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Period covered: 1 March until 15 April 2020
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JRC MARS Bulletin
Crop monitoring in Europe
April 2020

Winter crops in good condition, despite lack of rain

Spring sowing and emergence challenged by dry conditions

Western Europe experienced one of the driest starts to spring since 1979 – after a very wet winter – with almost no rain since mid March. Large parts of Poland, Ukraine and Romania have also faced dry conditions since the end of winter. Winter crops in most of these regions are still in good condition, but more rain is needed to sustain a positive yield outlook. However, the very dry upper soil layers are having a negative impact on the sowing and emergence of spring and summer crops. Persistent drought in Morocco resulted in poor crop-yield expectations.

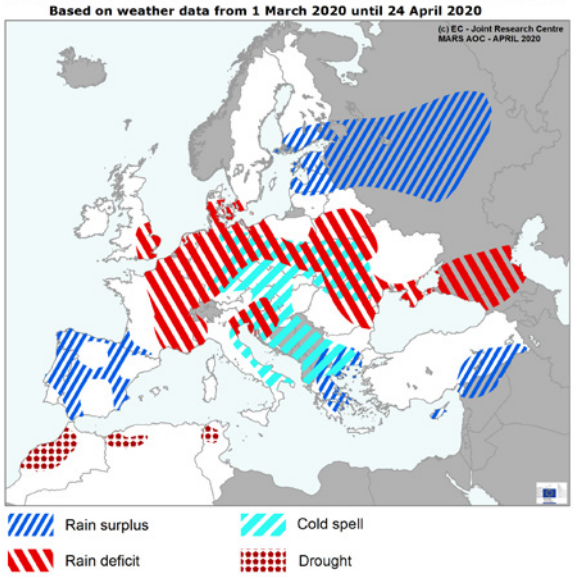
Cold spells at the end of March and beginning of April challenged sowing and emergence in a large region of central and south-eastern Europe.

A marked rainfall surplus was welcomed in the Iberian peninsula, Greece, Cyprus and south-eastern Turkey.

While labour availability remains a key concern, we have found no evidence that COVID-19 has had any major impact on the sowing of spring and summer crops. So far, the supply of seed, fertiliser and pesticides seems to be adequate, and no immediate disruptions are expected.

The yield forecast presented in this issue of the Bulletin are still mostly based on historical trends, and bear a large margin of uncertainty associated with the rain deficit currently faced in large parts of Europe.

AREAS OF CONCERN - EXTREME WEATHER EVENTS
Based on weather data from 1 March 2020 until 24 April 2020



Crop	Yield (t/ha)				
	Avg 5yrs	March Bulletin	MARS 2020 forecasts	%20/ 5yrs	%20/19
Total cereals	5.64	5.75	**5.44**	– 3.5	– 5.4
Total wheat	5.54	5.66	**5.65**	+ 1.9	– 0.2
Soft wheat	5.77	5.88	**5.87**	+ 1.7	– 0.2
Durum wheat	3.49	3.44	**3.43**	– 1.5	– 0.3
Total barley	4.78	4.85	**4.86**	+ 1.6	+ 0.2
Spring barley	4.02	4.02	**4.03**	+ 0.1	+ 0.2
Winter barley	5.75	5.91	**5.92**	+ 2.9	+ 0.2
Grain maize	7.58	8.05	**8.04**	+ 6.0	– 0.1
Rye	3.81	3.84	**3.92**	+ 2.7	+ 2.1
Triticale	4.04	4.14	**4.18**	+ 3.6	+ 1.0
Rape and turnip rape	3.09	3.18	**3.14**	+ 1.7	– 1.3
Potato	32.4	34.3	**34.2**	+ 5.6	– 0.3
Sugar beet	74.8	75.9	**75.9**	+ 1.5	+ 0.1
Sunflower	2.25	2.39	**2.39**	+ 6.4	+ 0.0

Issued: 24 April 2020.

Joint Research Centre

1. Agrometeorological overview

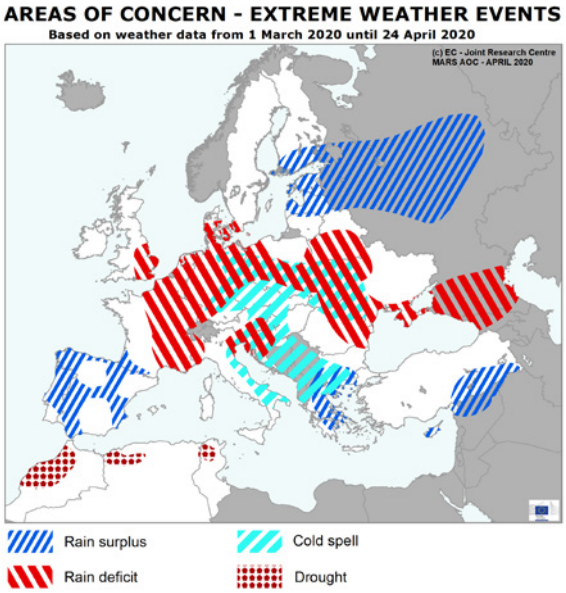
1.1. Areas of concern

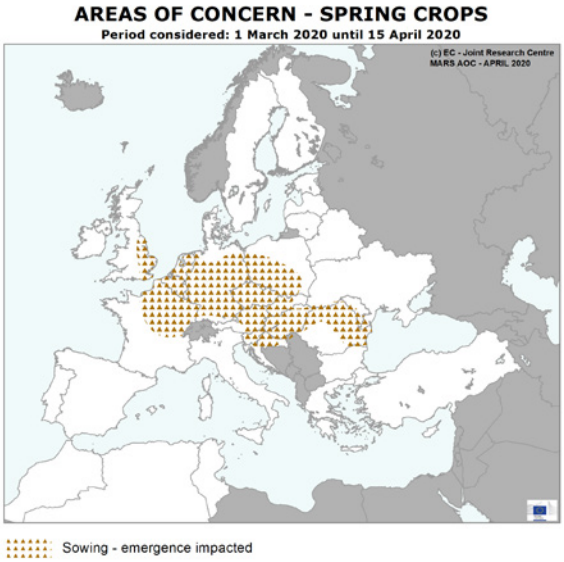
Western Europe experienced one of the driest starts to spring since 1979, after a very wet winter (see March Bulletin). Since mid March, almost no rain has fallen in eastern France, the eastern United Kingdom, the Benelux countries and Germany. In those regions, lack of rain, high radiation levels and predominantly above-average temperatures have dried the upper soil layer and had a negative effect on the sowing and emergence of spring crops. In the United Kingdom and France, such unfavourable conditions are of significant relevance, as an increase is expected in spring crop area to replace winter crops not sown due to the unfavourable winter conditions.

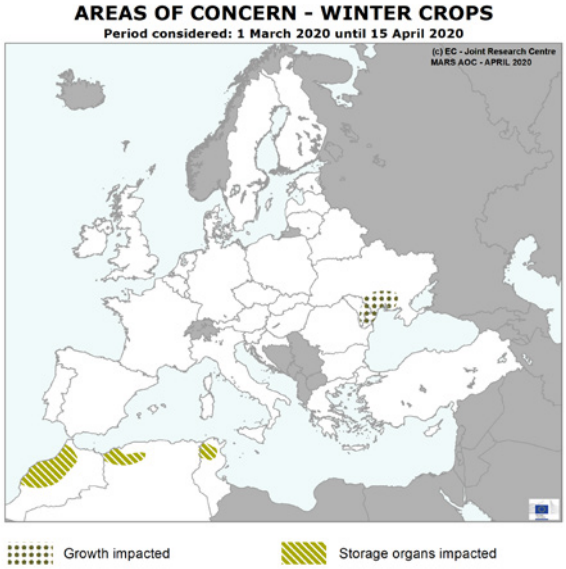
Poland, western and southern Ukraine and northern and eastern Romania have faced dry conditions since the end of winter. At the beginning of March, the dry spell was briefly alleviated by some rain, but since then precipitation has been very sparse. In Poland and eastern Romania, these unfavourable conditions negatively affected the sowing and emergence of spring crops; they also weakened the growth of winter crops in south-western Ukraine.

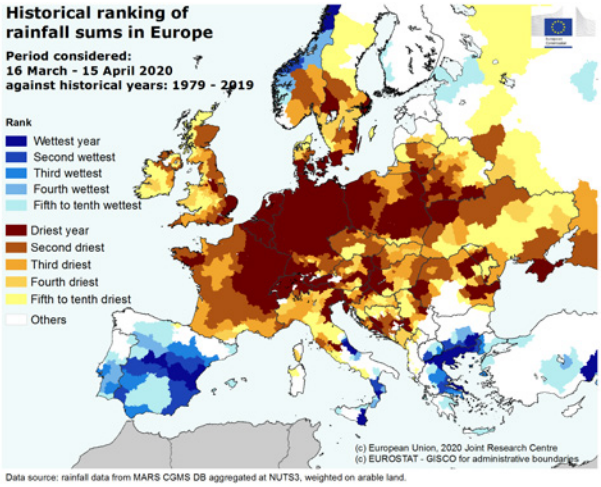
In Morocco, drought conditions affected a large proportion of arable land throughout the whole grain-filling period, resulting in poor crop-yield expectations.

Unusually cold temperatures occurred at the end of March and in the first days of April, in a large region of central and south-eastern Europe (comprising parts of Germany, Czechia, Slovakia, Hungary, eastern Austria, eastern Italy,









Slovenia, Croatia and western Romania). In many of these areas, minimum temperatures dropped to – 8 °C. Such a drop in temperature caused a delay in sowing spring crops, and suboptimal conditions for the spring crops that had just emerged. Fruit trees in bloom are reported to have been seriously impacted in several of these regions.

A marked rainfall surplus was experienced in the Iberian peninsula. In northern, western and some eastern regions, cumulative rainfall during the review period exceeded the long-term average (LTA) by more than 120 mm, which restored soil moisture to optimal levels just before the flowering of winter cereals (including spring barley). In Greece and Cyprus, cumulative rainfall over the review period was up to 200 mm, providing optimal soil moisture for winter crops and contributing to the restoration of water levels in reservoirs for irrigation.

In Estonia, Latvia and Finland, wet conditions were present during most of the analysis period; dry weather is now needed to allow good conditions and timing for sowing.

A rainfall surplus is observed even in south-eastern Turkey, with beneficial effects, and in parts of the Maghreb region, where it occurred too late to provide relief to winter crops affected by prolonged drought.

Impacts of the coronavirus pandemic

The coronavirus pandemic has brought about unprecedented challenges for the EU agri-food sector, on many levels. On 20 April the Commission published the short-term outlook for EU agricultural markets. The report showed that despite considerable short-term disruptions (e.g. to supply chains, consumption patterns and labour movement), the agriculture sector has responded and adapted constructively to the new circumstances. There have been, however, particular and severe impacts on certain agricultural sectors, for which the European Commission deployed specific measures. For further information, please see:
https://ec.europa.eu/info/food-farming-fisheries/farming/facts-and-figures/markets/outlook/short-term_en
While labour availability remains a key concern, to date we have no evidence of major COVID-19-driven impacts on the spring and summer crop sowings. The pandemic has also brought uncertainty and concerns about inputs (e.g. seeds, fertiliser, agro-chemicals) related to disruptions in logistics. So far the supply of seed, fertiliser and pesticides seems to be adequate, and no immediate disruptions are expected.

1.2. Meteorological review (1 February–10 March)

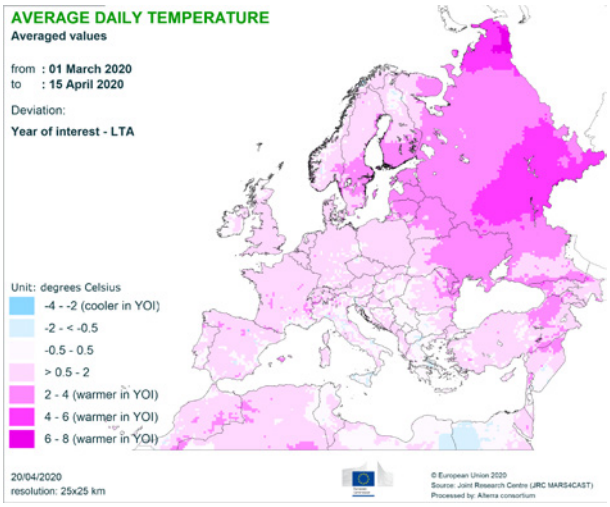
Slightly warmer-than-usual conditions in Europe, with mean daily temperature anomalies with respect to the LTA of between + 0.5 °C and + 2 °C in most regions. In eastern Europe, some areas in Sweden and Finland, and European Russia, mean temperature anomalies mainly ranged from + 2 °C to + 4 °C. In a large area of European Russia, higher anomalies of between + 4 °C and + 6 °C were observed. Daily minimum temperatures generally did not fall below 8 °C, except in the Scandinavian peninsula, some areas of eastern Europe and European Russia. Daily maximum temperatures reached values above 20 °C in most of Europe, with a few hotter days of temperatures between 26 °C and 28 °C, locally even above, in the south-western part of the Iberian peninsula, north-western France and the Po Valley.

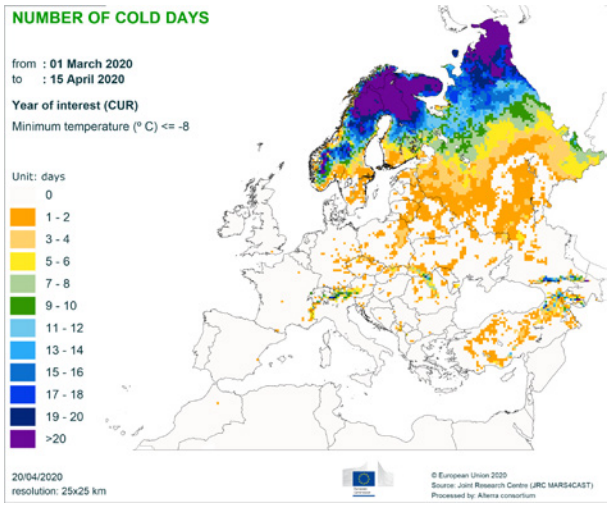
Two short **cold spells** affected central and eastern Europe, as well as Italy, towards the end of March/beginning of April, and a third, weaker one, in mid April. Considering the preceding unusually warm conditions, local impacts on crops and fruit trees are expected, as discussed in Section 1.3 (Frost damage).

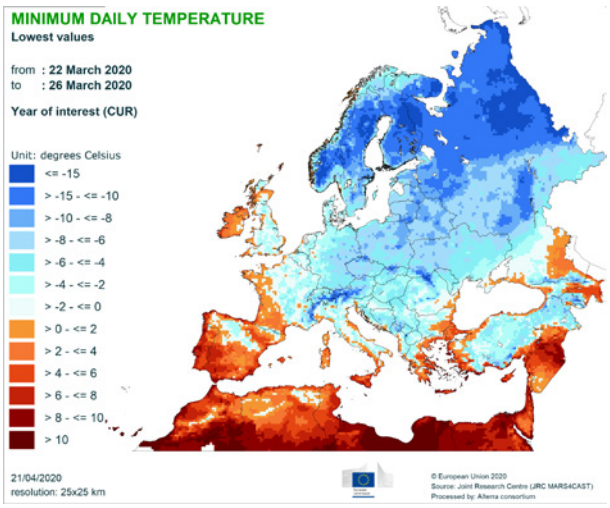
Drier-than-usual conditions affected large regions in central and eastern Europe and the United Kingdom, with precipitation anomalies (cumulative over the analysis period) mainly of between – 80 % and – 50 % with respect to the LTA, mostly due to the lack of precipitation in the second half of the analysis period. Few or no days with significant daily total precipitation above 5 mm were experienced in these regions.

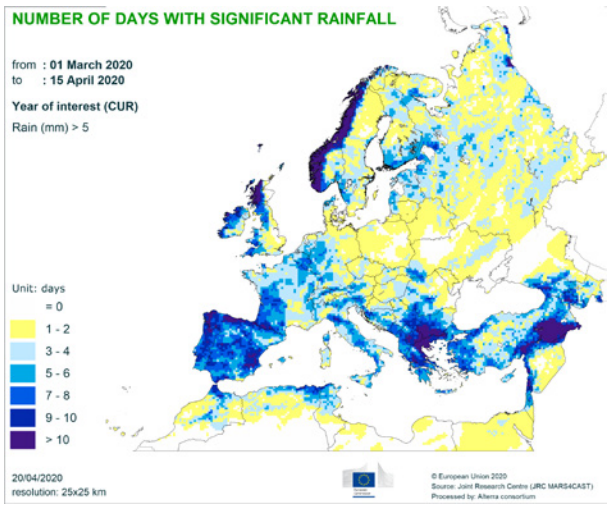
Wetter-than-usual conditions were observed in the Iberian peninsula, some areas of Italy and in south-eastern Europe, with precipitation anomalies (cumulative over the analysis period) over + 50 % with respect to the LTA. In all these regions, anomalies above 140 % of the LTA and a few days with intense precipitation (above 15 mm) were experienced in large areas.

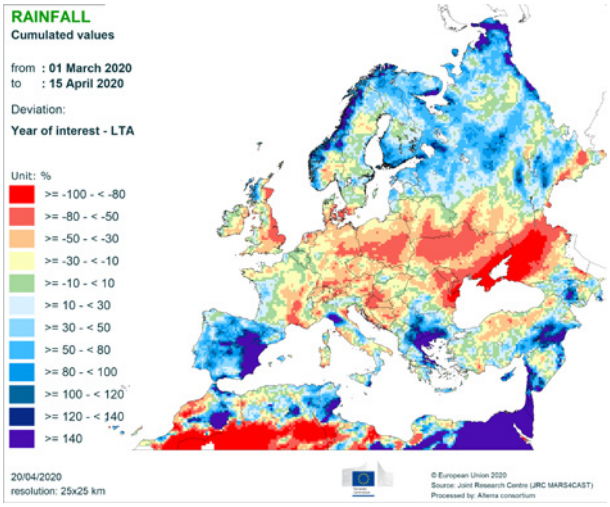
Several storms hit the United Kingdom, Ireland, Germany and the Benelux countries in March, while large hail events (affecting farms) were locally reported in *Castilla y León* (Spain).

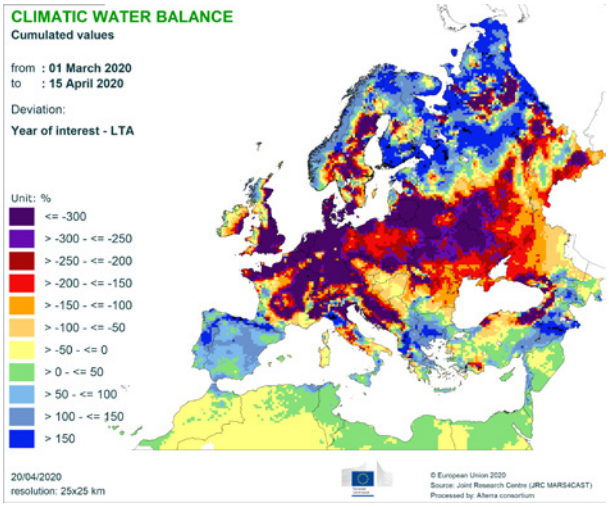












1.3. Frost damage

Frost events in March and April caused limited damage to annual crops

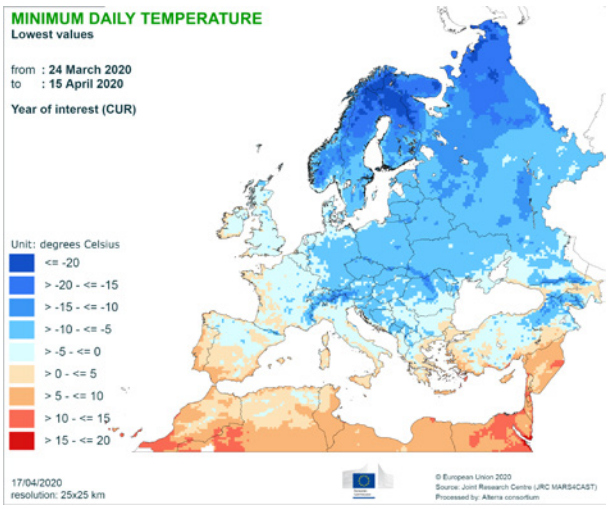
During the past 30 days, three waves of severe cold air inflow reached Europe, causing sudden drops in air temperatures around 24 March, 1 April and 15 April. Minimum temperatures during these cold spells fell below 0 °C throughout the continent, except in some (mainly coastal) Atlantic and Mediterranean areas. Frost events ranging between – 5 °C and – 10 °C occurred in most of central Europe, the Baltic states and the northern half of Romania, as well as further east in Ukraine and Russia. In many regions, the minimum temperature recorded on 1 April was the lowest in our meteorological archive (since 1979).

Nevertheless, our frost-kill model simulates no further frost-kill damage in Europe, indicating that the crown (tillering node) of winter wheat remained intact despite the reduced cold tolerance of winter cereals. However, in some regions, these frost events caused damage to the leaves and stems of wheat and other winter crops. Damage to rapeseed will also have been very limited, as these plants were typically not yet at flowering stage. In several places (e.g. Poland), damage occurred due to the combined effect of low temperatures with other stress factors, such as constrained water supply due to low soil moisture content.

Overall, this damage was reversible and not widespread, but it may reduce yield potentials to some extent.

The start of the sowing campaigns for potatoes, sugar beet, grain maize and sunflower was delayed in the region affected; therefore, the crops were not yet sown or had not yet emerged, and consequently minimal or no losses would have occurred.

Blossoming stone-fruit orchards (plum, apricot, peach, cherry, almond, etc.), apples and some berry plantations are likely to have been more severely impacted.



1.4. Weather forecast (24 April–1 May)

Weather conditions during the forecast period will mainly be determined by a large-scale trough deepening from the North Atlantic through the Iberian peninsula and moving to central Europe and the Mediterranean. This synoptic disturbance will bring atmospheric instabilities and precipitation to some of the affected areas.

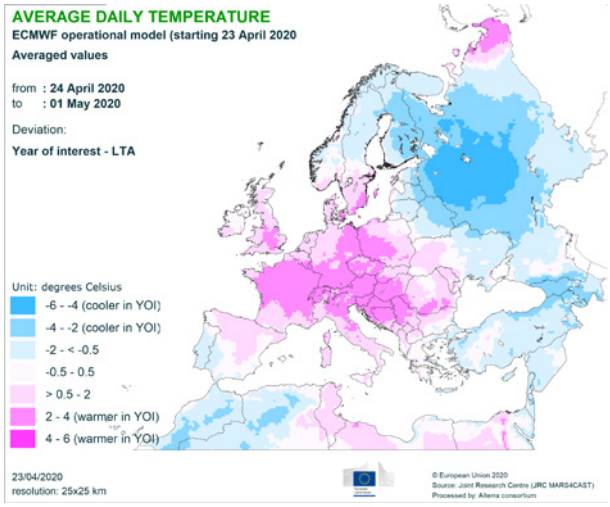
Warmer-than-usual conditions are expected in large regions of western, central and south-eastern Europe, with daily mean temperature anomalies mainly ranging between + 2 °C and + 4 °C. Daily maximum temperatures will reach values above 20 °C in most of Europe and above 26 °C in a large area of eastern Europe.

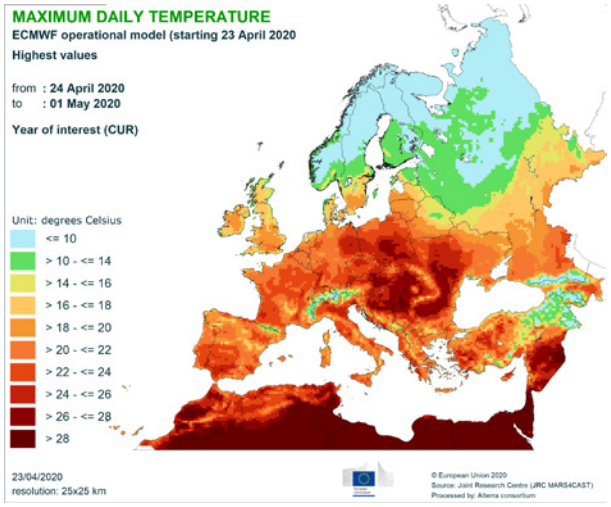
Colder-than-usual conditions are forecast in Finland, European Russia and its western neighbouring countries from the Baltic states to Ukraine. Daily mean temperature anomalies are expected to range between – 4 °C and – 2 °C (– 6 °C and – 4 °C in Russia).

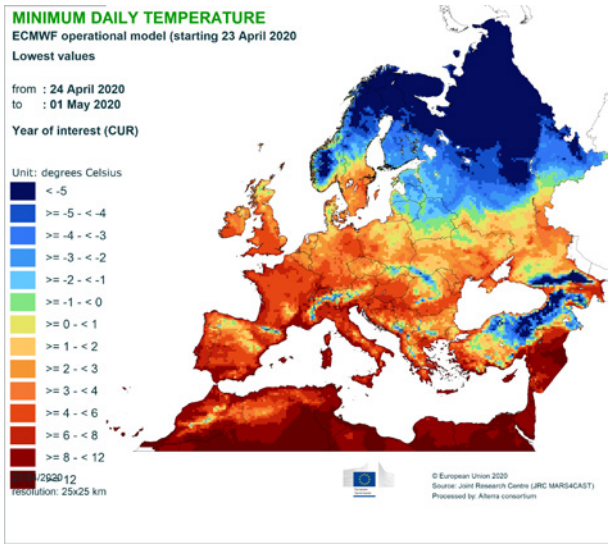
Dry conditions with less than 5 mm of total precipitation are forecast in a large region of south-eastern Europe (Hungary, Serbia, Romania, Bulgaria and Turkey), as well as in Poland and eastern Germany, and a region ranging from northern France to western Belgium and the Netherlands.

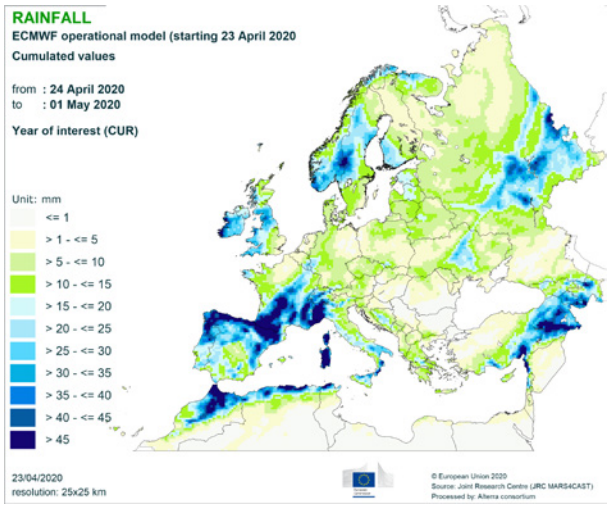
Wet conditions with total precipitation above **45 mm** are expected in the western Euro-Mediterranean region, covering northern Portugal, northern and eastern Spain, central-southern France and north-western Italy, but also the islands of Corsica and Sardinia, northern Morocco and Algeria. Eastern Turkey will also receive plentiful rainfall. Total precipitation mostly between **25 mm and 30 mm** is forecast in Ireland and the western United Kingdom, southern Norway and western Sweden, as well as in southern Italy.

The **long-range weather forecast** for May, June and July points to likely warmer-than-usual conditions in most of Europe (very likely in European Russia and eastern Europe).



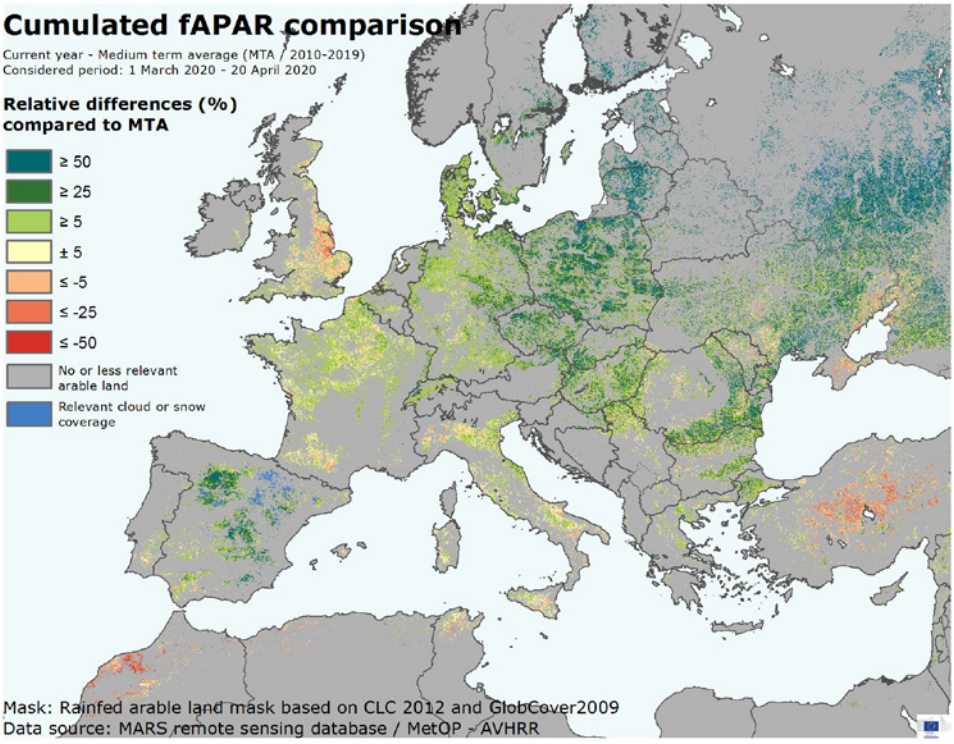






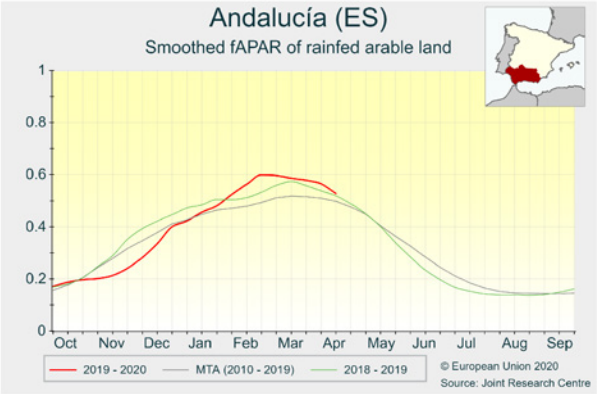
2. Remote sensing – observed canopy conditions

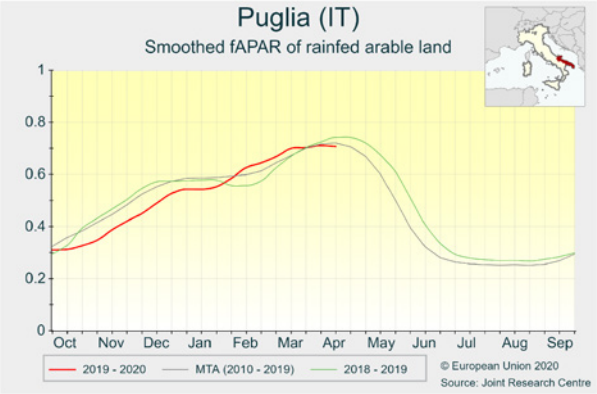
Early development and contrasting current conditions

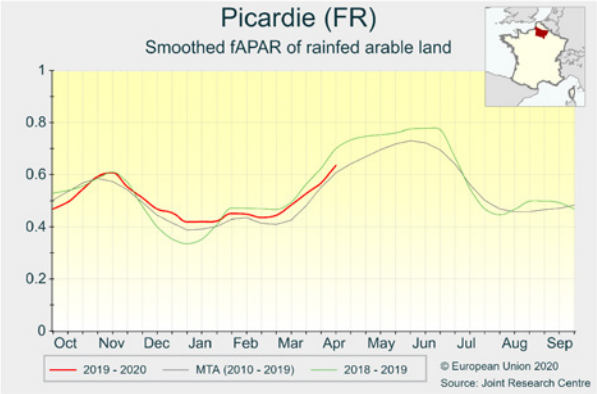


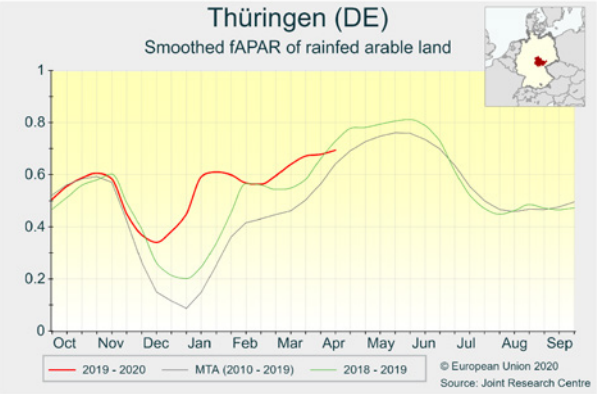
The map displays the differences between the fraction of Absorbed Photosynthetically Active Radiation (fAPAR) cumulated from 1 March to 20 April 2020 and the medium-term average (MTA, 2010-2019) for the same period. Positive anomalies (in green) reflect above-average canopy density or early crop development, while negative anomalies (in red) reflect below-average biomass accumulation or late crop development.

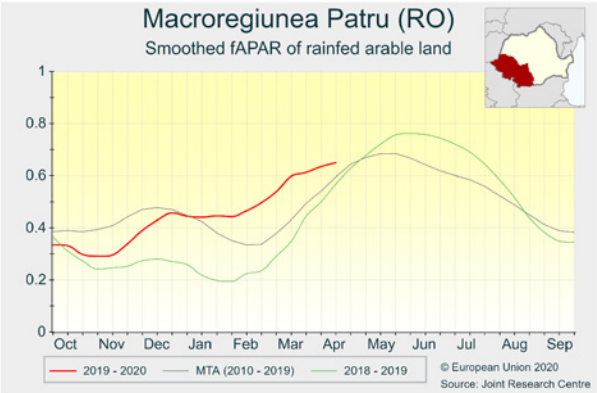
In **Spain**, winter crops benefited from favourable precipitation and warm weather, which resulted in advanced development. Winter crops in southern Spain (*Andalucía*) are now at the flowering stage. In **southern Italy**, despite a difficult start to the season, biomass accumulation reached close-to-average values thanks to sufficient rains in late March. Nevertheless, the low temperatures registered at the beginning of April caused a deceleration in crop development (*Puglia*). Winter crops are now approaching the flowering period under modest vegetative conditions. In **France**, the warm winter resulted in early development of winter crops, which only slowed down in March due to the overly wet conditions. In northern and north-eastern France, where most of the winter crops are usually grown, the sown area has been reduced due to difficult weather conditions. As a consequence, fAPAR values are around the average but below most recent years (e.g. 2019 in the *Picardie* profile), because of the reduced contribution of winter crops to the fAPAR signal. In **Germany**, a slowdown is observed in early-developed winter crops. In central regions, the poor precipitation over the last 30 days was not sufficient to maintain optimal biomass accumulation (*Thüringen*), while in northern regions the slowdown is an effect of overly wet soils up until mid March and temporarily reduced temperature sums. In **Poland**, the very high temperature anomalies throughout the winter led to early development of winter crops, and the well-distributed precipitation in early March provided enough water to sustain favourable crop biomass accumulation. In central Europe (**Slovakia**, **Czechia**, **Austria** and **Hungary**), crops present very early growth stages, 20–30 days earlier than usual, and with favourable biomass accumulation. In western regions of **Romania** and **Bulgaria**, winter crops present early development stages and very favourable biomass accumulation (*Macroregiunea Patru*). Eastern regions are suffering from a prolonged rainfall deficit: crop water demand has been met up to now, but more rain is needed. In **Greece**, a warm and wet spring contributed to early crop development and to favourable biomass accumulation; winter crops are now in the early flowering stage (*Western Macedonia*). In **Ukraine**, the winter was extremely mild and dry compared to the average: winter crops, mostly grown in southern regions, are well developed and in very advanced stages, more than 30 days earlier than the average for the 2010–2019 period. Therefore, unusually high crop water demand and evaporation are rapidly draining soil moisture, exposing crops to the risk of drought stress. In the **United Kingdom**, crop conditions are similar to those observed in France, with a reduction in the planted area for winter cereals and a delay in winter crop development due to excess water in early March (*East Anglia*). In **Turkey**, late winter sowings led to the current delay in crop growth in the central highlands. In **Morocco**, a persistent dry spell compromised the winter crop season, which has been significantly shortened (*Marrakech-Safi*).

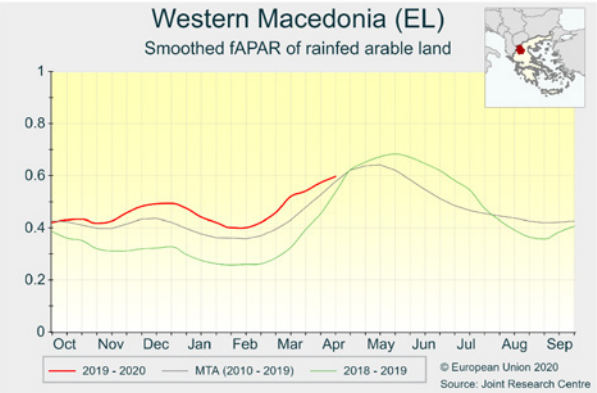

Andalucía (ES)
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre

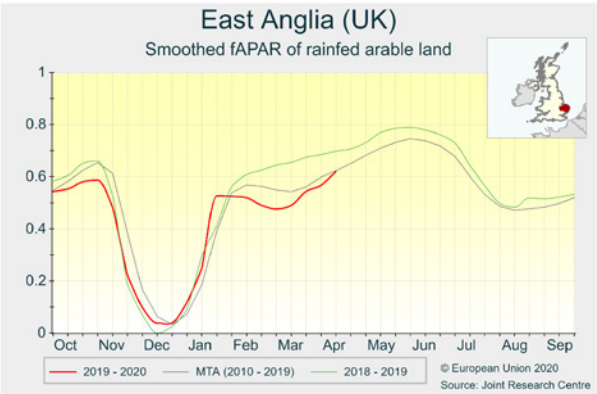

Puglia (IT)
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre

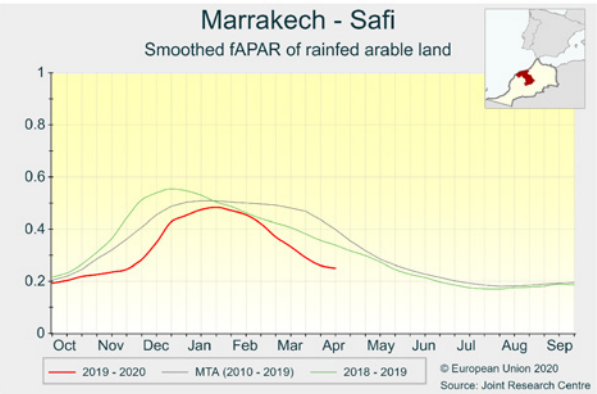

Picardie (FR)
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre


Thüringen (DE)
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre


Macroregiunea Patru (RO)
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre

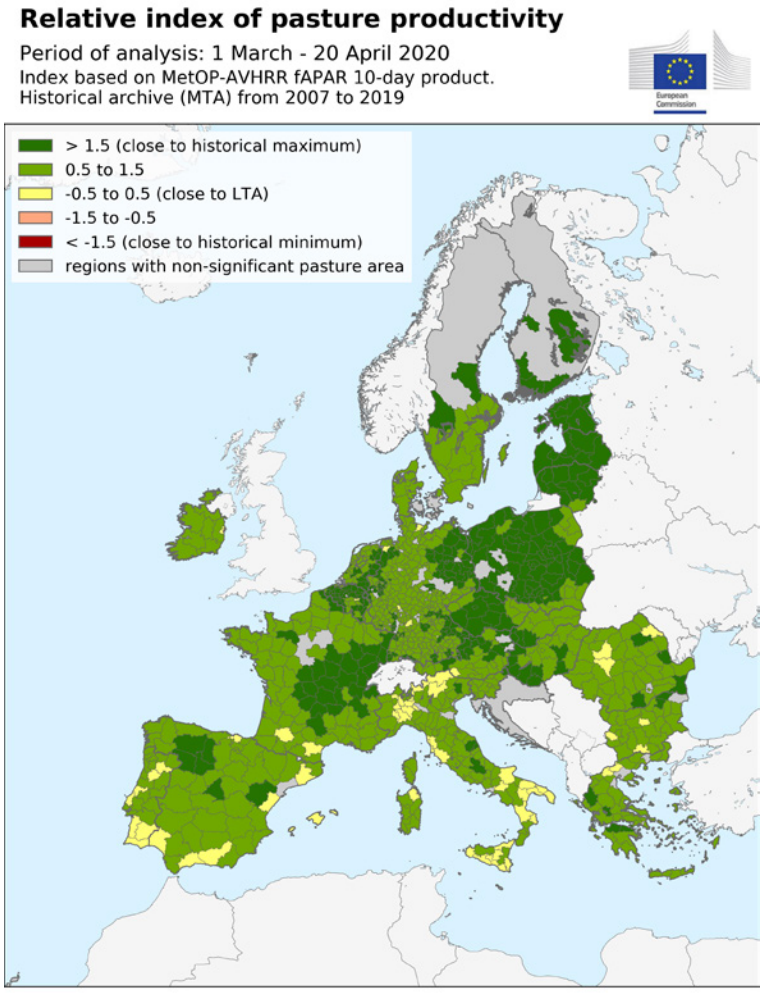

Western Macedonia (EL)
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre


East Anglia (UK)
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre


Marrakech - Safi
Smoothed fAPAR of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
2019 - 2020
MTA (2010 - 2019)
2018 - 2019
© European Union 2020
Source: Joint Research Centre

3. Pastures in Europe – regional monitoring

More rain needed to sustain high pasture productivity



The Pasture Productivity Index (PPI ([1])) for the period from 1 March to 10 April presents above-average values in most of Europe, reflecting a predominance of favourable conditions. However, a closer inspection of fAPAR ([2]) profiles over time reveals some challenges that raise concern.

In most regions, the high PPI values indicated on the map are largely due to the good condition of pastures at the start of the review period, thanks to the mild winter and adequate or abundant water supply, as shown in the March issue of the Bulletin, and reflected in the high fAPAR values over winter in all examples in the graphs below.

However, in large parts of western and central Europe (see the section 'Areas of concern'), the rain stopped around mid March, and almost no rain has occurred since then. Soil moisture levels were still sufficient, but lower temperatures caused some slowdown in pasture productivity. In April, temperatures increased again but topsoils gradually became drier, resulting in continued slowdown in growth, as reflected in the fAPAR graphs which come closer to the LTA (e.g. Hungary, Bulgaria, France – East), and in some regions almost drop below the LTA (e.g. Germany – South), despite the general picture remaining very positive considering the period as a whole. In these regions, continued high pasture productivity in the coming weeks is critically dependent on the arrival of rainfall.

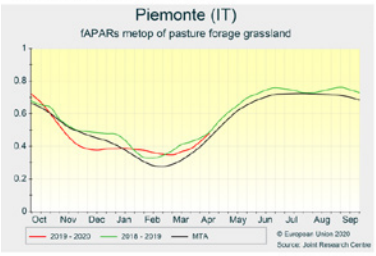
In other parts of Europe, conditions favourable for high pasture productivity have prevailed throughout the review period. This is particularly the case in most of Bulgaria, Finland, the Baltic countries, north-western France, Greece, Ireland, Italy and the Iberian peninsula. Pastures in these regions continue to do well in terms of biomass accumulation, and show less sensitivity for the coming weeks.

([1]) PPI, the relative index of pasture productivity, is an indicator of biomass formation based on the integration of the fAPAR remote sensing product of pasture areas (at NUTS 3 level) over a period of interest. The index shows the relative position of the current season within the historical series from 2007 to 2019.

([2]) fAPAR: fraction of Absorbed Photosynthetically Active Radiation. The photosynthetically active radiation is 48 % of the incoming solar radiation.

Italy - North and central

Reference period: 01 Mar to 20 Apr 2020

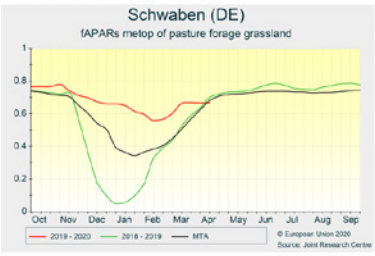


BULLETTIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Germany - South

Reference period: 01 Mar to 20 Apr 2020



BULLETTIN ISSUE

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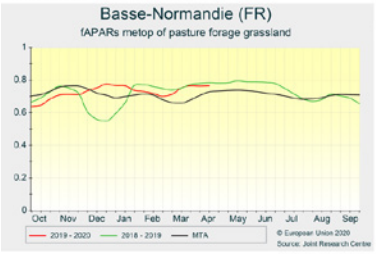
RAINFALL								
TEMPERATURE								
RADIATION								

France - NorthWest

Reference period: 01 Mar to 20 Apr 2020



BULLETTIN ISSUE

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RAINFALL								
TEMPERATURE								
RADIATION								

Hungary

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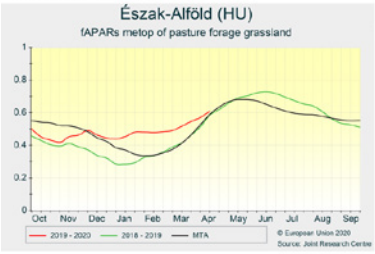
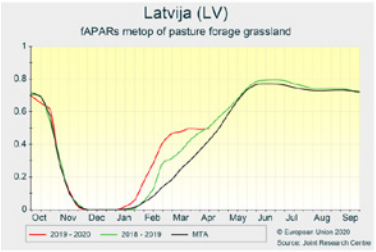


BULLETTIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Finland and Baltic republics

Reference period: 01 Mar to 20 Apr 2020

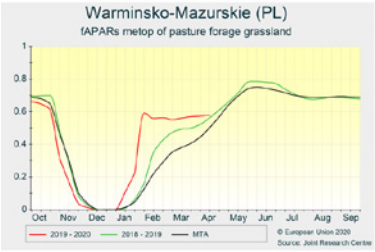


BULLETTIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Poland

Reference period: 01 Mar to 20 Apr 2020



BULLETTIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

4. Country analysis

4.1. Sowing conditions

Spring barley

Good progress across Europe but more rain needed in many areas for optimal crop establishment

In Spain, the largest spring-barley-producing country in the European Union, sowing was completed by the end of December and crops are slightly advanced and in good condition.

After a slight delay, the dry weather since the second half of March has facilitated the sowing progress in France, Ireland, the Benelux countries and Germany, as well as in the United Kingdom. In these countries, the planting of spring cereals has been completed or almost completed under good conditions. However, in many areas the continued dry and sunny conditions have caused topsoils to dry out rapidly, and rainfall is needed to ensure good crop establishment, especially for later-sown crops. The area sown with spring barley in these countries is expected to have increased compared to last year, compensating for the reduction in the area sown with winter cereals due to the overly wet conditions during autumn.

In Denmark (the third-largest producer in the EU after Spain and France) and Sweden, the incessant rainfall until mid March caused some delay to spring barley sowing; which normally starts by mid March, whereas this year's sowing began during the first week of April in the driest fields.

In Poland, mild conditions allowed early sowing, and it was completed during the first dekad of April. Locally, the dry conditions since mid March have negatively affected emergence and early crop development. Some frost damage has also been reported due to the low temperatures in the second half of March.

In Czechia, Slovakia and Croatia, sowing started as usual but was interrupted by cold and dry conditions in the second half of March. However, sowing can still be accomplished within the suitable window if soil moisture conditions improve. In Hungary, sowing is almost completed thanks to the mild weather conditions during the first 2 weeks of March.

In Romania, sowing is proceeding as usual, after a slight delay due to cold conditions. However, more rain would be beneficial for early development of spring barley.

In the Baltic Sea region, spring sowing usually starts from the second half of April, but favourable thermal and soil conditions enabled an earlier start in the southern parts of the region. Sowing started in mid March in Lithuania and is progressing well. In Finland, excessive rainfall has caused some delay.

Sugar beet and potatoes

Good progress with sowing, but rain needed for adequate development

In the EU's main sugar-beet-producing countries (France, Germany, Poland, the Netherlands and Belgium), as well as in the United Kingdom, sugar beet sowing started within the normal window, albeit with some delay in western Europe due to overly wet conditions until mid March. In France, the Benelux countries and the East of England (where the United Kingdom's sugar beet is concentrated), significant sowing started in the last dekad of March; in Germany, it started at the beginning of April. In these countries, sowing initially progressed rapidly, without constraints. However, the continued dry and sunny conditions caused topsoils to dry out rapidly, making field preparation of clayey soils challenging and creating poor conditions for germination, an issue that some farmers have resolved with irrigation. At the end of the review period, sowing was almost completed in most of these countries, but some farmers preferred to wait for conditions to improve. The situation is particularly difficult in southern Germany. In Poland, favourable weather conditions allowed the sowing campaign to start early. It reached full swing in the middle of March and is currently close to being completed. However, the dry conditions currently prevailing are seriously impairing plant germination and emergence. Moreover, strong pest pressure (weevil beetle) is observed following the mild winter, especially in south-eastern regions.

In parts of Czechia, Slovakia, Austria, Croatia, Slovenia and Hungary, sugar-beet-sowing activities were delayed due to a significantly colder- and drier-than-usual period at the end of March and beginning of April. Sowing, germination and emergence of sugar beet was set back due to very dry conditions in Romania. In Italy and northern Spain, the sowing of sugar beet was concluded on time, under favourable weather and soil moisture conditions.

Concerning potatoes, of which the main production regions coincide with those of sugar beet, the challenges faced were similar. However, in the case of potatoes, seedbed preparation and planting require substantially more soil disturbance, which in dry soils becomes practically impossible. Consequently, potato planting is more delayed and is likely to continue well into May.

Maize

A difficult start to the season caused by dry soil surface

Temperatures during the second half of March strongly fluctuated, and dropped below 0 °C in most of the main grain-maize-producing countries, thus not allowing the soil temperature to reach 10 °C before the second dekad of April. Despite the unfavourable soil temperatures, sowing started early in Romania, in the beginning of April.

The sowing campaign is currently ongoing in most of the countries. Farmers are not facing any particular problems for sowing; however, in many regions, emergence is hampered due to the prolonged lack of substantial rainfall since mid March.

In south-western France, intense rainfall around the last days of the review period will benefit emergence in the fields already sown and allow farmers to complete the sowing campaign. The situation is more challenging in Romania and Bulgaria, where the rain deficit started earlier and no rainfall has been observed in recent days, which might further delay the emergence. Conditions are also unfavourable in northern Italy, particularly in *Vèneto* and *Emélia-Rumâgna* where the recently observed rain was not sufficient to refill the soils. In Hungary and Austria, conditions are currently beneficial and no particular problems have been observed. In Spain conditions are also favourable.

Sunflowers

Slower-than-usual progress of the sowing campaign so far

In Romania, Hungary and Croatia (the EU's first-, third- and ninth-largest sunflower-producing countries), the sowing campaign started around 5 April, 1 to 2 weeks late due to lower-than-usual topsoil temperatures. Progress accelerated during the second dekad of April thanks to moderate rainfall and near-average or above-average temperatures. Topsoils are drier than usual due to scarce rainfall in late March and early April; therefore the conditions for sprouting and early crop development are not optimal, which could lead to uneven stands. The medium-range weather forecast indicates sparse rain until late April.

In Bulgaria and Greece (the EU's second- and seventh-largest producers), the sowing campaign started during the second week of April. Rainfall events were frequent in Greece and southern Bulgaria between 22 March and 6 April, while in the northern half of Bulgaria below-average temperatures were recorded and cold soil hampered the sowing of sunflower.

In France (the EU's fourth-largest sunflower producer), weather conditions during the second week of April were favourable for preparing the seedbeds, since the soil did not become too wet. Soil temperatures have exceeded 8 °C for several days in the main producing regions, and the sowing of sunflower is expected to be in full swing in the second half of April.

Recent rainfall in Spain and Portugal (the EU's fifth- and 13th-largest producers) have created favourable conditions for soil preparation and sunflower sowing, which is currently ongoing.

In Italy (the EU's sixth-largest producer), the sowing of sunflower will be in full swing only in the second half of April. In southern Italy, soil and weather conditions have been favourable for the earliest sowings. In northern Italy, only scarce rainfall occurred after early March, however conditions are still considered to be adequate for sunflower sowing.

In the other sunflower-producing countries and areas, more to the north, the sowing will start later during this spring.

Soybeans

Sowing started but rainfall needed in most producing regions

In most of the main producing regions, soil temperatures have already reached a temperature above 10 °C, and sowing started from mid April onwards, corresponding to the usual sowing window. The weather is currently allowing farmers to continue preparing the seedbeds in most regions, and they should be able to complete the sowing campaign before mid May. There are currently concerns in northern Italy, particularly *Veneto*, where soil moisture is low and rainfall is needed to ensure sufficient irrigation water, as well as in Romania and Bulgaria, where rain will be needed for non-irrigated soybean to emerge. In other countries with significant soybean production – Austria, Slovakia, Hungary and Croatia – soil moisture levels are currently adequate. In France, conditions are beneficial in south-western regions thanks to the recent rainfall, while in the east – *Bourgogne-Franche-Comté* and *Rhône-Alpes* – the rain deficit may hamper the start to the season.

4.2. European Union

France

Sharp transition from wet winter to dry spring impacts all crops

A long period without substantial rainfall has been observed since mid March, contrasting sharply with the preceding rainy and mild weather conditions. This has led to an atypical situation, with the upper part of the soil drying very quickly while the deepest soil layers are still humid.

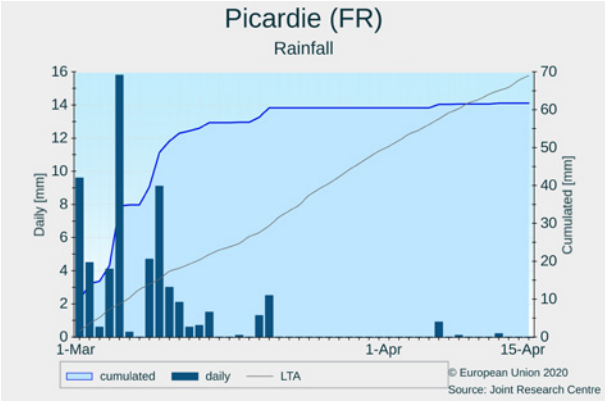
The impacts on crops depend largely on their stage of phenological development and their root development. Winter cereals are still benefiting from the soil moisture recharge observed this winter, while late-sown spring crops (e.g. spring barley) and recently sown summer crops had difficulties with emergence due to the superficial dryness.

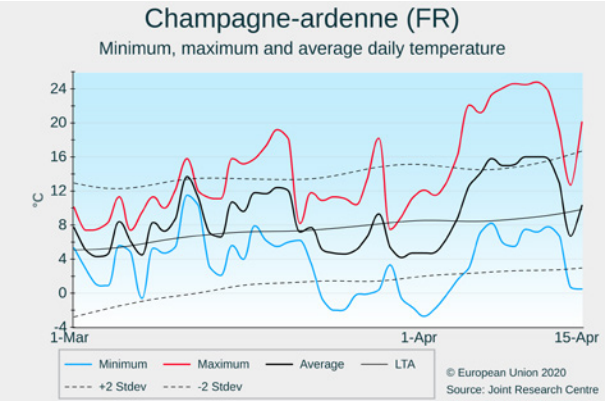
The disease pressure on winter crops is still very high. However, the dry weather limited further pressure and allowed farmers to apply phytosanitary products. Dry weather conditions also allowed farmers to finally apply fertilisers, but their effectiveness is questionable as long as the upper soil is dry.

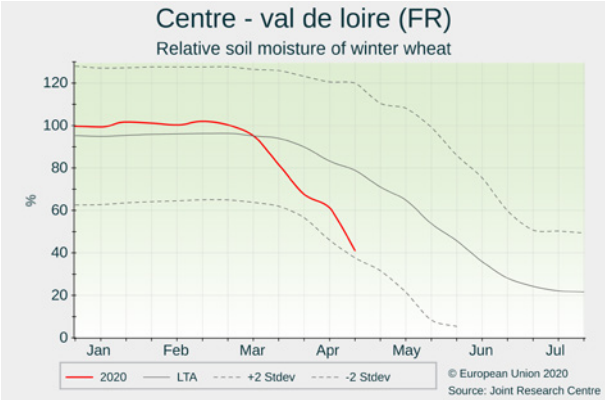
For summer crops, although farmers were able to sow and did not face any particular difficulties due to coronavirus ([3]), the superficial dryness of soils hampered the emergence of the crops. A few rainfall events, observed around the end of the review period, benefited emergence; however, locally intensive rainfall was partly lost through run-off and caused degradation of the topsoil structure, particularly in the south-west.

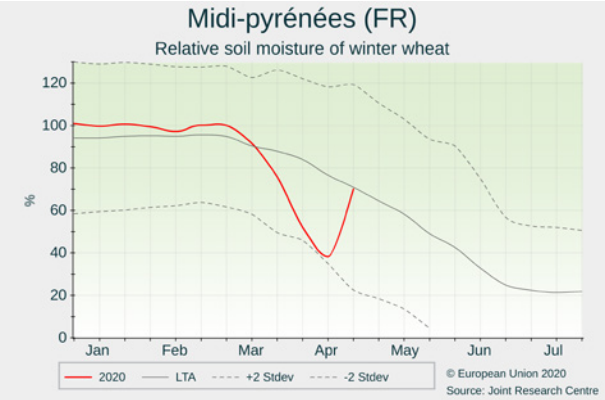
Yield forecasts for winter crops are maintained at the historical trend level, but significant revisions are possible depending on weather conditions (especially precipitation) in the coming weeks. In the case of rapeseed, even under improved conditions, the crops may not be able to fully recover from the difficulties encountered since the start of the season.

It is still too early to assess the impacts on summer crops, but the start to the season is not very favourable.









([3]) http://www.lafranceagricole.fr/actualites/cultures/crise-du-coronavirus-la-filiere-cerealiere-limite-les-degats-1,13,746120121.html

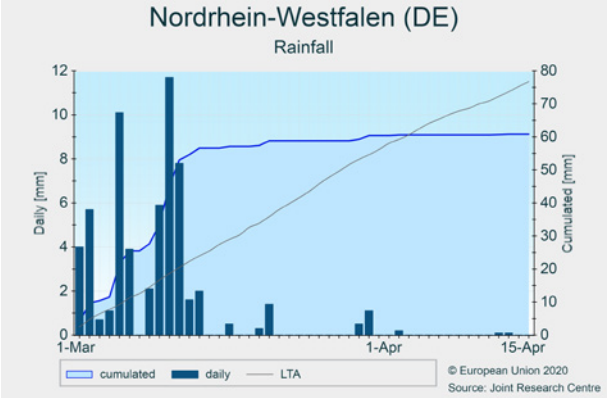
Germany

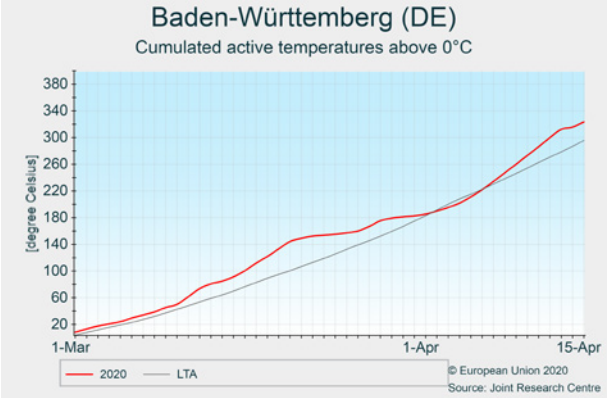
Emerging concerns for winter crops due to significant rain deficit

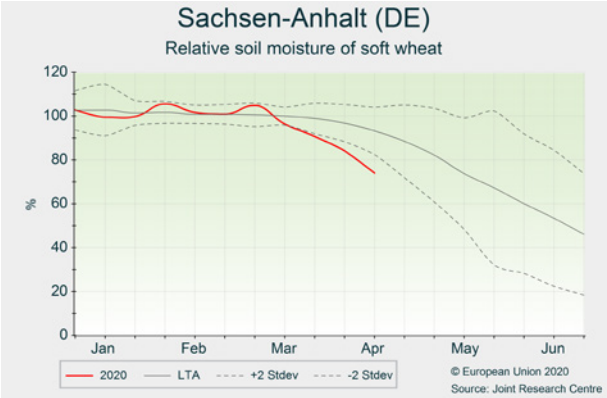
Incoming radiation has been abundant since mid March, and temperature sums during the review period show a surplus, but Germany was hit by a rather pronounced late cold spell at the end of March and the beginning of April, with minimum temperatures close to – 10 °C. The frosty nights are expected to have damaged some of the rapeseed stands. General phenological development is still advanced, even though the cooler days at the beginning of April slowed development.

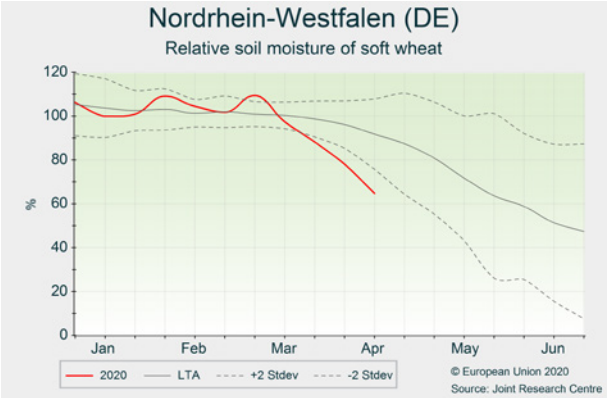
The preceding overly wet period came to an abrupt halt by mid March, and dry weather set in. In many regions of Germany, not a single day with significant rainfall has been recorded since. On the upside, farmers concluded the sowing of spring cereals, and sowings of potatoes and sugar beet are under way. For maize, farmers are awaiting frost-free nights to start the sowing campaign. On the downside, water stress could now develop quickly on shallow soils, and model results show a sharp decline in soil moisture content, especially in *Nordrhein-Westfalen* (where it could be critical for emerging sugar beet), *Thüringen* and *Sachsen-Anhalt*. Fertiliser uptake is also limited due to the dry conditions. If rain fails to materialise in April or at the beginning of May, the establishment of spring barley plants could be problematic and winter cereals will start to suffer.

Given the mild and rainy winter, and emerging concerns due to the dry period, there is significant potential for downward revision in the general yield outlook over the coming weeks if the dry period is prolonged.









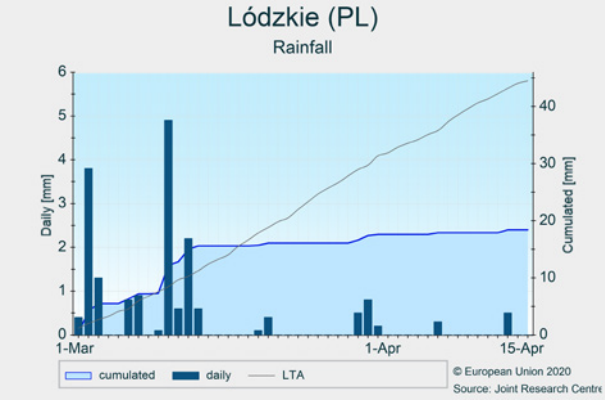
Poland

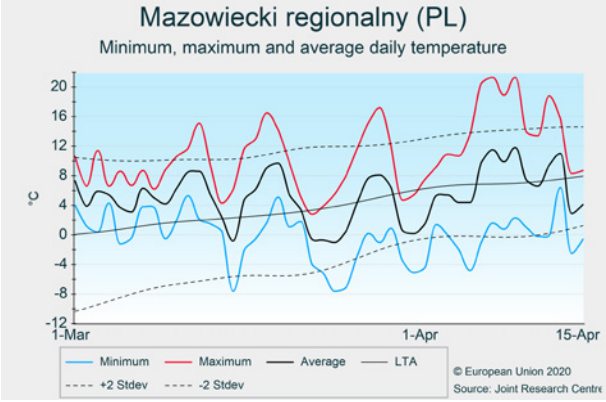
Rain urgently needed during the coming weeks to sustain fair crop development

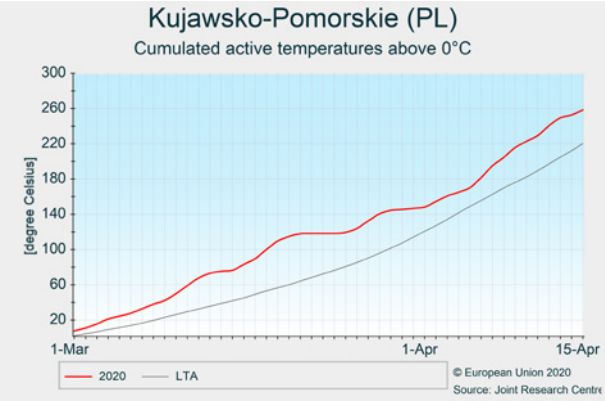
The review period was characterised by mean daily temperatures slightly above the LTA. Cold spells occurred during the second and third dekads of March, with minimum temperatures below – 6 °C. Precipitation was significantly below the LTA, and in many regions no significant rainfall has occurred since the middle of March. As a result, topsoils are drying out, especially in central and western regions of the country.

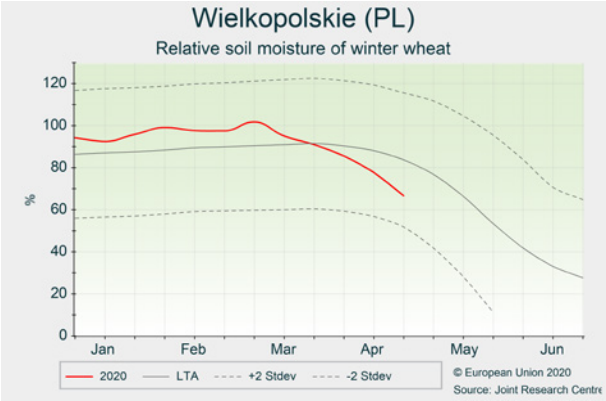
Winter cereals are generally in fair condition and still advanced in development compared to an average year; however, the combination of frost and drought stresses are reported to have locally impacted winter crops. The sowing campaign for spring crops started ahead of the usual time due to the mild winter, and most of the spring crops were sown by mid March, when soil water conditions were still satisfactory. The sowing campaign for sugar beet is about to be completed, while the sowing of grain maize and planting of potatoes began in April. Dry conditions impaired the early development of spring cereals and sugar beet, especially on light soils. Additionally, pest pressure (weevil beetle) was reported for sugar beet, especially in the south-east of the country.

Currently, our yield forecasts are maintained close to the historical trend. However, rain is much needed during the coming weeks to provide adequate water supply.









Ireland

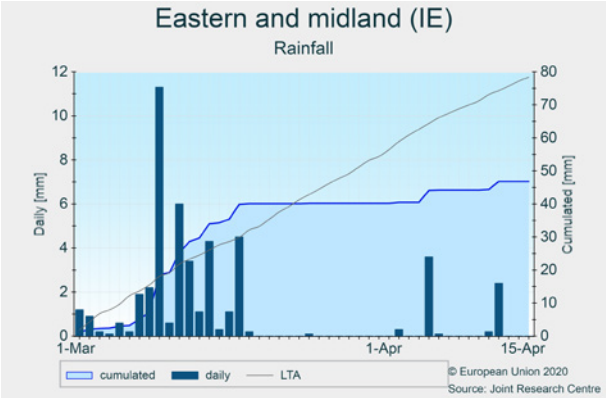
Spring cereal planting almost completed under optimal soil conditions

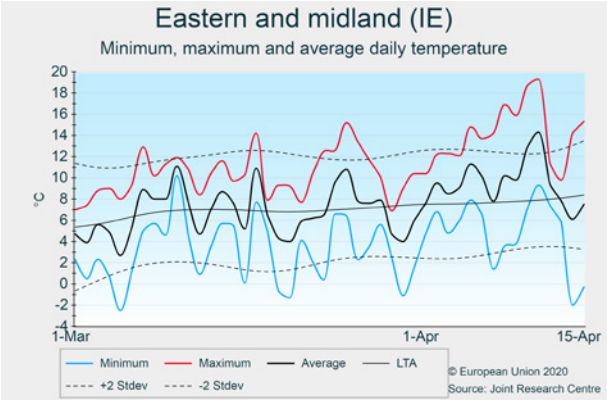
Temperatures fluctuated around the LTA, with several cold periods in March. Temperature sums for the period as a whole were close to the LTA. The continuous rain that characterised the previous review period abruptly ended in mid March. Since then, there has been almost no significant rainfall in most of the country.

The improved weather enabled growers to catch up on overdue inputs to winter crops and on planting of spring crops. Sowings of spring cereals are almost complete, and the first crops planted have emerged. The area sown with spring cereals has increased compared to last year, due to the decreased area of winter cereals. A small proportion of land may be kept fallow as some farmers fear a decrease in demand for their products (e.g. malting barley) due to impacts related to COVID-19 ([4]). Sowings of sugar beet, potatoes and (green) maize are under way.

Winter cereals present variable stages of development, but most have reached stem extension and are in good condition. Winter rapeseed crops have started to flower.

The yield forecasts are maintained close to the 5-year average.





Spain and Portugal

Rainfall returns, with benefit for winter crops

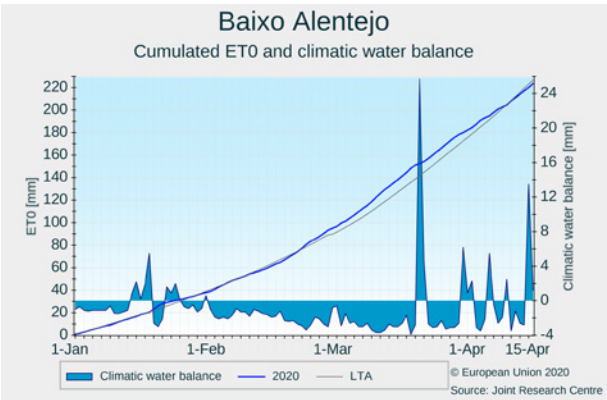
Over the analysis period, most of the Iberian peninsula has recovered from the prolonged dry period that was raised as a concern in the March issue of the Bulletin. Temperatures and rainfall have returned to LTA levels over the course of March, after the very dry and warm month of February.

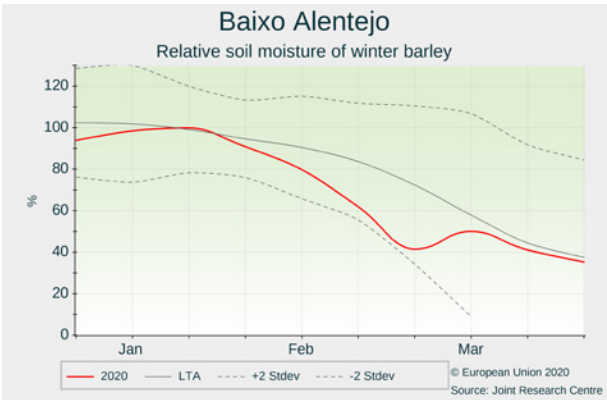
Sowing conditions are optimal and sowing is well under way in many places, including *Castilla y León* and *Castilla-La Mancha* for maize and sunflower crops.

Winter cereals in southern parts of Spain, as well as in Portugal's *Alentejo* region, are in good condition (see figure 'Cumulated ET0 and climatic water balance'), with positive yield expectations. The lack of rainfall in February and early March (see figure 'Relative soil moisture of winter barley') caused stress to winter crops, but the return of rain in mid March was sufficient for soil moisture to return to above-average values and to relieve winter crops from water stress.

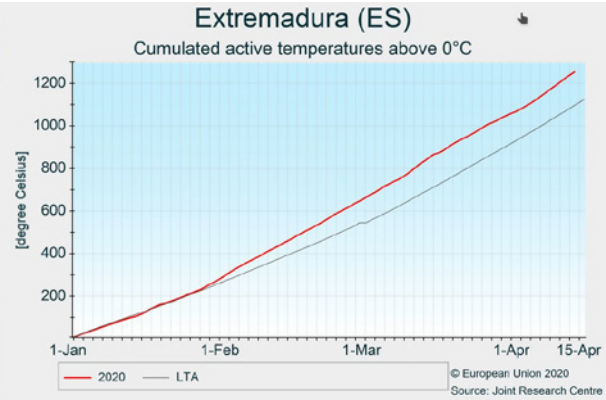
In central and northern-central Spain, winter and spring crops have experienced favourable conditions for growth and biomass development; the return of rainfall in March has been beneficial and sustains a positive outlook (see figure 'Cumulated ET0 and climatic water balance: *Valladolid*').

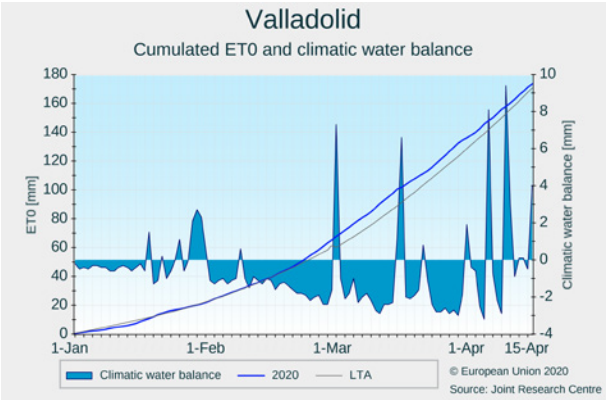
Spain's accumulated water reserves currently amount to about 63 % of its reservoir capacity, which is still well below the 10-year average (*source:* www.embalses.net) for this month.





([4]) www.farmersjournal.ie/spring-planting-over-80-complete-538145





Italy

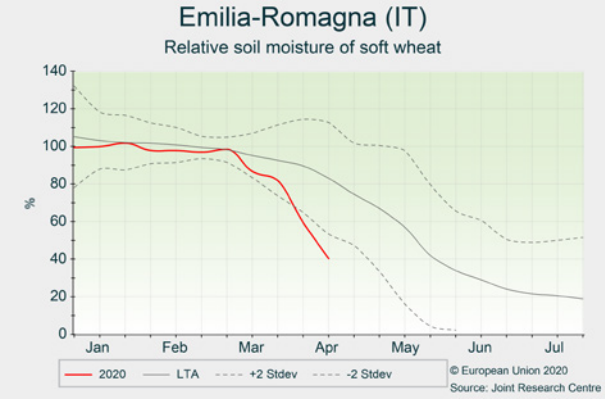
Spring rain sustains crop growth

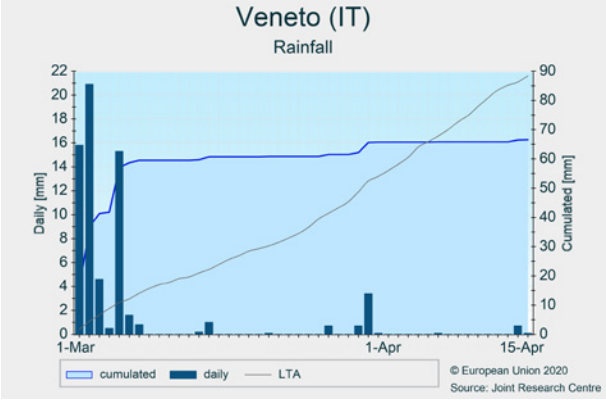
Northern Italian regions and Tuscany experienced a wet start to March, with rain cumulates of 60 mm in the first 10 days, but after that dry weather prevailed up to 15 April. However, there was enough rain to maintain sufficient soil moisture levels (> 30 %) and sustain winter crop growth. Crops are now in fair condition and at advanced stages. Early sowings of maize in late March benefited from good soil moisture, but later sowings occurred on dry soils and emergence conditions are now suboptimal. In the Po Valley, the low level of rivers (around – 20 % ([5])) raises concern for the upcoming irrigation season.

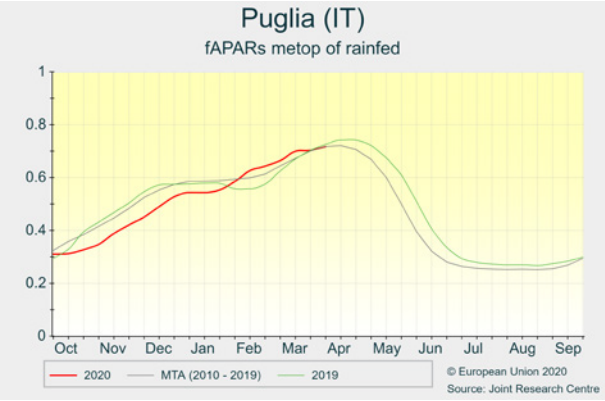
In central Italy, well-distributed rains favoured winter crop growth and soil preparation for summer crop sowing.

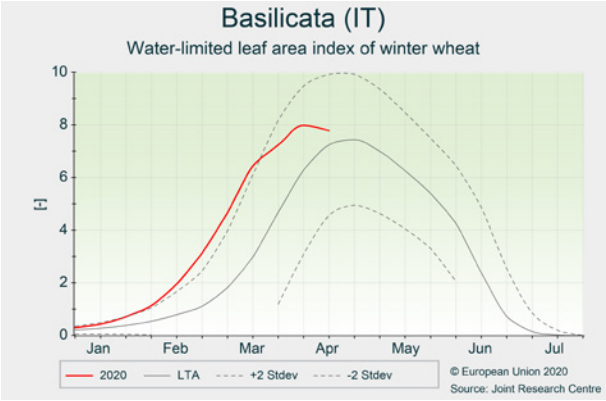
In southern regions, precipitation since 20 March (50 mm) mitigated the long-lasting dry conditions. Crops somewhat weakened by the prolonged dry period recovered to decent conditions. Winter crops, for which development slowed due to the low temperature (T_{min} < 0) concurrent with the rainy period, are almost entering the flowering stage.

National yield forecasts for soft and durum wheat are slightly above the 2019 figures, but marginally below the 5-year average. Summer crop forecasts are still based on trend analysis.









([5]) https://adbpo.gov.it/

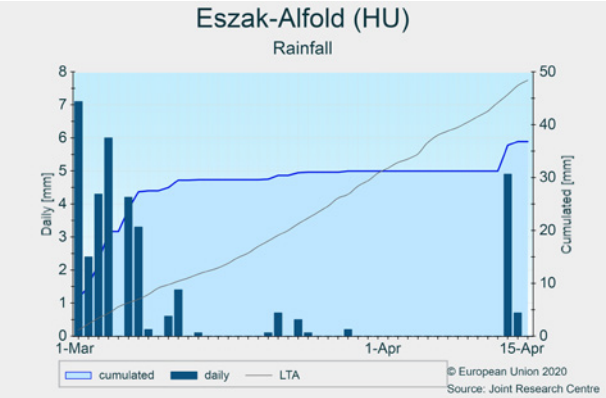
Hungary

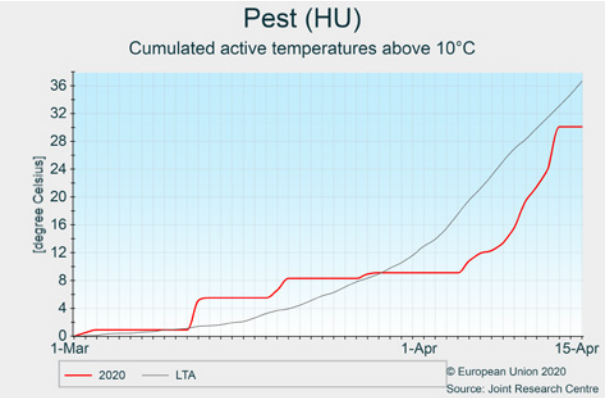
More rain needed to sustain a positive outlook

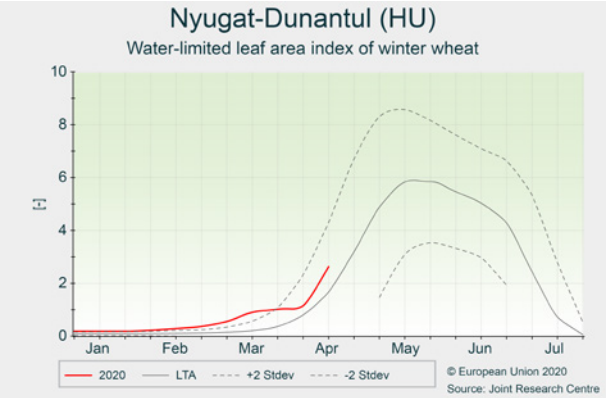
Milder-than-usual thermal conditions prevailed in the first two dekads of March, but below-average temperatures predominated during the remainder of the review period. Two exceptional frost periods occurred (23–25 March and around 1 April), with daily minimum temperatures between – 3 °C and – 9 °C. These frost events locally caused damage to leaves and stems of winter crops, with moderate losses. In several regions, severe damage has been reported to flowering orchards ([6]). Moderate frost on 15 April may have adversely affected early flowering rapeseed fields, but without causing substantial damage as rapeseed is able to form new flowers over a prolonged period.

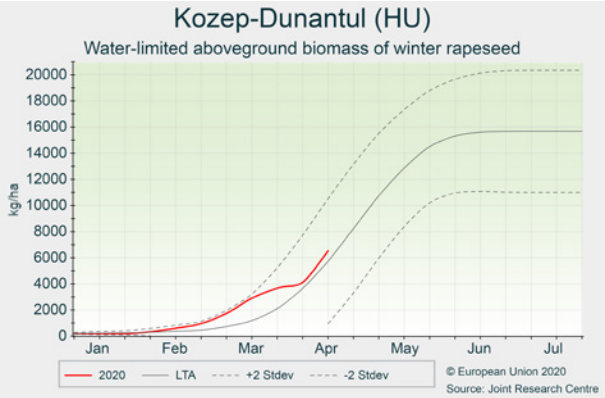
Rainfall was abundant (10–40 mm) during the first days of March, but hardly any precipitation (2–15 mm) has been recorded since then. The spring sowing campaign suffered some delay due to cold and dry soils. The sowing of sunflowers and maize started in early April, but more rain is needed for adequate emergence and early crop development.

The phenological development of winter crops remains advanced, by 5–15 days as of mid April. Crops are in good condition, with above-average leaf area index and biomass accumulation thanks to the mild wintering conditions. However, the situation is fragile due to the increasing rainfall deficit.









([6]) https://infostart.hu/gazdasag/2020/04/11/aszalyos-es-fagyos-tavasz-miatt-csokkenhet-a-termeshozam

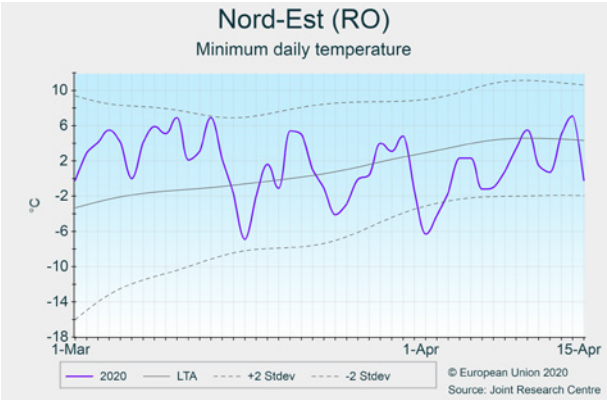
Romania

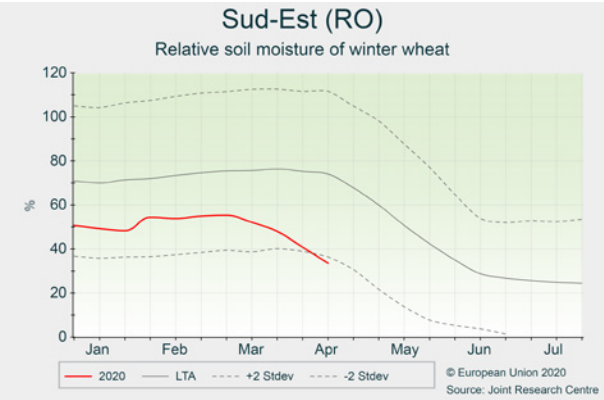
Drought threat in eastern regions

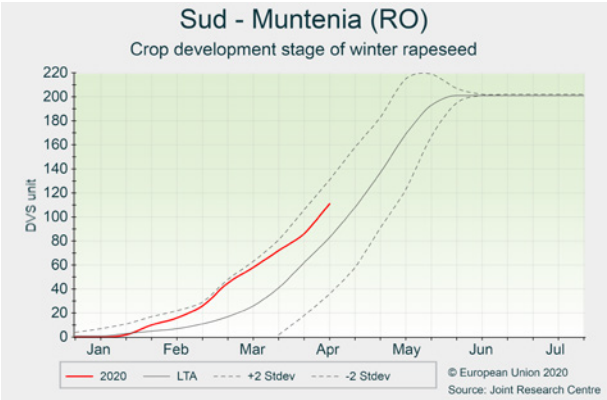
Daily temperatures exceeded the LTA by 1.5–2.5 °C in eastern Romania, whereas near-average thermal conditions prevailed in western regions. However, on 1 April an exceptional frost event occurred in most of the country (except in southern regions along the Bulgarian border), with minimum temperatures in the range between – 3 °C and – 10 °C. Precipitation was around average in the first dekad of March, but then decreased. Cumulative precipitation reached near-average levels only in *Macroregiunea Patru,* while elsewhere it was 50–95 % below the LTA. In eastern and south-eastern regions of Romania, the rainfall deficit has persisted since autumn, with the lowest precipitation level since 1992 for the period from 15 October to 15 April.

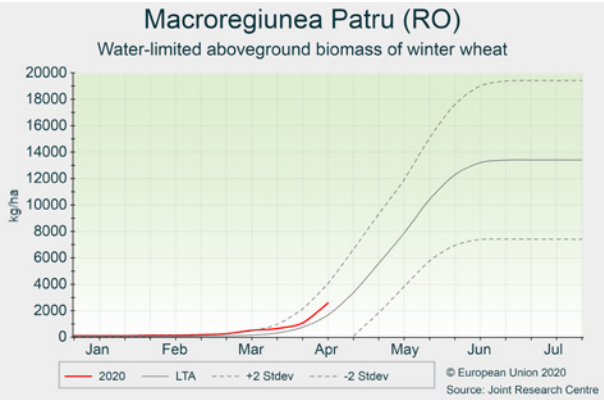
Despite the abovementioned unfavourable conditions, remote sensing images show that, in most of the country, winter crops are currently in good shape (generally better than in 2019). Our simulation model results present advanced development and adequate biomass accumulation thanks to the mild conditions during winter and early spring. Simulated soil moisture levels are very low in the *Sud-Est* region, where winter crops have been compromised, but elsewhere soil moisture is only moderately below average. However, water supply to crops will become increasingly problematic in the absence of significant rain, as water demand increases with rising temperatures.

Low topsoil moisture content and slowly warming soils also hampered the spring sowing campaign, and have so far caused moderate delay. More rain is needed to advance the campaign and to allow optimal sprouting and early crop development.









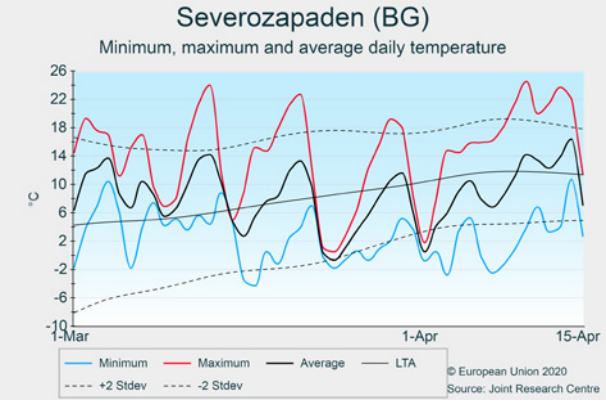
Bulgaria

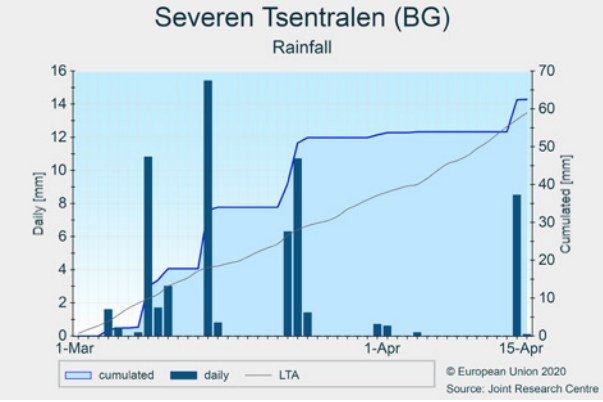
Need for rainfall in eastern regions

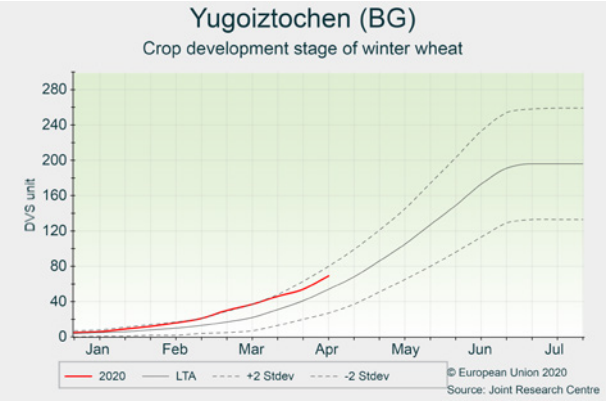
In the first half of March, daily temperatures typically exceeded the LTA by 3–7 °C, but thermal conditions since then have been 0.5–2.5 °C colder than usual. In late March and the first dekad of April, frost events in the range of – 2 °C to – 6 °C occurred (especially in northern and western regions), with possible damage to blooming fruit trees. Rainfall was abundant (80–190 mm) during the review period in the south-western half of Bulgaria, but in eastern regions (*Yugoiztochen, Severoiztochen* and eastern parts of *Severen Tsentralen*) only 20–50 mm of rainfall was recorded (10–50 % below the LTA).

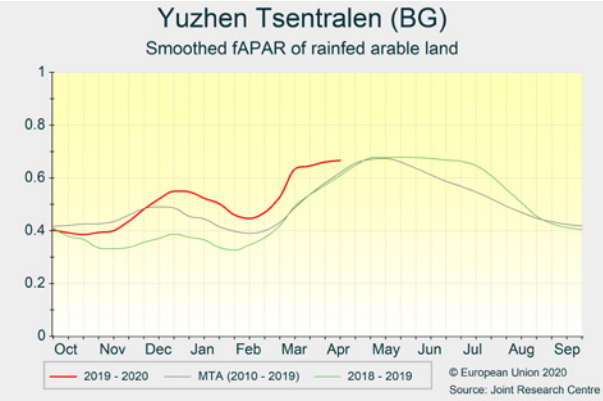
Sowing of sunflowers progressed more slowly than usual, due to the cold spells, frequent rain and below-average topsoil temperatures. Adequate conditions for the sowing of maize were only attained in the second dekad of April (5–10 days later than usual), when soil temperatures reached the threshold of 12 °C.

Soil moisture levels under winter crops are adequate to meet plant water requirements in most regions, but below average on the eastern coastal side, where crops have started to present light signs of stress. Winter cereals are moderately advanced in phenological development and present above-average biomass accumulation and canopy expansion.







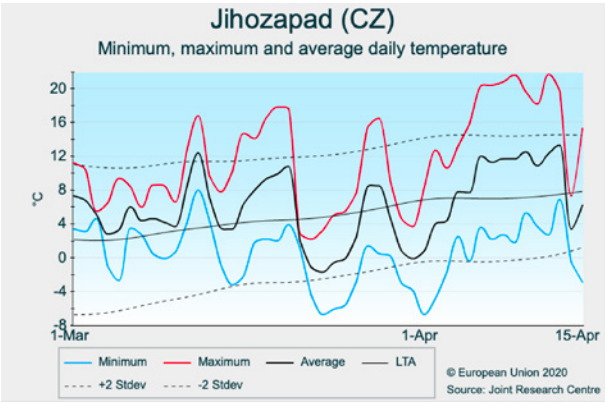


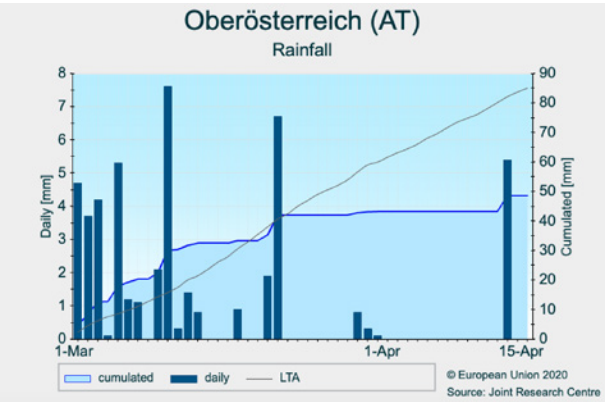
Czechia, Austria and Slovakia

Pronounced cold spell and regional lack of precipitation

The period since the beginning of March has been on average up to 2 °C warmer than usual, though with highly varying temperature conditions. Two pronounced cold spells, during the third dekad of March and at the beginning of April, interrupted the generally warm weather. Minimum air temperatures between – 6 °C and – 8 °C were recorded, regionally below – 8 °C, over major agricultural areas. Even though the first half of March saw frequent rainfall episodes, precipitation was scarce in major agricultural areas during the subsequent period. Therefore, precipitation totals over the analysis period as a whole reached 50–70 % of the LTA, except in western Slovakia where normal conditions were recorded. In eastern Austria and south-eastern Czechia, which had already been exposed to a significant lack of precipitation since the beginning of the year, only 20–30 mm of rainfall was recorded during the analysis period.

The freezing temperatures recorded during the cold spell events have likely caused damage to fruit trees that were in the flowering stage. Winter crops have been regionally affected by the cold spell (especially in Czechia), mainly damaging leaf area. Additionally, the lack of rainfall has started to hamper the growth of winter crops; however, it is still too early to quantify the impact of frost and dry conditions on final production. Our winter crop forecast therefore remains in line with the long-term trend. For spring crops, the recent cold spells and lack of rainfall have delayed the sowing campaign.

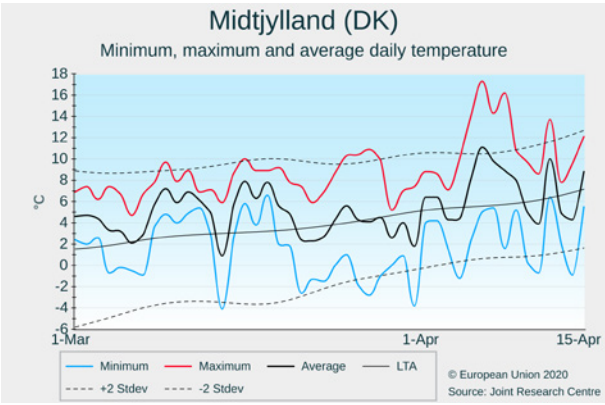


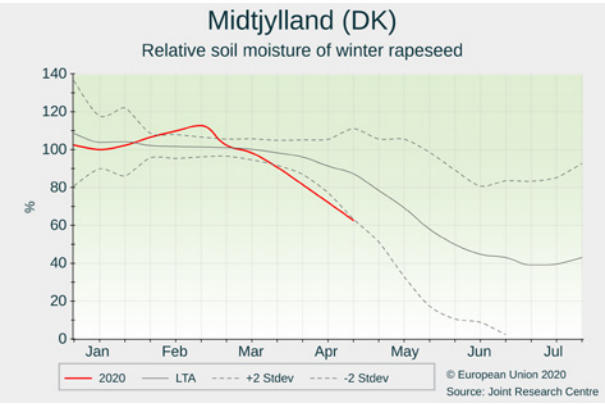


Denmark and Sweden

Positive outlook for winter crops, but rain is needed in the coming weeks

The start of the review period was rainy until mid March, but since then only a few rainfall events have been observed. For the period as a whole, cumulative rainfall is close to the LTA in all regions, except *Sjælland*, which experienced a substantial rain deficit. During the first half of March, radiation was close to the average in Denmark, but presented a deficit in Sweden. Since mid March, a large positive radiation anomaly has been observed in both countries. The end of the rainy period, in mid March, allowed farmers to proceed with spring crop sowing. Spring barley was sown close to the usual sowing dates. The (slightly) above-average temperatures, high soil moisture levels and positive radiation anomaly have been beneficial for winter rapeseed and other winter crops. In Denmark, however, as fertilisers were applied after mid March and no substantial rain has been observed since then, reduced availability of nitrogen could be expected. The yield forecast for winter crops is well above the historical trend, but will be maintained only if sufficient rain is observed in the coming weeks. The yield forecast for spring barley was maintained in line with the historical trend, given that sowings have not been significantly advanced due to the rainy weather until mid March.





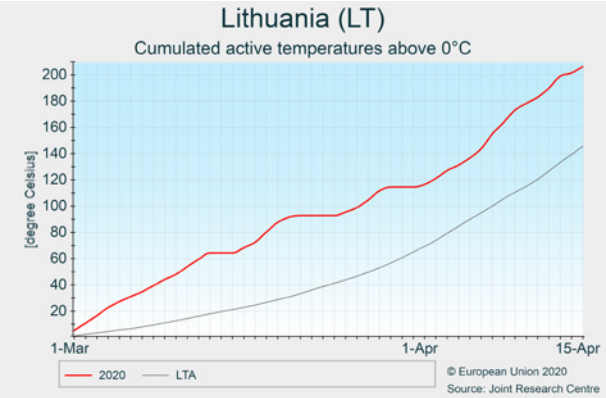
Estonia, Latvia, Lithuania and Finland

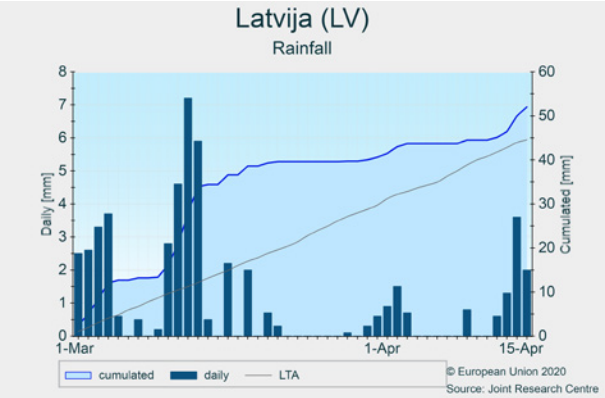
Mild temperatures sustain early regrowth of winter cereals

Mild temperatures continued in March and April, with the exception of two short cold spells during the last dekad of March. Cumulative temperatures remained markedly above average. Precipitation was generally higher than usual, but the weather in Lithuania has been characterised by a relatively dry period since the last dekad of March.

These weather conditions permitted accelerated growth and good development of winter crops. The mild conditions allowed an early start, in mid March, to the maintenance of winter crops and the beginning of spring sowings, which usually take place from the second half of April. Winter rapeseed crops are in good condition. Regrowth started earlier than usual, in mid March, in the Baltic countries, but not yet in Finland.

Our yield forecasts retain the values in the March Bulletin, based on historical trends. Continued favourable conditions could raise yield potentials above these levels.





Belgium, Luxembourg and the Netherlands

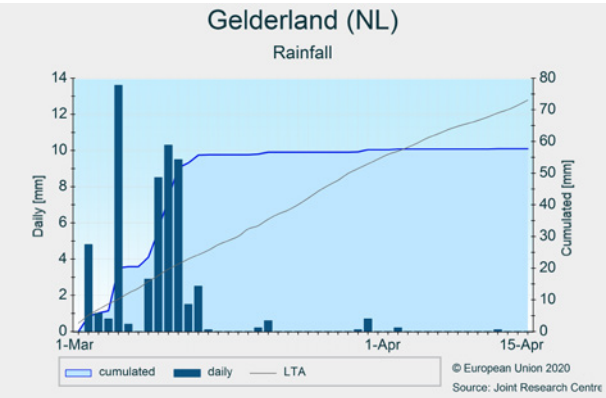
First too wet, then too dry

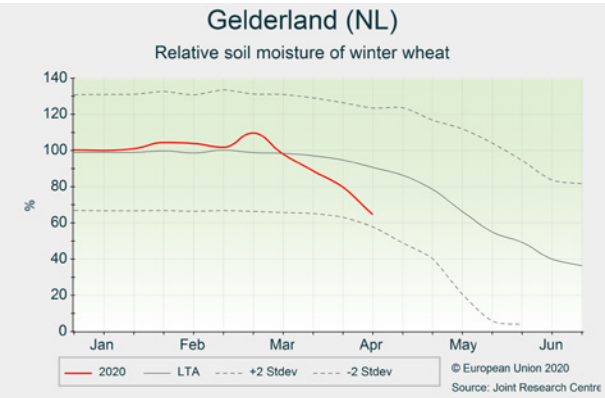
The exceptionally warm and wet weather that began at the beginning of February came to an end by mid March. Since then, no significant rainfall has occurred. Temperatures in the second half of March and early April were lower than usual, with several frost events. After 4 April, temperatures increased again, repeatedly reaching above 20 °C; minimum temperatures remained above 0 °C, except for a minor frost night on 14 April in inland regions.

The dry conditions since mid March were initially welcomed, as these allowed farmers to enter the fields to manage winter crops, finalise the sowing of spring cereals and make good progress with the sowing of sugar beet and potatoes. However, topsoils dried out rapidly, and further progress of sowing was eventually hampered, especially on heavy clay soils. Towards mid April, sugar beet sowing was practically complete, but potatoes are lagging behind. Some farmers are applying irrigation to improve conditions for sowing and for the germination of crops already sown.

Winter crops with well-established root systems are performing fairly well. Growth slowed during the cold spell in March and towards mid April due to the dry conditions, but is expected to intensify again if conditions improve.

The yield outlook will largely be determined by the weather in the coming weeks (especially the amount of rainfall occurring). Our current forecasts remain based on historical trends.



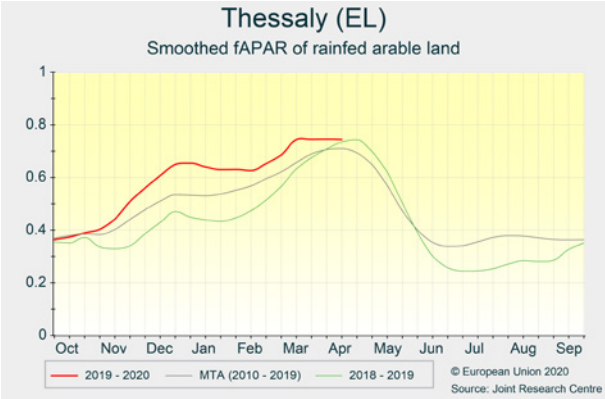


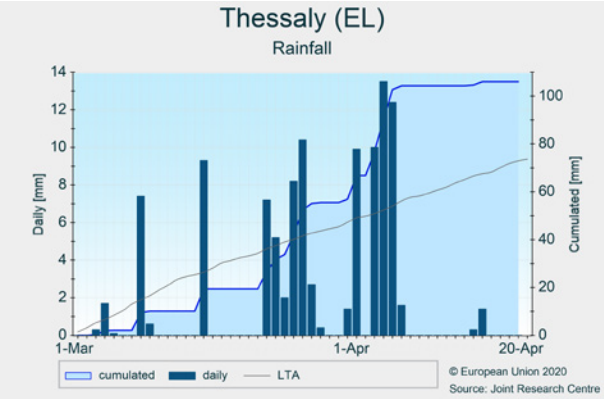
Greece and Cyprus

Positive outlook for winter crops; favourable summer crop conditions

Above-average precipitation has been recorded for the Greek regions of *Anatolikí Makedhonía ke Thráki, Kentrikí Makedhonía*, *Thessalía* and *Periféria Stereás Elládhas*. Rainfall events were well distributed during the review period and have been declining since the second week of April. Cumulative rainfall in Cyprus was found to be twice the LTA. Temperatures have been higher than usual in Cyprus and large parts of Greece, with exceptions in the provinces of *Pélla*, *Voiotía* and the region of *Periféria Attikís*, where temperatures were moderately below average.

Winter crop expectations are positive, with above-average cumulated biomass values. Winter crops (mainly durum wheat and barley) are concluding the flowering period. Wet conditions observed in March and April were beneficial for both winter and summer crops. The latter benefited from optimal soil moisture levels during germination and the earliest vegetative stages. Our yield forecasts for Greece and Cyprus are above the 5-year average for winter crops and in line with the trend for summer crops.



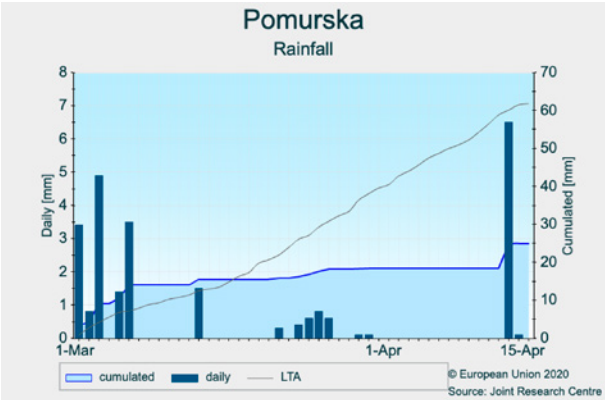


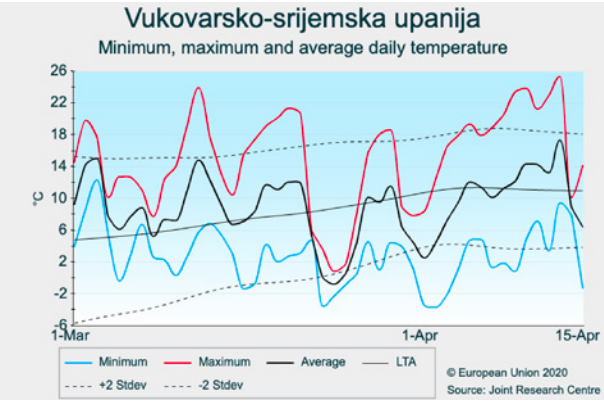
Croatia and Slovenia

Persistent lack of precipitation accompanied by intensive cold spells

The period since the beginning of March was warmer than usual, with temperatures reaching up to 2 °C above the LTA. However, during the two cold spell events at the end of March and the beginning of April, minimum air temperatures over major agricultural areas dropped below – 4 °C and locally even below – 6 °C, depending on microclimate conditions. The central part of Croatia, the Adriatic coast and eastern Slovenia recorded a substantial rainfall deficit during the analysis period, ranging from 50 % to 80 % below the LTA.

The precipitation deficit persisting since the beginning of winter has been depleting soil moisture, especially in north-eastern Slovenia and eastern Croatia. Drought stress in these regions started to limit the growth of winter crops. Additional stress was induced by the freezing temperatures in late March, but with limited impact on winter crops. However, the night frosts significantly affected fruit trees that were in the sensitive flowering stage, injuring the flower tissue and thus reducing their yield potential. Both cold spells and the persistent lack of rainfall also delayed the sowing campaign for spring crops, which had already started in mid March.





4.3. United Kingdom

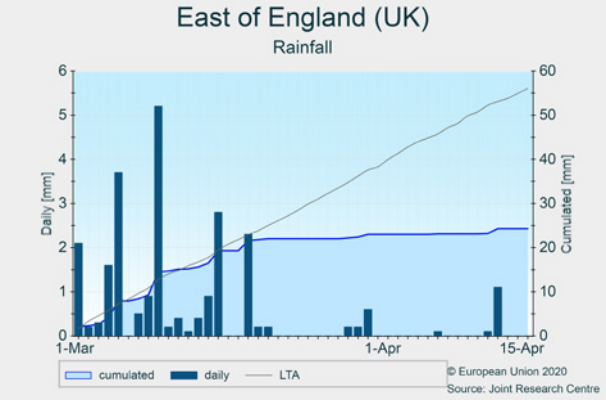
Dry weather allowed timely spring sowing; now more rain is needed

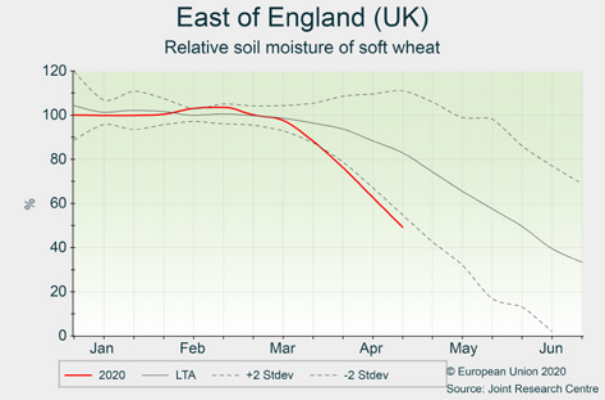
Mild temperatures continued to prevail during the review period, but March also experienced a few short colder-than-usual periods, with minimum temperatures reaching values below 0 °C. Rainfall was concentrated in the first two dekads of March. The rest of the review period was practically dry.

The dry spell allowed field works to progress well, with winter crops receiving fertiliser applications and spring cereals being sown under good soil conditions. However, more rainfall is needed for the later sown spring crops to establish well and for winter cereals to utilise the fertilisers applied. After a slightly later start than usual, sugar beet drilling has almost finished. Potato planting continues with no concerns.

Winter cereals are in good condition, although still not fully recovered from the overly wet winter conditions. Winter rapeseed has been reported to be affected by waterlogging and flea beetle. Winter rapeseed and winter cereals are variable in their development, with most of them at green bud stage and tillering phase, respectively ([7]).

Our yield forecasts for winter and spring crops are maintained close to the 5-year average.





([7]) https://ahdb.org.uk/cereals-oilseeds/crop-development-report

4.4. Black Sea area

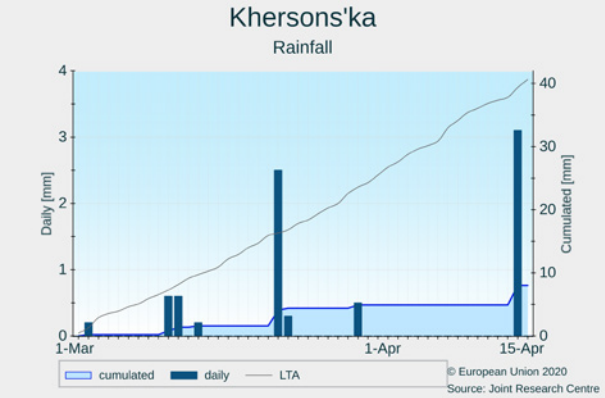
Ukraine

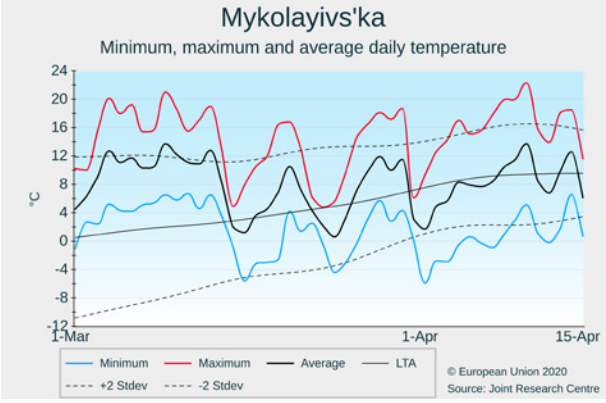
Dry conditions lowering yield expectations

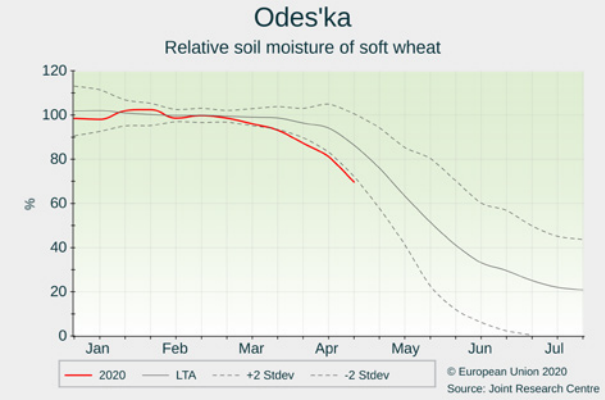
The analysis period was characterised by rain deficit, which was particularly exceptional in the south. A substantial drought is observed in the country's main producing regions for winter barley, in the south-west (*Odes'ka*, *Mykolaivs'ka*), where the rain deficit has persisted since last summer. In other oblasts the rain deficit started at the end of February, and is becoming a concern in the south-east, particularly in *Zaporiz'ka,* the country's main wheat-producing region. In the rest of the country, the rain deficit has had a limited impact and only the superficial soil layers are dry.

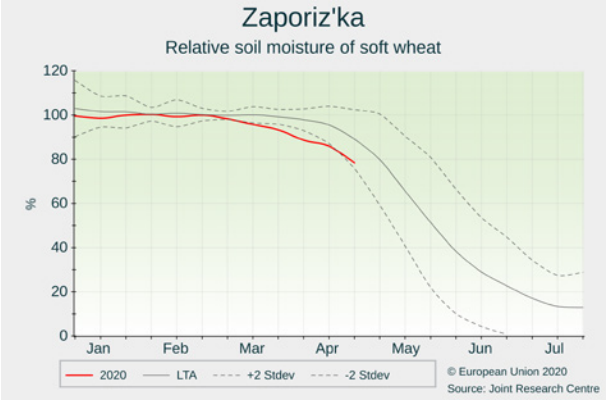
A cold spell observed at the beginning of April is expected to have had a serious impact on fruit trees and a limited impact on rapeseed crops.

Summer crop sowing started after the cold spell and is currently ongoing. Rain is needed for adequate emergence and for crops to start growing. The exceptionally warm winter and warm temperatures observed until 15 March allowed early sowing of spring crops (up to a month ahead of the usual sowing dates). The phenology of winter crops is also substantially advanced, which is usually favourable to yields; however, the drought observed in the south is expected to impact winter crop-yield potentials. Thus the yield forecast is maintained close to the trend.









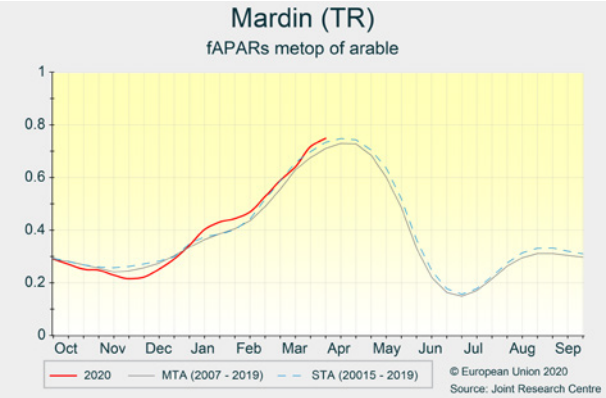
Turkey

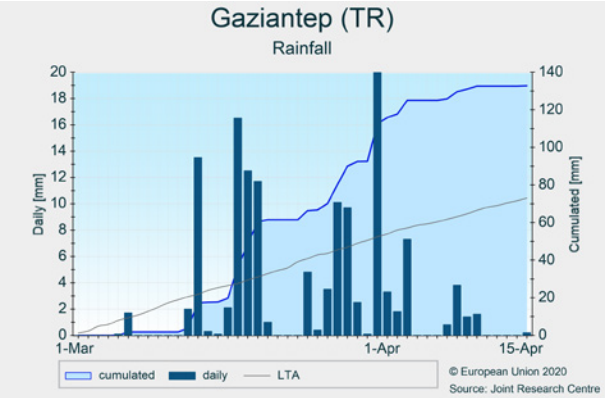
Favourable crop conditions

In Anatolian regions (e.g. *Konya*, *Kırıkkale*, *Kayseri*), the winter cereal season is proceeding without major concerns. Weather conditions in March proved moderately favourable, with temperatures slightly above the average. After a cold spell hit the region on 18 March, with minimum temperatures between – 7 °C and – 3 °C, temperatures moved to average values. Due to the short duration of the cold spell (3 days), we do not expect any negative impacts. Winter crop development remains moderately delayed (around 10 days), while leaf development is sustained by good soil moisture.

In south-eastern regions (*Gaziantep*, Şanlıurfa, *Mardin*), the weather observed has presented favourable temperatures and relatively abundant rain since 20 March, which has locally caused floods, waterlogging and crop lodging. Nevertheless, general crop condition remains very favourable, with advanced stages and fair biomass accumulation compared to the medium-term average, but in line with the 5-year average.

Yield forecasts for winter crops, based on scenario analysis, are above the 5-year average.





4.5. European Russia and Belarus

European Russia

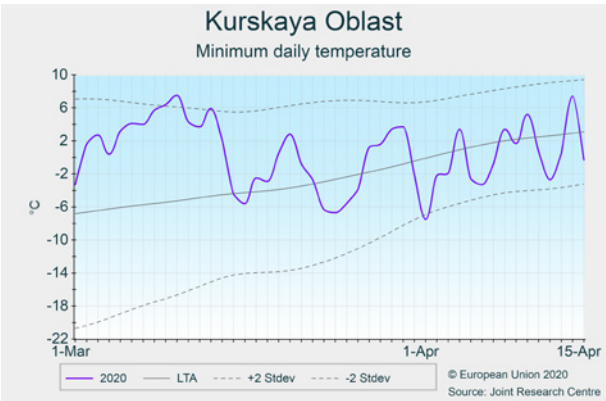
Adequate conditions, but dry in south-west

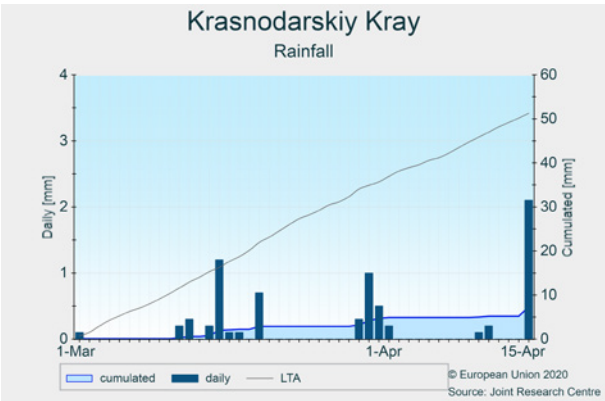
The extremely mild weather conditions of this winter continued in March, resulting in a 3–8 °C positive thermal anomaly for this month. In the first half of April, daily temperatures fluctuated around the LTA, but frost events in the range of – 4 °C to – 12 °C occurred during the first days of April, though they probably caused only slight damage.

Rainfall during the review period was close to or above the LTA in most of Russia, but some important winter wheat-producing areas between the Black Sea and the Caspian Sea received only 5–20 mm of precipitation. Well-below-average precipitation (only 40–70 % of the LTA) was also experienced in the western part of the Central Black Earth region, as well as in the southernmost parts of the Volga okrug along the Kazakh border.

The higher-than-usual air and topsoil temperatures allowed an unusually early start to the spring barley and spring wheat sowing campaign in south-western regions, while the close-to- or below-average rain has facilitated quick progress in the sowing campaign so far.

Winter crop development is advanced. Soil moisture levels decreased to well below the LTA in areas north of the Caucasus, such as the *Krasnodarskiy*, *Stavropolskiy* and *Rostovskaya* regions, but so far without seriously limiting crop growth. Remote sensing images and our crop model simulations suggest above-average canopy expansion and fair biomass accumulation. Consequently, current yield expectations are positive. However, there is a pressing need for substantial rain in south-western regions to maintain the current yield potential.



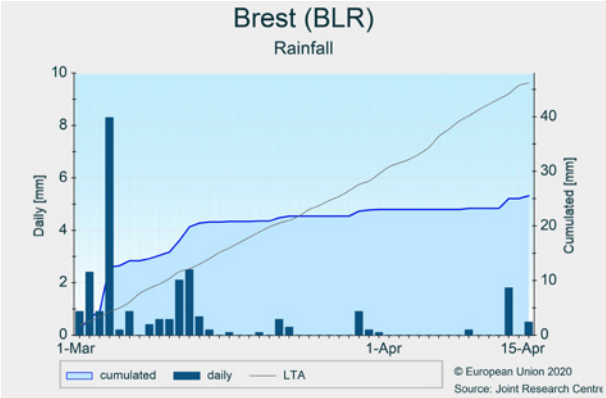


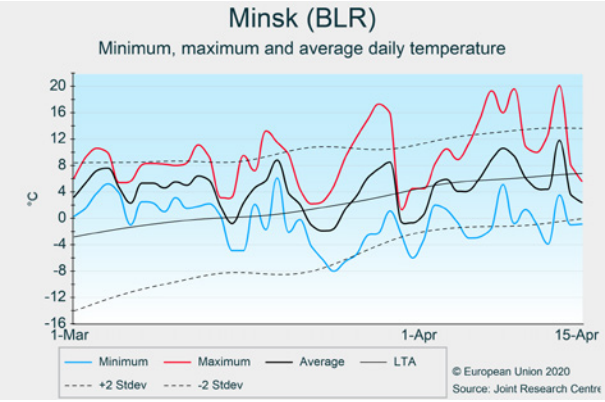
Belarus

Average outlook for winter and spring crops

The analysis period was warmer than usual, with daily temperatures 2–4 °C above the LTA in most of the country, except for the *Brest* region, which was around the LTA. Frost events occurred during the second and third dekads of March, with minimum air temperatures below – 8 °C. Cumulative precipitation was below the LTA in most of the country, with the exception of the *Vitebsk* and *Mogilev* regions, which were around the LTA. The rainfall deficit resulted in the rapid drying of lighter topsoils, especially in the south-east.

Winter crops are still in advanced stages of development (tillering and stem elongation), after the exceptionally mild winter. The cold spells in March caused the slowing of winter crop development due to decreased soil temperatures, and hampered the sowing of spring crops. Soil moisture conditions are generally fair for the development of winter crops, but could result in unfavourable conditions for germination and emergence of early spring crops in the dry south-eastern parts of the country. As it is still very early in the season, our yield outlook based on historical trends remains close to average.





4.6. Maghreb

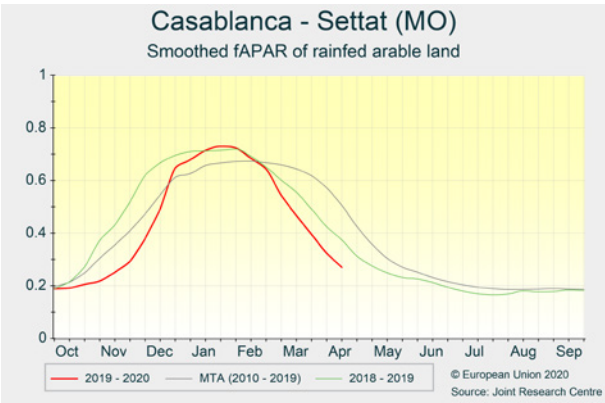
Morocco, Algeria and Tunisia

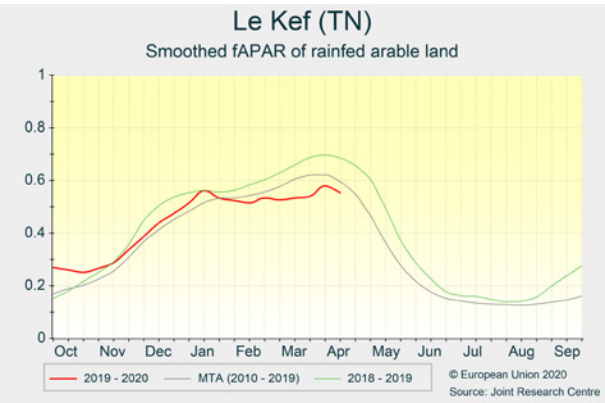
Drought in central Morocco and western Algeria affects cereals. Below-average expectations for barley in Tunisia

During the review period (1 March to 15 April), mean daily temperatures in **Morocco** were colder than usual in the second half of March and exceeded the LTA by 2–3 °C at the beginning of March and early April. Apart from some rains in *Tanger* and the eastern side of *Fès*, cumulative precipitation remained below average. The general drought conditions in the regions of *Casablanca-Settat*, *Fès-Meknès*, *Rabat-Salé-Kénitra* and *Marrakech-Safi* are continuing. Cereals reacted to the drought by accelerating grain filling at the expense of harvestable biomass. Consequently, our yield forecasts are well below average for wheat and barley.

Expectations for cereals in **Algeria** are in line with the average (wheat) or are slightly below average (barley). While in the north-eastern regions of *Tlemcen*, *Sidi Bel Abbès*, *Aïn Témouchent* and to a lesser extent *Tiaret*, cereals suffered from seasonal drought conditions, eastern regions are performing better. Above-average biomass accumulation is recorded in the regions of *Sétif*, *Mila*, *Guelma* and *Tébessa*, which benefited from more rain in autumn and throughout the review period.

Beneficial rains arrived in **Tunisia** during March and the beginning of April, ending an almost dry period from the second half of January up to the end of February. Crops recovered up to average values in the regions of *Zaghouan*, *Kairouan* and *Nabeul*, but failed to recover in *Kef* and *Siliana*, where nearly 35 % of national barley is produced (according to the last 5-year average). Crop growth in the agricultural areas of *Béja*, *Bizerte* and *Jendouba* is proceeding well. Overall, our outlook is positive for wheat and below average for barley.





5. Crop-yield forecasts

Country	Total wheat (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	5.54	5.78	**5.65**	+ 1.9	– 2.3
AT	5.45	5.77	**5.17**	– 5.1	– 10
BE	8.61	9.94	**9.07**	+ 5.3	– 8.8
BG	4.93	5.14	**4.93**	+ 0.0	– 4.1
CY	—	—	**—**	—	—
CZ	5.93	5.73	**5.79**	– 2.5	+ 0.9
DE	7.50	7.40	**7.70**	+ 2.7	+ 4.2
DK	7.67	8.25	**7.88**	+ 2.7	– 4.6
EE	3.97	5.07	**3.88**	– 2.4	– 24
EL	2.62	2.65	**2.78**	+ 6.1	+ 5.0
ES	3.14	3.04	**3.04**	– 3.0	+ 0.0
FI	3.91	4.56	**3.99**	+ 2.2	– 12
FR	6.99	7.84	**7.28**	+ 4.2	– 7.1
HR	5.54	5.53	**5.56**	+ 0.4	+ 0.6
HU	5.27	5.28	**5.03**	– 4.7	– 4.7
IE	9.84	9.99	**9.89**	+ 0.4	– 1.1
IT	3.94	3.75	**3.90**	– 1.2	+ 3.8
LT	4.48	4.29	**4.82**	+ 7.4	+ 12
LU	5.78	6.01	**6.10**	+ 5.6	+ 1.5
LV	4.49	4.81	**4.59**	+ 2.2	– 4.6
MT	—	—	**—**	—	—
NL	8.90	9.44	**8.96**	+ 0.7	– 5.1
PL	4.49	4.39	**4.71**	+ 5.0	+ 7.3
PT	2.19	2.23	**2.45**	+ 12	+ 10
RO	4.44	4.80	**4.75**	+ 7.0	– 0.9
SE	6.55	7.40	**7.16**	+ 9.3	– 3.3
SI	4.99	5.23	**5.12**	+ 2.6	– 2.1
SK	5.15	4.81	**4.83**	– 6.2	+ 0.5
UK	8.34	8.94	**8.08**	– 3.1	– 9.5

Country	Total barley (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	4.78	5.00	**4.86**	+ 1.6	– 2.8
AT	5.67	6.07	**5.72**	+ 1.0	– 5.7
BE	8.16	9.05	**8.95**	+ 9.8	– 1.1
BG	4.40	4.90	**4.73**	+ 7.4	– 3.5
CY	1.67	2.70	**1.49**	– 11	– 45
CZ	5.33	5.38	**5.40**	+ 1.2	+ 0.4
DE	6.66	6.78	**6.87**	+ 3.2	+ 1.3
DK	5.61	6.34	**5.84**	+ 4.0	– 7.9
EE	3.45	4.09	**3.71**	+ 7.4	– 9.4
EL	2.60	2.71	**2.78**	+ 6.8	+ 2.8
ES	2.93	2.76	**2.89**	– 1.7	+ 4.7
FI	3.73	4.25	**3.73**	+ 0.0	– 12
FR	6.45	7.08	**6.53**	+ 1.2	– 7.7
HR	4.79	5.18	**4.92**	+ 2.9	– 5.0
HU	5.07	5.54	**5.27**	+ 4.0	– 4.8
IE	8.01	8.66	**7.97**	– 0.5	– 8.0
IT	4.00	4.05	**4.03**	+ 0.8	– 0.5
LT	3.36	3.37	**3.34**	– 0.6	– 0.7
LU	—	—	**—**	—	—
LV	3.19	3.43	**3.33**	+ 4.7	– 2.7
MT	—	—	**—**	—	—
NL	6.44	6.51	**6.75**	+ 4.8	+ 3.7
PL	3.56	3.46	**3.63**	+ 2.0	+ 4.8
PT	2.39	2.64	**2.36**	– 1.2	– 11
RO	4.04	4.44	**4.26**	+ 5.4	– 4.0
SE	4.68	5.31	**4.94**	+ 5.5	– 6.9
SI	4.65	4.85	**4.49**	– 3.4	– 7.4
SK	4.66	4.81	**4.57**	– 2.0	– 4.9
UK	6.27	6.92	**6.31**	+ 0.6	– 8.8

Country	Durum wheat (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	3.49	3.47	**3.43**	– 1.5	– 0.9
AT	4.58	4.83	**4.53**	– 1.1	– 6.1
BE	—	—	**—**	—	—
BG	—	—	**—**	—	—
CY	—	—	**—**	—	—
CZ	—	—	**—**	—	—
DE	5.06	4.92	**5.42**	+ 7.0	+ 10
DK	—	—	**—**	—	—
EE	—	—	**—**	—	—
EL	2.59	2.61	**2.78**	+ 7.1	+ 6.4
ES	2.73	2.76	**2.60**	– 4.6	– 5.7
FI	—	—	**—**	—	—
FR	5.29	6.28	**5.37**	+ 1.6	– 15
HR	—	—	**—**	—	—
HU	4.71	4.34	**4.48**	– 5.0	+ 3.1
IE	—	—	**—**	—	—
IT	3.34	3.15	**3.29**	– 1.4	+ 4.6
LT	—	—	**—**	—	—
LU	—	—	**—**	—	—
LV	—	—	**—**	—	—
MT	—	—	**—**	—	—
NL	—	—	**—**	—	—
PL	—	—	**—**	—	—
PT	—	—	**—**	—	—
RO	—	—	**—**	—	—
SE	—	—	**—**	—	—
SI	—	—	**—**	—	—
SK	4.53	4.29	**4.31**	– 4.9	+ 0.5
UK	—	—	**—**	—	—

Country	Soft wheat (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	5.77	6.01	**5.87**	+ 1.7	– 2.3
AT	5.52	5.83	**5.22**	– 5.4	– 11
BE	8.61	9.94	**9.07**	+ 5.3	– 8.8
BG	4.93	5.14	**4.93**	+ 0.0	– 4.1
CY	—	—	**—**	—	—
CZ	5.93	5.73	**5.79**	– 2.5	+ 0.9
DE	7.52	7.42	**7.73**	+ 2.7	+ 4.1
DK	7.67	8.25	**7.88**	+ 2.7	– 4.6
EE	3.97	5.07	**3.88**	– 2.4	– 24
EL	2.70	2.77	**2.80**	+ 3.9	+ 1.4
ES	3.23	3.09	**3.12**	– 3.4	+ 0.9
FI	3.91	4.56	**3.99**	+ 2.2	– 12
FR	7.11	7.92	**7.38**	+ 3.8	– 6.8
HR	5.54	5.53	**5.56**	+ 0.4	+ 0.6
HU	5.29	5.32	**5.05**	– 4.6	– 5.1
IE	9.84	9.99	**9.89**	+ 0.4	– 1.1
IT	5.41	5.14	**5.27**	– 2.6	+ 2.6
LT	4.48	4.29	**4.82**	+ 7.4	+ 12
LU	5.78	6.01	**6.10**	+ 5.6	+ 1.5
LV	4.49	4.81	**4.59**	+ 2.2	– 4.6
MT	—	—	**—**	—	—
NL	8.90	9.44	**8.96**	+ 0.7	– 5.1
PL	4.49	4.39	**4.71**	+ 5.0	+ 7.3
PT	2.19	2.23	**2.45**	+ 12	+ 10
RO	4.44	4.80	**4.75**	+ 7.0	– 0.9
SE	6.55	7.40	**7.16**	+ 9.3	– 3.3
SI	4.99	5.23	**5.12**	+ 2.6	– 2.1
SK	5.22	4.87	**4.88**	– 6.4	+ 0.3
UK	8.34	8.94	**8.08**	– 3.1	– 9.5

Country	Spring barley (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	4.02	4.13	**4.03**	+ 0.1	– 2.5
AT	4.44	4.17	**4.37**	– 1.5	+ 4.8
BE	—	—	**—**	—	—
BG	—	—	**—**	—	—
CY	—	—	**—**	—	—
CZ	5.18	5.07	**5.31**	+ 2.6	+ 4.8
DE	5.21	5.12	**5.37**	+ 3.1	+ 4.9
DK	5.45	6.18	**5.71**	+ 4.8	– 7.7
EE	3.45	4.09	**3.71**	+ 7.4	– 9.4
EL	—	—	**—**	—	—
ES	3.01	2.80	**2.91**	– 3.5	+ 3.7
FI	3.73	4.25	**3.73**	+ 0.0	– 12
FR	6.22	7.04	**6.19**	– 0.6	– 12
HR	—	—	**—**	—	—
HU	3.96	4.56	**3.94**	– 0.6	– 14
IE	7.27	8.00	**7.45**	+ 2.6	– 6.8
IT	—	—	**—**	—	—
LT	3.34	3.29	**3.26**	– 2.2	– 0.9
LU	—	—	**—**	—	—
LV	3.19	3.43	**3.33**	+ 4.7	– 2.7
MT	—	—	**—**	—	—
NL	6.44	6.51	**6.75**	+ 4.8	+ 3.7
PL	3.37	3.21	**3.40**	+ 0.9	+ 6.0
PT	—	—	**—**	—	—
RO	2.73	2.81	**2.77**	+ 1.4	– 1.5
SE	4.61	5.19	**4.81**	+ 4.5	– 7.2
SI	—	—	**—**	—	—
SK	4.45	4.57	**4.29**	– 3.5	– 6.2
UK	5.74	6.34	**5.90**	+ 2.8	– 7.0

Country	Winter barley (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	5.75	6.12	**5.92**	+ 2.9	– 3.3
AT	6.34	6.74	**6.38**	+ 0.5	– 5.4
BE	8.16	9.05	**8.95**	+ 9.8	– 1.1
BG	4.40	4.90	**4.73**	+ 7.4	– 3.5
CY	1.67	2.70	**1.49**	– 11	– 45
CZ	5.68	5.98	**5.57**	– 1.9	– 6.8
DE	7.09	7.22	**7.27**	+ 2.6	+ 0.7
DK	6.48	7.09	**6.63**	+ 2.3	– 6.5
EE	—	—	**—**	—	—
EL	2.60	2.71	**2.78**	+ 6.8	+ 2.8
ES	2.41	2.31	**2.72**	+ 13	+ 18
FI	—	—	**—**	—	—
FR	6.54	7.09	**6.66**	+ 1.8	– 6.2
HR	4.79	5.18	**4.92**	+ 2.9	– 5.0
HU	5.28	5.65	**5.49**	+ 4.0	– 2.8
IE	9.25	9.42	**9.33**	+ 0.8	– 1.0
IT	4.00	4.05	**4.03**	+ 0.8	– 0.5
LT	3.90	3.89	**3.99**	+ 2.2	+ 2.6
LU	—	—	**—**	—	—
LV	—	—	**—**	—	—
MT	—	—	**—**	—	—
NL	—	—	**—**	—	—
PL	4.26	4.31	**4.42**	+ 3.8	+ 2.5
PT	2.39	2.64	**2.36**	– 1.2	– 11
RO	4.48	4.91	**4.75**	+ 6.1	– 3.2
SE	5.91	6.85	**6.68**	+ 13	– 2.5
SI	4.65	4.85	**4.49**	– 3.4	– 7.4
SK	5.21	5.29	**5.06**	– 2.8	– 4.5
UK	7.16	7.84	**7.07**	– 1.4	– 9.9

Country	Grain maize (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	7.58	7.90	**8.04**	+ 6.0	+ 1.7
AT	10.1	10.4	**10.3**	+ 2.0	– 1.3
BE	10.5	10.8	**11.0**	+ 5.2	+ 2.3
BG	6.44	6.96	**7.47**	+ 16	+ 7.3
CY	—	—	**—**	—	—
CZ	7.30	8.29	**7.78**	+ 6.6	– 6.1
DE	9.21	8.81	**9.61**	+ 4.3	+ 9.1
DK	—	—	**—**	—	—
EE	—	—	**—**	—	—
EL	10.3	10.6	**10.8**	+ 4.9	+ 1.9
ES	11.6	11.8	**11.3**	– 2.2	– 4.1
FI	—	—	**—**	—	—
FR	8.85	8.58	**8.85**	+ 0.0	+ 3.1
HR	7.87	9.01	**8.22**	+ 4.5	– 8.8
HU	7.50	8.05	**7.79**	+ 3.9	– 3.2
IE	—	—	**—**	—	—
IT	10.2	10.0	**10.5**	+ 3.0	+ 4.5
LT	6.39	7.67	**6.84**	+ 6.9	– 11
LU	—	—	**—**	—	—
LV	—	—	**—**	—	—
MT	—	—	**—**	—	—
NL	9.78	9.75	**10.7**	+ 9.7	+ 10
PL	6.09	5.61	**6.37**	+ 4.7	+ 14
PT	8.52	8.98	**8.79**	+ 3.2	– 2.1
RO	5.52	6.52	**6.45**	+ 17	– 1.1
SE	—	—	**—**	—	—
SI	8.85	9.27	**8.89**	+ 0.4	– 4.1
SK	6.94	7.39	**7.52**	+ 8.4	+ 1.8
UK	—	—	**—**	—	—

Country	Rye (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	3.81	3.87	**3.92**	+ 2.7	+ 1.1
AT	4.43	4.60	**4.68**	+ 5.6	+ 1.7
BE	—	—	**—**	—	—
BG	—	—	**—**	—	—
CY	—	—	**—**	—	—
CZ	4.93	5.06	**5.00**	+ 1.4	– 1.3
DE	5.30	5.24	**5.29**	– 0.1	+ 1.0
DK	5.91	6.19	**6.27**	+ 6.1	+ 1.3
EE	3.61	4.12	**3.61**	– 0.1	– 12
EL	1.72	1.86	**1.86**	+ 8.0	– 0.1
ES	2.10	1.82	**2.01**	– 4.5	+11
FI	3.78	4.79	**3.69**	– 2.2	– 23
FR	4.52	4.77	**4.70**	+ 4.0	– 1.5
HR	—	—	**—**	—	—
HU	3.14	3.37	**3.33**	+ 6.0	– 1.2
IE	—	—	**—**	—	—
IT	—	—	**—**	—	—
LT	2.51	2.63	**2.45**	– 2.6	– 7.0
LU	—	—	**—**	—	—
LV	4.14	4.43	**4.01**	– 3.1	– 9.3
MT	—	—	**—**	—	—
NL	—	—	**—**	—	—
PL	2.77	2.72	**2.89**	+ 4.2	+ 6.0
PT	0.95	1.06	**1.05**	+ 11	– 0.8
RO	—	—	**—**	—	—
SE	6.17	6.76	**6.25**	+ 1.3	– 7.5
SI	—	—	**—**	—	—
SK	3.44	3.44	**3.59**	+ 4.4	+ 4.3
UK	2.22	2.38	**2.26**	+ 1.6	– 5.3

Country	Triticale (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	4.04	4.06	**4.18**	+ 3.6	+ 3.1
AT	5.36	5.49	**5.47**	+ 2.0	– 0.4
BE	—	—	**—**	—	—
BG	2.96	2.84	**2.91**	– 1.8	+ 2.4
CY	—	—	**—**	—	—
CZ	4.79	4.93	**4.66**	– 2.9	– 5.5
DE	6.01	6.13	**6.16**	+ 2.4	+ 0.5
DK	—	—	**—**	—	—
EE	—	—	**—**	—	—
EL	2.11	2.24	**2.30**	+ 9.0	+ 2.7
ES	2.35	2.32	**2.81**	+ 19	+ 21
FI	—	—	**—**	—	—
FR	5.04	5.44	**5.23**	+ 3.8	– 3.9
HR	3.93	3.98	**3.79**	– 3.6	– 4.7
HU	3.96	3.95	**3.90**	– 1.5	– 1.3
IE	—	—	**—**	—	—
IT	—	—	**—**	—	—
LT	3.36	3.29	**3.25**	– 3.3	– 1.4
LU	—	—	**—**	—	—
LV	—	—	**—**	—	—
MT	—	—	**—**	—	—
NL	—	—	**—**	—	—
PL	3.55	3.49	**3.68**	+ 3.6	+ 5.5
PT	1.67	1.47	**1.39**	– 17	– 4.9
RO	3.90	4.12	**4.26**	+ 9.0	+ 3.3
SE	5.58	6.36	**6.28**	+ 13	– 1.3
SI	—	—	**—**	—	—
SK	—	—	**—**	—	—
UK	4.33	4.48	**4.24**	– 2.0	– 5.5

Country	Rape and turnip rape (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	3.09	2.97	**3.14**	+ 1.7	+ 5.6
AT	3.08	2.98	**3.13**	+ 1.4	+ 4.9
BE	3.75	2.87	**4.24**	+ 13	+ 48
BG	2.73	2.67	**2.86**	+ 4.7	+ 7.2
CY	—	—	**—**	—	—
CZ	3.26	3.05	**3.18**	– 2.3	+ 4.4
DE	3.39	3.30	**3.64**	+ 7.3	+ 10
DK	3.92	4.40	**4.13**	+ 5.3	– 6.3
EE	2.10	2.47	**2.18**	+ 3.5	– 12
EL	—	—	**—**	—	—
ES	2.10	2.13	**2.07**	– 1.7	– 2.9
FI	1.49	1.28	**1.48**	– 0.8	+ 15
FR	3.33	3.11	**3.28**	– 1.4	+ 5.6
HR	2.78	2.50	**2.81**	+ 1.0	+ 12
HU	3.06	2.89	**2.93**	– 4.3	+ 1.2
IE	—	—	**—**	—	—
IT	2.60	2.66	**2.70**	+ 3.9	+ 1.8
LT	2.62	2.42	**2.59**	– 0.9	+ 7.0
LU	—	—	**—**	—	—
LV	2.75	2.94	**2.85**	+ 3.7	– 2.9
MT	—	—	**—**	—	—
NL	—	—	**—**	—	—
PL	2.77	2.73	**3.00**	+ 8.2	+ 9.7
PT	—	—	**—**	—	—
RO	2.64	2.37	**2.57**	– 2.6	+ 8.3
SE	3.18	3.62	**3.45**	+ 8.5	– 4.8
SI	—	—	**—**	—	—
SK	3.03	2.88	**3.18**	+ 5.2	+ 11
UK	3.55	3.30	**3.44**	– 3.2	+ 4.1

Country	Sugar beets (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	74.8	N/A	**75.9**	+ 1.5	N/A
AT	70.8	70.5	**71.8**	+ 1.5	+ 1.9
BE	84.9	88.2	**85.5**	+ 0.6	– 3.1
BG	—	—	**—**	—	—
CY	—	—	**—**	—	—
CZ	62.7	61.8	**66.1**	+ 5.5	+ 6.9
DE	73.6	72.7	**77.2**	+ 4.9	+ 6.1
DK	67.5	66.9	**67.5**	+ 0.0	+ 0.9
EE	—	—	**—**	—	—
EL	—	—	**—**	—	—
ES	91.0	96.7	**89.8**	– 1.3	– 7.2
FI	37.9	47.6	**40.9**	+ 7.9	– 14
FR	87.5	N/A	**89.2**	+ 1.9	N/A
HR	60.1	52.8	**56.5**	– 6.0	+ 7.0
HU	62.3	58.4	**67.5**	+ 8.3	+ 16
IE	—	—	**—**	—	—
IT	64.1	N/A	**62.2**	– 3.0	N/A
LT	59.3	71.0	**56.0**	– 5.7	– 21
LU	—	—	**—**	—	—
LV	—	—	**—**	—	—
MT	—	—	**—**	—	—
NL	83.1	83.9	**89.0**	+ 7.1	+ 6.0
PL	61.8	N/A	**57.0**	– 7.8	N/A
PT	—	—	**—**	—	—
RO	38.4	31.1	**43.6**	+ 14	+ 40
SE	63.6	74.0	**63.6**	+ 0.0	– 14
SI	—	—	**—**	—	—
SK	59.7	57.6	**58.7**	– 1.7	+ 1.8
UK	70.4	69.0	**74.2**	+ 5.3	+ 7.5

Country	Potato (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	32.4	N/A	**34.2**	+ 5.6	N/A
AT	30.3	31.3	**32.0**	+ 5.6	+ 2.2
BE	41.0	41.1	**45.2**	+ 10	+ 10
BG	16.5	14.5	**16.0**	– 2.9	+ 10
CY	—	—	**—**	—	—
CZ	26.9	27.2	**27.7**	+ 3.0	+ 1.9
DE	41.8	39.0	**45.4**	+ 8.7	+ 16
DK	40.9	42.0	**42.1**	+ 3.0	+ 0.1
EE	—	—	**—**	—	—
EL	27.6	27.7	**27.0**	– 1.9	– 2.3
ES	31.5	33.1	**31.4**	– 0.3	– 5.1
FI	27.4	28.9	**28.6**	+ 4.3	– 1.1
FR	41.2	N/A	**43.6**	+ 5.8	N/A
HR	—	—	**—**	—	—
HU	24.2	25.0	**25.2**	+ 3.8	+ 0.6
IE	—	—	**—**	—	—
IT	28.3	N/A	**27.7**	– 2.3	N/A
LT	15.8	18.1	**16.3**	+ 3.3	– 9.8
LU	—	—	**—**	—	—
LV	19.6	N/A	**19.8**	+ 1.3	N/A
MT	—	—	**—**	—	—
NL	42.0	42.0	**44.0**	+ 4.6	+ 4.6
PL	25.7	N/A	**25.1**	– 2.4	N/A
PT	20.8	22.7	**22.3**	+ 7.0	– 1.8
RO	15.6	14.8	**17.4**	+ 11	+ 18
SE	34.2	35.8	**33.2**	– 2.9	– 7.3
SI	—	—	**—**	—	—
SK	—	—	**—**	—	—
UK	40.5	36.5	**41.8**	+ 3.2	+ 15

Country	Sunflower (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	2.25	2.33	**2.39**	+ 6.4	+ 2.6
AT	2.68	3.00	**2.70**	+ 0.9	– 10
BE	—	—	—	—	—
BG	2.28	2.31	**2.55**	+ 12	+ 10
CY	—	—	—	—	—
CZ	2.43	2.44	**2.41**	– 0.7	– 1.0
DE	2.02	2.04	**2.04**	+ 1.1	– 0.2
DK	—	—	—	—	—
EE	—	—	—	—	—
EL	2.59	2.80	**2.68**	+ 3.2	– 4.6
ES	1.16	1.15	**1.20**	+ 3.5	+ 4.4
FI	—	—	—	—	—
FR	2.28	2.19	**2.36**	+ 3.5	+ 7.5
HR	2.88	2.89	**2.96**	+ 2.9	+ 2.3
HU	2.88	2.98	**3.00**	+ 4.2	+ 0.7
IE	—	—	—	—	—
IT	2.37	2.47	**2.40**	+ 1.0	– 3.0
LT	—	—	—	—	—
LU	—	—	—	—	—
LV	—	—	—	—	—
MT	—	—	—	—	—
NL	—	—	—	—	—
PL	—	—	—	—	—
PT	1.50	1.90	**2.07**	+38	+ 9.1
RO	2.48	2.68	**2.69**	+ 8.2	+ 0.1
SE	—	—	—	—	—
SI	—	—	—	—	—
SK	2.67	2.66	**2.76**	+ 3.6	+ 3.9
UK	—	—	—	—	—

Country	Soybean (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
EU	2.90	2.92	**2.90**	+ 0.2	– 0.6
AT	2.86	3.11	**2.78**	– 2.8	– 11
BE	—	—	—	—	—
BG	1.36	2.00	**2.01**	+ 48	+ 0.4
CY	—	—	—	—	—
CZ	2.10	2.27	**2.28**	+ 8.5	+ 0.4
DE	—	—	—	—	—
DK	—	—	—	—	—
EE	—	—	—	—	—
EL	—	—	—	—	—
ES	—	—	—	—	—
FI	—	—	—	—	—
FR	2.61	2.39	**2.72**	+ 4.3	+ 14
HR	2.74	2.90	**2.89**	+ 5.4	– 0.5
HU	2.60	2.78	**2.84**	+ 9.5	+ 2.2
IE	—	—	—	—	—
IT	3.61	3.66	**3.45**	– 4.6	– 5.9
LT	—	—	—	—	—
LU	—	—	—	—	—
LV	—	—	—	—	—
MT	—	—	—	—	—
NL	—	—	—	—	—
PL	—	—	—	—	—
PT	—	—	—	—	—
RO	2.37	2.44	**2.47**	+ 4.1	+ 1.0
SE	—	—	—	—	—
SI	—	—	—	—	—
SK	2.23	2.47	**2.56**	+ 15	+ 3.4
UK	—	—	—	—	—

Maghreb and Black Sea area

Country	WHEAT (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
BY	3.51	3.83	**3.81**	+ 8.5	– 0.5
DZ	1.57	N/A	**1.59**	+ 1.0	N/A
MA	1.89	1.54	**1.56**	– 18	+ 1.1
TN	1.77	N/A	**1.88**	+ 6.0	N/A
TR	2.78	2.78	**2.87**	+ 3.2	+ 3.4
UA	4.01	4.16	**4.19**	+ 4.4	+ 0.8

Country	BARLEY (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
BY	3.08	3.50	**3.38**	+ 9.9	– 3.4
DZ	1.28	N/A	**1.25**	– 2.4	N/A
MA	1.27	N/A	**1.03**	– 19	N/A
TN	0.83	N/A	**0.78**	– 6.0	N/A
TR	2.70	2.64	**2.79**	+ 3.1	+ 5.5
UA	3.19	3.42	**3.28**	+ 2.8	– 4.2

Country	GRAIN MAIZE (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
BY	5.86	6.00	**5.52**	– 5.8	– 7.9
DZ	—	—	—	—	—
MA	—	—	—	—	—
TN	—	—	—	—	—
TR	9.40	9.40	**9.64**	+ 2.5	+ 2.5
UA	6.59	7.19	**7.39**	+ 12	+ 2.7

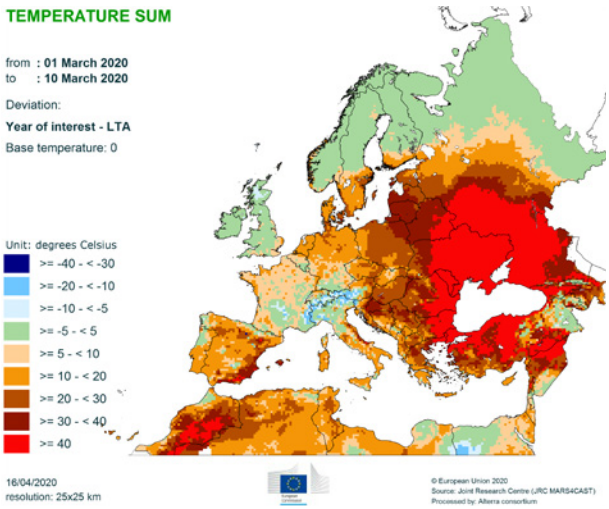
Country	SOYBEAN (t/ha)				
	Avg 5yrs	2019	MARS 2020 forecasts	%20/5yrs	%20/19
BY	—	—	—	—	—
DZ	—	—	—	—	—
MA	—	—	—	—	—
TN	—	—	—	—	—
TR	4.33	4.25	**4.58**	+ 5.7	+ 7.7
UA	2.19	2.29	**2.37**	+ 8.3	+ 3.4

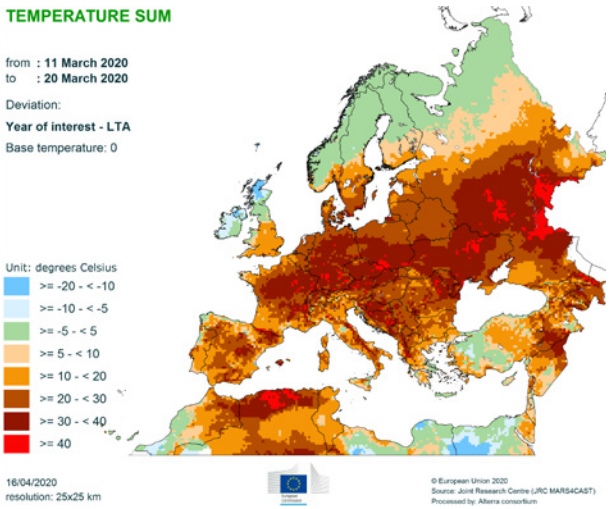
Note: Yields are forecast for crops with more than 10 000 ha per country with sufficently long and coherent yield time series (for rice more than 1 000 ha per country).

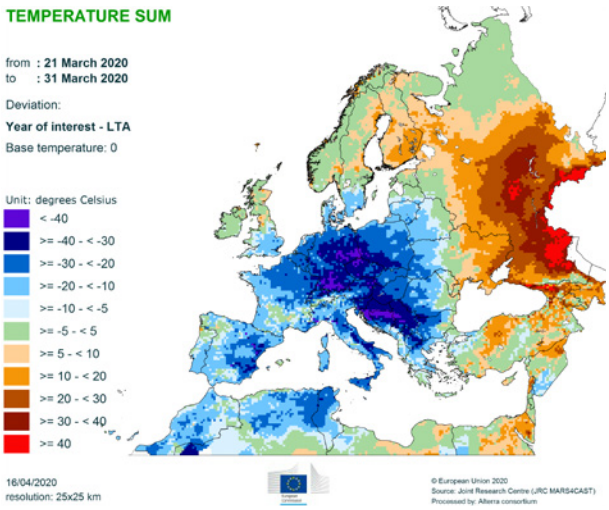
Sources: EU 2015–2020 data come from DG Agriculture and Rural Development short-term outlook data (dated February 2020, received on 2.3.2020), Eurostat Eurobase (last update: 25.2.2020) and EES (last update: 15.11.2017).
Non-EU 2015–2019 data come from USDA, DSASI-MADR Algeria, INRA Maroc, CNCT Tunisie, Turkish Statistical Institute (TurkStat), Eurostat Eurobase (last update: 25.2.2020), State Statistics Service of Ukraine, FAO and PSD online.
2020 yields come from MARS crop-yield forecasting system (output up to 10.3.2020).
EU aggregate after 1.2.2020 is reported.
N/A = Data not available.

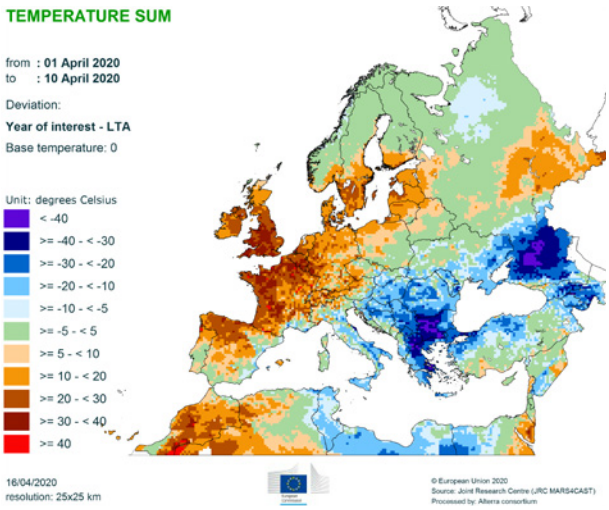
6. Atlas

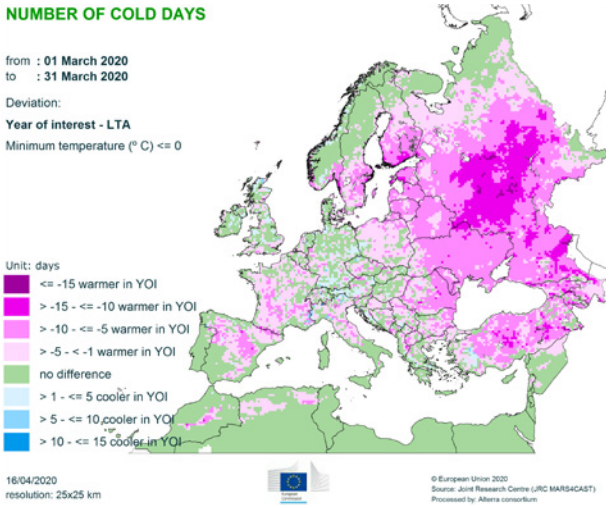
Temperature regime

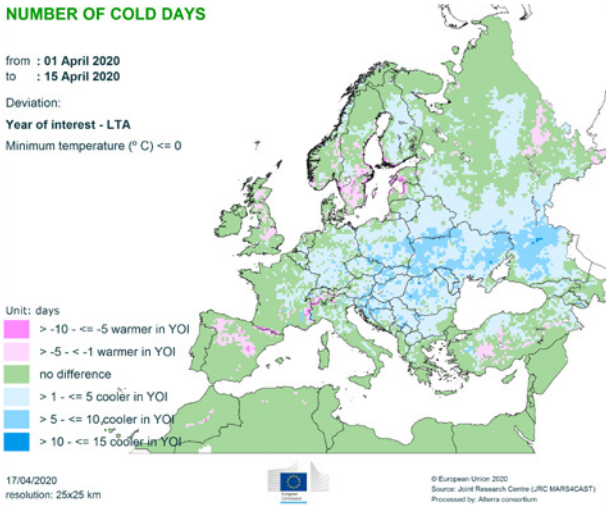












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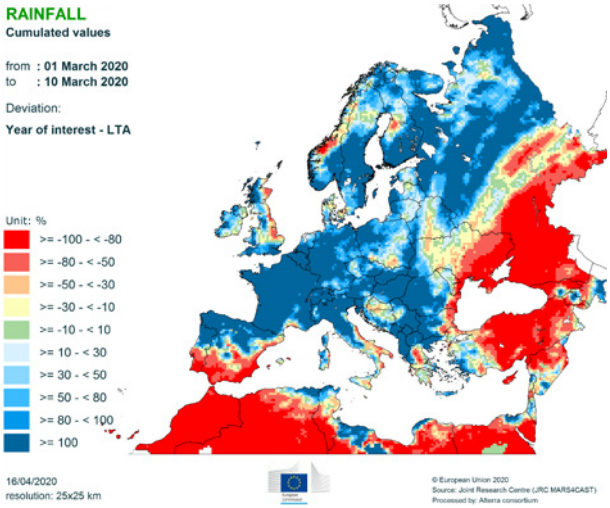
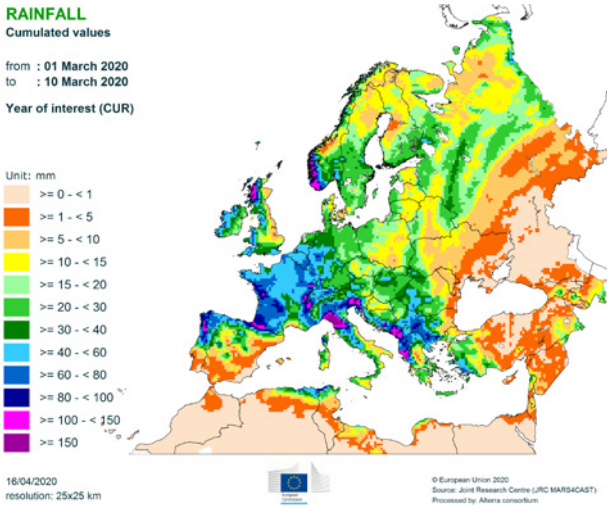
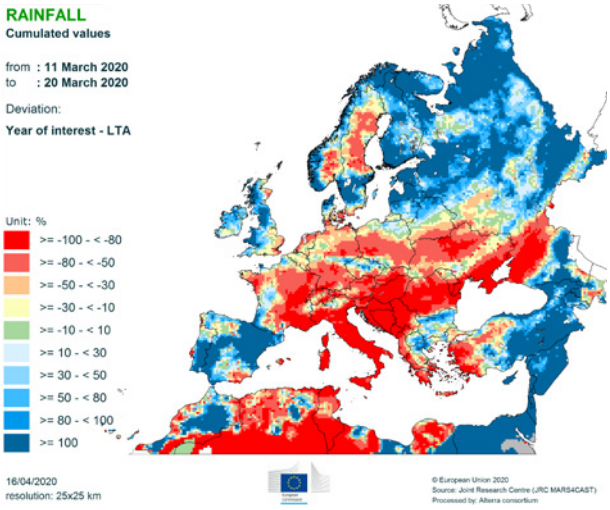
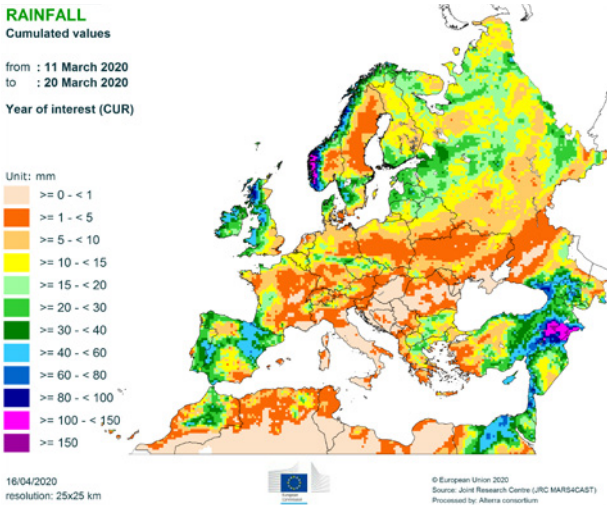
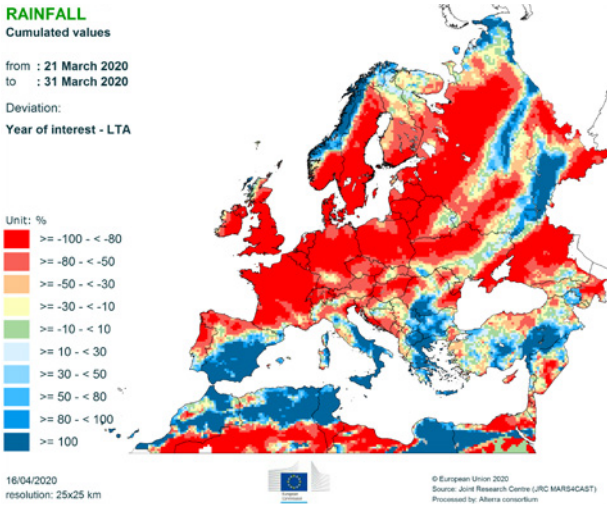
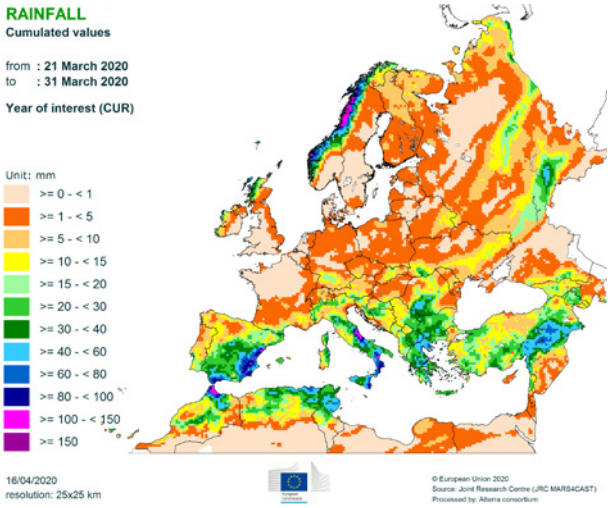


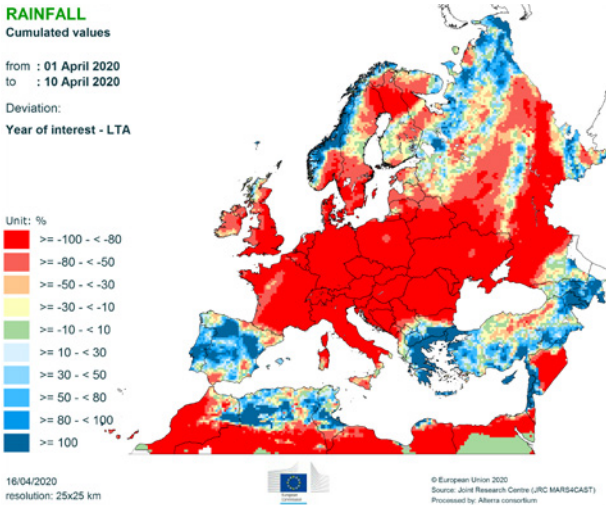


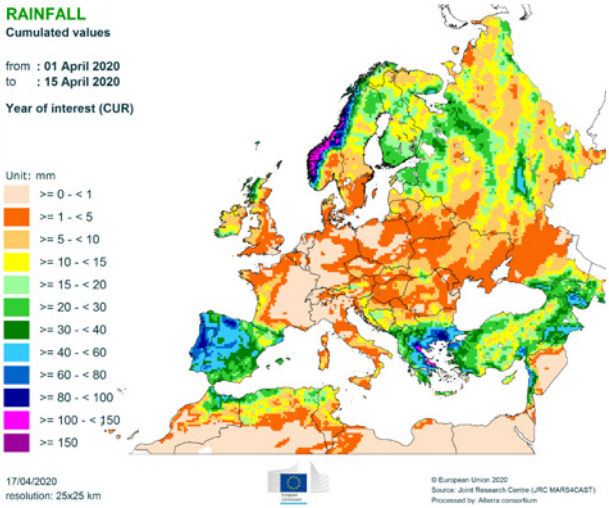


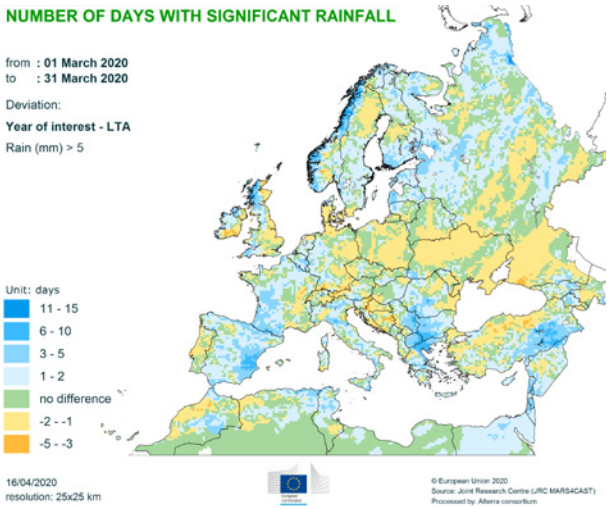


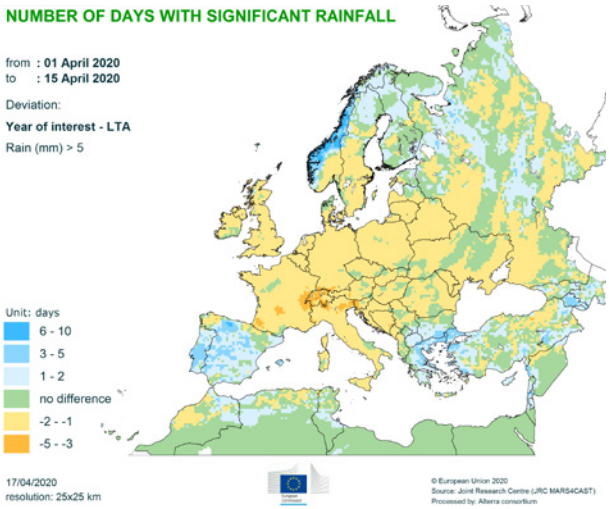




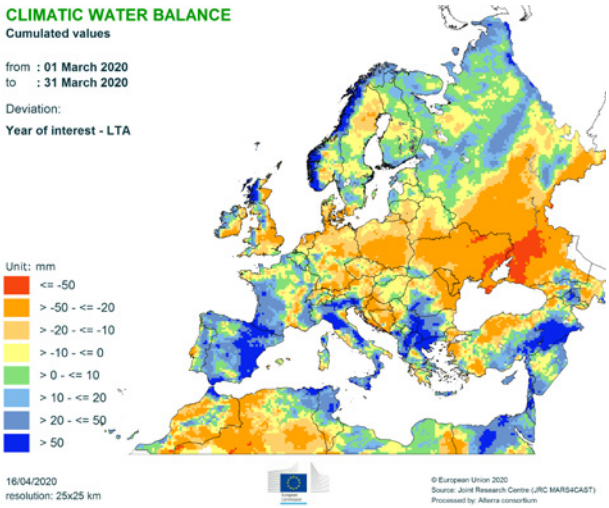


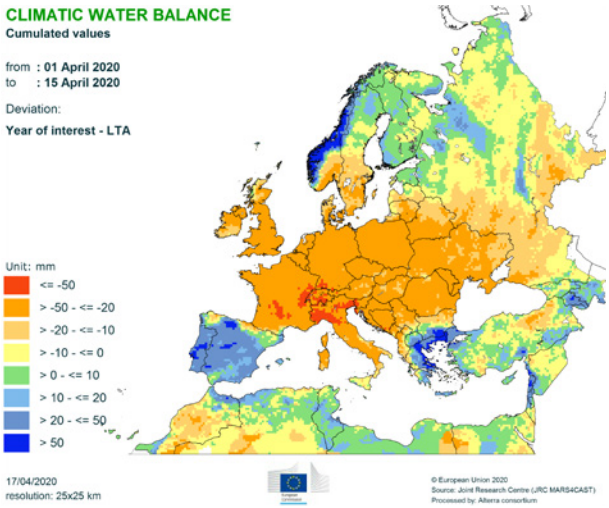




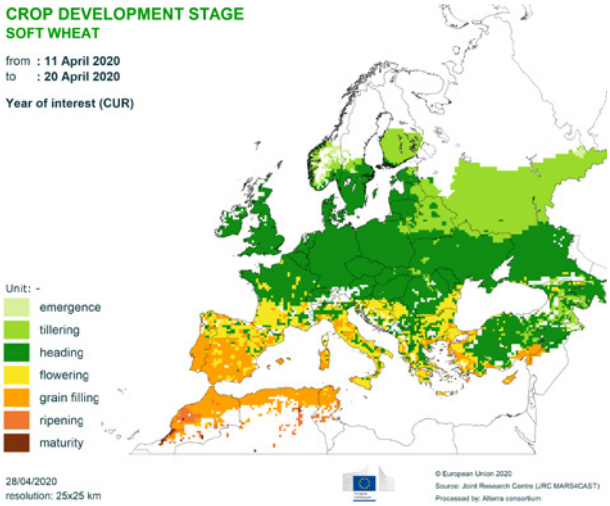


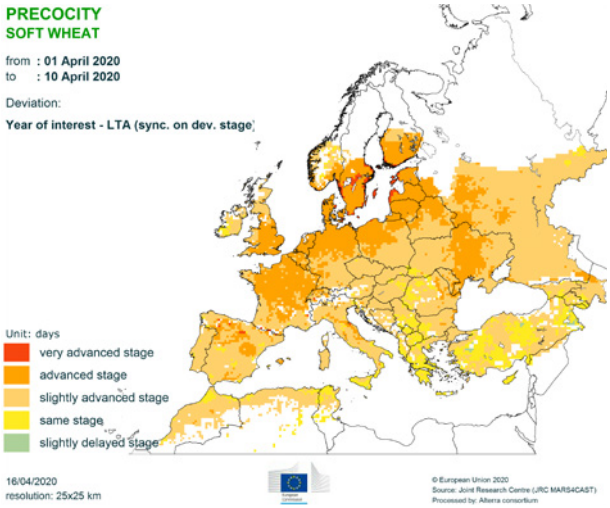
Climatic water balance

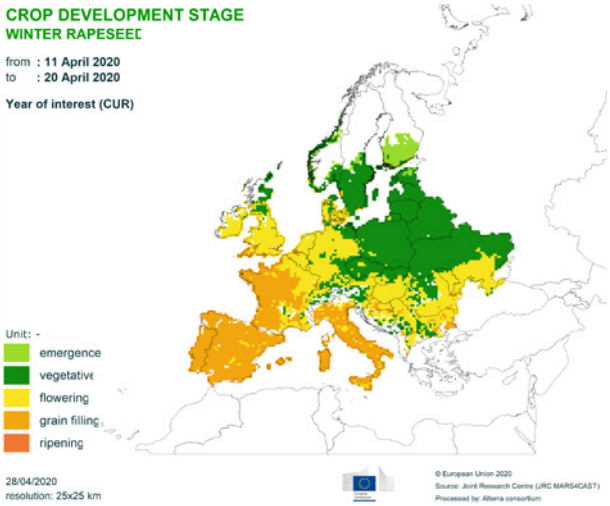


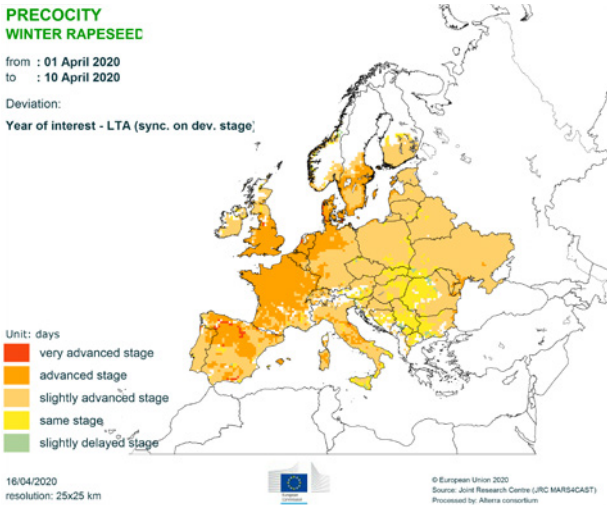


Crop development stages and precocity

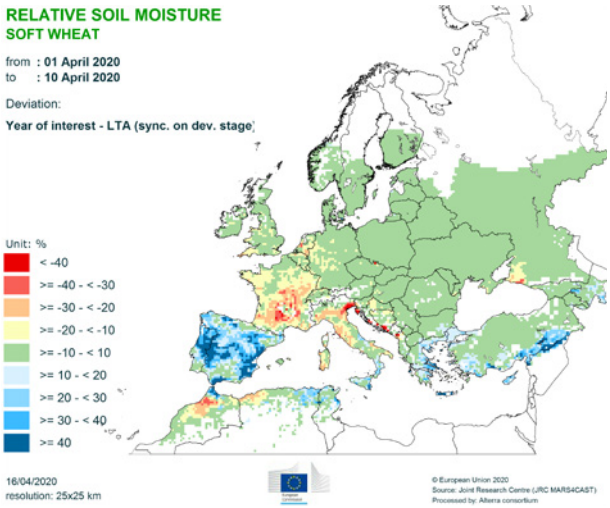


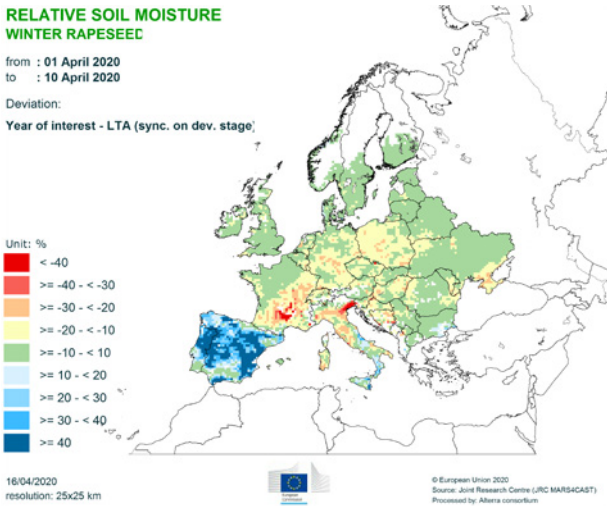






Relative soil moisture





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JRC MARS Bulletins 2020

Date	Publication	Reference
27 Jan	Agromet analysis	Vol. 28 No 1
17 Feb	Agromet analysis	Vol. 28 No 2
23 Mar	Agromet analysis, yield forecast, pasture analysis	Vol. 28 No 3
27 Apr	Agromet analysis, remote sensing, pasture analysis, sowing conditions, yield forecast	Vol. 28 No 4
18 May	Agromet analysis, remote sensing, pasture analysis, sowing update, yield forecast	Vol. 28 No 5
15 Jun	Agromet analysis, remote sensing, pasture analysis, rice analysis, yield forecast	Vol. 28 No 6
27 Jul	Agromet analysis, remote sensing, pasture analysis, harvesting conditions, yield forecast	Vol. 28 No 7
24 Aug	Agromet analysis, remote sensing, pasture update, harvesting update, yield forecast	Vol. 28 No 8
14 Sep	Agromet analysis, remote sensing, pasture analysis, rice analysis, harvesting update, yield forecast	Vol. 28 No 9
26 Oct	Agromet analysis, pasture update, sowing conditions, harvesting update, yield forecast	Vol. 28 No 10
23 Nov	Agromet analysis, sowing update, harvesting update	Vol. 28 No 11
14 Dec	Agromet analysis	Vol. 28 No 12

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