern half of Austria. The yield forecast for winter cereals was revised downwards on account of the emerging drought conditions; much will depend on the weather conditions during flowering in the coming weeks. Winter rapeseed crops were negatively affected by unfavourable weather, with dry and exceptionally warm conditions around the flowering stage, most markedly in Slovakia. The yields of summer crops are kept at the historical trend values.





Denmark and Sweden

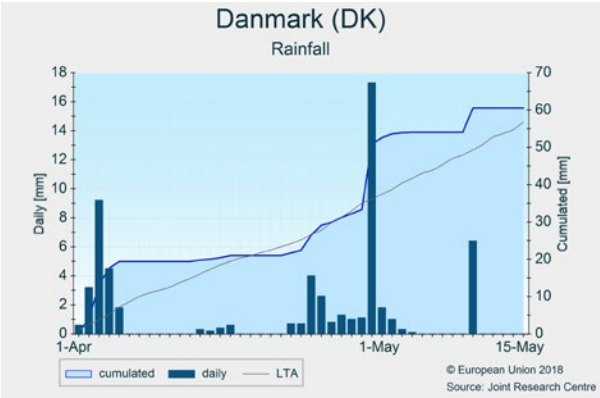
Favourable conditions for winter crops and spring sowing

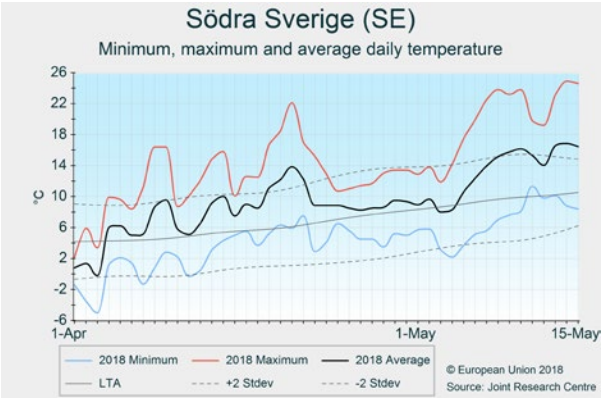
Warmer-than-usual weather conditions led to a significant advance in the crop development of winter cereals. Dry periods during April and May ensured favourable sowing conditions for spring crops.

Temperatures were above the LTA across the whole review period in both countries. Cumulative rainfall was generally above average in both countries, but mainly at the beginning and end of April, ensuring a convenient sowing window in mid-April and May for spring crops. Cumulative radiation was markedly above average in both countries.

Spring sowing started with a two-week delay in Denmark due to the cold weather of March. Sowing progressed well in April and May and is expected to be concluded by the end of the review period. In Sweden, sowing started in April as usual. Sowing progressed well during the review period and is expected to be finished by the end of May, within the usual time window for the country.

Winter cereals recovered the delayed development of the last months and are now in good condition. The yield forecast for winter crops is close to the 5-year average in Denmark and Sweden. The yield forecast for spring crops is maintained close to the historical trend.





Finland, Lithuania, Latvia and Estonia

Good weather conditions promote winter crops growth

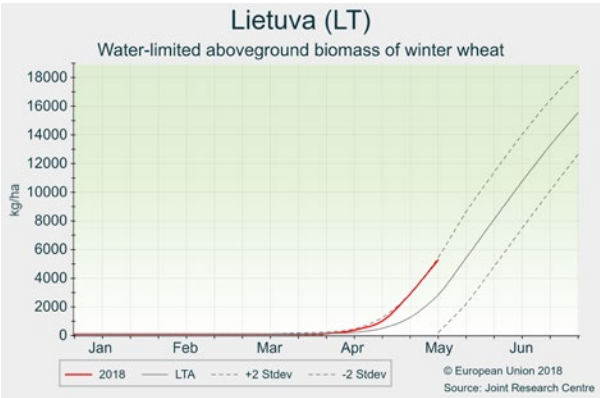
Warmer-than-usual temperatures resulted in high growth rates of winter crops. In Finland and Estonia, spring sowing activities slowed down as a result of abundant rain during April, but are currently progressing well, within a normal window.

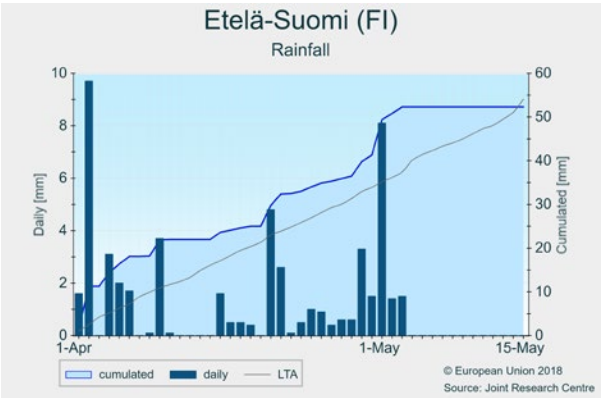
Temperatures during the period analysed were higher than average for all countries, most distinctly in Lithuania and Latvia, where cumulative active temperatures (T_{base} = 0 °C) and radiation were among the highest in our records. Rainfall was abundant until the beginning of May in most agricultural areas of Finland and Estonia, but scarce since mid-April in the main cropland areas of Latvia and Lithuania.

The current weather conditions have created a good environment for accelerated growth and development of winter crops (mainly concentrated in Latvia and Lithuania), which are in the heading phase. The sparse rain since mid-April also helped to accelerate spring sowing activities, which are almost concluded in these countries. Soil water levels are rapidly decreasing but remain above stress thresholds.

In Finland and Estonia, the high and frequent rainfall resulted in wet soils, which hampered the sowing of spring crops. However, thanks to the recent rain-free days since the beginning of May, coupled with warm weather, sowing is currently progressing well, within a normal sowing window.

The yield forecasts for winter crops were revised upwards and are slightly above average. The spring crops yield forecast is still based on historical trends and average values.





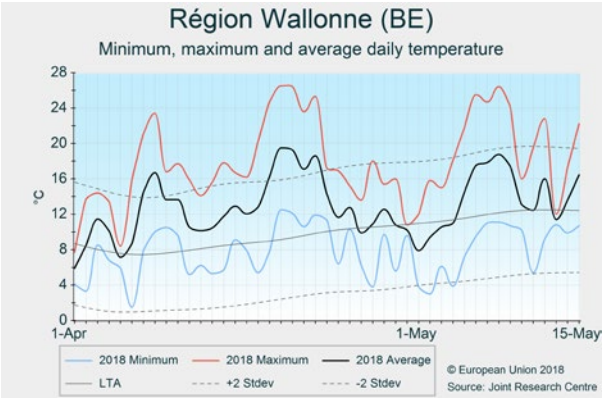
Belgium, the Netherlands and Luxembourg

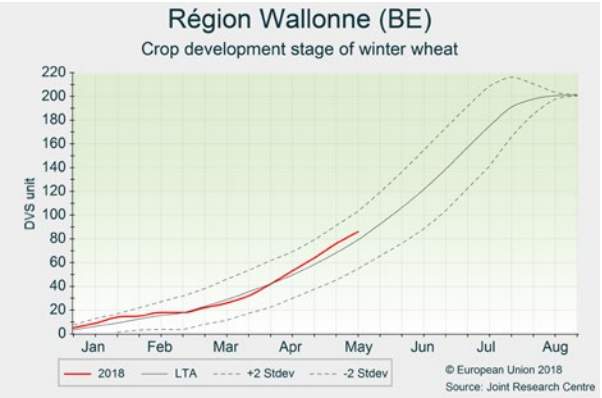
Well-watered, sunny and warm conditions boost crop growth

Well-above-average temperatures and sunshine levels combined with alternating long dry and short wet periods created good conditions to finish spring sowings and favoured crop growth and development. Winter crops are now generally advanced and yield forecasts were revised upwards slightly.

Weather conditions between 1 April and 15 May were unusual in several aspects: the period as a whole was among the warmest in our records (since 1975); maximum temperatures reached close to 30 °C in April and were among the highest in our records; frost occurrences were among the fewest and mildest. Cumulative rainfall ranged from slightly below average in southern Belgium to somewhat above average in western and northern parts of the Netherlands. Rainfall totals were strongly influenced by a single event (on 29 April), reaching close to 30 mm, representing another record for this period of the year. Weather conditions before and after this event were much drier and sunnier than usual.

In general, these conditions have been favourable for crops. Potato and sugar beet sowings could be finalised quickly, albeit with an average delay of one to two weeks. Locally, fields had to be resown on account of insect damage to emerging stands and as a result of soil crusting, caused by the rain of 29 April and the subsequent dry conditions. Winter crop development and biomass accumulation, both lagging behind until the beginning of April, are now above the seasonal trends. The yield forecasts for winter crops remained unchanged or were revised upwards slightly. The yield forecasts for summer crops are based on the historical trends.





Greece and Cyprus

Winter crop season: towards a favourable conclusion

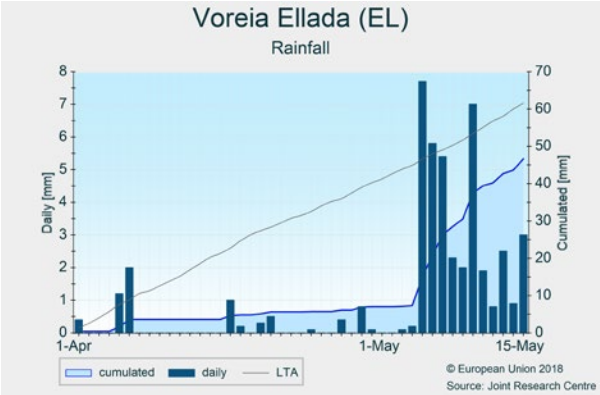
Winter crops entered the grain-filling phase under slightly unfavourable conditions, but weather in early May restored yield expectation to slightly above the average. Summer crops sowing ended in April.

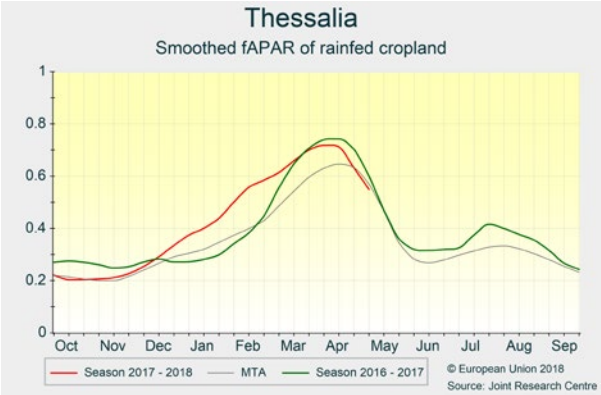
In Greece, April was dry, with temperatures above the average, especially in the last 10 days of the month, when maximum temperatures reached 30 °C for a few consecutive days.

In northern and north-eastern regions, such dry and warm weather favoured winter crops where flowering started under optimal conditions. Even summer crops profited from the dry conditions, compensating for the overly wet March. The late sowing of maize and sunflower was completed and the resulting crop emergence and development were optimal.

In central Greece, in May, temperatures returned slowly to average values while staying + 2 °C to + 4 °C above the average in northern and north-eastern regions. Since 5 May, limit ed, but well-distributed, precipitation of around 30 mm has occurred throughout the country. Average temperatures and restored humidity were beneficial in central Greece. There, while grain filling of winter crops had been shortened on account of the high temperatures and reduced soil moisture at the end of April, senescence slowed down and soil moisture was partly restored in the first half of May, favouring yield formation.

In Cyprus, the winter crop cycle ended slightly earlier than usual. Yield expectation remains unchanged, slightly below the 5-year average.



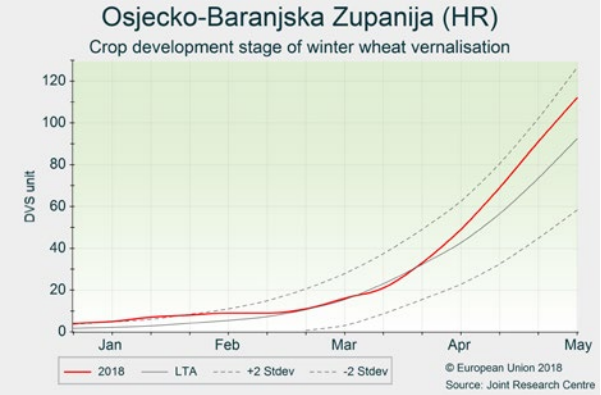


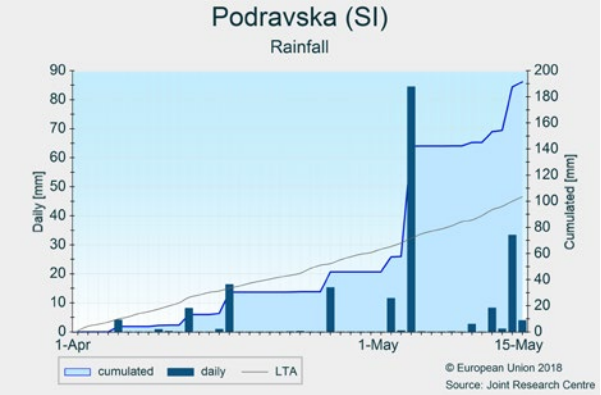
Slovenia and Croatia

Good yield outlook for winter crops

The period under analysis was characterised by a substantial warm-weather anomaly with record-high temperatures for April. Warm weather has accelerated the development of winter crops. The lack of rainfall in eastern Croatia is starting to affect crop growth.

Recorded temperatures since the beginning of April were the highest in our records. Temperature anomalies reached between 2 °C and 6 °C above the LTA; maximum temperatures already reached above 30 °C in eastern Croatia during the third dekad of April. Above-average rainfall was observed in major parts of Slovenia. Heavy rainfall events that occurred during the first dekad of May in many regions of Slovenia (most intensive in the north-east) were locally accompanied by hail. Average or below-average rainfall cumulates prevailed in Croatia. There, the rainfall deficit was most pronounced in the eastern regions of *Osječko-Baranjska Županija* and *Vukovarsko-Srijemska Županija*; rainfall cumulates during the period under analysis were below 40 mm in these two regions. Warm weather during the period under analysis has accelerated the development of winter crops. Soft wheat has already entered the flowering stage in major parts of Croatia. Summer crops were mainly sown already by the second half of April. Warm weather conditions during the period under analysis have been favourable for spreading pests and diseases. Heavy rainfall events in north-eastern Slovenia, accompanied by hail, might have damaged already emerged summer crops locally; they were, or will be, resown. Warm weather and the rainfall deficit in eastern Croatia are increasing the soil moisture deficit, which might limit crop growth in the coming dekads if rain does not arrive. For now, our winter crop yield outlook remains good and is above the 5-year average in both countries. The yield forecast of summer crops remains at the long-term trend values.





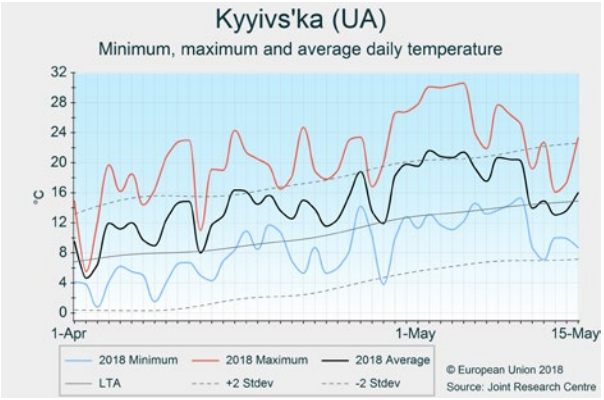
3.3 Black Sea Area

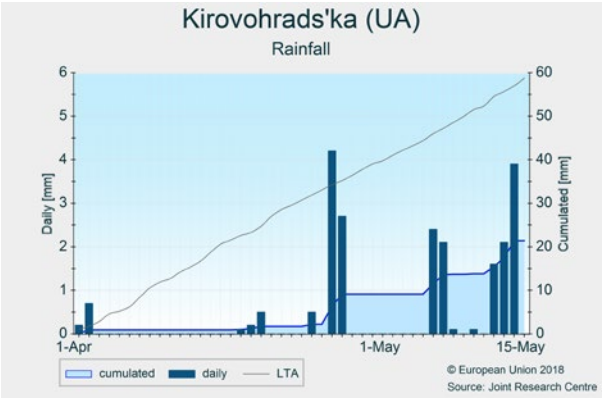
Ukraine

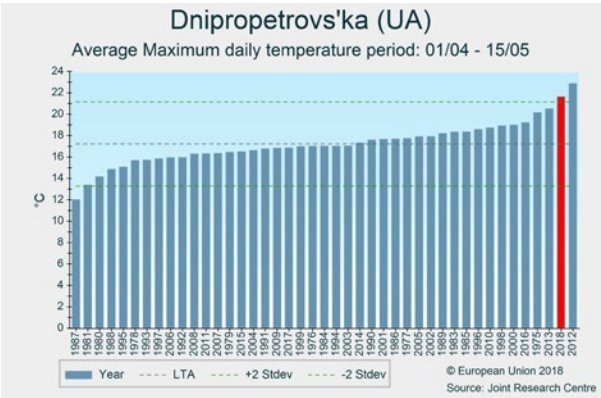
Beneficial warm and dry weather for crop growth

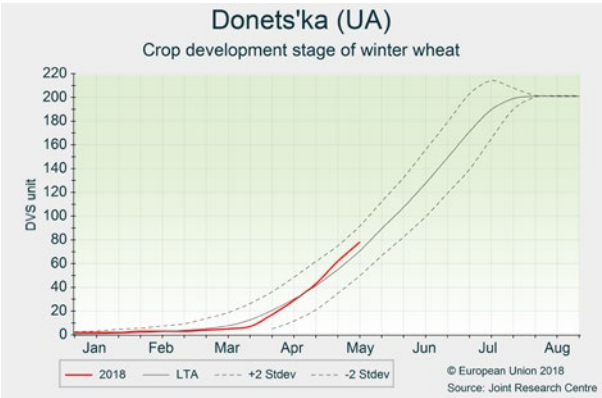
At the beginning of April, the cold and snowy weather changed to warm and dry, benefiting the growth of winter cereals and providing favourable conditions for spring sowing activities.

The period of analysis was one of the warmest recorded since 1975, succeeding a winter with persistent snow cover, which melted only at the end of March and beginning of April. Rainfall cumulates recorded since 1 April are only 10–40 % of the LTA, in sharp contrast to the substantial March surplus. Winter crops, which entered the period of analysis with a substantial delay, strongly accelerated growth and development thanks to the warm weather. The current rain deficit is not a concern for winter crops, as soil water levels are still adequate. The warm and dry conditions were also beneficial for the spring sowing campaign. Spring barley sowing could be concluded at a fast pace after the substantial delays due to the persistent snow cover and low soil temperature. Weather conditions are also positive for the sowing of grain maize, sunflower and soybean, and the rainfall observed during recent days will refill the upper soil water reserves to ensure adequate emergence. Yield forecasts remain unchanged from last month.









Turkey

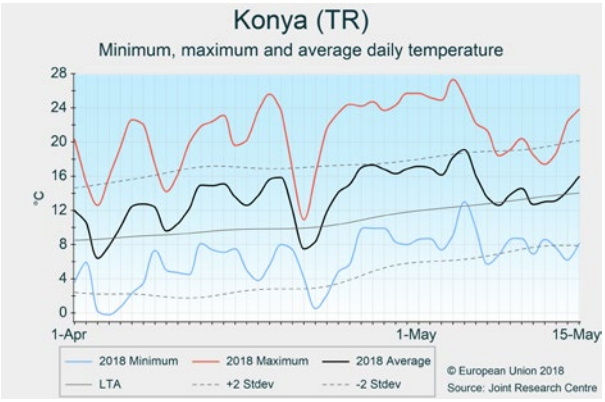
Beneficial rain in May

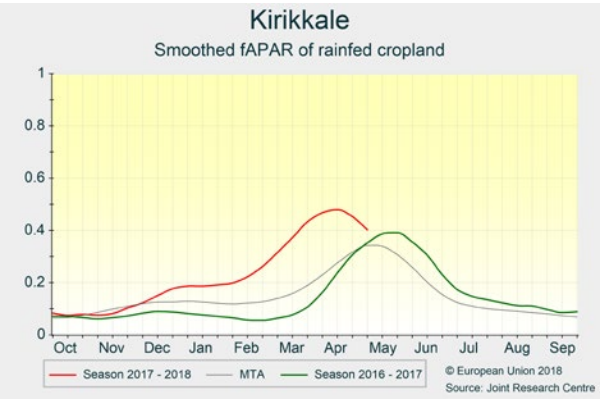
Winter crops are proceeding under favourable conditions, except for the non-irrigated fields of the south-eastern regions. Summer crops sowing ended without relevant concerns.

In central Turkey (*Konya*, *Ankara*, *Kirikkale* and *Kayseri*), the warm temperatures of April (between + 4 °C and + 6 °C above the LTA) further accelerated the already advanced phenological development of winter crops. At the end of April, barley and wheat had already reached grain formation or the flowering stage. Notwithstanding the warm temperatures and little precipitation in April, the soil moisture remained favourable, thanks to several rainy days in March. Since 6 May, temperatures have returned to their usual condition and around 30 mm of total precipitation has occurred, favouring grain yield formation.

In the south-eastern regions (*Gaziantep*, *Şanliurfa* and *Mardin*), the warm April temperatures significantly increased crop water demand, which was not fully satisfied by precipitation. In southern *Şanliurfa* and in *Mardin*, grain filling during April was significantly shortened in non-irrigated fields; the change in weather from 6 May onwards, with lower temperatures and some rain, arrived too late to extend the grain-filling phase. In contrast, crops on irrigated fields show average to favourable conditions during grain filling, compensating for the envisaged yield loss from non-irrigated fields. In *Gaziantep* and northern *Şanliurfa,* no water stress occurred and crop senescence is proceeding with no concerns.

The sowing of summer crops ended in April under favourable conditions. Germination generally proceeded favourably and crops are developing fast. Currently, water levels in irrigation reservoirs are high.





3.4 European Russia and Belarus

European Russia

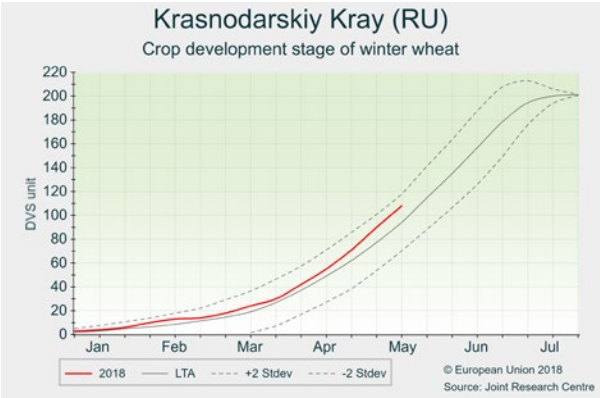
Spring sowing campaign delayed by cold and wet weather

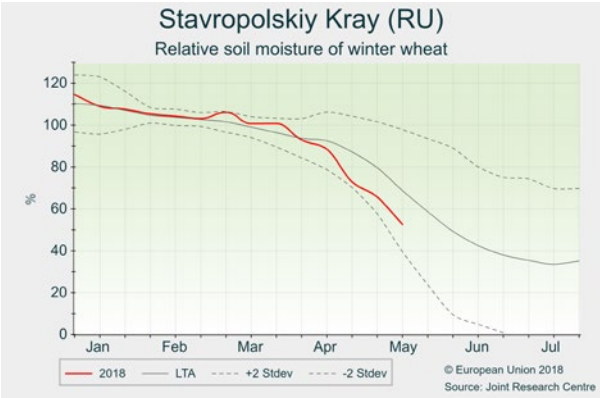
Cold and wet conditions caused delay to the spring sowing campaign and the re-greening of winter cereals in central and eastern regions. The southern parts of the country were warmer and drier than usual, providing favourable conditions for spring sowing and for the growth and development of winter cereals. Winter wheat yield expectations are slightly above average.

After a cold March, daily temperatures fluctuated around the LTA in April, but the south-eastern part of *Volga okrug* was moderately colder than usual. Precipitation considerably exceeded the average in *Central okrug* and *Volga okrug*, but in southern Russia low rainfall totals (< 20 mm) were experienced in April. In the beginning of May, weather conditions became much warmer than usual in the western half of Russia (presenting a 2–4 °C positive thermal anomaly), while in the eastern areas temperatures remained near or below the LTA. Precipitation during the first half of May was sparse practically everywhere.

In *Central okrug* and *Volga okrug*, the progress of the spring sowing campaign was hampered by the wet and cold weather conditions that prevailed in April, but the pace of sowing speeded up in May when the situation became more usual. In southern areas, the sowing of spring and summer crops was free of serious problems.

Winter crop development is advanced by one to two weeks in the main producing south-western regions, but is mostly delayed in the central and eastern territories. According to our model simulations, the biomass accumulation of winter wheat is above average in southern Russia, but weak in the central and eastern areas because of the difficult wintering conditions, long-lasting snow cover and delayed crop regrowth. Soil moisture contents have decreased sharply (but are still adequate) in the areas between the Black Sea and the Caspian Sea and are mostly average or above average elsewhere.





Belarus

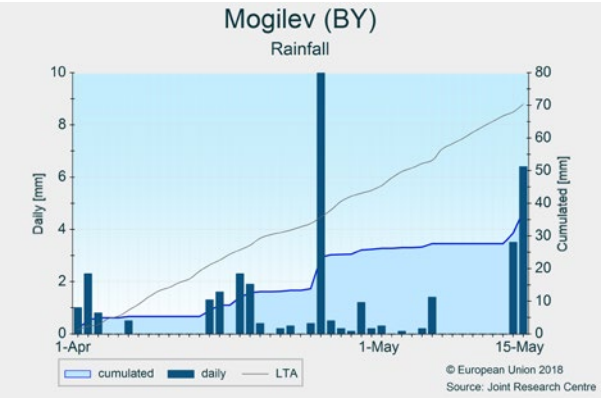
After initial delays, warm conditions favour crop development and spring sowing

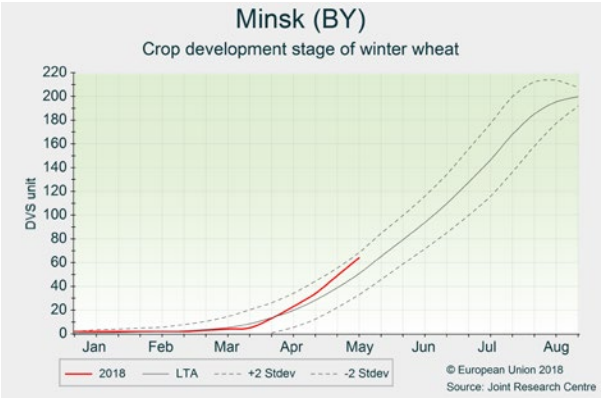
Sowing of spring crops was delayed by the presence of snow cover at the beginning of April. Warmer-than-usual conditions during the following weeks favoured crop development, which was noticeably above the average at the beginning of May.

Warmer-than-usual temperatures were recorded in April and at the beginning of May, while precipitation was considerably below the LTA, especially for the *Brest*, *Minsk*, *Vitebsk* and *Mogilev* regions.

As a consequence of the predominantly high temperatures in April, the simulated phenological development of wheat and barley is noticeably above the LTA. The lower-than-usual precipitation during April decreased the soil moisture level, to well below the LTA at the beginning of May. There is currently no concern, but rain will be needed to ensure crop growth in the following weeks.

Continued presence of snow during the first dekad of April hampered the sowing of spring barley, especially in the eastern regions of *Mogilev* and *Gomel*. Thermal conditions during the rest of April and at the beginning of May favoured the sowing of spring cereals and summer crops. Overall, this picture provides an outlook close to average conditions, and our previous forecast, based on the historical trend, is maintained.





3.5 Maghreb

Morocco, Algeria and Tunisia

Recovery in Algeria. Mixed outlook in Tunisia. Very promising in Morocco

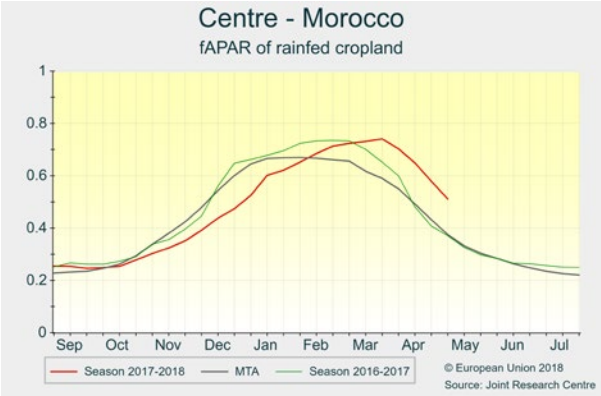
Good growing conditions continued in Morocco. In Algeria, abundant rain in April contributed to the recovery of the yield outlook for winter cereals to above-average values. Yield forecasts in Tunisia were revised downwards.

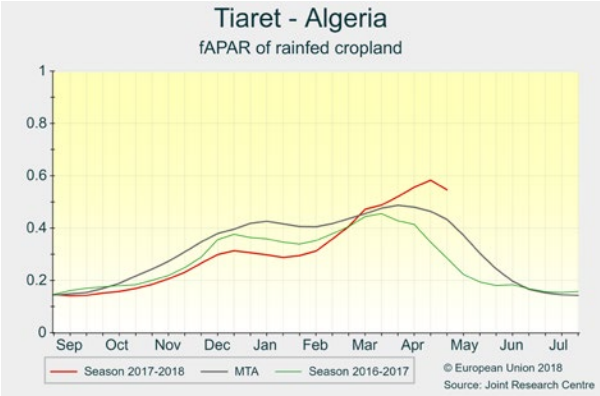
Conditions have been generally good in Morocco, which again received above-average rainfall in the main agricultural areas. Additionally, temperatures were below average, leading to an adequate progress of grain filling. Winter cereals are reaching maturity under good conditions, and remote sensing indicators corroborate a very good winter crop season.

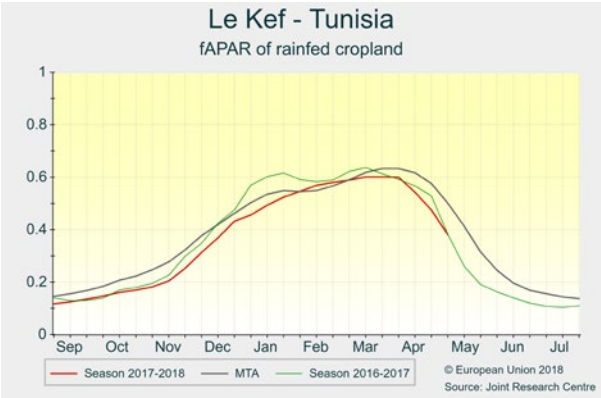
In Algeria, abundant rains in April arrived before flowering, which helped to replenish soil water stocks to favourable levels during this key yield performance stage. This has improved the yield outlook for winter crops, especially in important growing regions, such as *Tiaret* or *Sétif*.

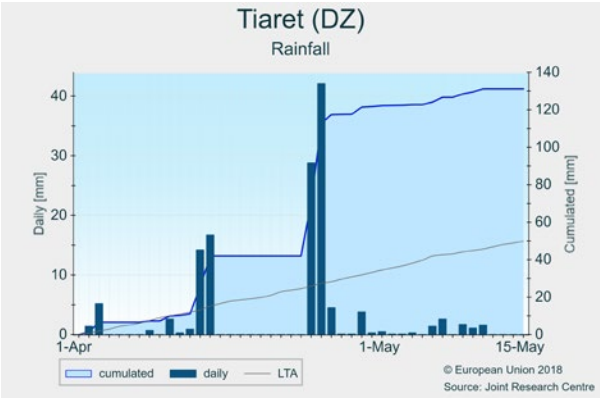
In Tunisia, warm and dry conditions prevailed in April, but were followed by some rainy episodes during May. According to the remote sensing signal, crops were negatively affected in southern *Béja*. However, in other northern regions (e.g. *Bizerte*, *Jendouba*), the levels of soil moisture were sufficient to sustain flowering and grain filling, which is currently ongoing with a fairly good prospect. Further south (e.g. *El Kef*, *Kairouan*), in contrast, the rain received in May came too late to improve yield prospects.

We have revised our forecast upwards for all crops in Algeria and Morocco to above the 5-year average. Forecasts in Tunisia were revised downwards, close to the 5-year average (below average for barley.



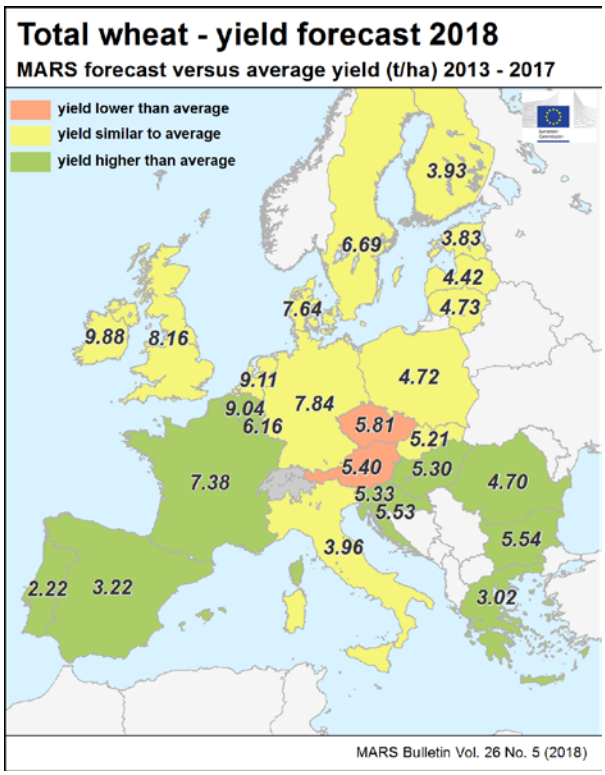




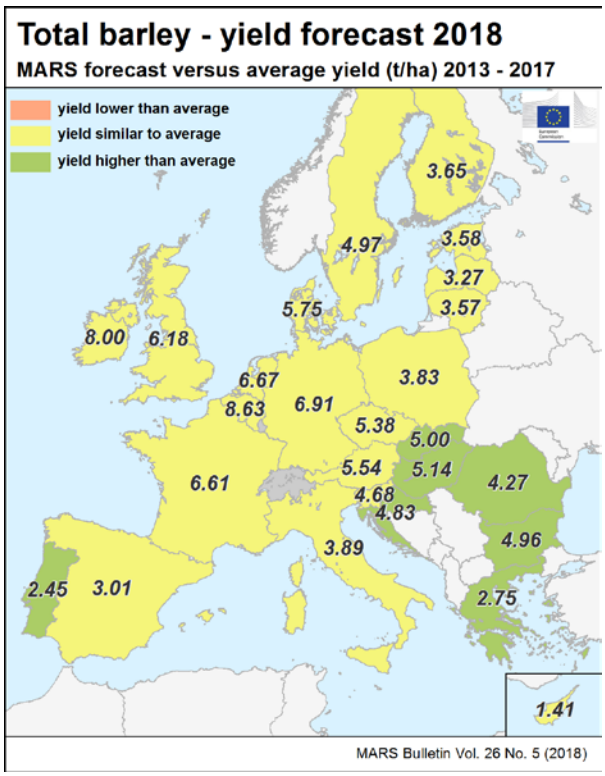


4. Crop yield forecasts

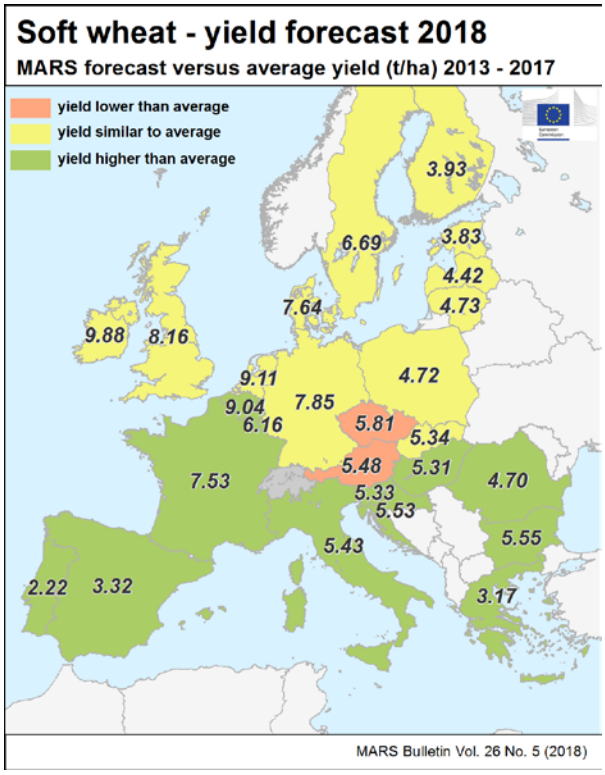
Country	TOTAL WHEAT (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	5,73	5,85	**5,93**	+3,5	+1,4
AT	5,68	5,12	**5,40**	−4,9	+5,5
BE	8,56	8,37	**9,04**	+5,6	+8,0
BG	4,57	5,26	**5,54**	+21	+5,2
CY	-	-	**-**	-	-
CZ	6,14	5,67	**5,81**	−5,4	+2,5
DE	8,00	7,64	**7,84**	−2,0	+2,6
DK	7,70	8,21	**7,64**	−0,9	−7,0
EE	3,84	4,20	**3,83**	−0,3	−8,9
ES	3,07	2,39	**3,22**	+4,7	+35
FI	3,97	4,13	**3,93**	−1,0	−4,8
FR	6,98	7,25	**7,38**	+5,7	+1,8
GR	2,84	2,93	**3,02**	+6,6	+3,2
HR	5,19	5,95	**5,53**	+6,7	−7,0
HU	5,06	5,44	**5,30**	+4,9	−2,6
IE	9,88	10,1	**9,88**	+0,0	−2,5
IT	3,83	3,86	**3,96**	+3,6	+2,8
LT	4,67	4,82	**4,73**	+1,3	−1,8
LU	5,88	5,48	**6,16**	+4,9	+13
LV	4,29	4,79	**4,42**	+2,9	−7,7
MT	-	-	**-**	-	-
NL	8,96	9,07	**9,11**	+1,6	+0,4
PL	4,67	4,90	**4,72**	+0,9	−3,8
PT	2,04	2,05	**2,22**	+8,7	+8,3
RO	3,93	4,88	**4,70**	+20	−3,6
SE	6,68	6,99	**6,69**	+0,2	−4,2
SI	4,99	5,03	**5,33**	+6,8	+6,0
SK	5,24	4,73	**5,21**	−0,5	+10
UK	8,19	8,16	**8,16**	−0,5	+0,0



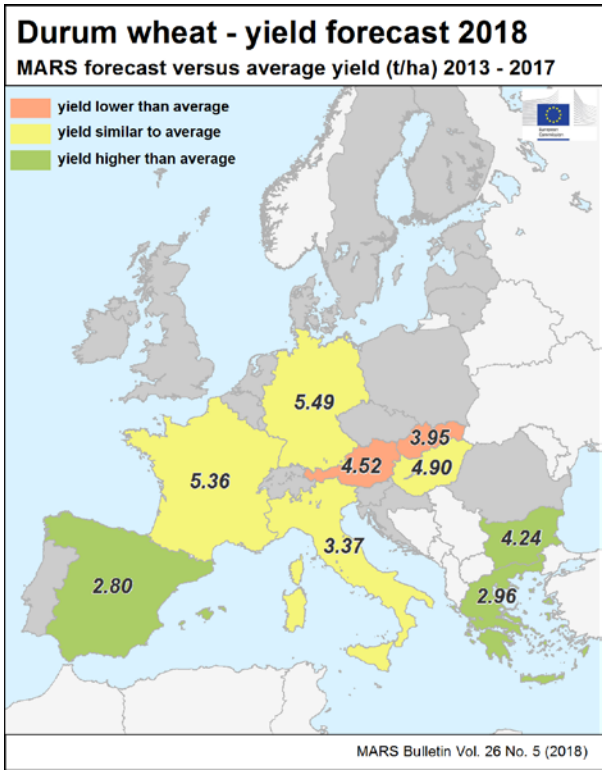
Country	TOTAL BARLEY (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	4,91	4,89	**5,04**	+2,6	+2,9
AT	5,64	5,60	**5,54**	−1,8	−1,2
BE	8,39	8,89	**8,63**	+2,8	−3,0
BG	4,12	4,78	**4,96**	+20	+3,9
CY	1,44	1,81	**1,41**	−1,9	−22
CZ	5,30	5,22	**5,38**	+1,5	+3,0
DE	6,94	6,93	**6,91**	−0,4	−0,2
DK	5,86	6,00	**5,75**	−2,0	−4,2
EE	3,55	4,10	**3,58**	+0,9	−13
ES	2,91	2,26	**3,01**	+3,5	+34
FI	3,68	4,08	**3,65**	−0,8	−11
FR	6,37	6,33	**6,61**	+3,9	+4,5
GR	2,64	2,69	**2,75**	+4,2	+2,3
HR	4,47	4,98	**4,83**	+8,1	−3,0
HU	4,74	5,27	**5,14**	+8,6	−2,5
IE	8,04	8,27	**8,00**	−0,5	−3,3
IT	3,81	3,93	**3,89**	+2,1	−1,0
LT	3,60	3,65	**3,57**	−0,6	−2,0
LU	-	-	**-**	-	-
LV	3,31	3,32	**3,27**	−1,2	−1,5
MT	-	-	**-**	-	-
NL	6,66	6,06	**6,67**	+0,1	+10
PL	3,79	3,96	**3,83**	+1,1	−3,1
PT	2,18	1,90	**2,45**	+13	+29
RO	3,63	4,52	**4,27**	+18	−5,7
SE	5,03	5,29	**4,97**	−1,1	−6,1
SI	4,63	4,81	**4,68**	+1,2	−2,7
SK	4,64	4,54	**5,00**	+7,7	+10
UK	6,20	6,09	**6,18**	−0,3	+1,4



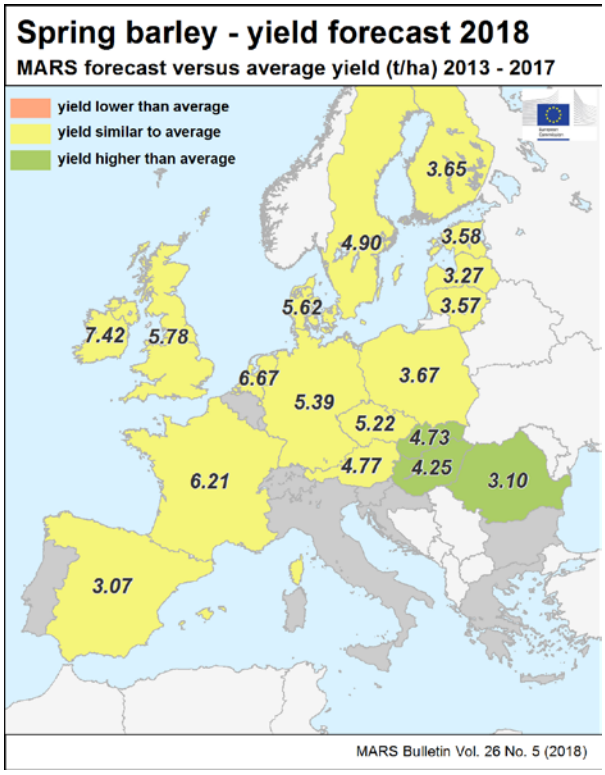
Country	SOFT WHEAT (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	5,97	6,11	**6,19**	+3,6	+1,3
AT	5,74	5,22	**5,48**	–4,7	+4,9
BE	8,56	8,37	**9,04**	+5,6	+8,0
BG	4,58	5,27	**5,55**	+21	+5,3
CY	-	-	**-**	-	-
CZ	6,14	5,67	**5,81**	–5,4	+2,5
DE	8,02	7,66	**7,85**	–2,0	+2,5
DK	7,70	8,21	**7,64**	–0,9	–7,0
EE	3,84	4,20	**3,83**	–0,3	–8,9
ES	3,18	2,30	**3,32**	+4,2	+44
FI	3,97	4,13	**3,93**	–1,0	–4,8
FR	7,10	7,36	**7,53**	+6,0	+2,3
GR	2,99	3,15	**3,17**	+5,9	+0,6
HR	5,19	5,95	**5,53**	+6,7	–7,0
HU	5,06	5,47	**5,31**	+4,9	–2,9
IE	9,88	10,1	**9,88**	+0,0	–2,5
IT	5,15	5,49	**5,43**	+5,3	–1,2
LT	4,67	4,82	**4,73**	+1,3	–1,8
LU	5,88	5,48	**6,16**	+4,9	+13
LV	4,29	4,79	**4,42**	+2,9	–7,7
MT	-	-	**-**	-	-
NL	8,96	9,07	**9,11**	+1,6	+0,4
PL	4,67	4,90	**4,72**	+0,9	–3,8
PT	2,04	2,05	**2,22**	+8,7	+8,3
RO	3,93	4,88	**4,70**	+20	–3,6
SE	6,68	6,99	**6,69**	+0,2	–4,2
SI	4,99	5,03	**5,33**	+6,8	+6,0
SK	5,30	4,79	**5,34**	+0,9	+12
UK	8,19	8,16	**8,16**	–0,5	+0,0



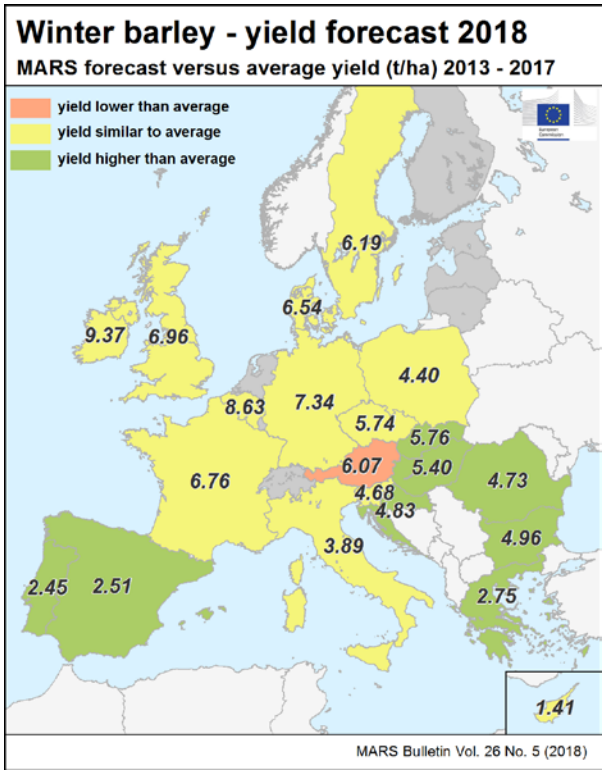
Country	DURUM WHEAT (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	3,40	3,51	**3,56**	+4,8	+1,3
AT	4,74	4,02	**4,52**	–4,6	+13
BE	-	-	**-**	-	-
BG	3,71	4,36	**4,24**	+14	–2,8
CY	-	-	**-**	-	-
CZ	-	-	**-**	-	-
DE	5,55	5,76	**5,49**	–1,0	–4,6
DK	-	-	**-**	-	-
EE	-	-	**-**	-	-
ES	2,54	2,73	**2,80**	+10	+2,7
FI	-	-	**-**	-	-
FR	5,18	5,73	**5,36**	+3,6	–6,4
GR	2,77	2,85	**2,96**	+7,1	+4,0
HR	-	-	**-**	-	-
HU	4,78	4,71	**4,90**	+2,6	+4,1
IE	-	-	**-**	-	-
IT	3,26	3,23	**3,37**	+3,3	+4,2
LT	-	-	**-**	-	-
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	-	-	**-**	-	-
PL	-	-	**-**	-	-
PT	-	-	**-**	-	-
RO	-	-	**-**	-	-
SE	-	-	**-**	-	-
SI	-	-	**-**	-	-
SK	4,40	4,26	**3,95**	–10	–7,4
UK	-	-	**-**	-	-



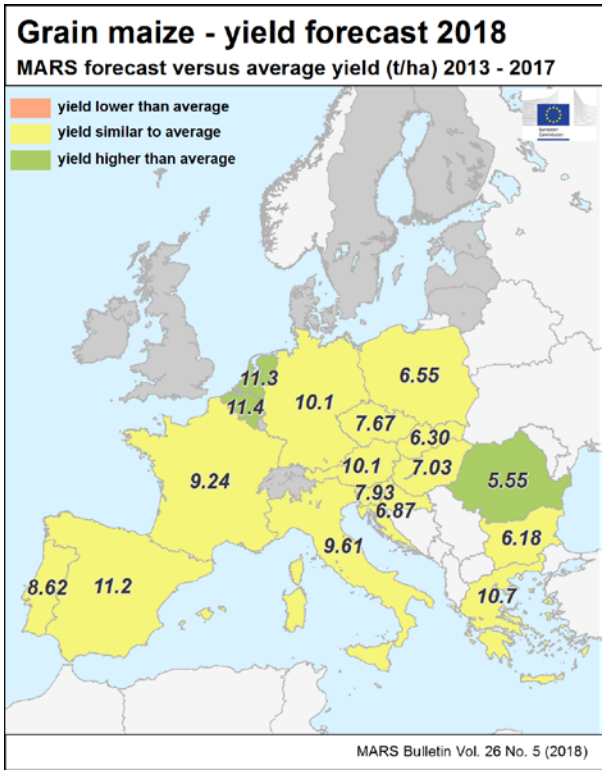
Country	SPRING BARLEY (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	4,25	4,06	**4,31**	+1,3	+6,0
AT	4,65	3,99	**4,77**	+2,5	+20
BE	-	-	**-**	-	-
BG	-	-	**-**	-	-
CY	-	-	**-**	-	-
CZ	5,21	4,96	**5,22**	+0,2	+5,1
DE	5,49	5,40	**5,39**	−1,9	−0,3
DK	5,72	5,82	**5,62**	−1,7	−3,4
EE	3,55	4,10	**3,58**	+0,9	−13
ES	2,99	2,29	**3,07**	+2,8	+34
FI	3,68	4,08	**3,65**	−0,8	−11
FR	5,97	5,91	**6,21**	+3,9	+5,1
GR	-	-	**-**	-	-
HR	-	-	**-**	-	-
HU	3,75	4,37	**4,25**	+13	−2,8
IE	7,48	7,80	**7,42**	−0,8	−4,9
IT	-	-	**-**	-	-
LT	3,60	3,65	**3,57**	−0,6	−2,0
LU	-	-	**-**	-	-
LV	3,31	3,32	**3,27**	−1,2	−1,5
MT	-	-	**-**	-	-
NL	6,66	6,06	**6,67**	+0,1	+10
PL	3,63	3,77	**3,67**	+1,2	−2,5
PT	-	-	**-**	-	-
RO	2,66	3,31	**3,10**	+17	−6,3
SE	4,97	5,22	**4,90**	−1,4	−6,0
SI	-	-	**-**	-	-
SK	4,49	4,26	**4,73**	+5,3	+11
UK	5,76	5,60	**5,78**	+0,3	+3,2



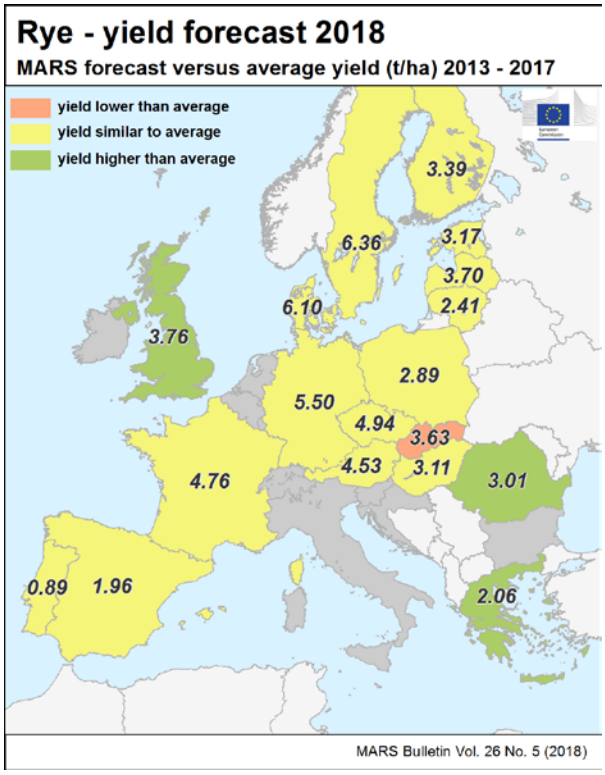
Country	WINTER BARLEY (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	5,79	5,99	**6,05**	+4,5	+1,1
AT	6,33	6,59	**6,07**	−4,2	−8,0
BE	8,39	8,89	**8,63**	+2,8	−3,0
BG	4,12	4,78	**4,96**	+20	+3,9
CY	1,44	1,81	**1,41**	−1,9	−22
CZ	5,52	5,85	**5,74**	+4,0	−1,8
DE	7,36	7,35	**7,34**	−0,2	−0,2
DK	6,55	6,80	**6,54**	−0,1	−3,8
EE	-	-	**-**	-	-
ES	2,41	2,00	**2,51**	+4,2	+26
FI	-	-	**-**	-	-
FR	6,51	6,48	**6,76**	+3,9	+4,4
GR	2,64	2,69	**2,75**	+4,2	+2,3
HR	4,47	4,98	**4,83**	+8,1	−3,0
HU	5,02	5,44	**5,40**	+7,5	−0,7
IE	9,33	9,10	**9,37**	+0,4	+2,9
IT	3,81	3,93	**3,89**	+2,1	−1,0
LT	-	-	**-**	-	-
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	-	-	**-**	-	-
PL	4,38	4,66	**4,40**	+0,3	−5,7
PT	2,18	1,90	**2,45**	+13	+29
RO	3,95	4,90	**4,73**	+20	−3,4
SE	6,12	6,44	**6,19**	+1,2	−3,9
SI	4,63	4,81	**4,68**	+1,2	−2,7
SK	5,17	5,27	**5,76**	+11	+9,2
UK	6,98	6,97	**6,96**	−0,3	−0,3



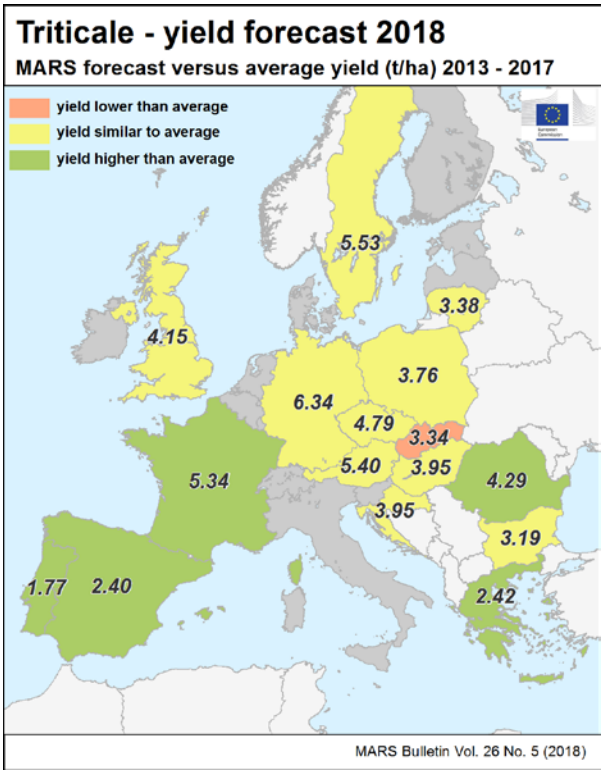
Country	GRAIN MAIZE (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	7,29	7,81	**7,64**	+4,8	−2,2
AT	9,76	10,0	**10,1**	+3,0	+1,0
BE	10,9	11,5	**11,4**	+4,9	−0,6
BG	6,13	5,83	**6,18**	+0,8	+5,9
CY	-	-	**-**	-	-
CZ	7,56	6,84	**7,67**	+1,6	+12
DE	9,74	10,5	**10,1**	+3,5	−4,3
DK	-	-	**-**	-	-
EE	-	-	**-**	-	-
ES	11,2	11,0	**11,2**	+0,2	+2,1
FI	-	-	**-**	-	-
FR	8,99	10,1	**9,24**	+2,8	−8,4
GR	10,8	9,92	**10,7**	−0,5	+8,1
HR	6,97	6,33	**6,87**	−1,5	+8,5
HU	6,84	6,89	**7,03**	+2,8	+2,0
IE	-	-	**-**	-	-
IT	9,70	9,30	**9,61**	−1,0	+3,3
LT	-	-	**-**	-	-
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	10,5	13,4	**11,3**	+7,1	−16
PL	6,43	7,15	**6,55**	+1,9	−8,4
PT	8,43	9,24	**8,62**	+2,2	−6,7
RO	4,55	5,95	**5,55**	+22	−6,7
SE	-	-	**-**	-	-
SI	8,00	7,11	**7,93**	−0,8	+12
SK	6,37	5,74	**6,30**	−1,2	+10
UK	-	-	**-**	-	-



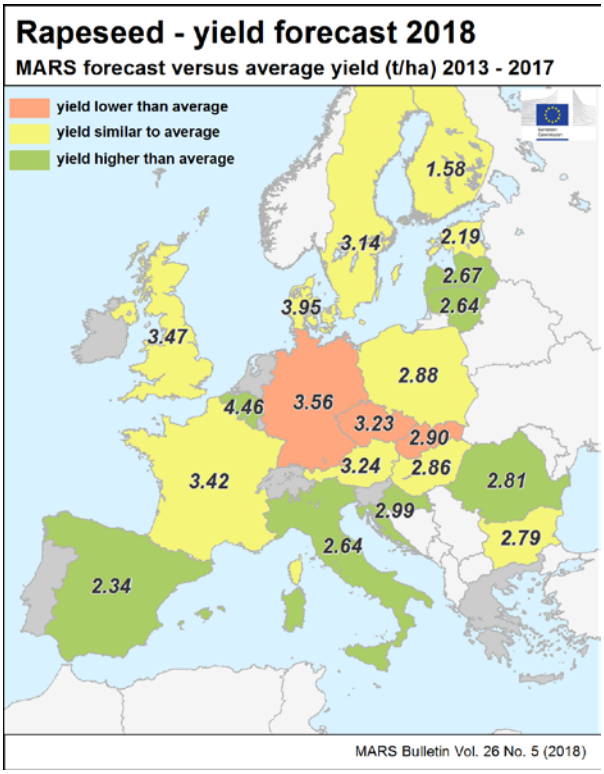
Country	RYE (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	3,93	3,77	**3,83**	−2,6	+1,8
AT	4,37	3,46	**4,53**	+3,6	+31
BE	-	-	**-**	-	-
BG	-	-	**-**	-	-
CY	-	-	**-**	-	-
CZ	4,90	4,92	**4,94**	+0,7	+0,4
DE	5,66	5,01	**5,50**	−2,8	+10
DK	6,11	6,60	**6,10**	−0,2	−7,6
EE	3,15	3,93	**3,17**	+0,9	−19
ES	2,00	1,21	**1,96**	−2,2	+62
FI	3,40	3,93	**3,39**	−0,4	−14
FR	4,64	4,59	**4,76**	+2,6	+3,7
GR	1,79	1,91	**2,06**	+15	+7,9
HR	-	-	**-**	-	-
HU	2,99	3,32	**3,11**	+4,0	−6,3
IE	-	-	**-**	-	-
IT	-	-	**-**	-	-
LT	2,33	2,44	**2,41**	+3,6	−1,1
LU	-	-	**-**	-	-
LV	3,60	4,07	**3,70**	+2,7	−9,0
MT	-	-	**-**	-	-
NL	-	-	**-**	-	-
PL	2,98	3,08	**2,89**	−3,0	−6,2
PT	0,87	0,85	**0,89**	+2,0	+4,2
RO	2,56	3,20	**3,01**	+18	−5,8
SE	6,24	6,61	**6,36**	+2,0	−3,7
SI	-	-	**-**	-	-
SK	3,95	4,45	**3,63**	−8,2	−18
UK	2,64	1,42	**3,76**	+43	+165



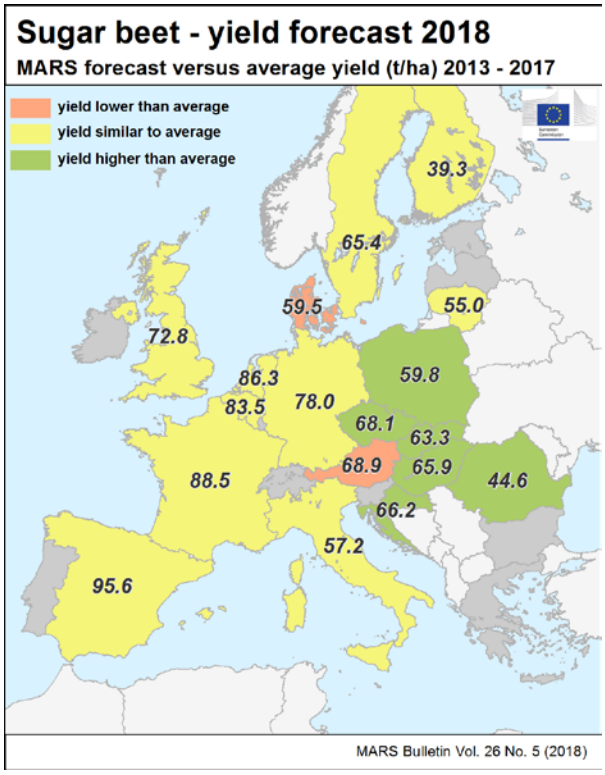
Country	TRITICALE (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	4,23	4,25	**4,29**	+1,6	+1,0
AT	5,45	5,16	**5,40**	−1,0	+4,7
BE	-	-	**-**	-	-
BG	3,11	3,40	**3,19**	+2,7	−6,1
CY	-	-	**-**	-	-
CZ	4,82	4,89	**4,79**	−0,6	−2,0
DE	6,44	5,96	**6,34**	−1,6	+6,4
DK	-	-	**-**	-	-
EE	-	-	**-**	-	-
ES	2,25	1,81	**2,40**	+6,5	+33
FI	-	-	**-**	-	-
FR	5,09	5,20	**5,34**	+4,9	+2,7
GR	2,21	2,22	**2,42**	+9,4	+8,8
HR	4,06	4,50	**3,95**	−2,8	−12,2
HU	4,03	3,97	**3,95**	−1,9	−0,4
IE	-	-	**-**	-	-
IT	-	-	**-**	-	-
LT	3,36	3,26	**3,38**	+0,4	+3,6
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	-	-	**-**	-	-
PL	3,74	3,93	**3,76**	+0,7	−4,2
PT	1,64	1,48	**1,77**	+8,2	+20
RO	3,68	4,39	**4,29**	+17	−2,4
SE	5,60	5,79	**5,53**	−1,2	−4,5
SI	-	-	**-**	-	-
SK	3,72	3,56	**3,34**	−10,5	−6,3
UK	4,30	4,50	**4,15**	−3,6	−7,9



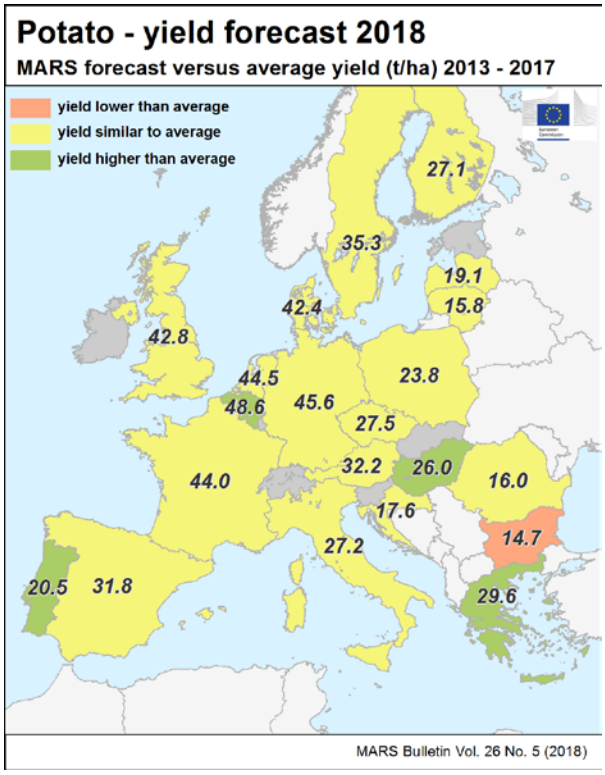
Country	RAPE AND TURNIP RAPE (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	3,28	3,25	**3,19**	−2,9	−1,8
AT	3,34	2,89	**3,24**	−3,2	+12
BE	4,22	4,26	**4,46**	+5,8	+4,8
BG	2,72	2,84	**2,79**	+2,5	−1,7
CY	-	-	**-**	-	-
CZ	3,44	2,90	**3,23**	−6,1	+11
DE	3,82	3,27	**3,56**	−6,9	+8,8
DK	3,96	4,16	**3,95**	−0,1	−5,1
EE	2,11	2,24	**2,19**	+3,9	−2,1
ES	2,16	1,56	**2,34**	+8,3	+50
FI	1,55	1,65	**1,58**	+1,8	−4,8
FR	3,43	3,84	**3,42**	−0,3	−11
GR	-	-	**-**	-	-
HR	2,86	2,79	**2,99**	+4,4	+7,1
HU	2,95	2,56	**2,86**	−3,0	+12
IE	-	-	**-**	-	-
IT	2,42	2,66	**2,64**	+8,8	−0,8
LT	2,50	3,03	**2,64**	+5,3	−13
LU	-	-	**-**	-	-
LV	2,56	2,41	**2,67**	+4,5	+11
MT	-	-	**-**	-	-
NL	-	-	**-**	-	-
PL	2,95	3,00	**2,88**	−2,1	−3,9
PT	-	-	**-**	-	-
RO	2,68	2,86	**2,81**	+4,6	−2,0
SE	3,19	3,36	**3,14**	−1,5	−6,5
SI	-	-	**-**	-	-
SK	3,07	3,04	**2,90**	−5,4	−4,6
UK	3,49	3,85	**3,47**	−0,5	−9,8



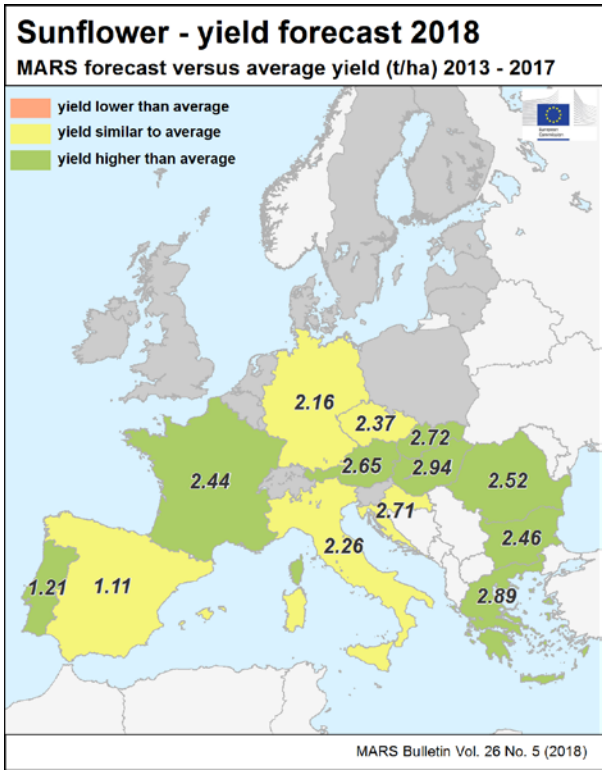
Country	SUGAR BEETS (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	74,5	81,1	**76,1**	+2,2	−6,1
AT	73,3	70,1	**68,9**	−6,1	−1,8
BE	81,5	93,7	**83,5**	+2,5	−11
BG	-	-	**-**	-	-
CY	-	-	**-**	-	-
CZ	64,9	66,6	**68,1**	+4,9	+2,2
DE	75,5	83,8	**78,0**	+3,3	−6,9
DK	62,0	71,4	**59,5**	−4,1	−17
EE	-	-	**-**	-	-
ES	93,0	95,0	**95,6**	+2,8	+0,7
FI	38,4	36,6	**39,3**	+2,3	+7,6
FR	89,6	95,1	**88,5**	−1,3	−7,0
GR	-	-	**-**	-	-
HR	61,1	NA	**66,2**	+8,3	NA
HU	61,4	NA	**65,9**	+7,3	NA
IE	-	-	**-**	-	-
IT	57,3	NA	**57,2**	−0,2	NA
LT	55,3	55,8	**55,0**	−0,5	−1,5
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	84,0	93,3	**86,3**	+2,8	−7,5
PL	56,8	57,6	**59,8**	+5,3	+3,9
PT	-	-	**-**	-	-
RO	40,5	40,8	**44,6**	+10	+9,2
SE	65,8	63,2	**65,4**	−0,7	+3,4
SI	-	-	**-**	-	-
SK	58,5	55,0	**63,3**	+8,2	+15
UK	71,4	NA	**72,8**	+2,0	NA



Country	POTATO (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	33,6	35,3	**34,5**	+2,7	−2,3
AT	30,9	28,4	**32,2**	+4,0	+13
BE	46,3	47,6	**48,6**	+4,9	+2,2
BG	15,5	17,8	**14,7**	−4,7	−17
CY	-	-	**-**	-	-
CZ	26,8	29,4	**27,5**	+2,6	−6,6
DE	44,5	46,8	**45,6**	+2,5	−2,5
DK	42,2	43,7	**42,4**	+0,3	−3,0
EE	-	-	**-**	-	-
ES	31,5	31,9	**31,8**	+1,2	−0,3
FI	27,0	28,9	**27,1**	+0,1	−6,3
FR	43,4	44,4	**44,0**	+1,3	−1,0
GR	26,8	28,3	**29,6**	+11	+4,6
HR	17,0	NA	**17,6**	+3,1	NA
HU	24,7	NA	**26,0**	+5,4	NA
IE	-	-	**-**	-	-
IT	26,9	NA	**27,2**	+1,1	NA
LT	15,8	12,3	**15,8**	+0,2	+29
LU	-	-	**-**	-	-
LV	18,8	NA	**19,1**	+1,8	NA
MT	-	-	**-**	-	-
NL	43,6	46,0	**44,5**	+2,1	−3,2
PL	24,0	25,3	**23,8**	−0,4	−5,8
PT	19,4	21,3	**20,5**	+5,8	−3,8
RO	15,9	18,2	**16,0**	+0,5	−12
SE	34,7	34,9	**35,3**	+1,6	+1,1
SI	-	-	**-**	-	-
SK	-	-	**-**	-	-
UK	44,0	NA	**42,8**	−2,7	NA



Country	SUNFLOWER (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
EU	2,10	2,37	**2,31**	+9,7	−2,5
AT	2,54	2,33	**2,65**	+4,4	+14
BE	-	-	**-**	-	-
BG	2,25	2,28	**2,46**	+9,0	+7,8
CY	-	-	**-**	-	-
CZ	2,28	2,13	**2,37**	+3,7	+11
DE	2,13	2,20	**2,16**	+1,4	−1,7
DK	-	-	**-**	-	-
EE	-	-	**-**	-	-
ES	1,13	1,24	**1,11**	−2,5	−11
FI	-	-	**-**	-	-
FR	2,27	2,76	**2,44**	+7,5	−12
GR	2,69	2,85	**2,89**	+7,3	+1,4
HR	2,62	2,90	**2,71**	+3,4	−6,5
HU	2,68	2,66	**2,94**	+10	+11
IE	-	-	**-**	-	-
IT	2,22	2,13	**2,26**	+2,0	+6,2
LT	-	-	**-**	-	-
LU	-	-	**-**	-	-
LV	-	-	**-**	-	-
MT	-	-	**-**	-	-
NL	-	-	**-**	-	-
PL	-	-	**-**	-	-
PT	1,05	1,19	**1,21**	+15	+1,8
RO	2,14	2,73	**2,52**	+18	−7,5
SE	-	-	**-**	-	-
SI	-	-	**-**	-	-
SK	2,55	2,55	**2,72**	+6,9	+6,8
UK	-	-	**-**	-	-



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

Sources: 2013–2018 data come from DG AGRICULTURE short term Outlook data (dated April 2018, received on 04/05/2018), EUROSTAT Eurobase (last update: 30/04/2018) and EES (last update: 15/11/2017)

2018 yields come from MARS CROP YIELD FORECASTING SYSTEM (output up to 20/05/2018)

NA = Data not available.

Country	WHEAT (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
BY	3,59	3,65	**3,75**	+4,6	+2,8
DZ	1,62	1,57	**1,73**	+6,7	+9,9
MA	1,86	1,91	**1,96**	+5,2	+2,8
TN	1,91	1,90	**1,93**	+1,2	+1,9
TR	2,71	2,78	**2,90**	+6,8	+4,3
UA	3,93	4,11	**4,26**	+8,2	+3,5

Country	BARLEY (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
BY	3,25	3,14	**3,62**	+11	+15
DZ	1,35	1,27	**1,39**	+3,2	+9,7
MA	1,25	1,50	**1,57**	+26	+4,6
TN	1,12	1,21	**1,13**	+0,2	–6,9
TR	2,58	2,40	**2,68**	+4,1	+12
UA	2,95	3,31	**3,24**	+9,8	–2,2

Country	GRAIN MAIZE (t/ha)				
	Avg 5yrs	2017	MARS 2018 forecasts	%18/5yrs	%18/17
BY	5,39	5,00	**5,52**	+2,5	+10
DZ	-	-	**-**	-	-
MA	-	-	**-**	-	-
TN	-	-	**-**	-	-
TR	9,21	9,40	**9,62**	+4,5	+2,3
UA	6,07	5,44	**6,13**	+1,0	+13

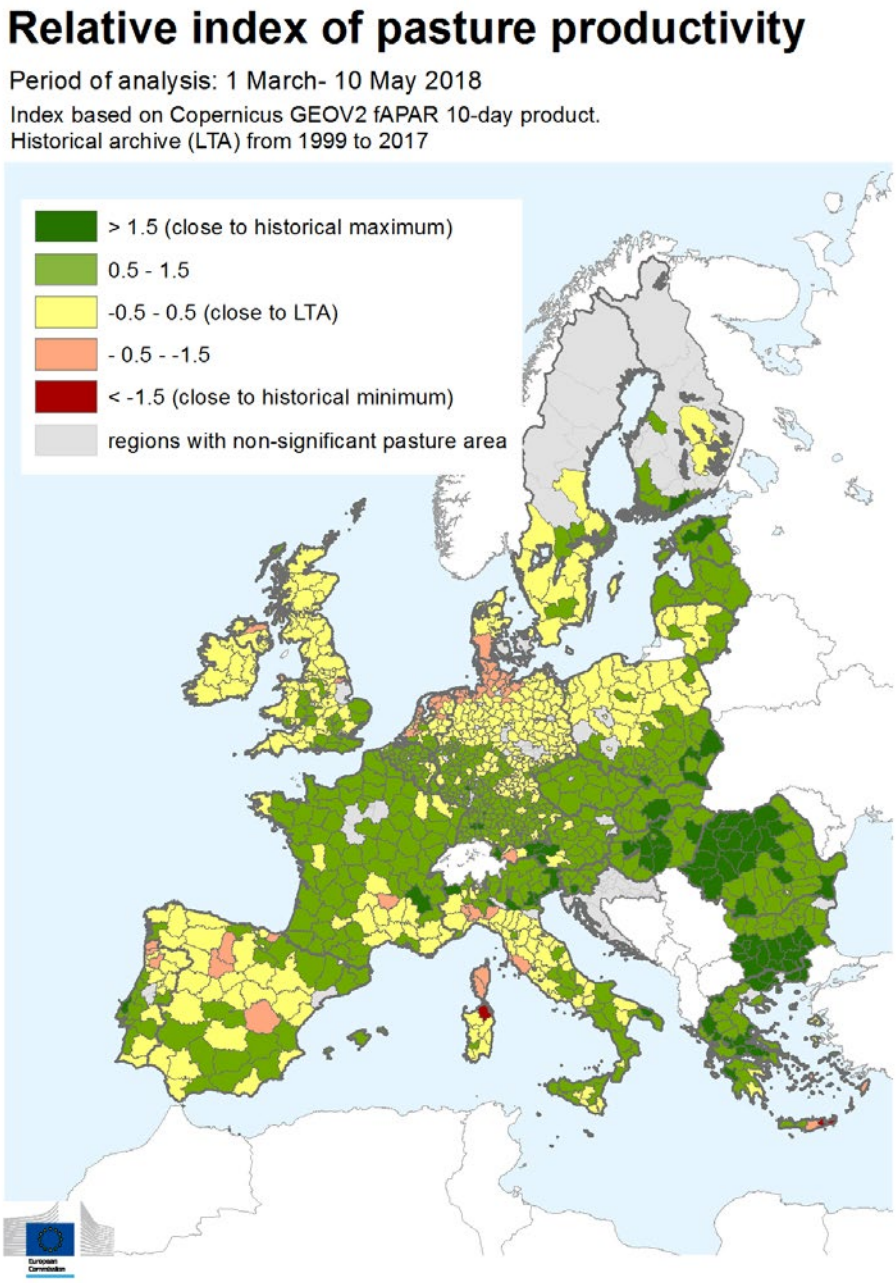
Note: Yields are forecast for crops with more than 10000 ha per country.

Sources: 2013–2017 data come from USDA, DSASI-MADR Algeria , INRA Maroc, Ministère de l'Agriculture et de la Pêche Maritime Maroc, CNCT Tunisie, Ministère de l'agriculture des ressources hydrauliques et de la pêche Tunisie, Turkish Statistical Institute (TurkStat), EUROSTAT Eurobase (last update: 30/04/2018),State Statistics Service of Ukraine, FAO and PSD-online

2018 yields come from MARS CROP YIELD FORECASTING SYSTEM (output up to 20/05/2018)

5. Pastures in Europe — Regional monitoring

Higher-than-usual temperatures boost pasture growth in central and southern Europe



Methodological note

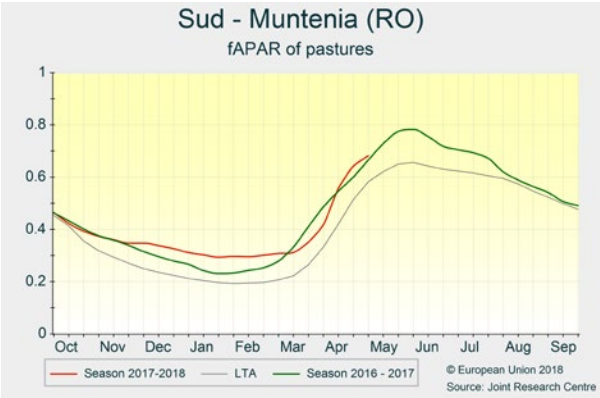
The relative index of pasture productivity is a synthetic indicator of biomass formation based on the integration of the fAPAR (fraction of absorbed photosynthetically active radiation) remote sensing product of pasture areas at country level over a period of interest (in this bulletin, from 1 March to 10 May). The spatial aggregation from remotely sensed image pixels to a country-level index was made using a pastures mask from the Common Agricultural Policy Regionalised Impact (CAPRI, http://www.capri-model.org) model. The index shows the relative position of the current season within the historical series from 2008 to 2016, 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 higher than 2 and below – 2 indicate that biomass production in the current season is close to, respectively, the historical maximum and minimum of the period 2008–2016.

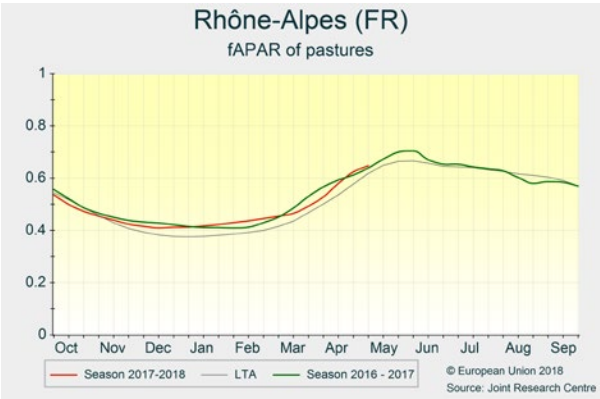
Weather conditions since April have been exceptionally warm in south-eastern Europe. Thanks to this, pasture growth in **Romania**, **Hungary** and **Bulgaria** is substantially higher than in an average year, with sufficient water in the soil to maintain high production rates until the end of May. In the *Dehesa* area between **Spain** and **Portugal**, vegetation growth is above the seasonal values, mostly favoured by the abundant rainfall registered from March to mid-April, together with mild temperatures. Soil moisture content in the area remains high and the outlook for the coming two weeks is positive. Similarly, in **France**, **Belgium** and northern **Italy**, above-average temperatures and sufficient precipitation have led to a rapid increase of leaf area-formation rates in the main grasslands, but these have also led to an adequate emergence of fodder maize.

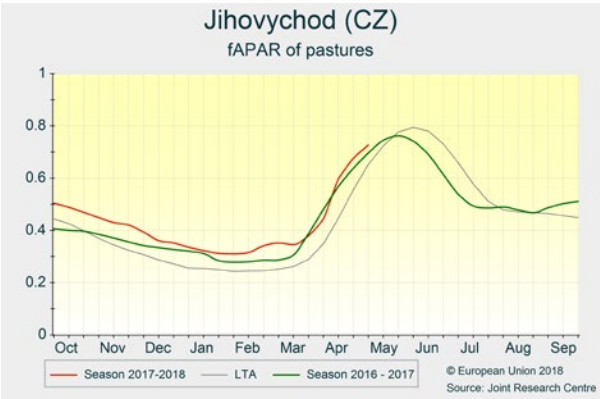
Central Europe experienced unusually high temperatures in the period from April to mid-May, and vegetative growth increased dramatically in the main grasslands of **Austria**, the **Czech Republic**, **Slovakia** and the south of both **Poland** and **Germany**. Biomass formation is above the seasonal values, but soil moisture is rapidly decreasing, as rain has been scarce since mid-March. If conditions remain dry, grassland growth could be significantly constrained from June onwards.

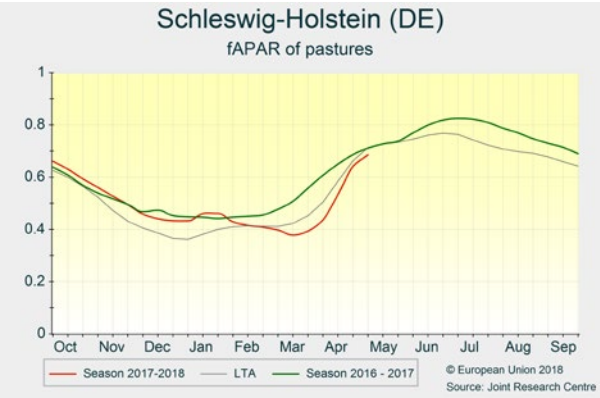
In northern **Germany**, the **Netherlands** and **Denmark**, biomass formation rates are progressively recovering after a colder-than-usual period in February and March, which delayed pasture regrowth after winter. Mild temperatures since mid-April have accelerated leaf area formation, but biomass production is still below average for the year. Soil moisture is adequate and, if the mild conditions persist, growing conditions will be positive in the second half of May. In the **UK** and **Ireland**, temperatures have been close to seasonal values since April and the soil moisture is adequate thanks to sufficient rain in spring. As a result, biomass production in the main grasslands is close to the LTA.

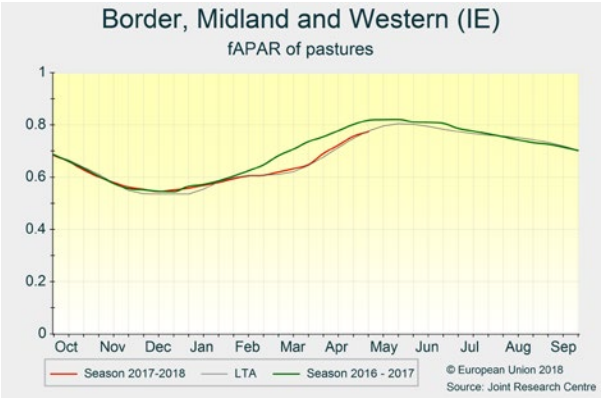
In the Baltic Sea area, daily temperatures were persistently 2–4 °C above the seasonal values in April. This has led to fast regrowth of pastures after the winter period, and currently leaf area formation rates in **Estonia**, **Latvia**, **Lithuania** and northern **Poland** are above the LTA in this early phase of vegetative development.

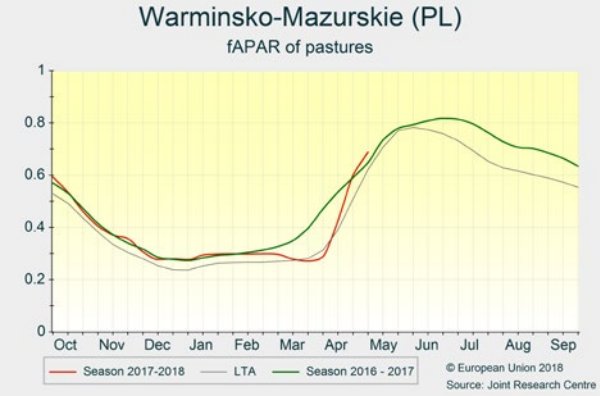


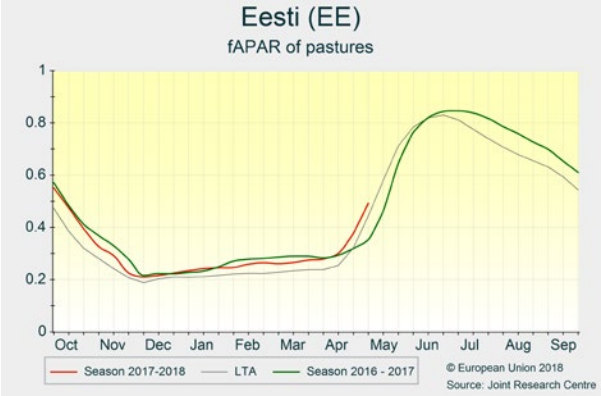





Schleswig-Holstein (DE)
fAPAR of pastures
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017-2018
LTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre

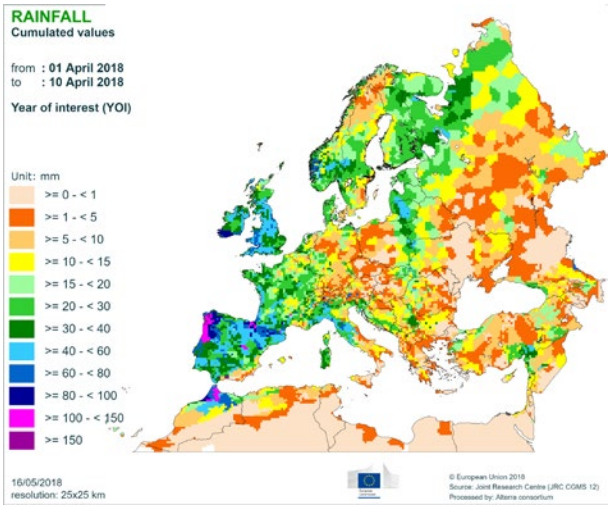

Border, Midland and Western (IE)
fAPAR of pastures
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017-2018
LTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre

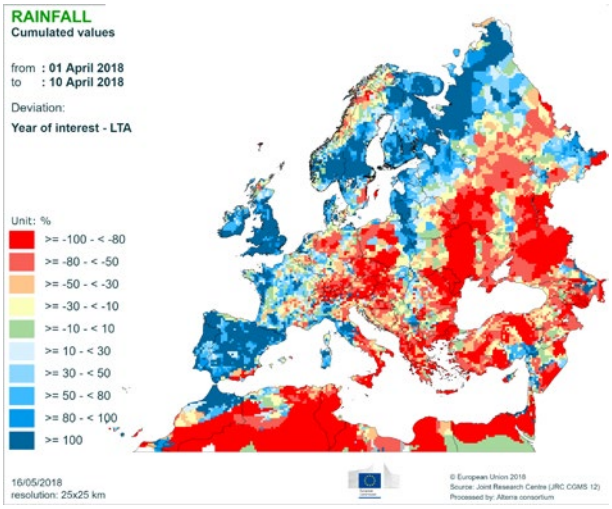

Warminsko-Mazurskie (PL)
fAPAR of pastures
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017-2018
LTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre

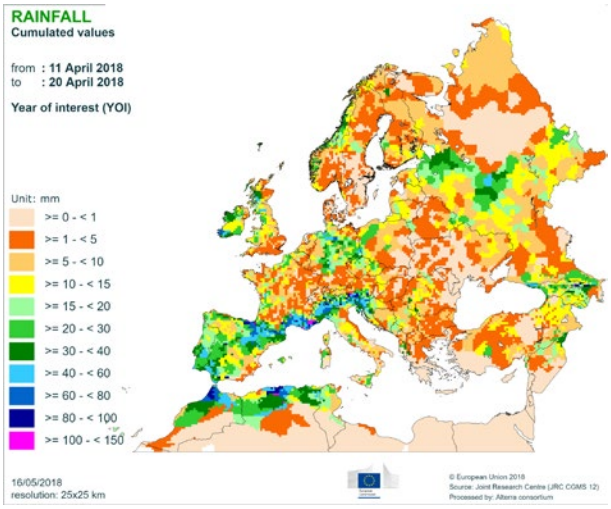

Eesti (EE)
fAPAR of pastures
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Season 2017-2018
LTA
Season 2016 - 2017
© European Union 2018
Source: Joint Research Centre

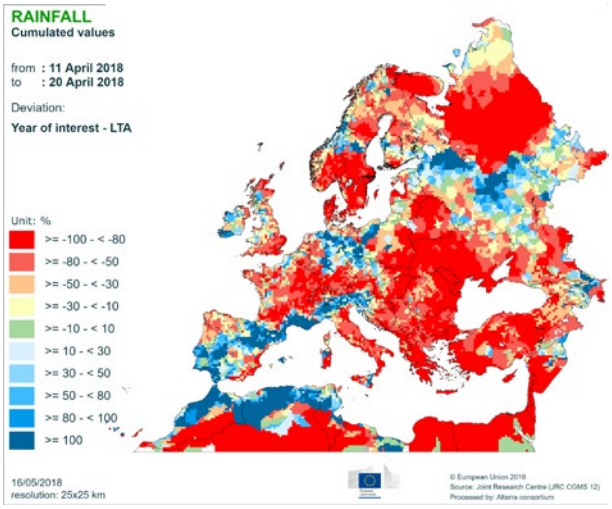
6. Atlas

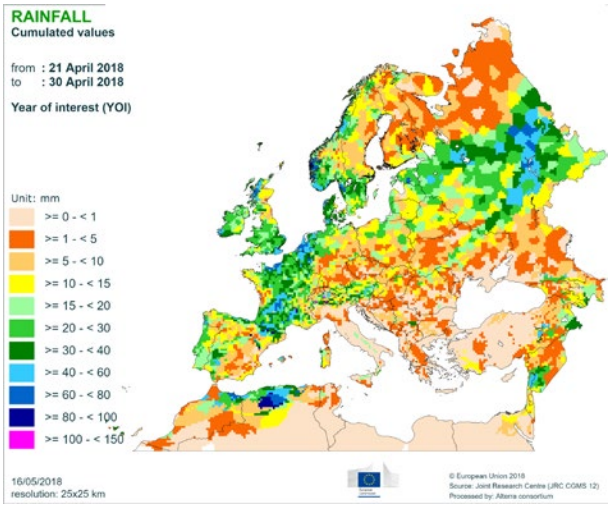
Precipitation

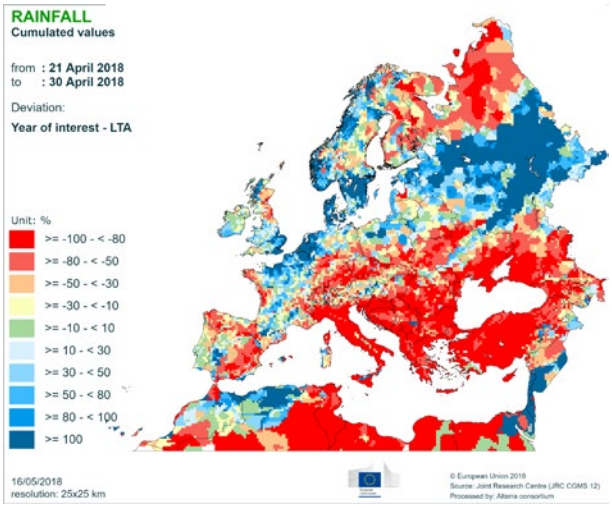


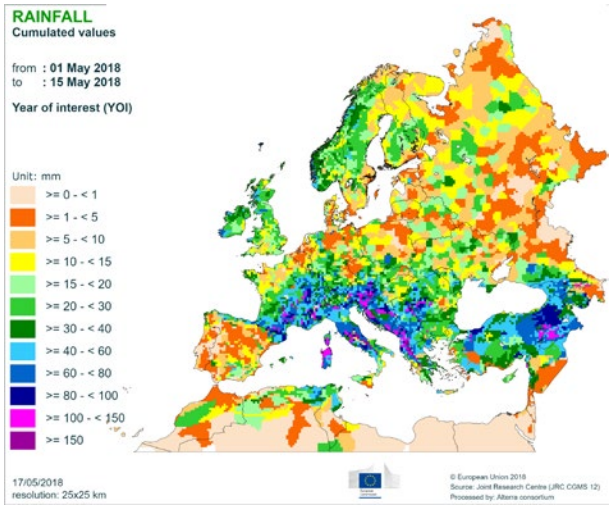


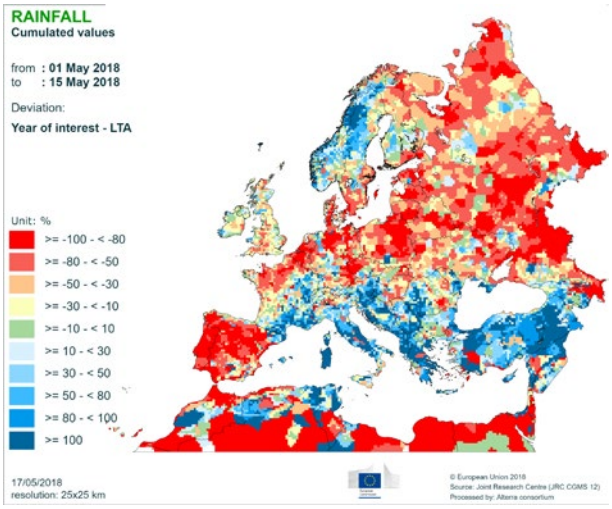


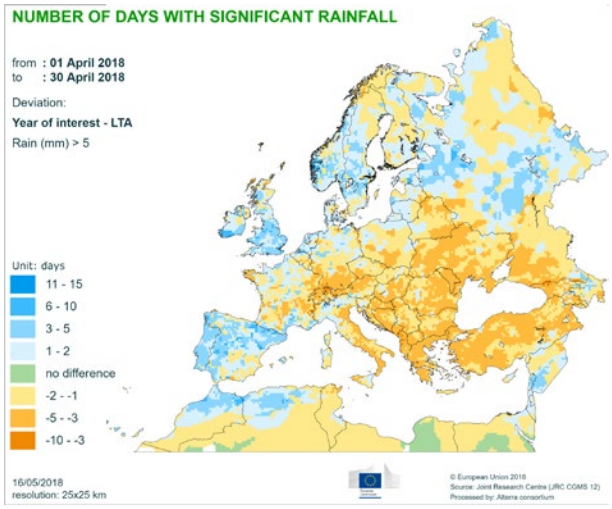


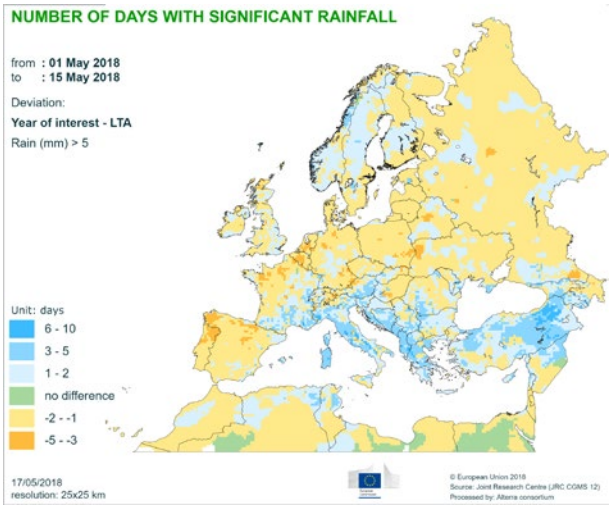




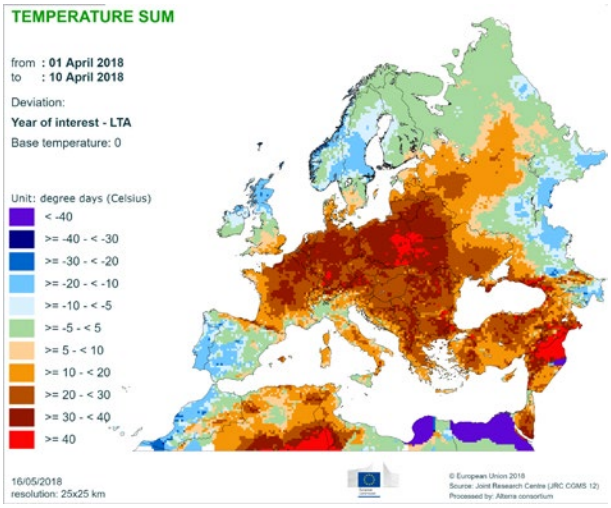

RAINFALL
Cumulated values
from : 01 May 2018
to : 15 May 2018
Year of interest (YOI)
Unit: mm
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 15
>= 15 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150
17/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

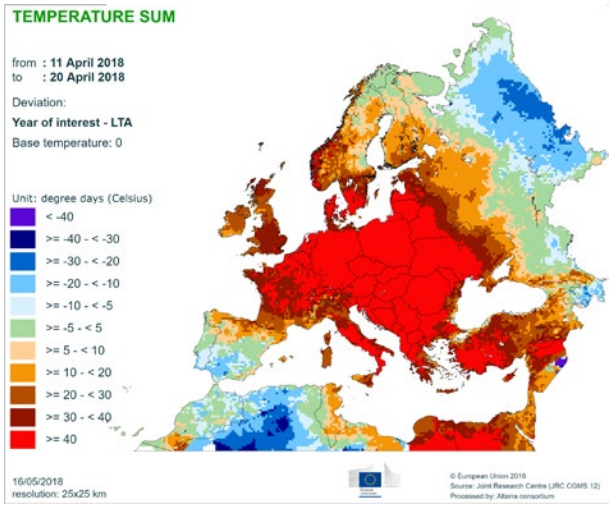

RAINFALL
Cumulated values
from : 01 May 2018
to : 15 May 2018
Deviation:
Year of interest - LTA
Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100
17/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

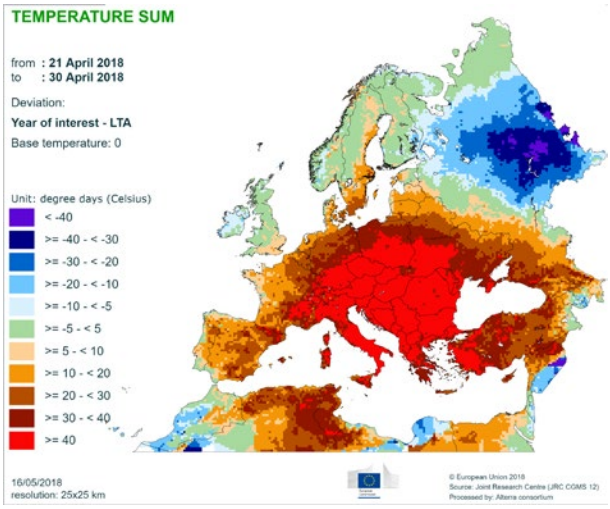

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 April 2018
to : 30 April 2018
Deviation:
Year of interest - LTA
Rain (mm) > 5
Unit: days
11 - 15
6 - 10
3 - 5
1 - 2
no difference
-2 - -1
-5 - -3
-10 - -3
16/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

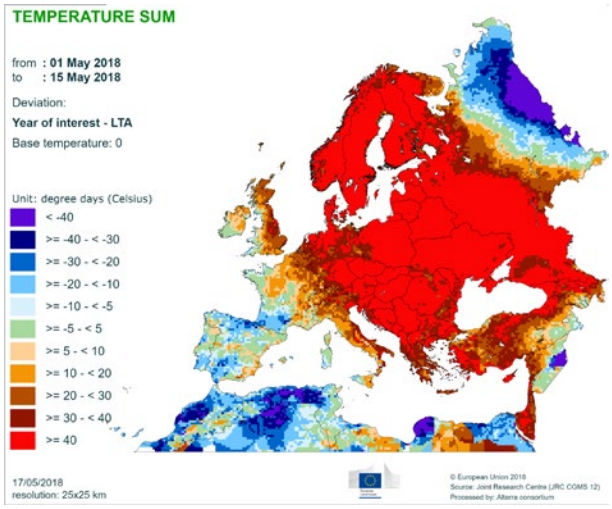

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 May 2018
to : 15 May 2018
Deviation:
Year of interest - LTA
Rain (mm) > 5
Unit: days
6 - 10
3 - 5
1 - 2
no difference
-2 - -1
-5 - -3
17/05/2018
resolution: 25x25 km
© European Union 2018
Source: Joint Research Centre (JRC CGMS 12)
Processed by: Alterra consortium

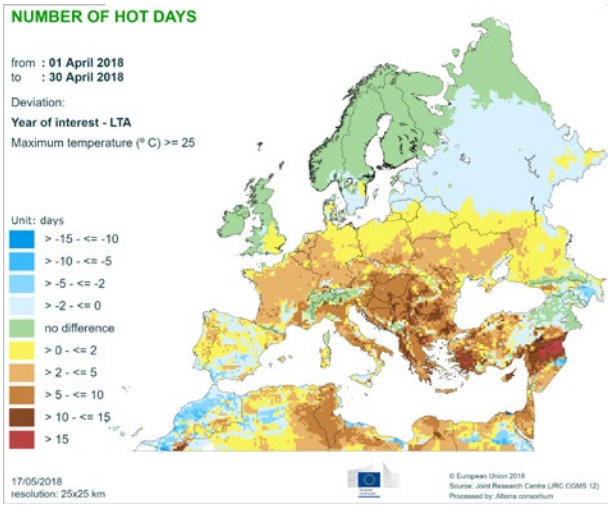
Temperature regime

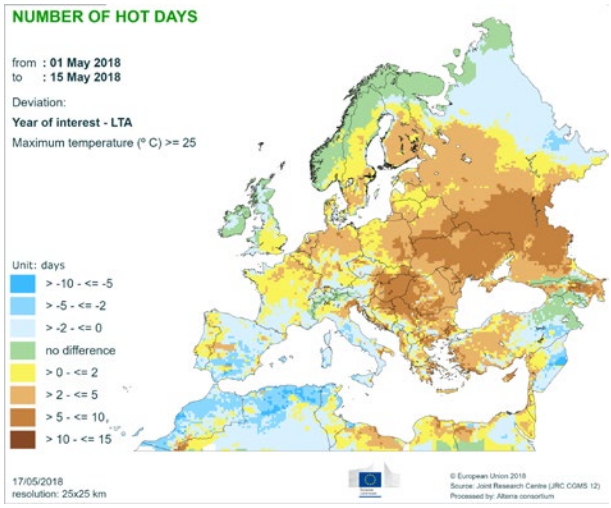




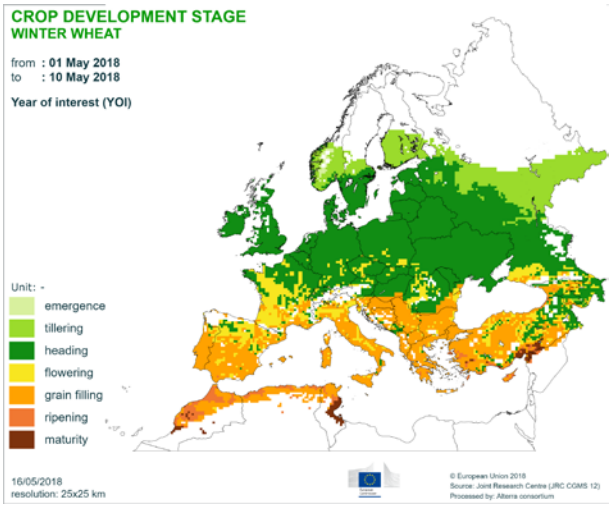


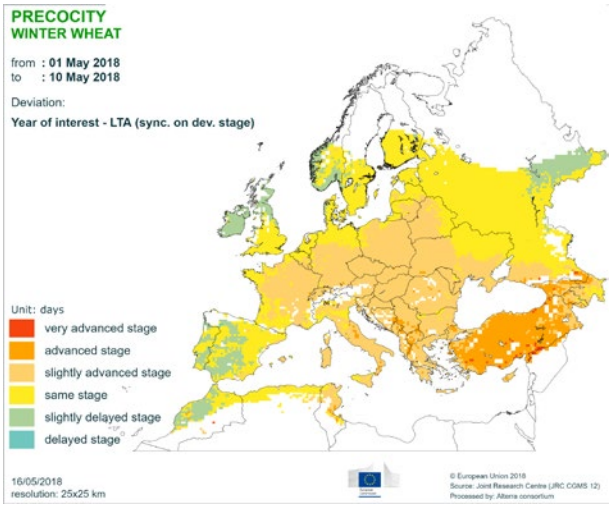


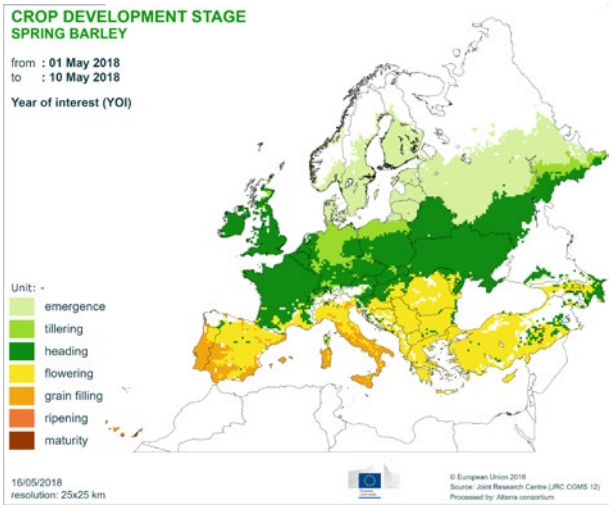


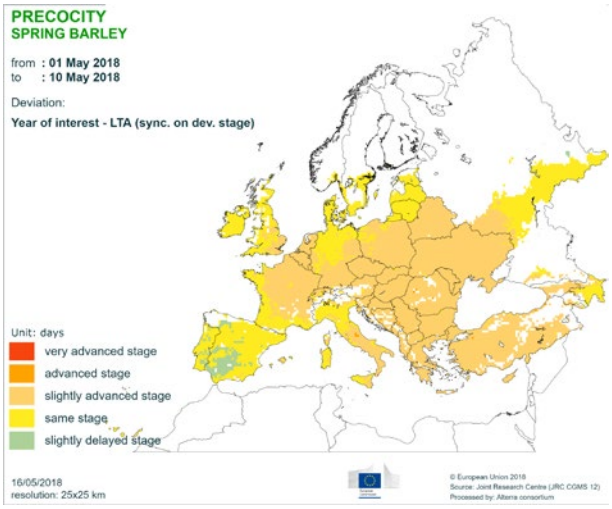


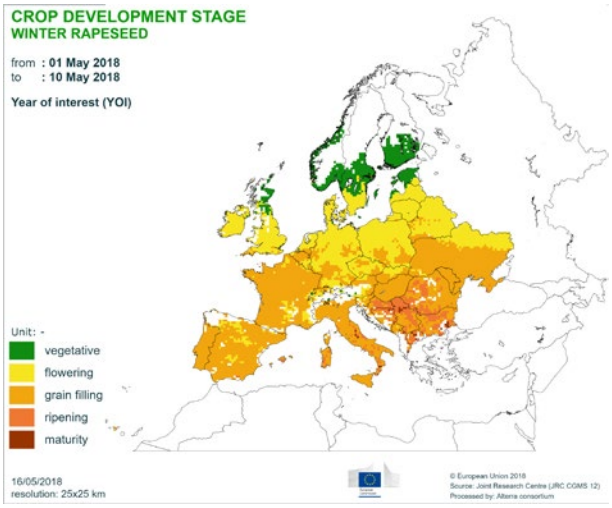
Crop development stages and precocity

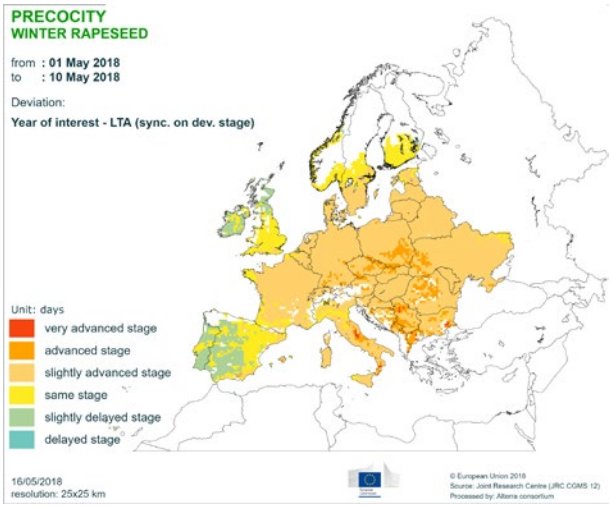




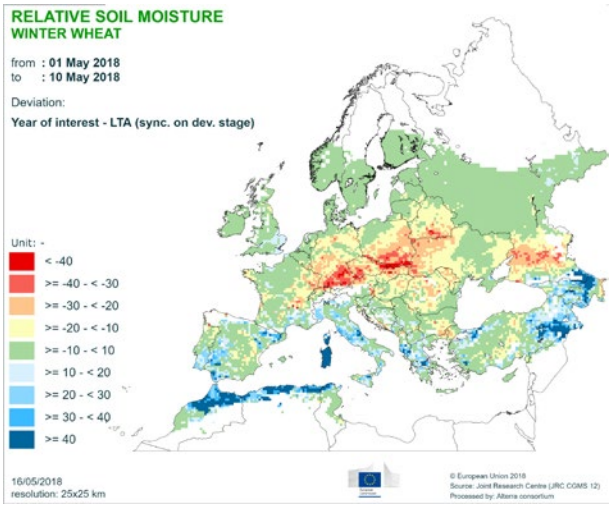


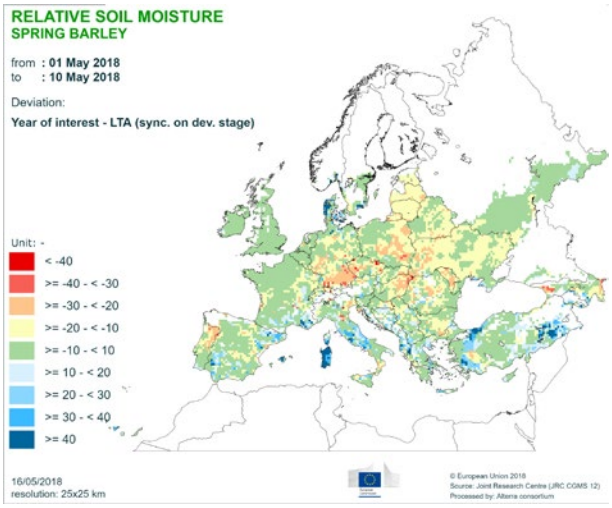




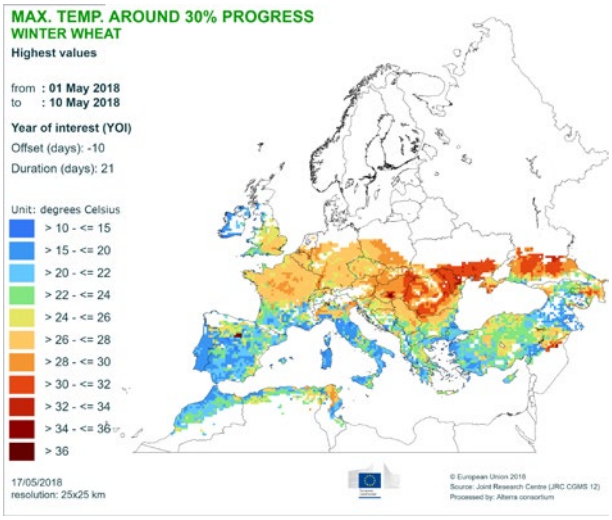


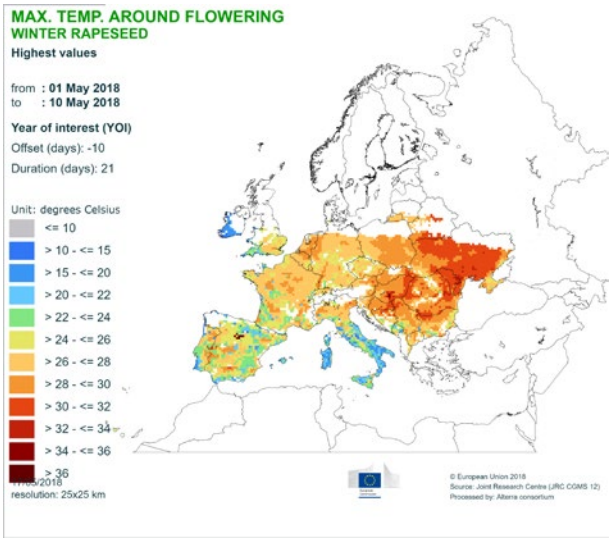
Relative soil moisture



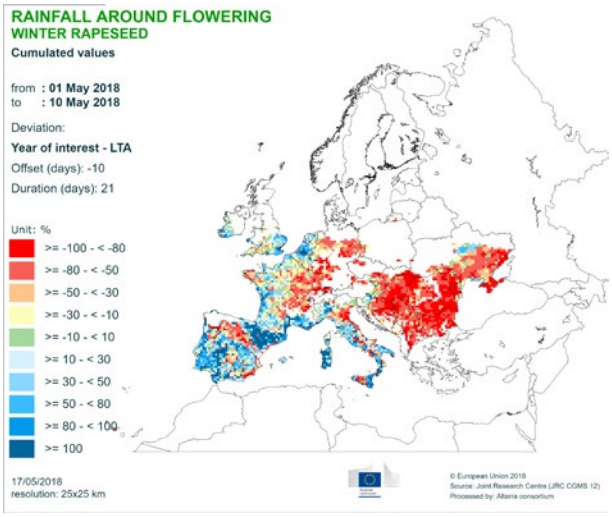


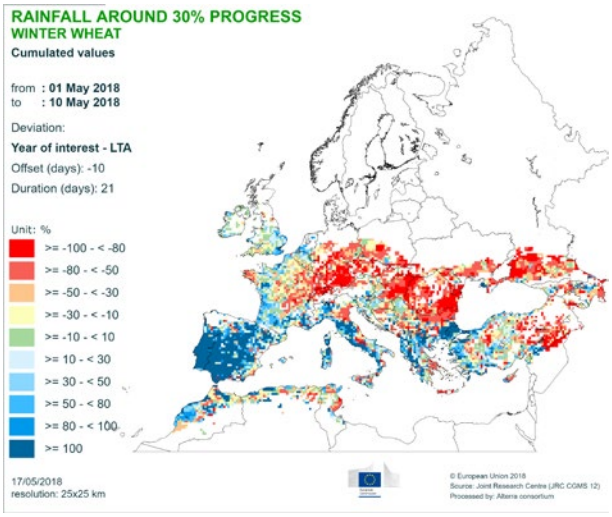
Maximum temperature around crops development





Precipitation around crops development





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

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*MARS stands for Monitoring Agricultural Resources

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