Issued: 27 May 2024
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European Commission

JRC MARS Bulletin

Crop monitoring in Europe

May 2024

Weather conditions marked by contrasts

Further improved yield outlook for Iberian Peninsula

Crop yield forecasts at EU level remain above the 5-year average. The yield forecast for winter crops further improved for Spain and Portugal, but was reduced for Italy and several countries of western Europe; as well as for Hungary, where the overall yield outlook remains positive.

Wet conditions in large areas in western Europe, as well as in Denmark, and northern Italy, resulted in water logging, high pest pressure and/or delays to sowing, with potentially negative effects on crop yields.

An abrupt cold spell in the second half of April severely impacted fruits and vineyards in several parts of Europe, but damage to annual crops is expected to have been limited. The temperature drop was most pronounced in southern and eastern Germany, and bordering regions in Czechia and Poland, as well as in southern Finland.

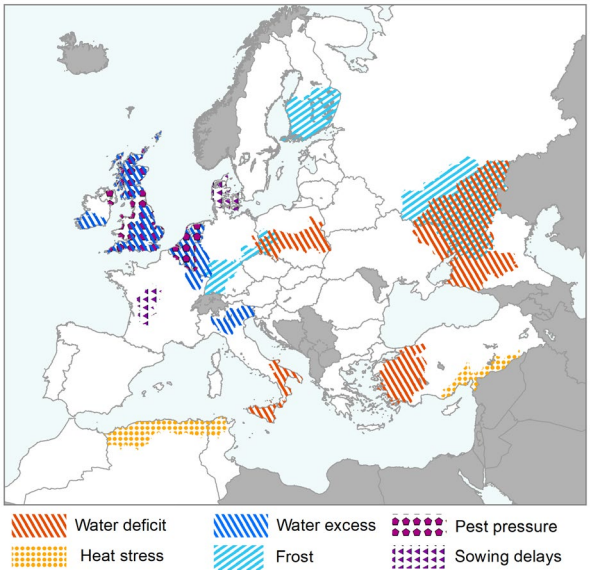
In eastern Germany and Poland, water deficit started to build up; more rain is needed to sustain the so-far-positive outlook. Warm and dry conditions in southern Italy negatively affected the grain filling of winter crops.

In Russia, a distinct water deficit combined with cold spells created unfavourable conditions for winter crops' development, and caused delays to spring sowing. In Türkiye, yield expectations for winter cereals were moderated by a distinct water deficit in western regions and a heat spell in south-eastern parts of the country.

Contents:

Covers the period from 1 April until 18 May

ALERTS
Reference period: 1 April until 18 May 2024



Crop	Yield t/ha				
	Avg 5yrs	April Bulletin	MARS 2024 forecasts	%24/5yrs	% Diff April
Total cereals	5.48	5.62	**5.62**	+ 3	+ 0
Total wheat	5.65	5.72	**5.71**	+ 1	– 0
Soft wheat	5.87	5.93	**5.92**	+ 1	– 0
Durum wheat	3.44	3.47	**3.45**	+ 0	– 1
Total barley	4.93	5.11	**5.13**	+ 4	+ 0
Spring barley	4.09	4.32	**4.34**	+ 6	+ 0
Winter barley	5.91	5.97	**5.98**	+ 1	+ 0
Grain maize	7.34	7.57	**7.59**	+ 3	+ 0
Rye	4.16	4.29	**4.28**	+ 3	– 0
Triticale	4.34	4.46	**4.46**	+ 3	+ 0
Rape and turnip rape	3.18	3.26	**3.21**	+ 1	– 2
Potatoes	35.4	36.8	**36.8**	+ 4	+ 0
Sugar beet	73.2	75.5	**75.4**	+ 3	– 0
Sunflower	2.15	2.24	**2.25**	+ 5	+ 0
Soybeans	2.73	2.86	**2.82**	+ 3	– 1
Field beans	2.74	2.86	**2.85**	+ 4	– 0
Field peas	2.34	2.49	**2.47**	+ 6	– 1

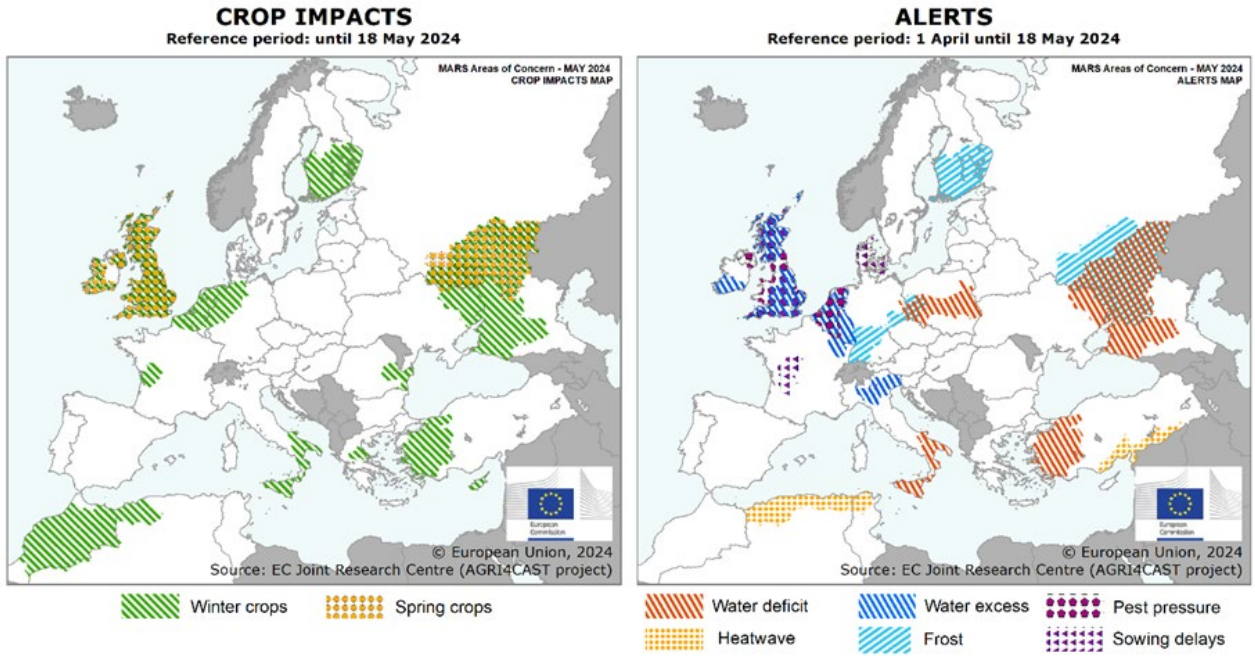
Issued: 27 May 2024

Joint Research Centre

1. Agrometeorological overview

1.1. Areas of concern

As of March, the areas-of-concern analysis follows a different approach from that used for previous MARS bulletins. The ***crop impacts*** *map shows regions where crops (winter, spring and/or summer) were negatively affected in terms of area and/or yield. This map shows* ***impacts that have occurred since the start of the season****. However, reduced areas or resowing of specific crops without substantial impact on the yield potential of the other sown areas of that crop are not repeated in subsequent editions of the Bulletin once reduced areas are reflected in the statistics. The* ***alerts map*** *shows* ***unusual weather events that occurred during the analysis period, from 1 April to 18 May,*** *with* ***potential negative impacts on crops****.*



In **Ireland** and the **United Kingdom**, rainfall has been gradually decreasing since the end of April. Planting of spring crops continued well into May, even though outside the optimum time window. At the same time, winter crops are suffering from *pest pressure*, which is favoured by the humid and warm conditions and exacerbated by the difficult conditions for spraying. Lastly, *waterlogging* negatively affected the growth, root development and nutrient availability for winter crops, with expected repercussions on their final yields. Waterlogging and high pest and disease pressure are also observed in the **Netherlands**, **Belgium** and **Luxembourg**.

In north-eastern **France** and western **Germany**, most of the *water excess* is a problem because heavy rainfall culminated in local flooding. In western **France** and **Denmark**, abundant rainfall and associated waterlogging mainly delayed the *sowing* of spring and summer crops. In northern **Italy**, intense precipitation, notably around 15 May, caused local flooding and was unfavourable to the flowering and grain filling of winter crops.

An abrupt cold spell, with associated *frost* events in the second half of April had a severe impact on fruits and vineyards in several parts of Europe. The temperature drop was most pronounced in southern and eastern **Germany**, and bordering regions in northern **Czechia** and western **Poland**. In these regions, damage to annual crops was limited to flowering rapeseed. In **Finland**, low minimum temperatures were recorded in the same period; damage to winter crops appears to be limited but might become visible in the coming weeks.

In southern **Italy**, *warmer- and drier*-than-usual temperatures notably reduced biomass accumulation and affected the grain filling of winter crops. In eastern **Germany** and **Poland**, *water deficit* started to build up in the first week of April, and more rain is essential to sustain the so-far-positive crop conditions.

In **Russia**, the *water deficit* combined with cold spells created unfavourable conditions for winter crops' development, and caused delays to spring sowing. In **Türkiye**, western regions are affected by *water deficit*,

which reduced the yield expectation of winter crops in those regions, while in south-eastern regions the heat spell observed may have accelerated grain filling, thus moderating the very high yield expectations. In **eastern Maghreb** regions, the winter crop season is almost concluded, with very low yield expectations, which may have been locally worsened by the very high temperatures recorded during the latest stages of grain filling.

Other impacts on winter crops shown on the map, i.e. in north-western Ireland, western France, the Netherlands, Belgium, Luxembourg, north-western Germany and eastern Romania were identified in antecedent analysis periods, as reported in the published bulletins of this season.

1.2. Meteorological review (1 April –18 May 2024)

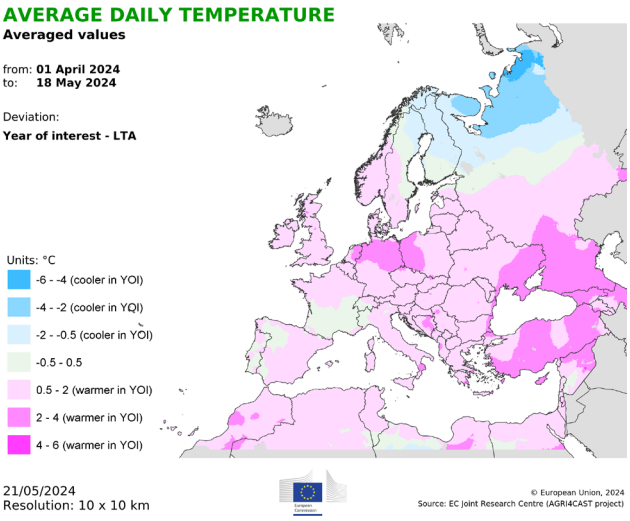
Warmer-than-usual conditions in almost all of Europe were interrupted by a distinct cold spell in late April. Wetter-than-usual conditions prevailed in parts of east and west Europe, and the Balkan Peninsula.

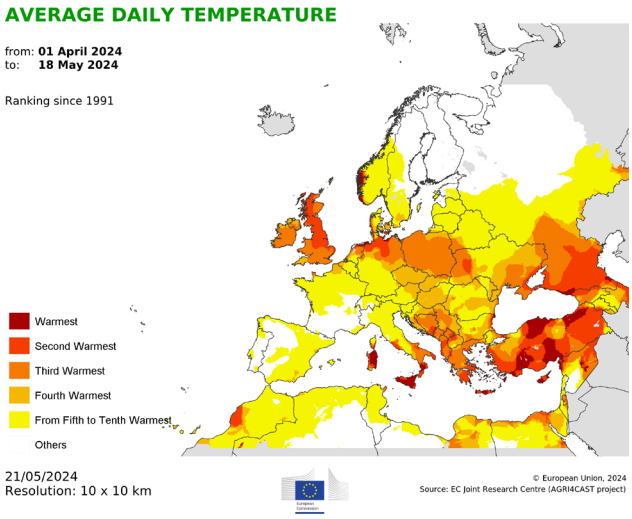
Warmer-than-usual conditions characterised almost all of Europe. The most substantial temperature anomalies were up to 4 °C above the long-term average (LTA) in parts of the north European plain, south Italy, the west Balkan Peninsula and the Black Sea region. In these regions, the period ranked among the warmest three at this time of year since 1991.

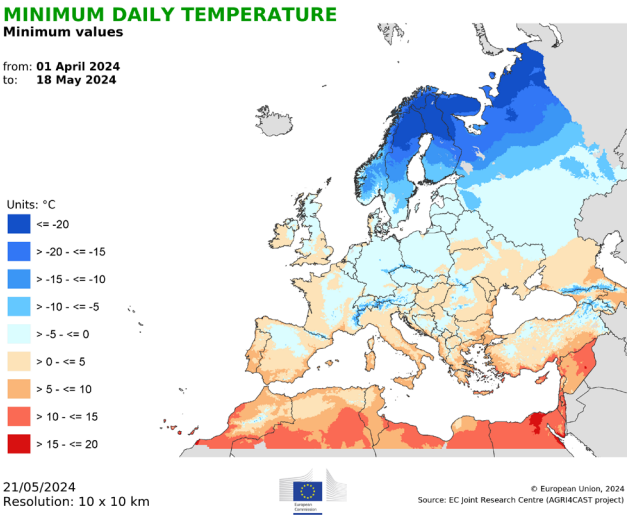
Colder-than-usual conditions with temperature anomalies up to 4 °C (locally up to 6 °C) below the LTA were observed in northern parts of Norway, Sweden, Finland and European Russia. Sub-zero minimum daily temperatures were observed in many regions of Europe during a **cold spell** in the second half of April.

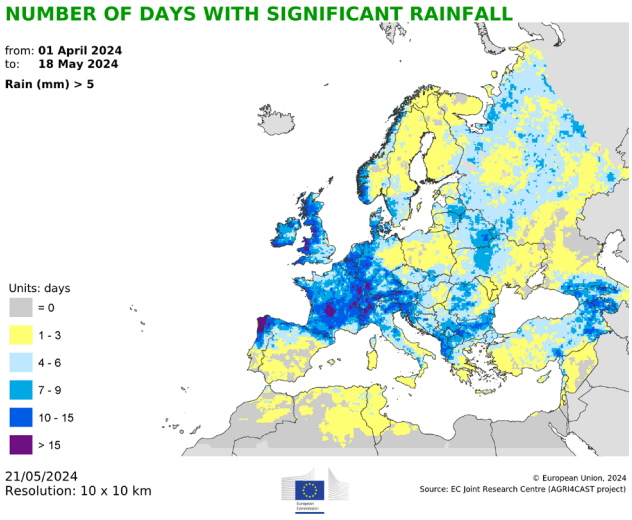
Much wetter-than-usual conditions (rainfall total 100 %, in some regions 150 % or more, above the LTA) were observed in parts of the Benelux countries, extending into Denmark, western Germany and eastern France, and in northern Italy, on the Black Sea coast of Bulgaria, and in Romania, southern Belarus and northern parts of European Russia. In many of these regions, the review period ranked among the wettest three since 1991.

Drier-than-usual conditions (rainfall total between 50 % and 100 % below the LTA) were observed in the southern Iberian peninsula and Sardinia, locally in parts of central and southern Italy, and in the west Balkan Peninsula, central Poland, southern Norway, eastern Ukraine and southern European Russia. In some of these regions, the review period ranked among the driest three in our records since 1991.







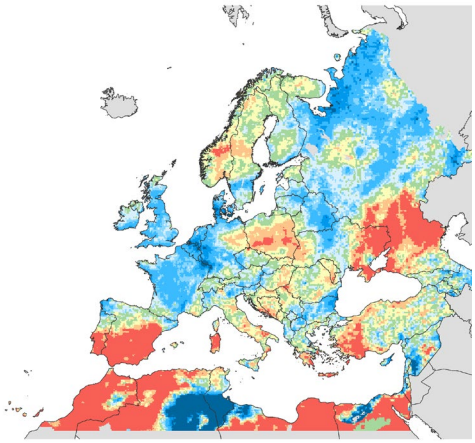


RAINFALL
Cumulative values

from: **01 April 2024**
to: **18 May 2024**

Deviation:
Year of interest - LTA

Units: %
- >= -100 - < -50
- >= -50 - < -30
- >= -30 - < -10
- >= -10 - < 10
- >= 10 - < 30
- >= 30 - < 50
- >= 50 - < 100
- >= 100 - < 150
- >= 150



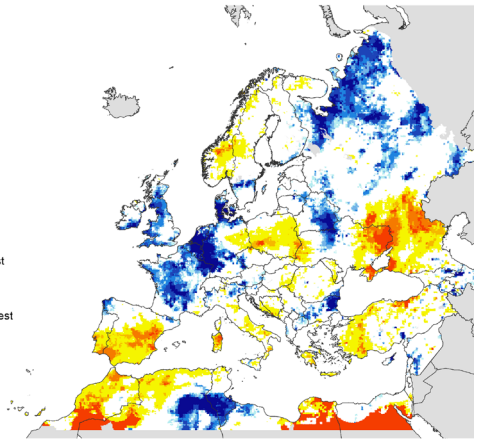
21/05/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **01 April 2024**
to: **18 May 2024**

Ranking since 1991

- Driest year
- Second driest
- Third driest
- Fourth driest
- From fifth to tenth driest
- Others
- From fifth to tenth wettest
- Fourth wettest
- Third wettest
- Second wettest
- Wettest year



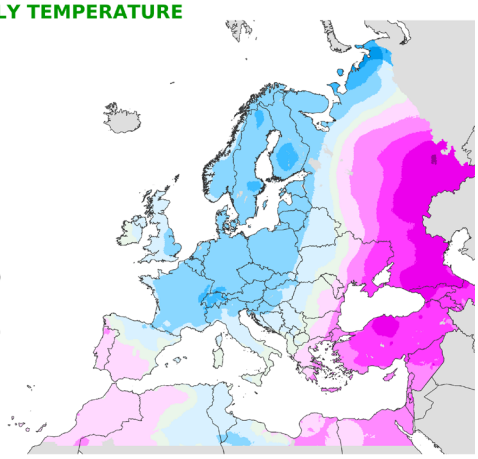
21/05/2024
Resolution: 10 x 10 km

AVERAGE DAILY TEMPERATURE
Averaged values

from: **15 April 2024**
to: **28 April 2024**

Deviation:
Year of interest - LTA

Units: °C
- -8 - -6 (cooler in YOI)
- -6 - -4 (cooler in YOI)
- -4 - -2 (cooler in YOI)
- -2 - -0.5 (cooler in YOI)
- -0.5 - 0.5
- 0.5 - 2 (warmer in YOI)
- 2 - 4 (warmer in YOI)
- 4 - 6 (warmer in YOI)
- 6 - 8 (warmer in YOI)
- > 8 (warmer in YOI)



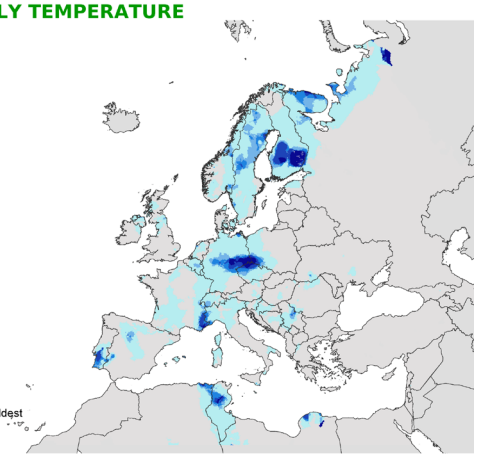
02/05/2024
Resolution: 10 x 10 km

MINIMUM DAILY TEMPERATURE
Minimum values

from: **15 April 2024**
to: **28 April 2024**

Ranking since 1991

- Coldest
- Second Coldest
- Third Coldest
- Fourth Coldest
- From Fifth to Tenth Coldest
- Others



02/05/2024
Resolution: 10 x 10 km

1.3. Weather forecast (23 May - 1 June)

A low-pressure system brings storms and rain over western Europe and the Alps region, as well as in parts of central and eastern Europe.

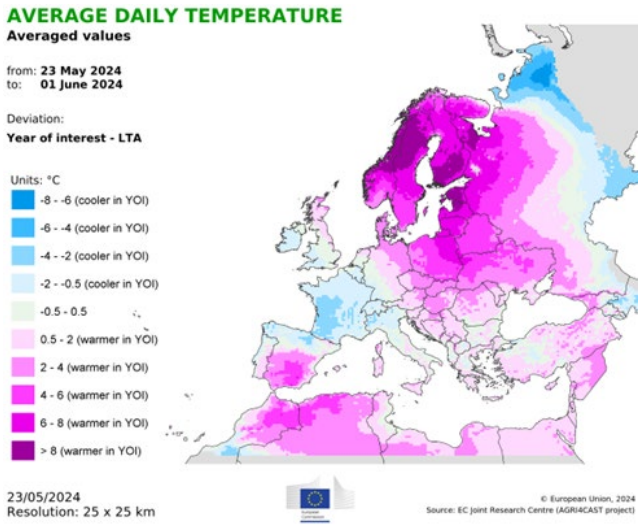
Colder-than-usual conditions (average daily temperatures up to 2 °C, in some regions up to 4 °C, below the long-term average (LTA)) are forecast for parts northern Spain, most of France, northern Italy, Switzerland, Ireland, and south-western United Kingdom; whereas more substantial negative anomalies (locally up to 8 °C, below the LTA) are forecast in eastern European Russia.

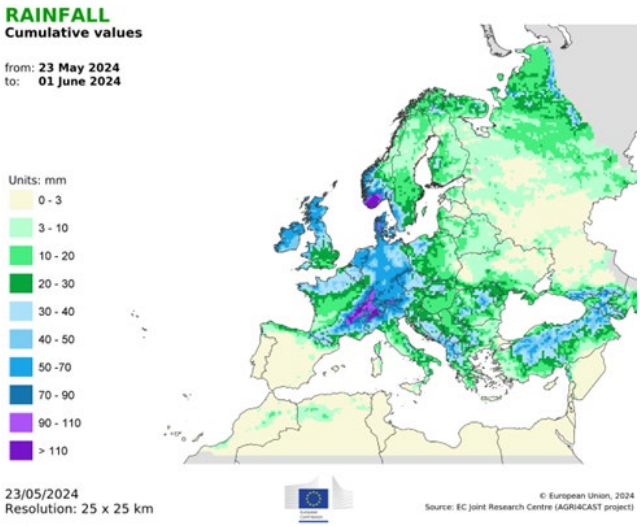
Warmer-than-usual conditions are forecast for most of the rest of Europe. Most substantial positive temperature anomalies (up to 6 °C above the LTA) are forecast for southern Spain, most of Poland and Ukraine, the Baltic Sea countries, and Scandinavia, and up to 8 °C and more above the LTA in Estonia and parts of Scandinavia.

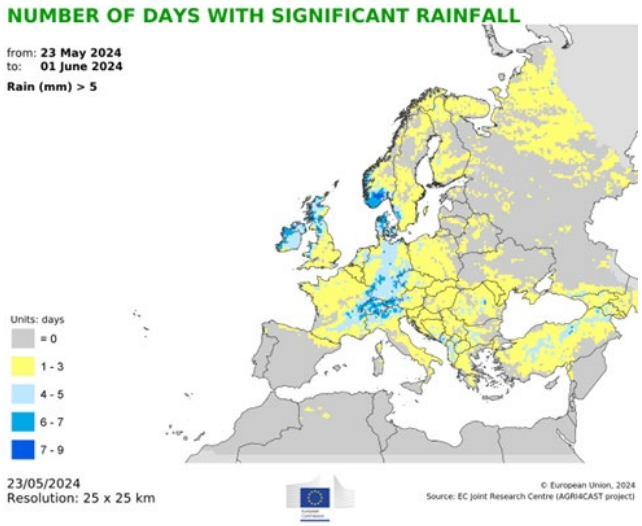
Dry conditions (total precipitation below 3 mm) are forecast for most of the Iberian Peninsula, Sardinia and Sicily, locally in southern Greece, southern Türkyie, and Cyprus, as well as in large parts of Ukraine and European Russia.

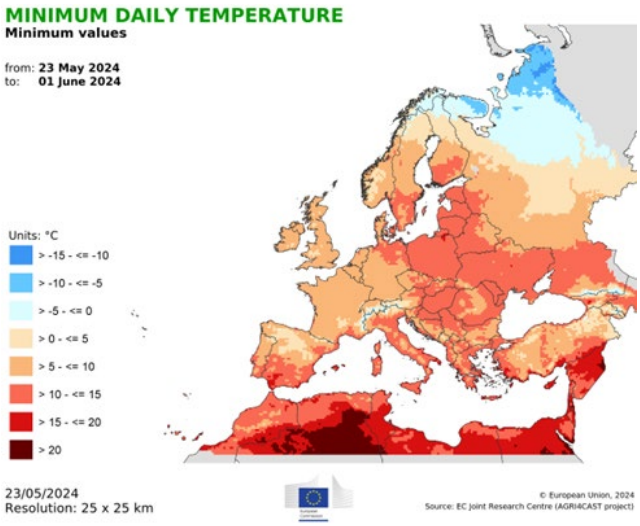
Wet conditions (precipitation above 10 mm and up to 70 mm) are forecast for most other parts of Europe, while **very wet conditions** (above 70 mm) are forecast for the Alps region, locally in Germany, in Denmark and southern Norway.

The long-range weather forecast points to highly likely warm conditions, exceeding the 24-year climatological median by up to 1°C in western and northern Europe in June-July and in most of Europe in August, and by up to 2°C in the Iberian Peninsula and the Black Sea region in June and July and in parts of these regions in August. Precipitation of up to 50 mm below the mean is forecast - albeit with high uncertainty - for parts of the Black Sea region (June) and most of southern Europe (July-August).



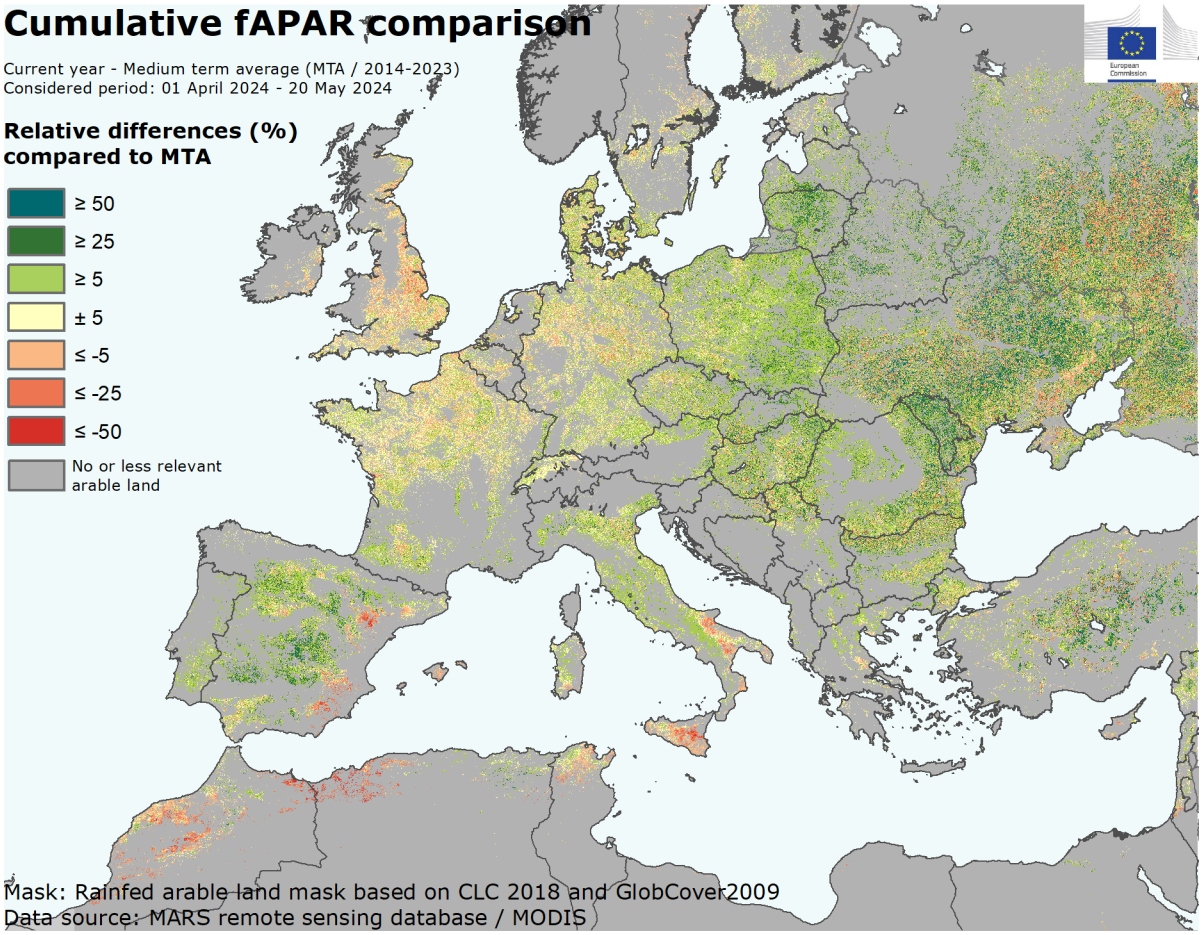






2. Remote sensing – observed canopy conditions

Moderate to above-average crop growth in most parts of Europe



The map displays the relative differences (in percentages) between the cumulated fraction of absorbed photosynthetically active radiation (fAPAR) from 1 April to 20 May April 2024 and the medium-term average (MTA, 2014-2023) for the same period. Positive anomalies (in green) reflect above-average crop biomass while negative anomalies (in red) reflect below-average biomass or late crop development.

The map above predominantly shows winter crop conditions, as the summer crop season has just begun and has a minimal contribution to fAPAR levels. Significant regions of Europe present positive fAPAR anomalies, which are indicative of better-than-average crop growth. This trend is being linked to the prevailing warmer-than-usual temperatures and adequate precipitation levels since the end of winter.

The **Iberian Peninsula** continues to exhibit a very positive fAPAR anomaly, thanks to the favourable conditions that have prevailed throughout the season. However, Mediterranean areas, have experienced long periods of rain deficit, resulting in below-average levels of biomass accumulation. Similarly, most of **Italy** presents positive fAPAR anomalies reflecting an early and well-watered growing season since March, except for *Puglia* and *Sicily*.

In a significant portion of central Europe, including **Bulgaria**, **Romania**, **Hungary**, **Slovakia**, **Czechia**, **Austria**, southern and eastern **Germany** as well as **Poland**, the strong positive anomaly reflects the early progress of winter crops, consistent with the above-average temperatures since winter.

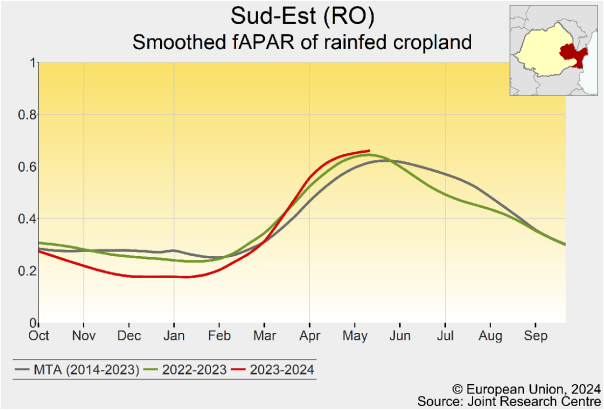
In contrast, slightly negative fAPAR anomalies prevail in western Europe, comprising northern **France**, the **Benelux** countries, and most of northern and western **Germany**. These are attributed to a combination of positive and negative factors: (i) winter crops that are advanced due to the warm winter, but with growth lagging behind in many fields due to overly wet conditions; (ii) higher than usual number of bare fields during the winter

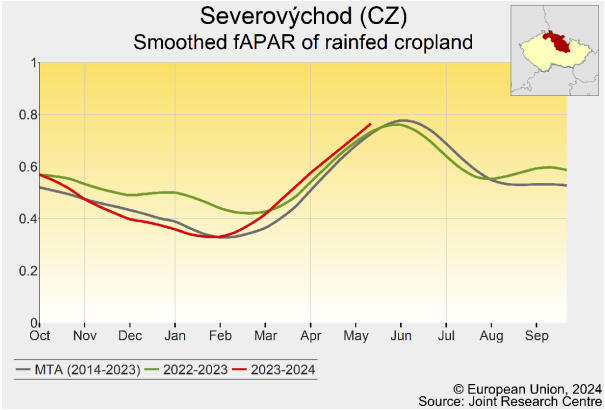
and spring following the failure to complete winter crop sowing during the wet autumn; (iii) delayed spring planting campaigns due to persistent overly wet conditions in late winter and early spring. The more distinctly below-average fAPAR values in the **United Kingdom** and **Ireland**, are largely attributed to the stunted growth of winter and spring crops, with numerous waterlogged fields. This excess water is also likely affecting the radiometry of the remote sensing signal, leading to reduced fAPAR values.

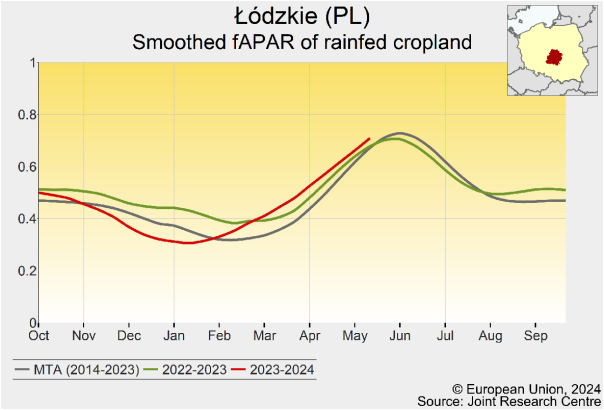
In northern Europe, the spring growth of winter and spring crops began in April. It is currently aligned with MTA in **Denmark**; slightly ahead in **Sweden;** and significantly ahead in the **Baltic** countries.

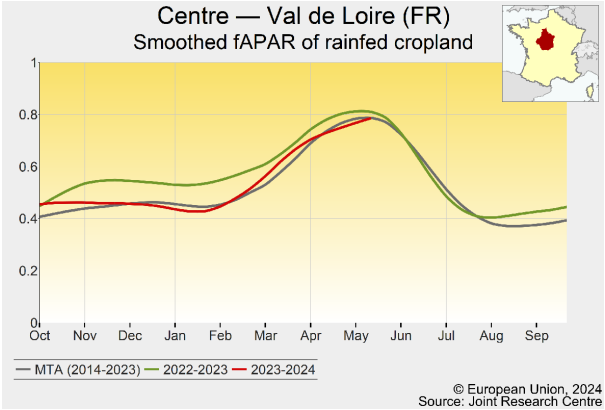
In **Ukraine** and **Belarus**, the positive fAPAR anomaly reflects the progress of an advanced season under favourable conditions, including in southern regions such as *Odes'ka* and *Mykolaiv*, which have received adequate rainfall since mid-March to compensate for the winter's rain deficit. The front lines associated with the Russian invasion and areas south of the Kakhovka dam display negative anomaly in line with the high number of uncultivated fields. In **Russia**, the overall positive signal is evident; however, it is too early to discern the possible impacts of the recent rainfall deficit and frost events that occurred in some important agricultural regions.

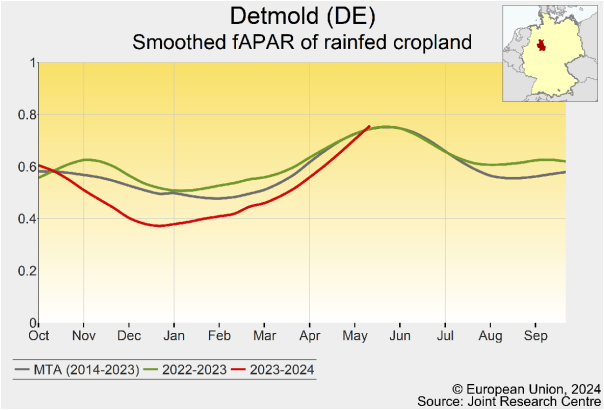
Türkiye continues to demonstrate an advanced and positive growing season. In **Tunisia**, the nearly concluded cropping season has benefited from warm temperatures and well-distributed rainfall. Conversely, in **Morocco** and **Algeria**, drought conditions have resulted in poor biomass production and numerous crop failures.

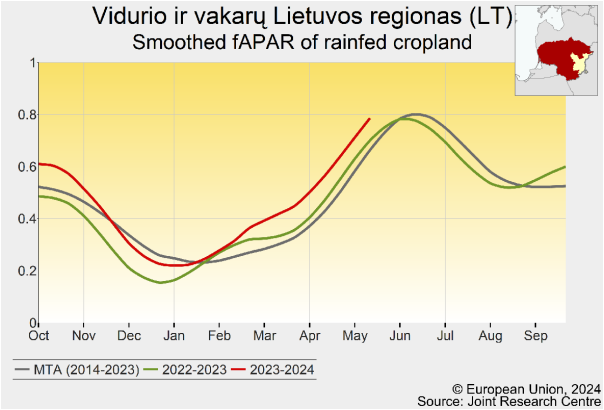


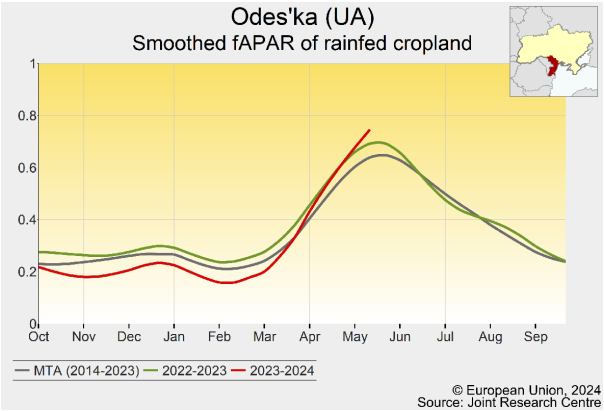


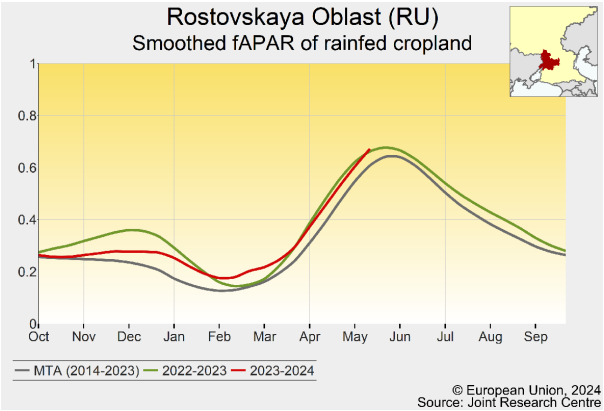





Detmold (DE)
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre


Vidurio ir vakarų Lietuvos regionas (LT)
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre


Odes'ka (UA)
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre

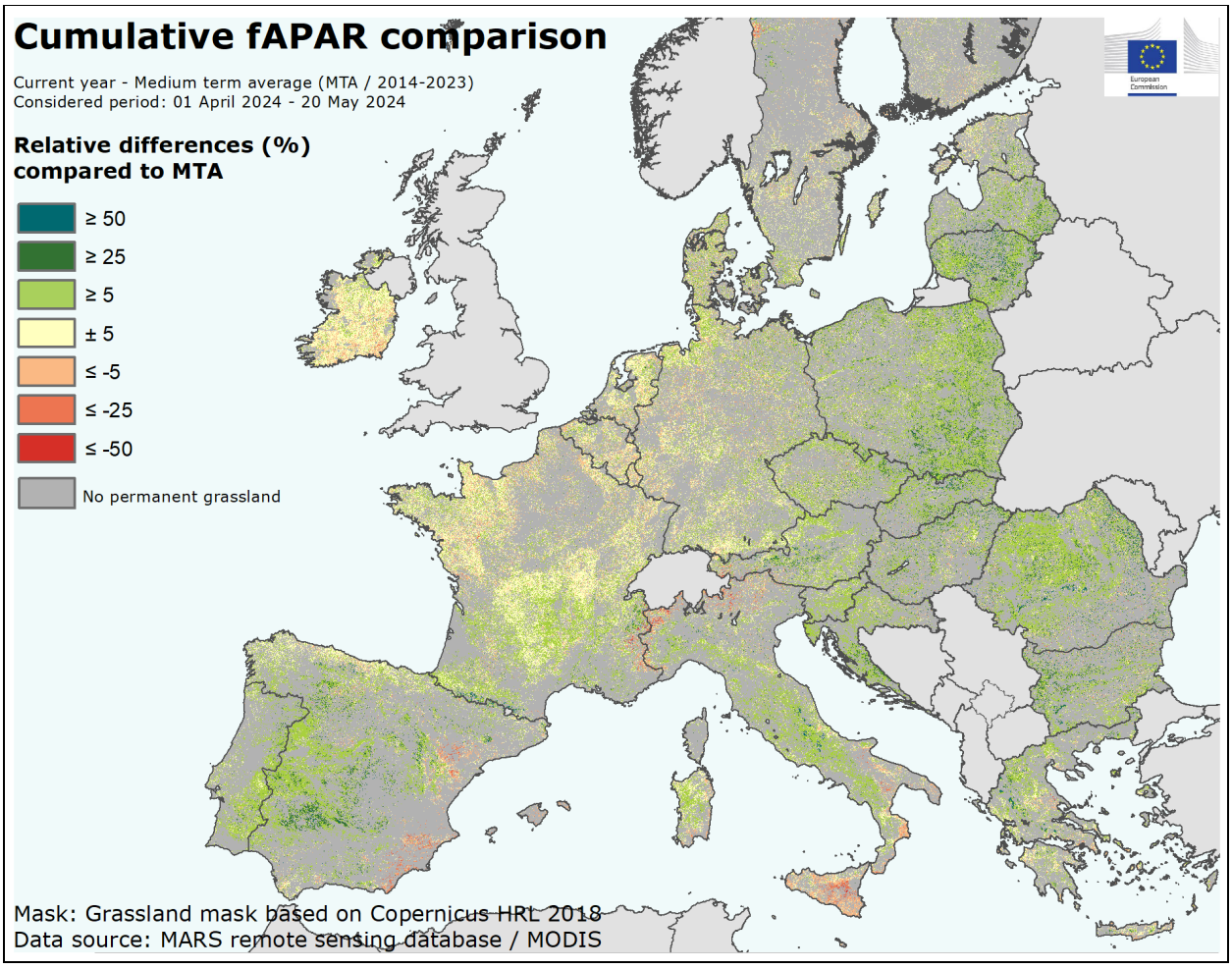

Rostovskaya Oblast (RU)
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre

3. Grasslands and fodder – regional monitoring

Above-average biomass in most of Europe, north-western regions still affected by wet conditions

The review period is characterised by large temperature fluctuations in most of Europe and well-above-average rainfall in north-western countries. In the latter regions, field access is complicated by wet conditions and the biomass accumulation is average or slightly below average. In most of the rest of Europe, the warm periods sustained above-average growth.

The map below displays the differences between the fraction absorbed photosynthetically active radiation (fAPAR) cumulated from 1 April to 20 May 2024, and the medium-term average (MTA, 2014–2023) for the same period. Positive anomalies (in green) reflect above-average surface greenness representing above-average biomass accumulation, while negative anomalies (in red) reflect below-average surface greenness.



In **Ireland**, rainy conditions slightly slowed down biomass accumulation, especially in the south, and complicated field access. Similar conditions were reported for the northern half of **France**, where most regions now show a slightly negative fAPAR anomaly. The same wet conditions are causing delays to the sowing of green maize. In southern **France**, fAPAR levels are close to the MTA. In the **Benelux** countries, biomass levels are close to or slightly above average, but green maize sowing progressed slowly owing to overly wet soils. In **Germany**, the warm weather led to above-average biomass accumulation in northern regions, while in southern regions the cold spell and persistent rainfall lowered the fAPAR signal to close to or below average.

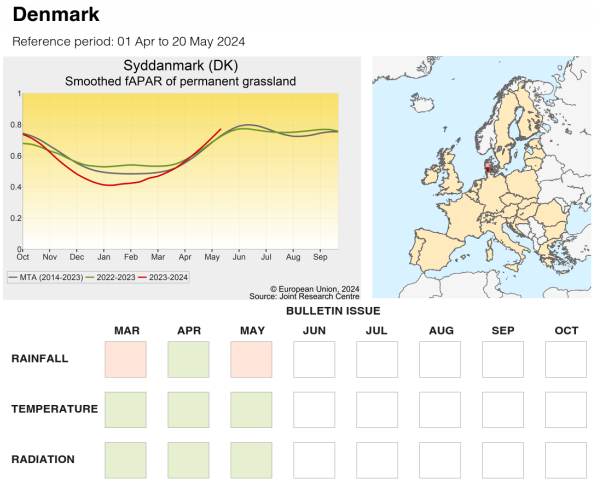
In **Denmark**, **Sweden** and **Finland**, fAPAR remains in line with or slightly above the MTA. In the **Baltic countries**, relatively warm conditions sustained above-average biomass accumulation. In **Poland**, adequate soil moisture

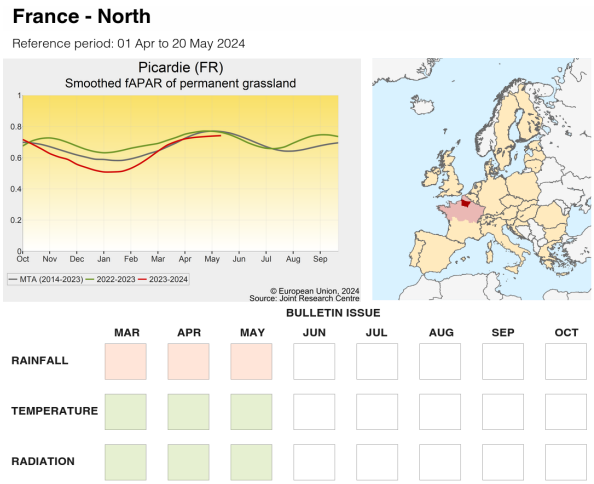
and temperature conditions sustained the positive growth trend previously reported, but more rain is needed now to restore moisture in the drying soils.

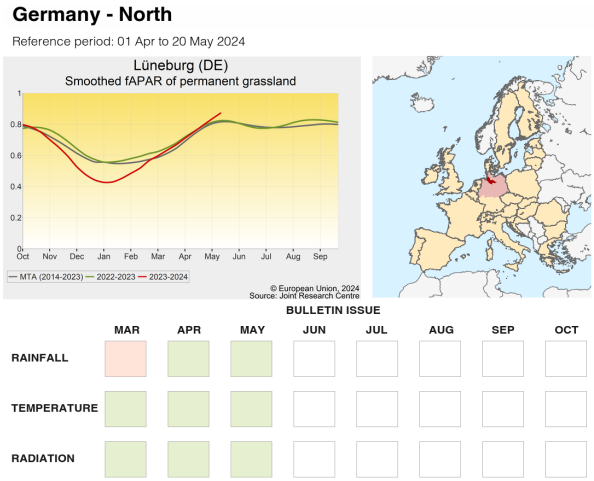
The warm temperatures that have prevailed since March, combined with adequate rainfall, led to largely above-average grassland biomass levels in **Austria**, **Czechia**, **Slovakia**, **Romania** and **Bulgaria**. Similar conditions are reported for **Hungary**, where, however, more rain is needed in the near future to sustain growth. In mainland **Greece** and **Cyprus**, grasslands are in good condition.

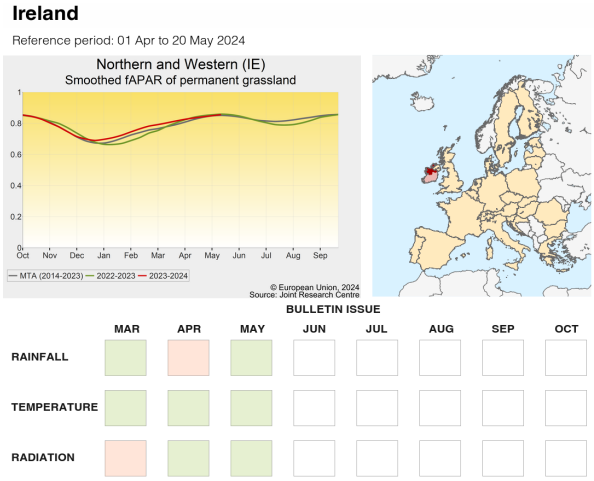
In southern **Italy**, the rainfall deficit and excessive temperatures limited biomass accumulation, which is now below the MTA. In contrast, northern Italy experienced frequent and locally very intense rainfall, slowing down the growth of grasslands, with fAPAR values now close to average.

In **Portugal** and **Spain**, the positive remote sensing signal reflects well-above-average biomass accumulation. The rainfall deficit that occurred in most regions during the reporting period did not negatively affect grasslands, thanks to well-above-average rainfall in the preceding months, with the exception of south-eastern Aragon and the Mediterranean coast, where the remote sensing signal is now below average.



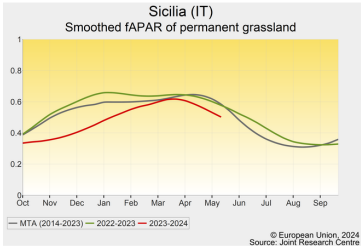






Italy - Center, South and Islands

Reference period: 01 Apr to 20 May 2024

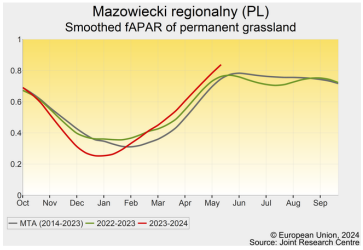


BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Poland

Reference period: 01 Apr to 20 May 2024



BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Romania - East and South

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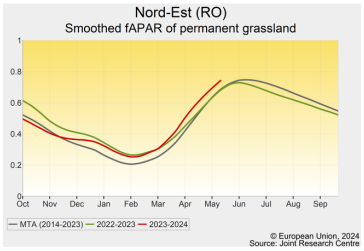

BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Spain and Portugal - South

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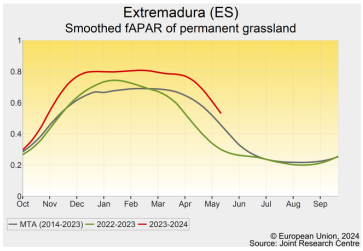


BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

4. Sowing conditions

Spring barley

Significant delays to sowing in western and northern Europe

The widespread delay in planting persisted throughout western and northern Europe owing to excessively wet conditions, with the result that not all plantings have been completed (yet). Conversely, countries in central and eastern Europe benefited from favourable conditions, resulting in an early completion of the sowing campaign.

Following the delays in planting, the sowing campaign in France, Germany and the Benelux countries practically ended in late April and early May. Despite a challenging start to the season, farmers in France were able to complete the sowing by mid April and the crops are generally exhibiting average conditions. In Germany, some wet fields in the north-west may still need to be sown or may remain unplanted.

In Sweden and the Baltic countries, sowing has progressed well without significant complications, while in Denmark and Finland overly wet soils have locally caused some delays. Expected sowing can still be accomplished within a suitable window, if favourable weather conditions continue as currently forecast.

In Ireland, sowing, although late, rapidly progressed after early May thanks to drier soils and is now close to complete. The prevailing wet soil conditions also resulted in delays to sowing in the United Kingdom, where the sowing campaign has now reached its conclusion while some of the planned areas remained unsown.

In contrast, central and eastern Europe have experienced favourable conditions for sowing, with sufficient rainfall and warm temperatures. This has permitted the sowing campaign to be completed successfully in Romania, Hungary, Poland, and Ukraine. Emerged crops are in good condition, but rain is needed, particularly in Poland, as the topsoils are drying out.

Sugar beet

Sowing is almost complete

Despite the very wet weather conditions, which lasted until mid April, in the main sugar-beet-producing regions of western and northern central Europe, the much-delayed planting of sugar beet has reached, or is nearing, completion. A negative impact on yield can be expected as a result of the delays. In northern countries that were affected, the planting is still in progress. In the countries that were less affected, even Sweden, planting was able to proceed smoothly, with a few starts and stops.

The condition of the crops that have emerged varies across Europe. In countries affected by very humid weather and soils, such as France, the Benelux countries and Germany, the crops are affected by infestations of slugs, and of aphids that can transmit the beet yellows virus. In contrast, in Poland and eastern Hungary, topsoils are drying and rain is needed to secure emergence and growth.

No significant damage to the crops due to the cold spell in April in France, Germany and central Europe has been reported so far.

Grain maize

Mixed progress

The maize-sowing campaign is approaching completion across most Europe, with mixed progress among the main maize-producing countries. In some important maize-producing countries, the end of the sowing campaign has been delayed by cold spells or overly wet conditions.

The sowing campaign in Romania is nearly completed. It progressed under near-average thermal conditions, with slightly above-average precipitation. The last dekad of April was unusually cold, with moderate frost events occurring in central and northern regions, which, however, are far from the main maize-producing areas. In France, sowing is expected to extend into mid June, which could result in reduced yield potential. Early sowings were delayed by excessively wet conditions in March and

beginning of April. Then sowing was hampered by the cold spell from 15 to 25 April. The subsequent overly wet conditions from 25 April onwards amplified waterlogging in the fields, especially in the western and northern regions of France. Maize sowing progressed well and has nearly been completed in Poland. However, topsoils are becoming dry, and rain would be beneficial for the remaining fields to be sown and for germination. In Hungary, the sowing campaign is about to finish. Maize seedlings are smaller than usual, because of a slowdown in development around 20 April, when average daily temperatures were 6–8 °C below the LTA. In Italy too, sowing is nearly complete and has progressed well despite some delays due to frequent and abundant rains in April. In Bulgaria, where sowing started early and initially advanced rapidly, the last part of the campaign was hampered by considerable rains in early May. In Germany, grain maize sowing is progressing well – in line with an average campaign – in the south and east, and (moderately) delayed in the north and west. It accelerated after the cold spell of April. The sowing campaign is finishing in Spain and has progressed well in most regions. Some farmers had to postpone sowing because of wet soil conditions (e.g. in *Extremadura*), while some others are facing challenges due to a lack of water in the soil (e.g. in eastern *Aragón* and *Cataluña*)..

Sunflowers

After an early start, sowing progress suffered some delay in the second half of April

In Romania and Bulgaria, the EU's main sunflower-producing countries, the sowing campaign started early, in late March, thanks to unusually high temperatures. From mid April, weather conditions became rainy and colder, slowing down the progress of sowing and causing some delays to emergence. Nevertheless, sowing was speedy and it is currently (mid May) close to conclusion.

In Hungary, mild soil temperatures also made it possible to start sowing early; however, the cold conditions in the second half of April hampered progress and slowed the sprouting of seeds. The campaign progressed well in May and is mostly concluded by now. Dry topsoil conditions in eastern Hungary could be disadvantageous for sprouting and crop establishment.

In the Iberian Peninsula, sowing has been completed on time in the south (Andalucía), where the emergence of floral buds can already be observed in some plots. The other main producing regions (*Castilla y León* and *Castilla-La Mancha*) are currently engaged in the sowing campaign.

In France, the sowing campaign is delayed by heavy rain and wet soils in the north of the country, while it has been completed in the central and southern regions. The rainfall and warm temperatures in May created favourable conditions for emergence.

In Italy, the sowing campaign progressed normally, and germination, emergence and initial development have been adequate.

In Greece, the sowing of sunflowers progressed well and was finished by the end of April / early May. An increase in cultivated areas for energy sunflowers is expected.

In Germany, the sowing campaign is progressing normally, thanks to stable sunny weather with few precipitation events, except in the north, where sowing is slightly delayed. The cold spell in the second half of April is not expected to have affected the crop.

In Poland, the sowing of sunflowers is progressing well, although the cold spell of late April was unfavourable. Now rain is needed, as the topsoil is beginning to dry out.

In Croatia, early spring rainfall and warm soil temperatures allowed farmers to start planting early. Weather conditions allowed sowing to progress smoothly, and to be virtually completed around mid May.

In Ukraine, sowing started somewhat earlier than usual, in April, and has progressed well (75-80 % of the planned areas around 17 May[1]). Temperatures and soil moisture since the beginning of May have been mostly adequate for sowing and crop emergence, but along the eastern border the soils are dry and some frost events occurred in the first dekad of May.

[1] 4.96 Mha on 24 May, which corresponds to 85-90% of the total planned area.

Soybean

Sowing campaign well on track in most parts of Europe

In Italy, the EU's main soybean producing country, as well as in Romania, weather conditions allowed normal progress of soybean sowing and the campaign is well underway. In France, intense rainfall hampered progress of sowing in the main soybean producing areas, and a decrease of 5.5% in the area is foreseen compared with 2023[2].

In Austria, Czechia and Slovakia, sowing incurred some delays due to high rainfall and associated wet soil conditions, followed by the cold spell in the second half of April. Soybean sowing in Croatia benefited from generally adequate soil moisture conditions and above average temperatures, which allowed timely (or even early) sowing. In Hungary, overall favourable weather conditions allowed good progress of sowing, which is now expected to be completed or almost completed. In Germany, stable weather conditions with few precipitation events in the main soybean producing areas allowed could progress. However, field works and sowing are slightly delayed in the North. The cold spell in the second half of April is not expected to have had negative impacts. In Poland sowing is progressing well, but rain is needed to restore soil moisture as top soils are drying out.

[2] https://agreste.agriculture.gouv.fr/agreste-web/disaron/IraGcu2451/detail/

5. Country analysis

5.1. European Union

France

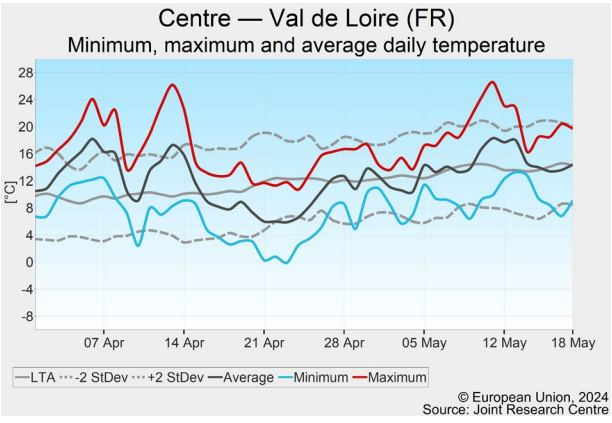
Continuing wet conditions with uncertain impacts on winter and spring crops

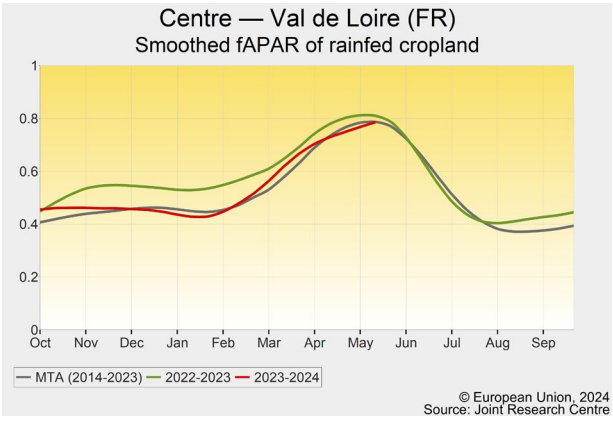
The review period was once again characterised by wet conditions. These conditions have overall been rather positive for crops in the vegetative phase, such as most cereals, but they can negatively impact crops during the flowering stage, like most rapeseed.

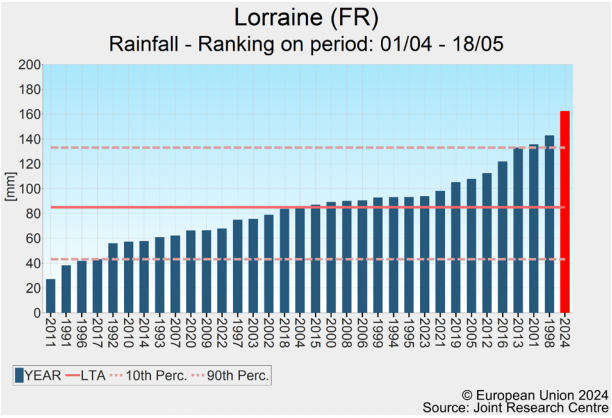
During the review period, there was a prevalence of wet conditions, particularly in the northeast and some central and western regions of the country. At national level, this season appeared as the second wettest recorded in our database for the review period. Temperatures in most regions were close to the LTA. However, a cold spell occurred in the third week of April, bringing minimum temperatures close to 0 °C in extensive northern, eastern, and central regions. The northeast, near the border with Belgium, reported radiation deficit (compared with the LTA) of up to 10%.

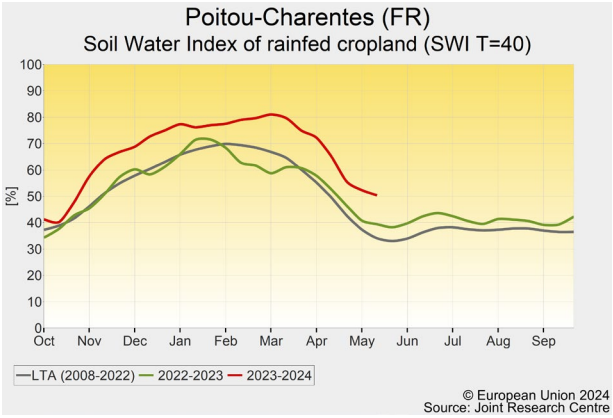
Although the winter and spring cereals had a challenging start of season, with delayed growth countrywide, conditions gradually normalised leading to close to average biomass accumulation. The mid-April cold spell is expected to not have caused significant damage on annual crops. Cereals have entered the flowering stage in the centre and south of France, and the extremely wet conditions can be expected to increase pest and disease pressure. Rapeseed is entering the yield formation stage. The surplus water and lack of radiation are not optimal for its development. We slightly reduced the yield forecast for softwheat and rapeseed.

The sowing campaign for summer crops has been disrupted again by persistent rainfall. While sowing has nearly finished in the north, the central and western parts of the country are experiencing delays that affect the overall yield potential; and some fields may remain unplanted for the remainder of the season.









Germany

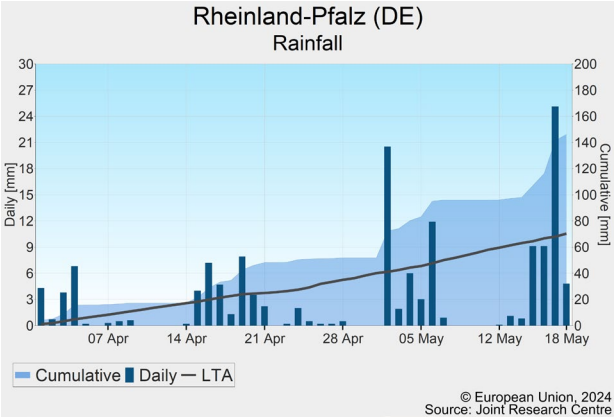
April cold spell affected rapeseed, but hardly other winter crops

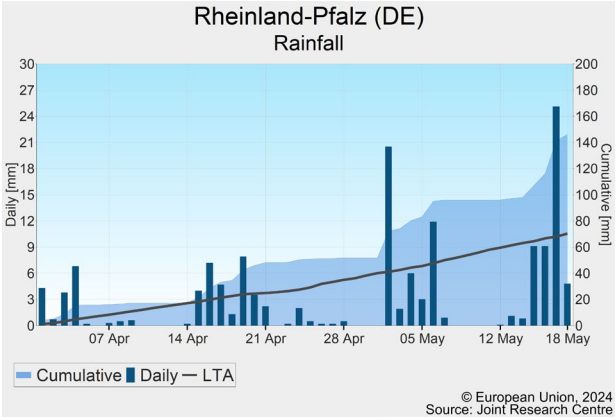
A variable reporting period with alternating warm and cold phases met well-developed plants, causing some damage to winter rapeseed and major problems in fruit trees and vineyards, whereas winter cereals were hardly affected and are continuing their development under favourable conditions.

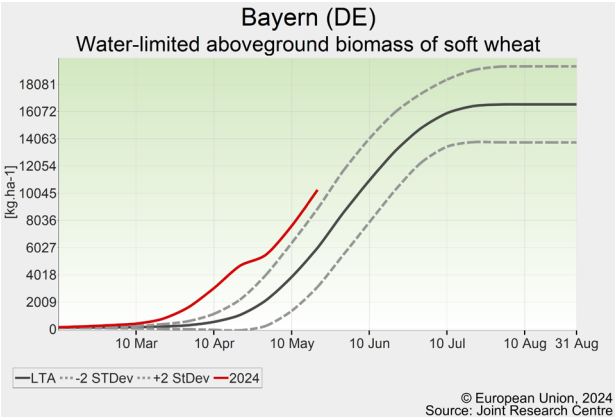
April showed extreme temperature shifts, starting with temperatures 4–6 °C above the average before terminating with a cold spell bringing sub-zero temperatures for most of southern and eastern Germany. Thereafter, average temperatures increased by roughly 10 °C within 2 days before stabilising generally above the LTA in May. During the review period, high rainfall totals were recorded in the west, causing local flooding in mid May in the *Saarland* and *Rheinland-Pfalz* regions. In the centre and south, precipitation during the cold spell led to snowfall of up to 5 cm in agriculturally used areas. At the same time, the predominantly sandy soils in north-eastern Germany received little rainfall, leading slowly to soil moisture deterioration.

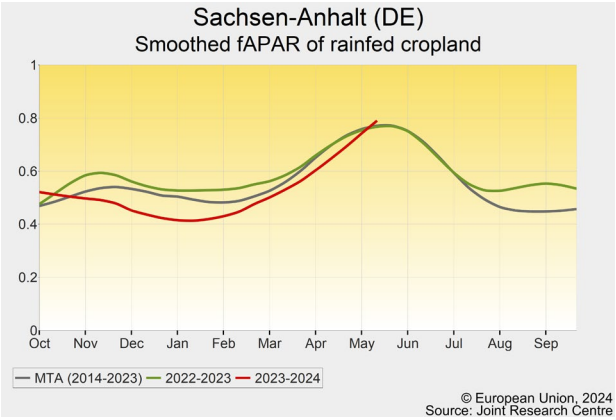
Temperatures until mid April supported advanced winter crop development, slowed down by the cold spell, which caused local damage to flowering winter rapeseed but was not cold enough to affect cereals. Recently sown crops that were in the early phase of germination (e.g. spring barley) may have suffered minor damage, while fruit trees and vineyards were hit considerably. After the cold spell, warm temperatures restored crop development rates to previous levels. Cloud-free days helped with finishing the spring crop sowing and speeded up the summer crop sowing despite some delays in the north and west due to wet soils.

Our yield forecasts for cereals remained comparable to those of last month, while the forecasts for winter rapeseed and spring barley have been slightly lowered.









Poland

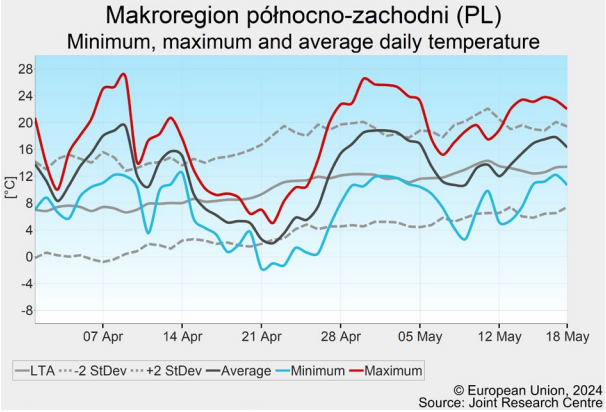
Challenges due to late frost but the growth outlook remains positive

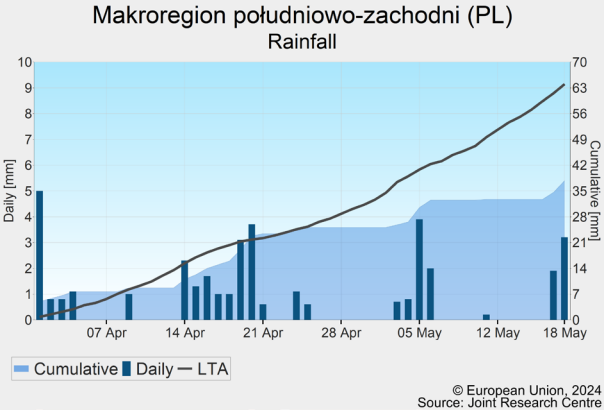
The very warm winter and spring were interrupted by a severe cold spell in April with night frosts that probably damaged orchards and, locally, winter rapeseed in flowering. Winter cereals avoided damage and are developing positively but need more rain to restore soil moisture levels.

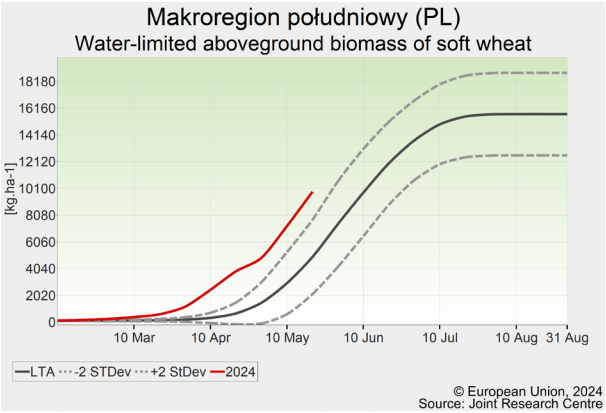
Early to mid April brought very mild weather, up to 4 °C above the LTA, which was beneficial for the beginning of the growing season. Farmers took advantage of the warm days for speeding up sowing and preparing fields before a cold spell arrived at the end of April followed by another warmer-than-usual period. Precipitation was generally scarce in the review period, especially since mid April in most of Poland.

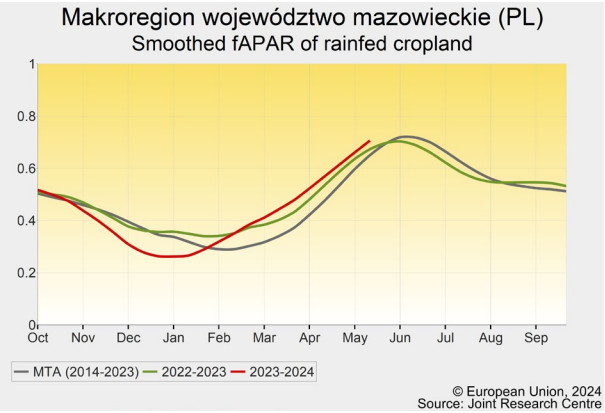
The weather in Poland was very beneficial for sowing and early development of spring and summer crops, while the cold spell temporarily slowed down the previously advanced winter crop development. Frost damaged crops in their flowering (e.g. winter rapeseed) or early fruiting stages (e.g. fruit trees) in particular, while winter cereals managed to sustain growth with minimal impact. The subsequent warm weather re-established previous growth rates, and the outlook for crops is generally optimistic. However, the lack of precipitation since mid April led to deteriorating soil moisture levels in central and southern Poland, which might influence crop development negatively in the next couple of weeks. Additional rain is required to sustain the positive yield estimates.

As of mid May, our outlook is generally positive, so the forecast for winter cereals has been slightly increased, while the forecast for spring and summer crops is still based on trends.









Romania

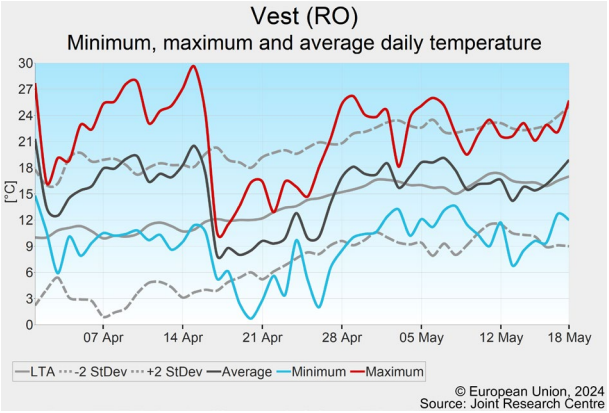
Positive outlook for winter cereals

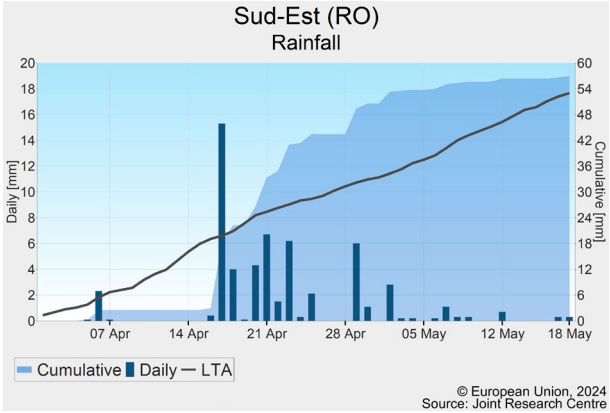
Abundant rainfall from mid April improved soil moisture conditions. Remote sensing indicators suggest near- or above-average growth of winter cereals. High temperatures and limited water supply in early April adversely affected rapeseed yield formation.

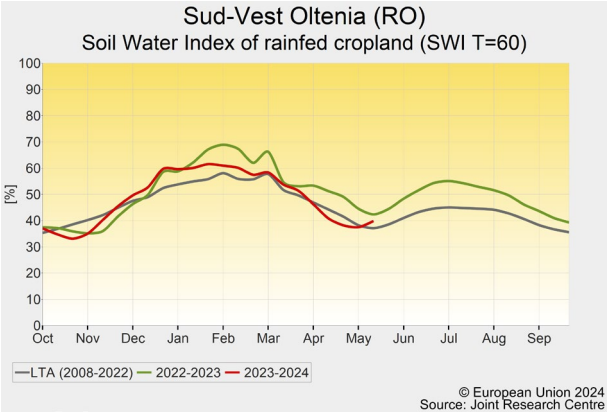
Overall thermal conditions during the review period (1 April – 18 May) were decidedly (1-2.5°C) above the LTA, but with considerable variability. Until mid-April, temperatures were much warmer than usual, but near to moderately below-average temperatures have prevailed since then. The colder-than-usual conditions since mid-April were accompanied by long awaited rainfall. Considering the review period as a whole, typically 60-150 mm rain was recorded (exceeding the LTA by 10-215%), but some areas close to the north-western and southern borders of Bulgaria received slightly below-average precipitation. Dry periods between rainfall events allowed advanced progress of the sowing of summer crops, while the recent rains supported adequate emergence and initial plant growth and development.

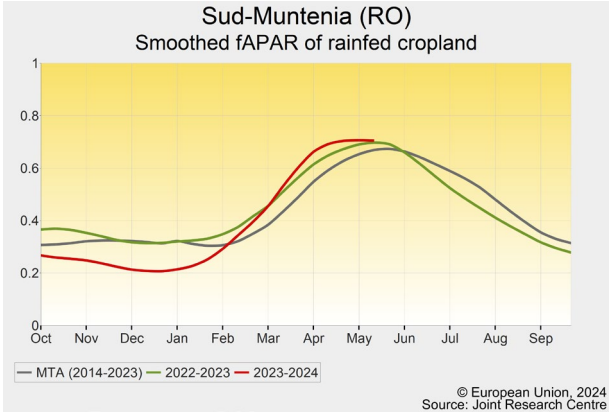
Soil moisture levels under winter crops are generally above average in the northern regions, while some moderately drier-than-usual areas can be detected in the southern regions.

The development of winter crops is significantly (by 2-3 weeks) advanced. Therefore an early start of harvest can be expected. Winter crops finished the flowering stage and entered the grain-filling phase. Water supply of winter cereals during the flowering and grain filling period has been near optimal so far in the northern regions and average in southern Bulgaria. Remote sensing indicators suggest near-average to above-average biomass accumulation. Yield expectations are above average. The yield outlook for rapeseed is less promising due to the below optimal conditions around sowing in autumn, as well as the high temperatures and low soil moisture levels in early April, which negatively affected the flowering period.









Spain and Portugal

Continued positive yield outlook for winter cereals

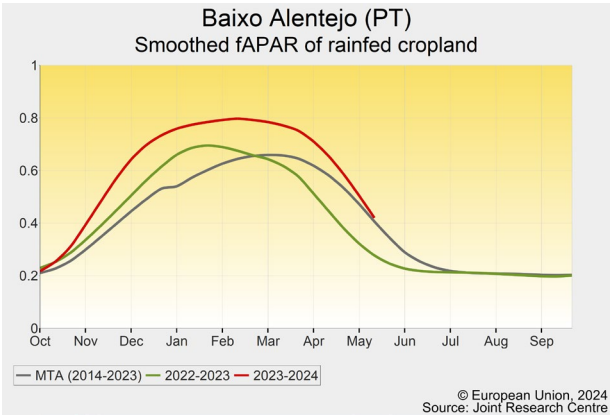
Despite being distinctly drier than usual, overall conditions remained favourable during the review period, resulting in an upward revision of the yield forecasts for winter crops and spring barley. The sowing of summer crops is still underway in the northern half of the peninsula.

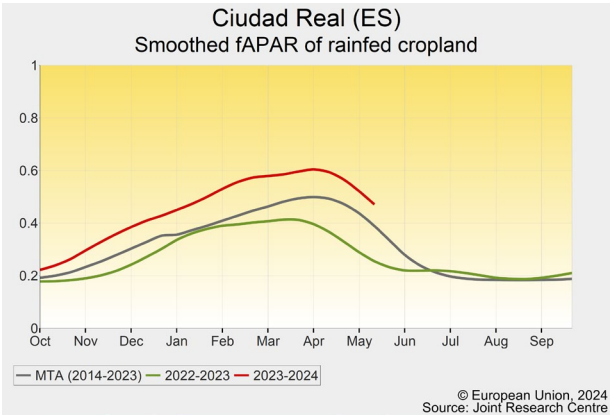
Warmer-than-usual temperatures during the first two dekads of April were followed by distinctly colder-than usual conditions until the beginning of May. These colder days were impactful in areas of the northern interior of the peninsula, where minimum temperatures reached -3.1ºC mainly causing damage to vineyards[3].

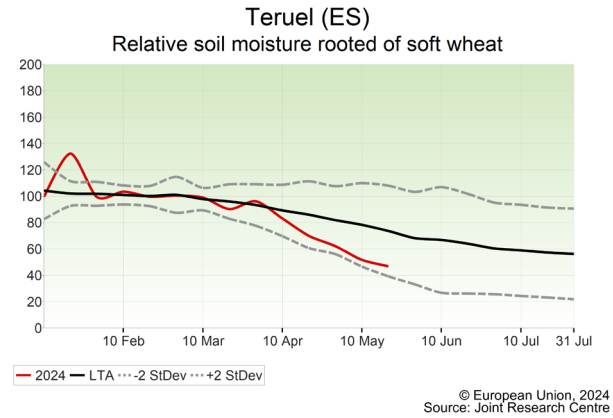
Precipitation in northern parts of the peninsula has been around to above the LTA, whereas the rest of the territory experienced 60-70% below LTA rainfall. The dry conditions in the south had no negative effect on the positive yield outlook for winter crops, as they were preceded by a wet period and the crops are already quite advanced in development. An exception is the situation in some eastern parts of the peninsula, particularly in southeastern *Aragón*, where persistent water deficit has hampered crop growth since the start of the season. In *Castilla y León*, more rain is expected to sustain the favourable development of crops, particularly in areas where they are less advanced.

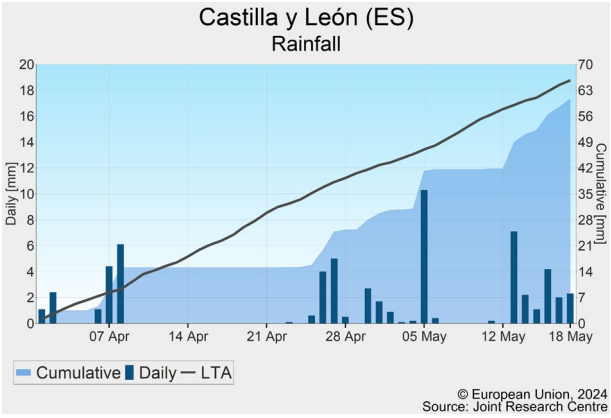
Maize and sunflower sowing is still unfinished in the northern parts of the peninsula, after some delays at the beginning of spring and the colder days at the end of April. The recent rains in May and the return of mild temperatures are expected to favour the emergence and growth of summer crops. Water reservoirs are estimated at 66% of their full capacity – above the 10 years average – in Spain, and close to capacity in Portugal. Therefore, no major irrigation issues are expected this season.

The yield forecast for winter cereals and spring barley have been revised further upwards.









[3] https://agroseguro.es/la-estimacion-de-danos-por-las-heladas-sufridas-por-el-vinedo-a-finales-de-abril-supera-los-45-millones-de-euros/ (16 May 2024)

Hungary

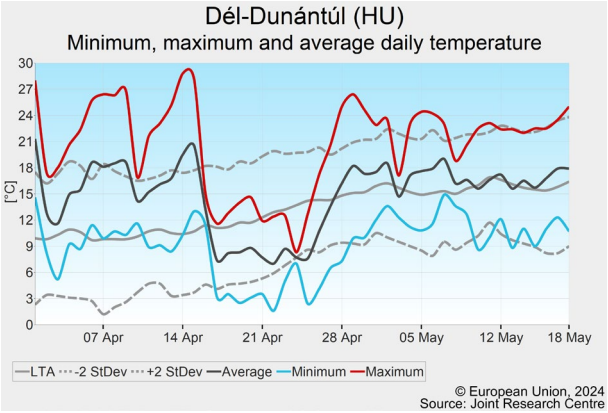
Promising winter cereal outlook

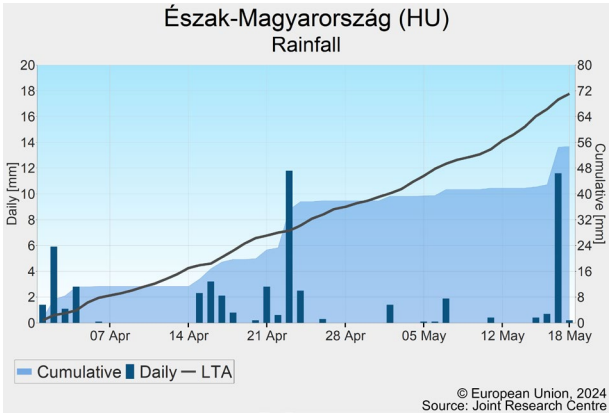
Warm weather predominated until mid April; then colder and wetter conditions prevailed. Crop development is highly advanced. Biomass accumulation of winter cereals is promising, but more rain is needed to sustain the yield potential. Rapeseed is in a weaker state.

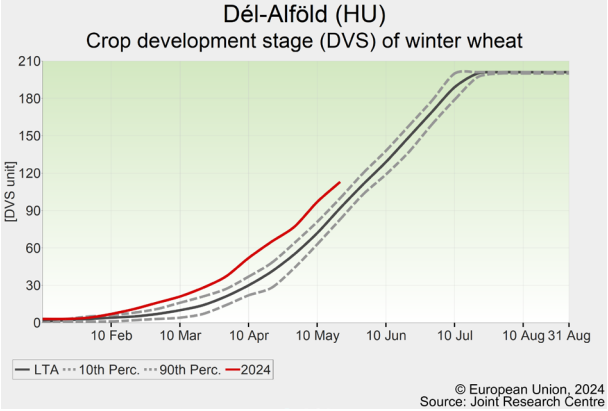
Throughout the first half of April, daily temperatures persistently exceeded the LTA by 5–7 °C. In the second half of April, 2–4 °C colder-than-usual thermal conditions characterised Hungary, while May has been near normal so far. Fortunately, only sporadic and mild frost events (down to –1.5 °C) occurred. Precipitation was concentrated in the second half of April, but around mid May intense and abundant rain arrived again. Cumulative precipitation in the analysis period exceeded 100 mm in the west (*Nyugat-Dunántúl*), but the central and eastern regions (*Alföld*) typically received only 50–60 mm. The rainfall deficit compared with the LTA reached 10–30 mm in eastern Hungary.

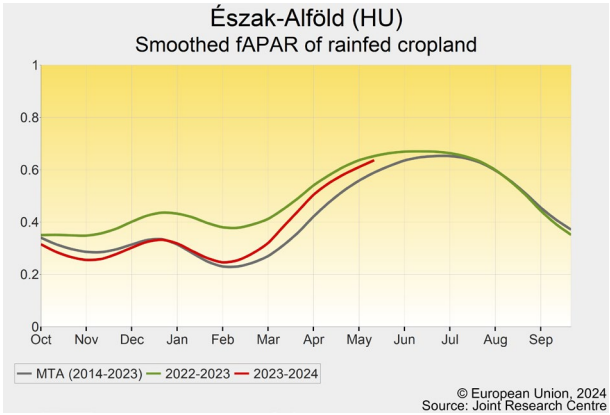
The phenological development of winter crops has been accelerated by the warm weather conditions since February and is now advanced by 2–3 weeks, hardly affected by the cold spell in April. Biomass accumulation of winter cereals is around or above average, partly because phenological development is advanced. The latest remote sensing images confirm the current good yield potential. However, the situation is fragile because of lowering soil moisture reserves during flowering and the early grain-filling period, primarily in the east. Rapeseed was negatively affected by unusually warm conditions and the water deficit during flowering.

The spring sowing campaign, which started quite early this year, was slowed down by cold and wet conditions in late April, but regained its normal pace in May and has been concluded now. The emergence of early sown summer crops was delayed during the cold period, and dry topsoils were disadvantageous for sprouting and early development in the east. Our yield forecast of winter crops was slightly revised down considering the water deficit in the east, while the spring and summer crop outlook is close to the historical trend.









Italy

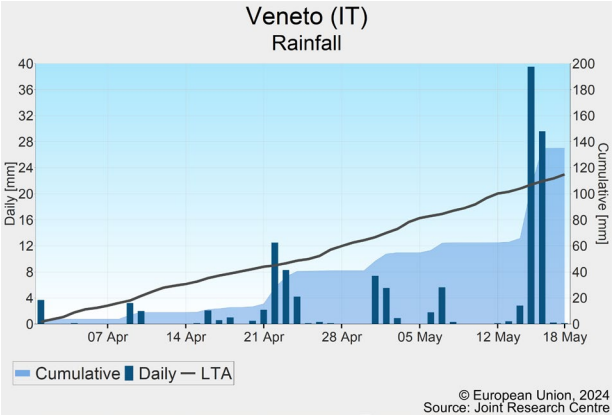
Winter crops jeopardised by very wet and very dry weather

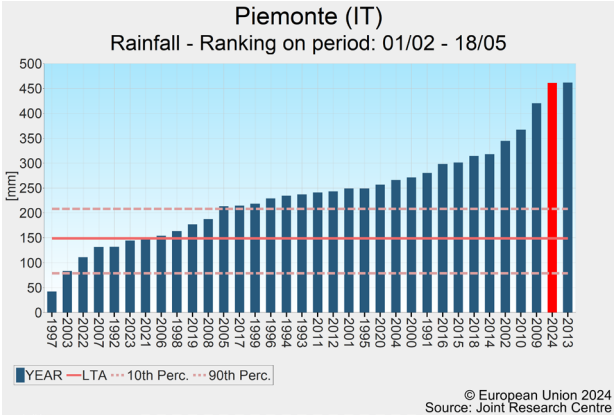
In Italy, weather conditions were unfavourable to winter crops: very wet in the north, with local flooding, and very dry in the south. Summer crops started late but with no cause for concern.

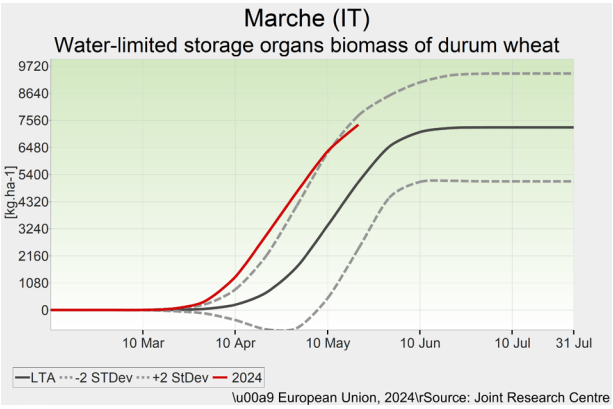
Northern Italy experienced frequent and locally intense precipitation. Notably, the latest heavy rainfall was concentrated in a few days or even hours (starting on 15 May), causing local flooding in *Veneto* and *Emilia Romagna*. Since winter, the rainfall surplus has been exceptional in most of the north and particularly in *Piemonte*. Still, winter crops had a good start to their development until the end of April thanks to warmer-than-usual temperatures. From early May, however, reduced radiation and over-wet conditions during flowering and grain formation reduced yield expectations, partly because the intense rainfall caused extensive lodging. Summer crops, even though sown late, are progressing without cause for concern.

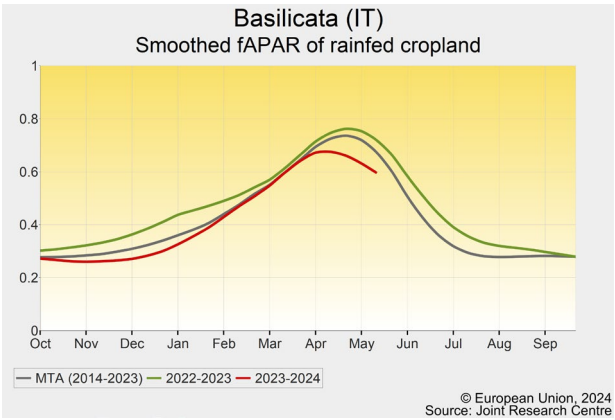
In central Italy, the winter crop season is progressing very well (e.g. in *Marche*). Evenly distributed precipitation sustained crops during April and May when temperatures were slightly above the average, letting the crops pass flowering and enter the initial grain-filling stages in optimal shape.

In the south, the warmer- and drier-than-usual weather continued and became increasingly unfavourable; the period since 1 April has been among the three warmest and driest at this time of year since 1991 (e.g. in *Puglia*). These conditions accelerated crop development, weakening crops in the critical stages of flowering, grain formation and grain filling. As a result, winter crops accumulated less biomass than normal (e.g. in *Basilicata*) and reproductive growth was suboptimal. Lower-than-average yields are now expected in the main durum-wheat-producing regions of *Sicily*, *Basilicata* and *Puglia*.









Czechia, Austria and Slovakia

Crops are growing early and in good condition

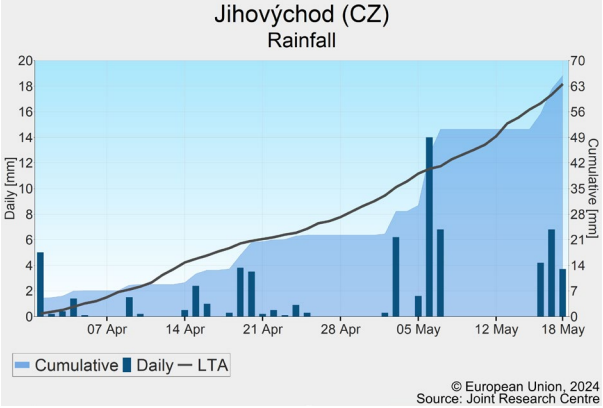
After a challenging wet winter, spring has seen more favourable weather conditions. Winter crops are in fairly good condition, almost unaffected by the cold snap in the second half of April.

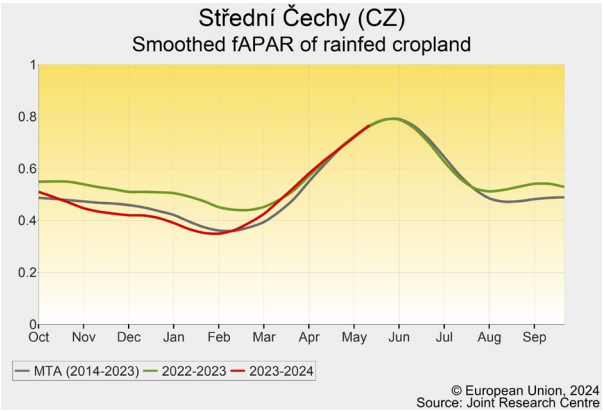
Warm temperatures have returned after the cold snap in the second half of April. Rainfall has been well distributed over the period of analysis; rainfall totals have been slightly above the LTA in Austria and Czechia, while in Slovakia the water balance in May is gradually falling below the LTA. After a challenging warm and wet winter, weather conditions have returned to close to the optimum. The cold spell in mid April did not negatively affect cereals and tuber crops, which are faring well, unlike fruit trees and vineyards, which were severely struck by night frosts.

The warm temperatures accelerated the phenological development of winter crops, which are now 2–3 weeks advanced, already in the grain-filling stage. In the absence of excessive temperatures in the next few weeks, winter crops should be able to recover from the wet winter.

Spring crops benefited from warm temperatures and are now developing well, with promising yield expectations. Rainfall in the coming month will be advantageous for continued above-average crop growth. However, farmers will now have to pay attention to crop protection, as the mild winter without significant frost has favoured pest development.

Overall, our forecasts remain unchanged, in line with the historical trends.





Bulgaria

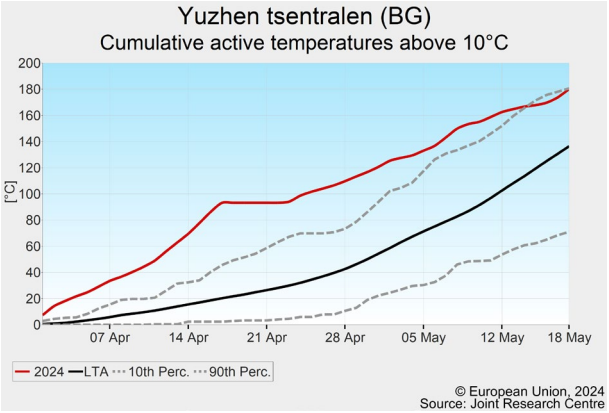
Rain improved yield outlook for winter cereals

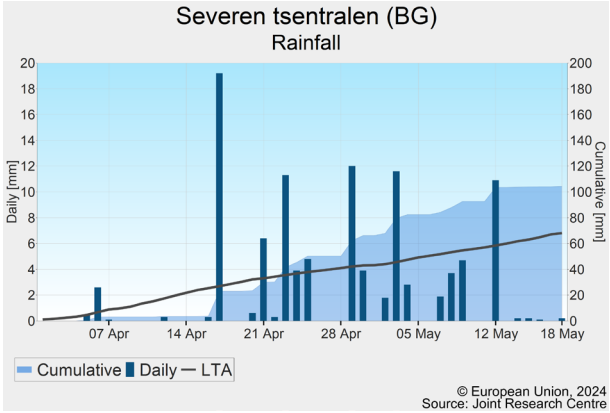
Abundant rainfall from mid April improved soil moisture conditions. Remote sensing indicators suggest near- or above-average growth of winter cereals. High temperatures and limited water supply in early April adversely affected rapeseed yield formation.

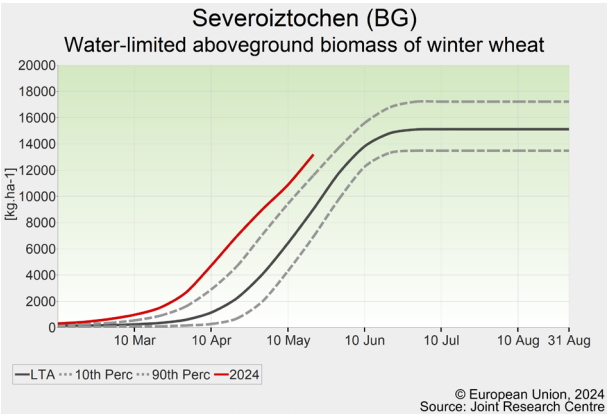
Overall thermal conditions during the review period (1 April to 18 May) were decidedly (1–2.5 °C) above the LTA, but with considerable variability. Until mid April, temperatures were much warmer than usual, but near-average to moderately below-average temperatures have prevailed since then. The colder-than-usual conditions since mid April were accompanied by long-awaited rainfall. Considering the review period as a whole, typically 60–150 mm rain was recorded (exceeding the LTA by 10–215 %), but some areas close to the north-western and southern borders of Bulgaria received slightly below-average precipitation. Dry periods between rainfall events allowed advanced progress of the sowing of summer crops, while the recent rains supported adequate emergence, and initial plant growth and development.

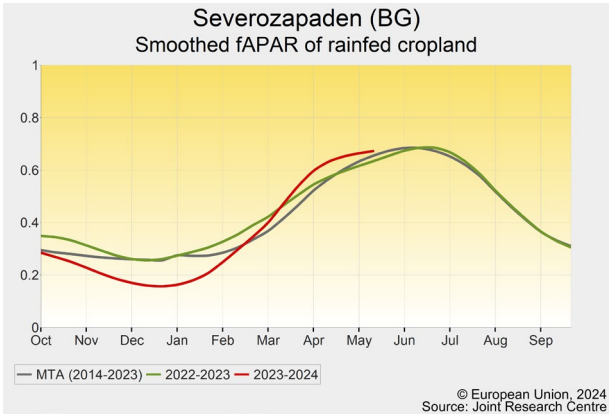
Soil moisture levels under winter crops are generally above average in the northern regions, while some moderately drier-than-usual areas can be detected in the southern regions.

The development of winter crops is significantly advanced (by 2–3 weeks). Therefore, an early start to the harvest can be expected. Winter crops finished the flowering stage and entered the grain-filling phase. The water supply to winter cereals during the flowering and grain-filling periods has been near optimal so far in the northern regions and average in southern Bulgaria. Remote sensing indicators suggest near-average to above-average biomass accumulation. Yield expectations are above average. The yield outlook for rapeseed is less promising because of the below-optimal conditions around sowing in autumn, and the high temperatures and low soil moisture levels in early April, which negatively affected the flowering period.









Denmark and Sweden

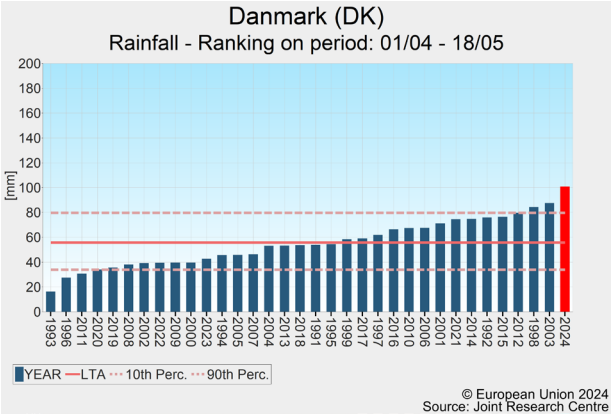
Record levels of rainfall delayed spring sowing

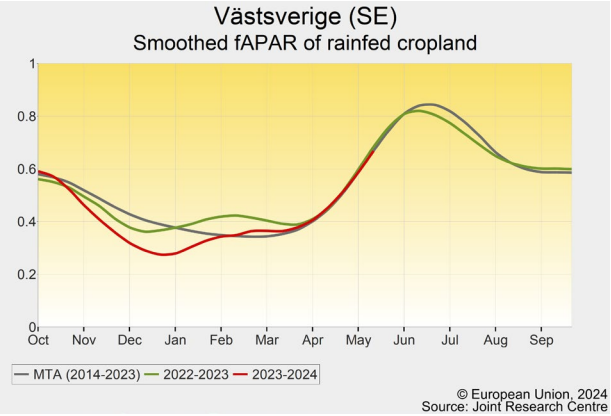
Spring field work has been delayed by a particularly wet April, but sowing could recover in early May thanks to drier and warmer weather; overall, crops are expected to be in fair condition.

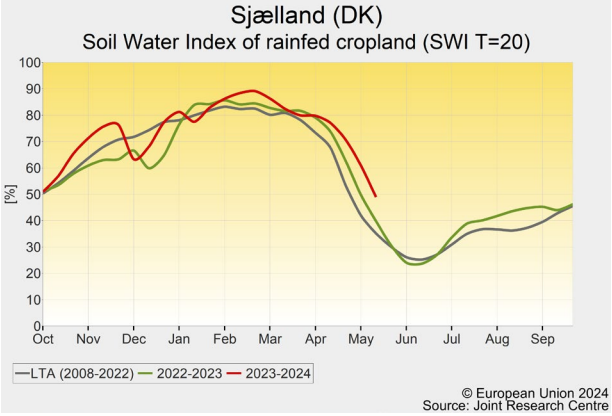
Almost continuous precipitation occurred throughout most of April. The first week was particularly wet and accounted for close to 50 % of the total precipitation for the review period in most regions. Cumulative precipitation is well above average in both countries, particularly in Denmark, where this period is the wettest in our records. Temperatures fluctuated above and below the LTA. The second half of April was colder than usual, with a few days when minimum temperatures went below 0 °C. Cumulative temperatures (with base 0 °C) were close to or slightly above normal. Radiation levels were below the LTA. Our remote sensing data indicate average winter crop development and biomass accumulation, thanks to well-draining soils and above-average temperatures.

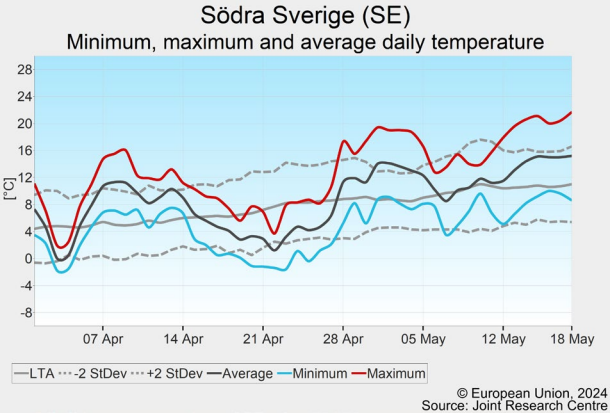
The cold snap in the second half of April may have damaged winter crops, and more particularly rapeseed, which was entering its flowering stage; the extent and magnitude of the damage remain to be assessed. Despite very wet conditions in April, sowing progressed rapidly in both countries thanks to the dry and warm weather that prevailed from the end of April.

Owing to the wet winter, we keep the winter crop yield forecasts still slightly below average, while our spring crop yield forecasts are close to the trend at this time of the season..









Estonia, Latvia, Lithuania, Finland

Overall good crop conditions in the Baltic region

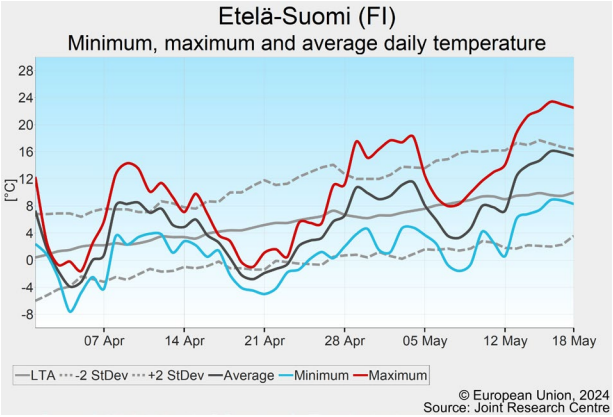
Large temperature fluctuations were recorded and included a 5-day cold snap in April, with so far no visible impacts on crops. Field work eventually started in Finland and progressed well in the Baltic countries. Our forecasts remain unchanged.

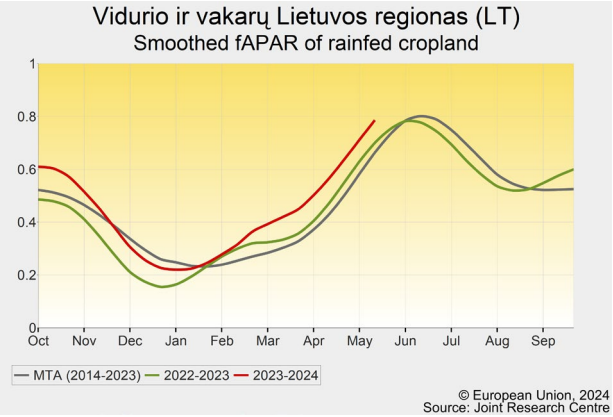
Precipitation occurred almost continuously throughout April, but has been scarce in May so far. Higher than average rainfall totals were reported over the entire period of analysis for the four countries. Large temperature fluctuations were recorded, with average daily temperatures alternating between well above and below the LTA. A cold snap occurred from 19 to 23 April, most pronounced in Finland, with minimum daily temperatures close to –5 °C in the south (*Etelä-Suomen*). The impact of this cold snap on winter crops remains to be assessed, but no significant damage is expected. The temperature sum (base 0 °C) remains close to normal except for Finland, where a negative anomaly was reported. A radiation deficit was recorded in all countries.

Our satellite data show that crops are overall in good condition. In Finland and Estonia, fAPAR values from satellite data are in line with the average, while in Latvia and, more prominently, Lithuania the signal is above average values, indicating greater and more advanced biomass development than in average conditions.

In the Baltic countries, winter wheat reached the elongation stage and winter rapeseed started flowering, both earlier than usual by approximately 1 week. Field work started at the beginning of May in Finland, slightly delayed by the cold and wet weather. In the Baltic countries, sowing progressed well and is slightly ahead of normal thanks to the relatively mild conditions that have prevailed since March.

Winter crops are expected to be in good condition, so we increased the yield forecast to slightly above the 5-year average, while our yield forecasts remain unchanged for spring crops.





Greece and Cyprus

Moderately above-average yield expected for winter crops

The yield of winter crops is expected to be moderately above average in both Greece and Cyprus. The sowing campaign of summer crops has been completed under overall favourable conditions in Greece.

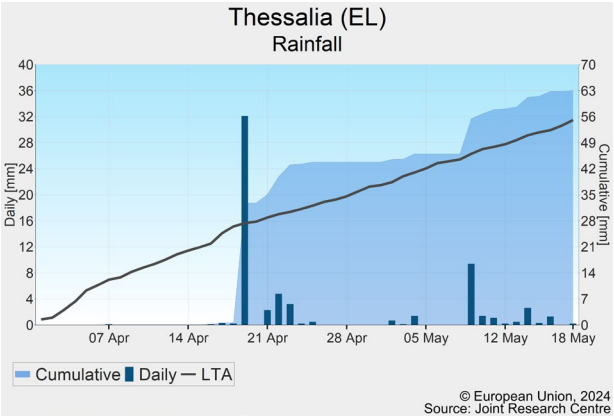
The weather during the first half of April was hot and dry in the main producing regions of northern Greece. Average daily temperatures were 6–8 °C above the LTA, with scarcely any rainfall. Despite these potentially impactful conditions occurring during winter crop flowering, the crops were hardly affected by abiotic stress in this phenological stage.

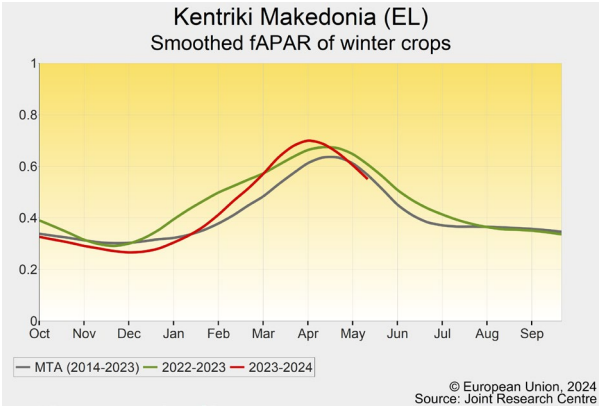
Above-average biomass accumulation has been observed, together with a general advancement in crop development in all Macedonian regions. Thessaly is nearly 10 days ahead, and East Macedonia and Thrace, and Central Macedonia, nearly 20 days. However, exceptionally high temperatures in April, combined with drought conditions, are likely to result in below-average yields in Thessaly, where additional irrigation may not have completely counteracted the drought impacts. Overall, however, our yield expectations for winter crops in Greece remain moderately above average.

The sowing of summer crops was completed by the end of April without significant issues. An increase in sunflower cultivated area is probable, driven by expected higher prices. No changes are expected in the cultivated areas for maize and potatoes.

Cyprus concluded its barley season with average to above-average biomass production, despite having encountered challenges along the season such as local damage from heavy rain in January and a dry spell in March.

Our yield forecasts mostly confirm our previous outlook, being moderately above the 5-year average for winter crops in Greece and barley in Cyprus, and still in line with the historical trend for summer crops in Greece.





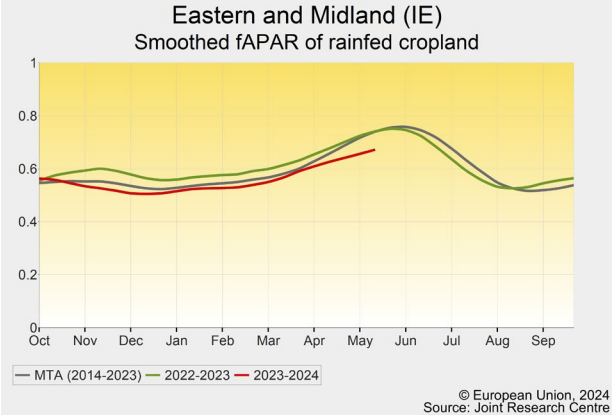
Ireland

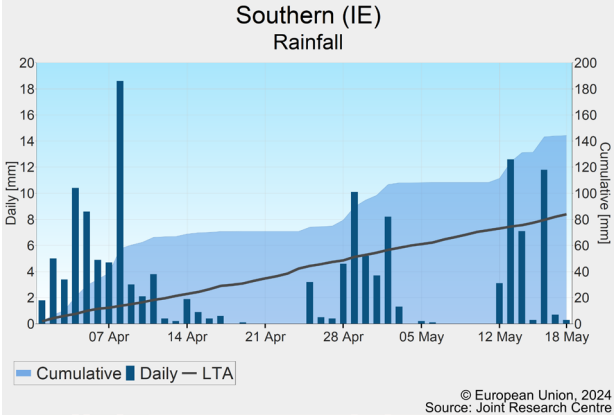
Spring field work almost completed thanks to drying soils

Temperatures were, on average, warmer than usual, while rainfall events alternated with dry periods. Spring sowing, although delayed, is almost complete, thanks to the dry periods. Yield forecasts are maintained.

Temperatures fluctuated close to or above the LTA, except for a short cooler period at the end of April; overall, a slight positive temperature anomaly was reported. Precipitation alternated between periods of continued rainfall and dry conditions all over the country, still resulting in higher than average rainfall totals. Cumulative radiation levels were below average, but without any impact expected on crops. The dry conditions that prevailed during the third week of April and early May allowed soil moisture to approach normal values, as confirmed by our remote sensing data. Biomass estimates inferred from MODIS satellite data are below average in *Southern* Ireland. Biomass development is similar for the *Eastern and Midlands* region, albeit less reduced, while being around average in *Northern and Western* Ireland.

Field work, despite being late, rapidly progressed thanks to drying soils. Spring sowing is now almost completed, as are the application of fertilisers and pesticides to winter crops. However, the relatively mild and humid conditions that prevailed during the review period favour the development of plant diseases, which will need to be monitored. Despite the improved weather conditions, continued dry conditions are needed to secure crop yields. Our forecasts remain unchanged, below the 5-year average for winter crops and slightly below the 5-year average for spring crops.





Belgium, Luxembourg and the Netherlands

Return of excessive rainfall brings challenges for crops and farmers

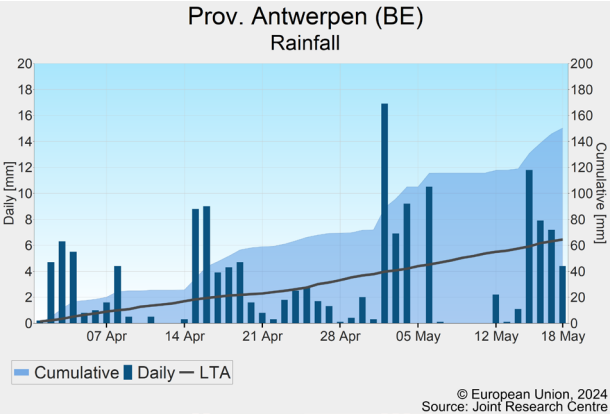
After a period of normal rainfall, the current review period was, once again, one exceptionally wet. Nevertheless, winter cereals still appear to be in fair condition, and sugar beet sowing was almost completed (with similar delay as last year). Large areas of potatoes remain to be planted. Pest and disease pressure is high for all crops.

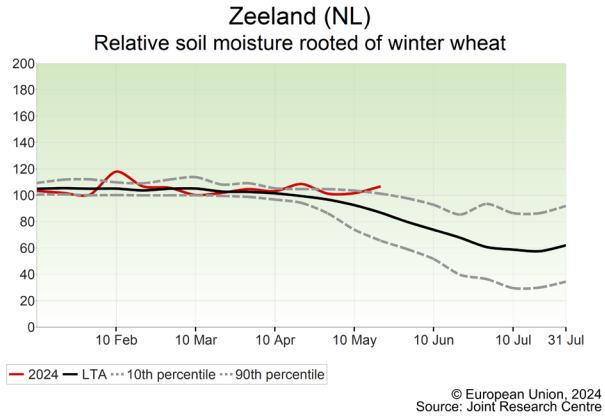
Overall temperatures during the review period were above the LTA, with the highest postive anomalies (close to 3 °C compared with the LTA) in northeastern parts of the Netherlands. Only the second half of April was markedly colder than usual, when minimum temperatures dropped below 0 °C for one or two days. -5 °C was only reached locally, in south-eastern Belgium and Luxembourg. Rainfall, once again, ranked among the highest in our archive (since 1991), and occurred in frequent events during most of the period.

Despite the high and frequent rainfall, farmers managed to almost complete the sowing of sugar beet[4][5]. Overall, the delay incurred is similar as last year, when sowing progress was also seriously hampered by frequent rain events. Potato planting is much more behind. In Belgium, around mid-May, only about 35% of the planned area was planted. So far initial development of emerged stands has been fair thanks to the warm temperatures. However, pest and disease pressure is high. Farmers are particularly concerned about *phytophthora* in potatoes and slugs and aphids in sugar beet. (the latter can transmit the severely damaging leaf yellows virus).

Also winter cereals are in fair shape, but also for these crops disease pressure is high. Moreover, prolonged near-saturated soil conditions hamper root development and creates anoxia, which, particularly as temperatures are rising, negatively affects on overall plant growth and development. As flowering approaches, more settled weather will be needed to secure a fair yield potential.

A detailed overview of weather and crop conditions in Belgium can be found in the May edition of the agrometeorological Bulletin of BCGMS[5]..





[4] https://www.cosunleden.nl/nieuws/91-gezaaid/

[5] https://www.bcgms.be/en/bulletins/

Slovenia and Croatia

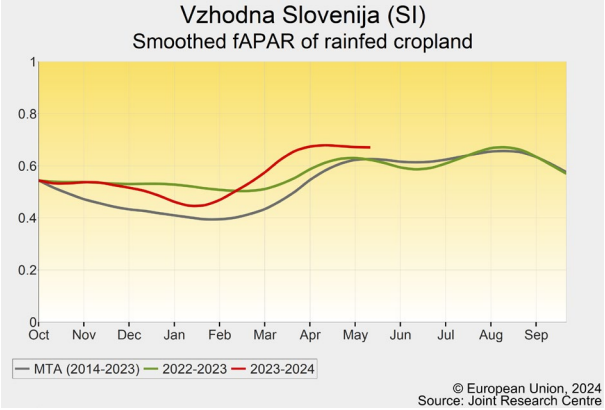
Positive yield outlook for winter crops

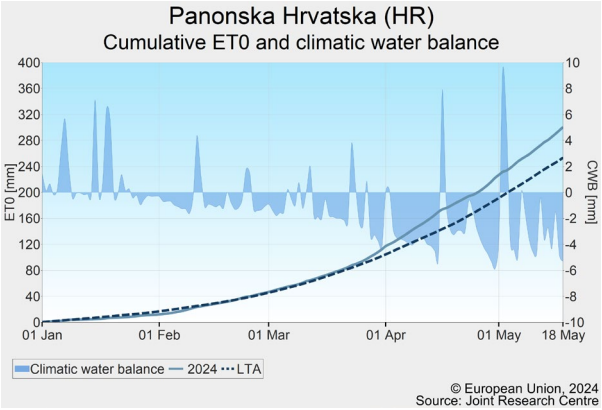
The cold spell in the second half of April caused damage to fruit trees and vineyards, but hardly any to winter crops. Overall conditions have been favourable for spring sowing and for the development of winter crops.

During the review period, Slovenia and Croatia experienced significant temperature fluctuations. Unusually high temperatures in the first half of April were followed by a cold spell in the second half of the month. The colder days were particularly impactful in central Croatia and across northern and eastern Slovenia, with minimum temperatures reaching – 4 °C and causing considerable damage to fruit trees and vineyards. From late April to mid May, temperatures in both countries remained around the LTA.

Rising temperatures and the absence of rain improved soil conditions in the first half of April, allowing farmers to conclude the sowing of spring crops in an optimal manner and earlier than usual. Considering the entire review period, beneficial precipitation has been recorded throughout Slovenia and north-west Croatia. The recent rainfall in eastern *Panonska Hrvatska*, although totals remain below the LTA, has been of significant benefit after a prolonged period of water deficit. Our model simulations and the fAPAR signal from satellite data indicate that biomass accumulation in this area is around or slightly above average. However, more rain is needed in the coming weeks to prevent soil moisture from becoming a limiting factor for crop yield. Crops in the remaining of Croatia and in Slovenia profit from sufficient water supply and continue to have biomass accumulation notably above average. Despite the cold spell in April, winter cereals are still significantly advanced, and an earlier harvest is expected.

The general outlook remains positive, and the yield forecast of winter cereals has been revised upwards, slightly above the 5-year average.





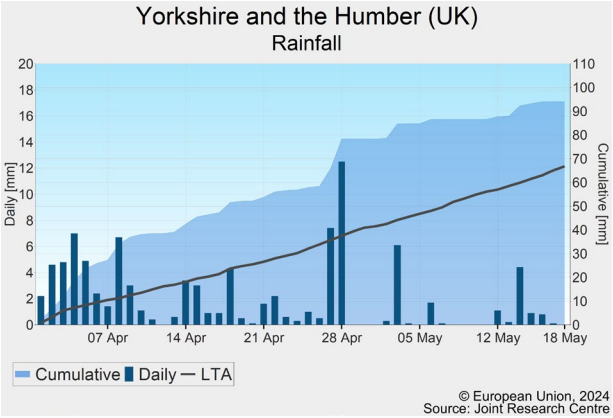
5.2 United Kingdom

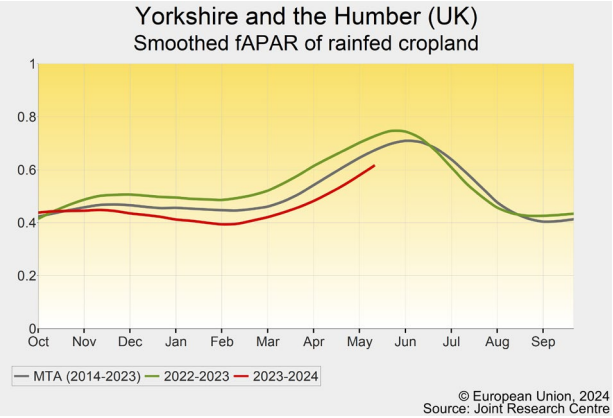
Rain is finally easing off, but the damage is done

Winter crops are in poor condition after the excessively wet winter. Rain is finally easing off, allowing late field work and spring crop sowing. Emerging crops are in good condition.

After a wet start to April, the continuous rainfall over the UK since autumn has returned to an almost normal level. The warm temperatures of the record-breaking mild winter have been interrupted by the cold spell that also hit a large part of western Europe in the second half of April. No significant damage on the crops in the UK was reported, though. Warm temperatures have returned since the beginning of May, albeit to a lesser extent.

The wet conditions have been very challenging for the crops to grow and for the farmers to start working in the fields and sowing spring crops. Thanks to the return to nearly normal weather conditions, winter crops are recovering, yet in poor condition. Furthermore, they are facing high pressure from pests, favoured by the warm and wet conditions and the absence of frost during the winter. Therefore, below-average winter crop yields are expected. The sowing of spring crops has been possible, but on a limited area only because of the reduced time window. Those crops that are emerging are in fair condition, sometimes better than the winter crops. However, the delayed sowing may have reduced the overall growth period, thus reducing the potential for very high spring crop yields. Favourable weather in the coming month will be important to achieve good yields.





5.3 Black Sea Area

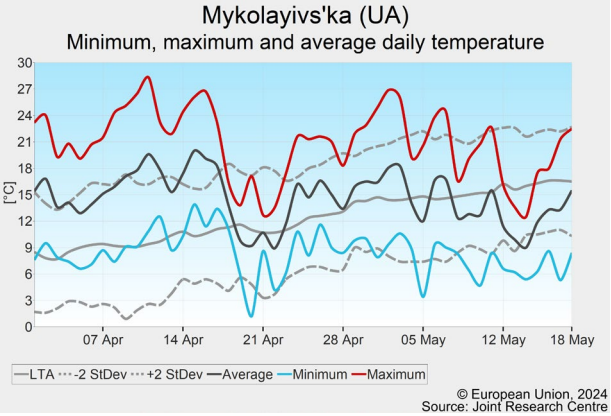
Ukraine

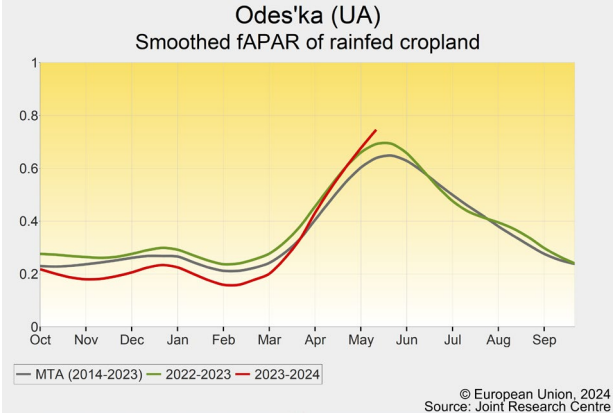
Positive yield outlook except in the east of the country

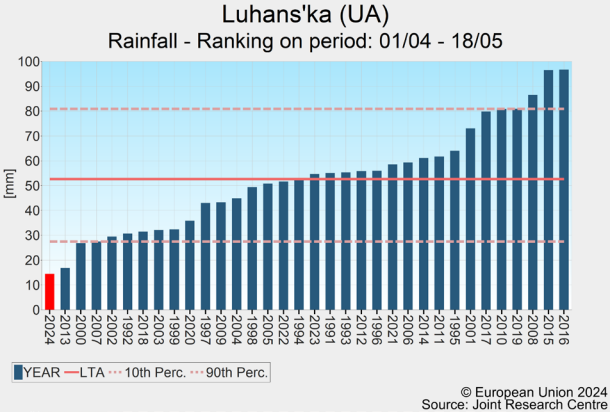
The yield outlook remains positive for all crops thanks to favorable growing conditions in most of the country, with only the eastern Oblasts affected by a persistent rain deficit.

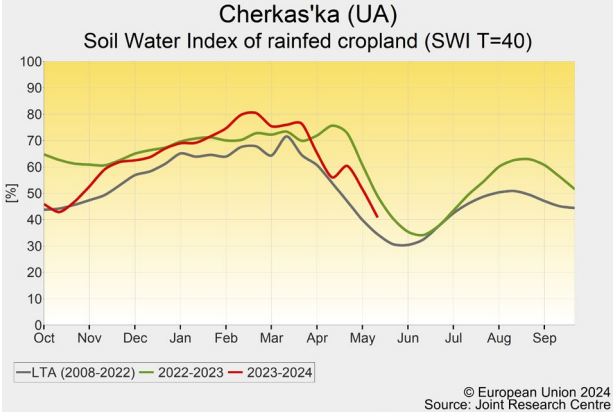
Close-to-average rainfall prevailed during the review period in the western and central regions of the country. In contrast, a severe rainfall deficit affected the three eastern Ukrainian oblasts (*Donetsk, Luhansk, Kharkiv*) where the review period was the driest in our 30-year record. Temperatures throughout the country exceeded the LTA in April; however, an intense cold event affected the eastern and northern parts of the country in the second dekad of May, with two days of minimum temperatures dropping below 0 degrees.

Overall, we observe an advanced season for winter and spring crops due to the warmer-than-usual conditions that prevailed so far. Consequently, cultivated fields are in good condition in most of the country. However, in the eastern Oblasts, the rainfall deficit has already impacted the yield potential. The frost event in May is expected to have had a minor impact. Rapeseed crops are currently flowering, and conditions are favorable for a higher-than-average yield. The maize sowing campaign is nearing completion, with more than 90% of the fields already planted. We maintain the yield outlook for winter crops close to the historical trend, recognizing that the current positive outlook may be challenged during the key upcoming phenological phases.









Türkiye

Crop conditions defied by very warm weather

Winter cereals are still progressing well despite the very warm and dry weather in April that led to some reduction of biomass accumulation observed in western regions.

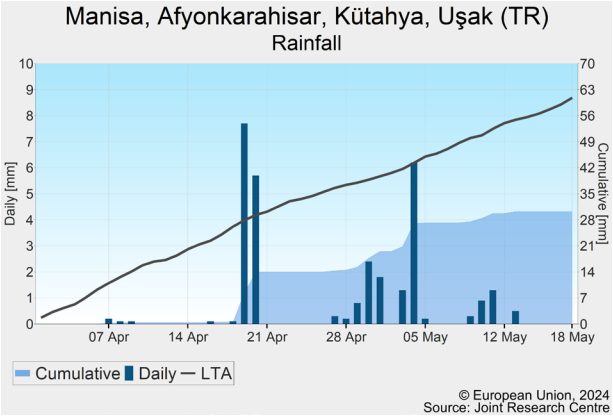
In Türkiye, the weather in April was drier and warmer than usual (+ 2 °C to + 4 °C). May saw a return to average temperatures and more frequent rainfall (locally up to + 20 % of the LTA). The impact on crops is different across regions.

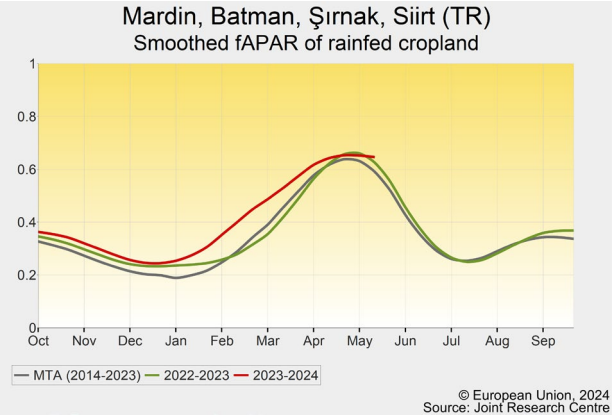
In western regions (e.g. *Manisa*, *Afyonkarahisar*, *Kütahya*, *Uşak*), two warm and dry spells occurred in April. Those spells peaked with maximum temperatures just below 30 °C, with average temperatures constantly + 3 °C to + 4 °C compared with the average. In May, temperatures turned average, accompanied by light but frequent rain. The optimal biomass accumulation of winter crops observed at the beginning of April slowed down to average values at the end of April, coinciding with flowering, which occurred 2 weeks earlier than expected.

In central Anatolian regions (e.g. *Konya, Sivas*), weather conditions were slightly better than in the west. In *Konya*, the warm spells of April were less intense and precipitation more frequent. Despite suboptimal biomass accumulation during the heading stage, winter crops flowered under better-than-average conditions. Summer crops, still in their very early stages, are progressing well, sustained by the well-distributed rain in May.

The south-eastern regions (e.g. *Mardin*, *Batman*, *Şırnak*, *Siirt*) experienced the warmest April since 1991, with maximum temperatures around 32 °C on 28 April. After turning back to average conditions at the beginning of May, the overall weather development brings about positive expectations for the incipient grain-filling phase of winter crops.

Overall, yield expectations for winter crops remain favourable, although not as excellent as last year. Summer crop forecasts are preliminary and based on trend analysis.





5.4 European Russia and Belarus

European Russia

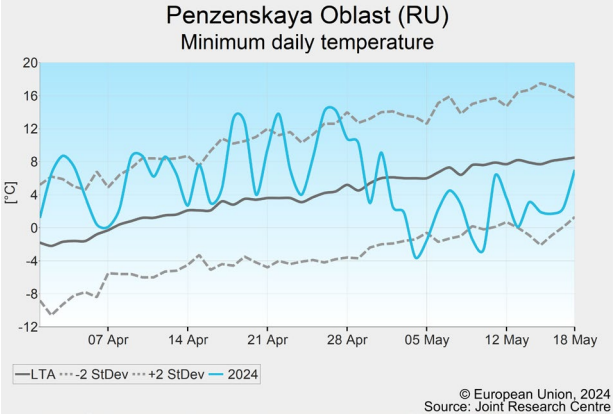
Diminished yield outlook for winter cereals

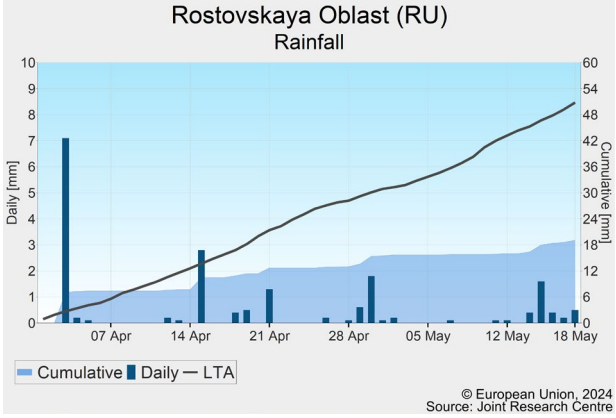
Southern Russia has experienced a rain shortage since early March. In addition, frost events in May caused damage to crops in numerous important wheat-producing regions. Yield potentials are still around average. The spring sowing campaign has started early but was hampered by abundant rainfall in the central, eastern and northern regions.

The southern half of European Russia experienced mostly warmer-than-usual thermal conditions during the review period. Meanwhile, temperatures in the agriculturally less important northern areas were near seasonal or somewhat colder than usual. In the Southern okrug and the North Caucasian okrug, and in some areas bordering on them, temperatures exceeded the LTA by 2–4.5 °C. April was particularly mild in these regions. The first dekad of May saw below-average temperatures and frost events in the range of – 3 °C to – 6 °C (locally even colder) in most of the country. The most serious frost damage to winter cereals and spring crops occurred in the Black Earth region (e.g. *Orlovskaya*, *Lipetskaya*, *Tambovskaya*, *Penzanskaya* and *Voronezhskaya* oblasts) and in the northern part of the Southern okrug, where early sown summer crops may also have been affected. According to government communications, the total frost-affected and -damaged area (considering all crops) comprises around 800 000 ha ([6]). Dry weather conditions persisted in southern Russia. Rainfall totals reached only 5–30 mm in the main winter-wheat-producing regions between the Black Sea and the Caspian Sea. In contrast, agricultural areas further north and to the east received 30–150 % more rain than usual.

In southern Russia, after a promising start to spring, the development of winter crops accelerated further because of extremely warm temperatures. Meanwhile, soil moisture levels declined quickly and the frost events in May further diminished the yield expectations. Nevertheless, crop model results and remote sensing images still indicate near- or above-average biomass accumulation thanks to water reserves in deeper layers and accelerated phenological development. However, substantial rainfall is needed to avoid a drought, which would quickly worsen this situation.

The sowing of spring crops started early, but is still ongoing with some delay, since rains hampered progress in the Central and Volga okrugs. In southern regions, even the sowing of summer crops such as sunflower and maize has started, but slowed down because of the cold weather of May.





(6) https://interfax.com/newsroom/top-stories/102356/.

Belarus

Positive yield expectations

Winter crops benefited from overall above-average temperatures and rainfall. Sowing of spring barley was concluded in time and emerged stands are in good condition. Maize sowing was hampered due to relatively cold and rainy weather, but could be finalised by the end of the review period.

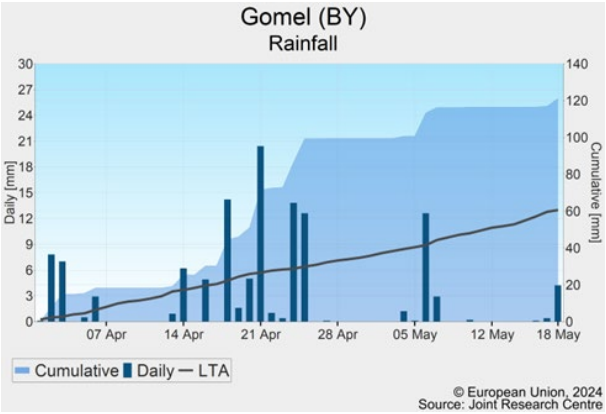
Daily temperatures in Belarus highly exceeded the LTA in the first half of April, after which slightly colder-than-usual temperatures prevailed until the end of the review period. Considering the period as a whole, average temperatures exceeded the LTA by 1-2 °C in south-western areas, and were close to the LTA in the north-eastern half of the country. Frost events were mild and confined to central and northern regions. The most significant frost event occurred from 8 to 9 May, when temperatures dropped to -4°C in the north. Precipitation greatly exceeded the LTA in most regions, except in the south-west, where it remained on average or slightly below the LTA. The second half of April was particularly wet. Water logging problems were observed in the *Gomel* region, in the south-east.

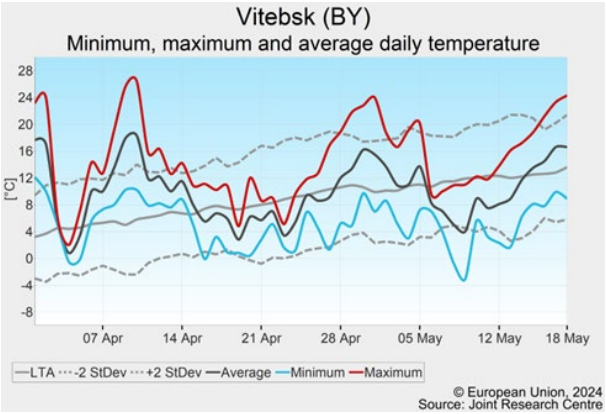
Overall these weather conditions continued to sustain above-average growth and development of winter crops. Winter wheat is advanced by 1-2 weeks in development and presents well-above average biomass accumulation.

The sowing of spring barley was concluded within the usual window, despite the wet soils, and soil moisture and temperature conditions allowed timely emergence and leaf area expansion.

The sowing campaign of grain maize started earlier than usual (in Brest and Gomel regions). Progress slowed down due to rainy and colder weather in the second half of April but could be finalised by the end of the review period.

Yield forecasts were maintained above the 5-year average.





5.5 Maghreb

Morocco, Algeria and Tunisia

Dire condition for cereals in central and western Maghreb

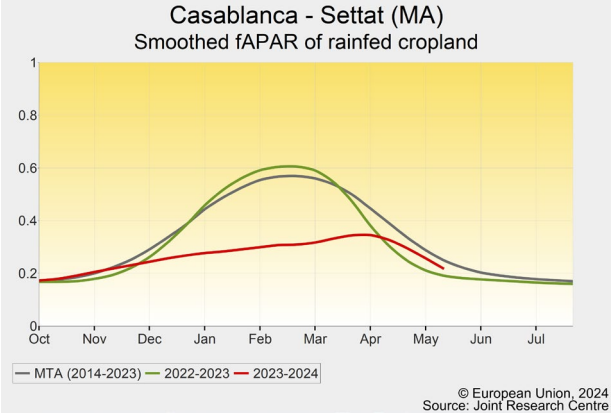
While the winter cereals season is coming to an end, the yield outlook in Morocco remains negative. In Algeria, severe yield losses in the west are, at the national level, mostly offset by above-average yields in central and north-eastern regions. In Tunisia, favourable weather conditions have led to a positive yield outlook.

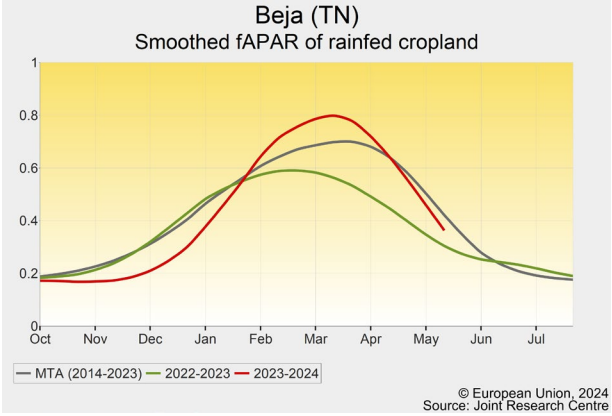
The review period (1 April to 18 May) in **Morocco** saw many rainy events in March, yet occurring too late to prompt significant crop recovery. Barley and wheat performed badly in most of the main production regions. The interpretation of satellite data indicates crop failures in the regions of *Casablanca*, *Marrakech* and *Oriental*, and well-below-average biomass accumulation in *Béni Mellal* and *Souss-Massa*. Marked negative anomalies can be observed for biomass accumulation in the north-western agricultural regions of **Algeria**. The review period was characterised here by rainfall cumulates 10–40 % (20–35 mm) below the LTA and by a heatwave occurring in early April, with daily temperatures 6–8 °C above the LTA. Conversely, crop conditions were average to positive in a large belt of littoral and continental regions in central and eastern Algeria, where rainfall cumulates were close to average. A marked crop recovery trend is observed for these regions.

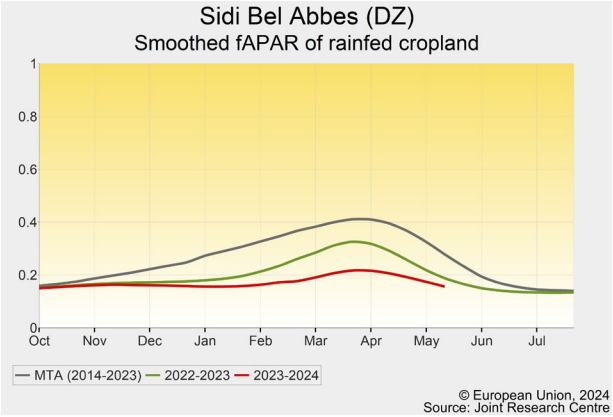
In **Tunisia**, warm temperatures and evenly distributed rainfall set a good progress of biomass accumulation and sustained crop growth throughout the review period. Satellite data indicate biomass levels above to well above the MTA.

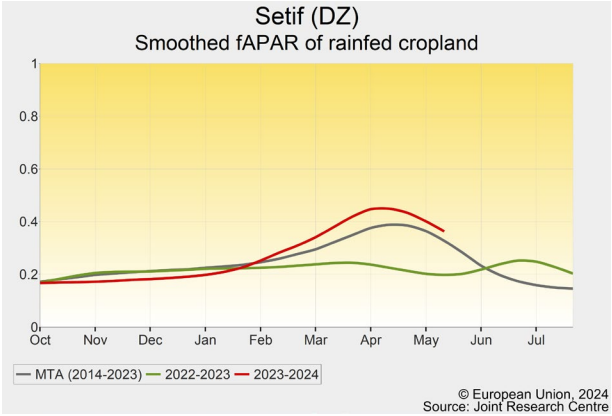
Our yield forecasts remain well below the 5-year average for Morocco, are close to the 5-year average for Algeria and are from above to well above average in Tunisia.

A comprehensive analysis of the season is provided in the JRC MARS bulletin on North Africa in the global outlook series ([7]).







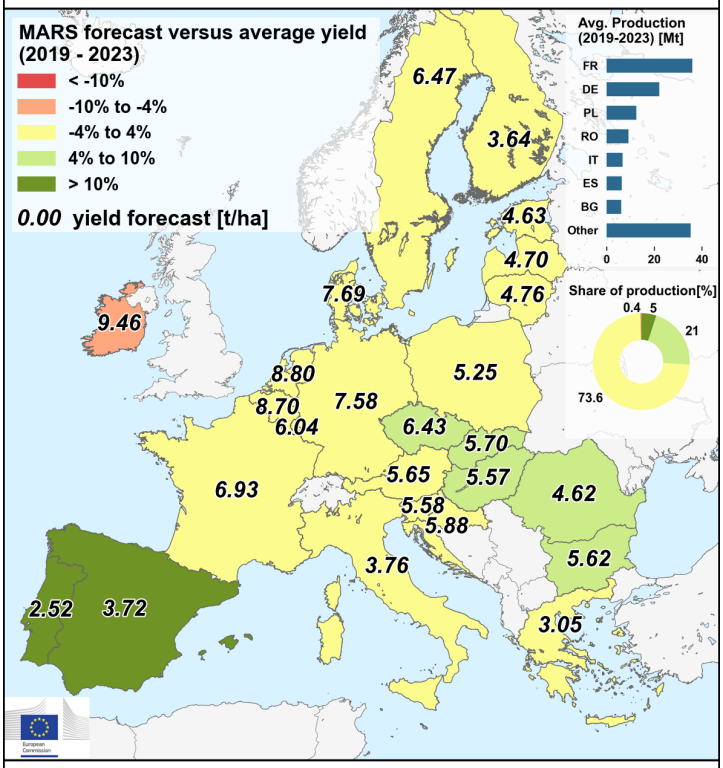


([7]) https://publications.jrc.ec.europa.eu/repository/handle/JRC136670.

6. Crop yield forecast

Country	Total wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	5.65	5.60	**5.71**	+ 1	+ 2	– 0
AT	5.81	6.12	**5.65**	– 3	– 8	– 0
BE	8.80	8.91	**8.70**	– 1	– 2	– 2
BG	5.14	5.43	**5.62**	+ 9	+ 3	+ 0
CY	—	—	**—**	—	—	—
CZ	6.13	6.43	**6.43**	+ 5	+ 0	+ 1
DE	7.51	7.48	**7.58**	+ 1	+ 1	+ 0
DK	7.98	7.41	**7.69**	– 4	+ 4	+ 0
EE	4.57	4.00	**4.63**	+ 1	+ 16	+ 0
EL	2.97	3.15	**3.05**	+ 3	– 3	+ 0
ES	3.18	2.04	**3.72**	+ 17	+ 82	+ 5
FI	3.61	3.19	**3.64**	+ 1	+ 14	+ 0
FR	7.21	7.28	**6.93**	– 4	– 5	– 1
HR	5.71	4.78	**5.88**	+ 3	+ 23	+ 0
HU	5.35	5.63	**5.57**	+ 4	– 1	– 2
IE	9.91	9.33	**9.46**	– 5	+ 2	+ 0
IT	3.78	3.60	**3.76**	– 1	+ 4	– 6
LT	4.73	4.74	**4.76**	+ 1	+ 1	+ 3
LU	5.98	5.75	**6.04**	+ 1	+ 5	+ 0
LV	4.67	4.07	**4.70**	+ 1	+ 16	+ 1
MT	—	—	**—**	—	—	—
NL	8.87	8.59	**8.80**	– 1	+ 2	– 2
PL	5.10	5.38	**5.25**	+ 3	– 3	– 0
PT	2.18	1.38	**2.52**	+ 16	+ 83	+ 10
RO	4.22	4.55	**4.62**	+ 10	+ 2	+ 2
SE	6.65	5.46	**6.47**	– 3	+ 19	+ 0
SI	5.47	5.07	**5.58**	+ 2	+ 10	+ 3
SK	5.41	6.16	**5.70**	+ 5	– 7	+ 0

Total wheat - yield forecast 2024



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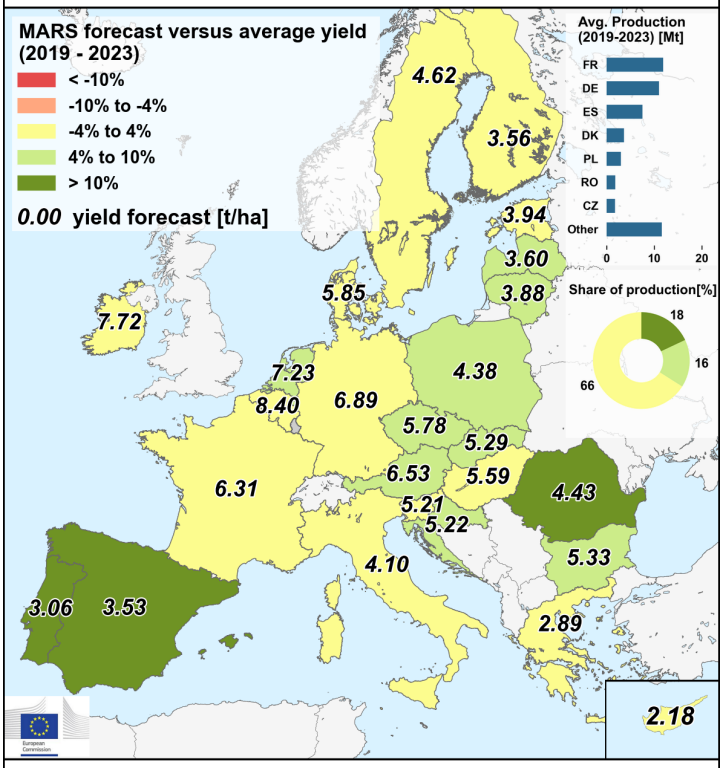
Country	Total barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	4.93	4.64	**5.13**	+ 4	+ 11	+ 0
AT	6.18	6.22	**6.53**	+ 6	+ 5	+ 6
BE	8.31	8.62	**8.40**	+ 1	– 3	– 2
BG	4.96	5.30	**5.33**	+ 8	+ 1	+ 1
CY	2.11	1.74	**2.18**	+ 3	+ 25	+ 0
CZ	5.46	5.50	**5.78**	+ 6	+ 5	+ 1
DE	6.79	6.88	**6.89**	+ 2	+ 0	+ 0
DK	5.98	4.61	**5.85**	– 2	+ 27	+ 0
EE	3.81	2.95	**3.94**	+ 3	+ 33	+ 3
EL	2.83	2.55	**2.89**	+ 2	+ 13	+ 0
ES	2.97	1.61	**3.53**	+ 19	+ 119	+ 3
FI	3.48	3.13	**3.56**	+ 2	+ 14	+ 0
FR	6.36	6.80	**6.31**	– 1	– 7	+ 0
HR	4.89	4.00	**5.22**	+ 7	+ 30	+ 2
HU	5.54	5.46	**5.59**	+ 1	+ 2	– 4
IE	7.98	7.05	**7.72**	– 3	+ 10	+ 0
IT	4.12	3.99	**4.10**	– 1	+ 3	– 5
LT	3.71	3.56	**3.88**	+ 5	+ 9	+ 1
LU	—	—	**—**	—	—	—
LV	3.31	2.79	**3.60**	+ 9	+ 29	+ 4
MT	—	—	**—**	—	—	—
NL	6.95	6.51	**7.23**	+ 4	+ 11	– 2
PL	4.14	4.49	**4.38**	+ 6	– 2	– 0
PT	2.71	1.56	**3.06**	+ 13	+ 96	+ 4
RO	3.98	4.61	**4.43**	+ 11	– 4	+ 2
SE	4.68	3.30	**4.62**	– 1	+ 40	– 0
SI	5.08	4.60	**5.21**	+ 3	+ 13	+ 1
SK	5.09	5.31	**5.29**	+ 4	– 0	+ 2

Total barley - yield forecast 2024



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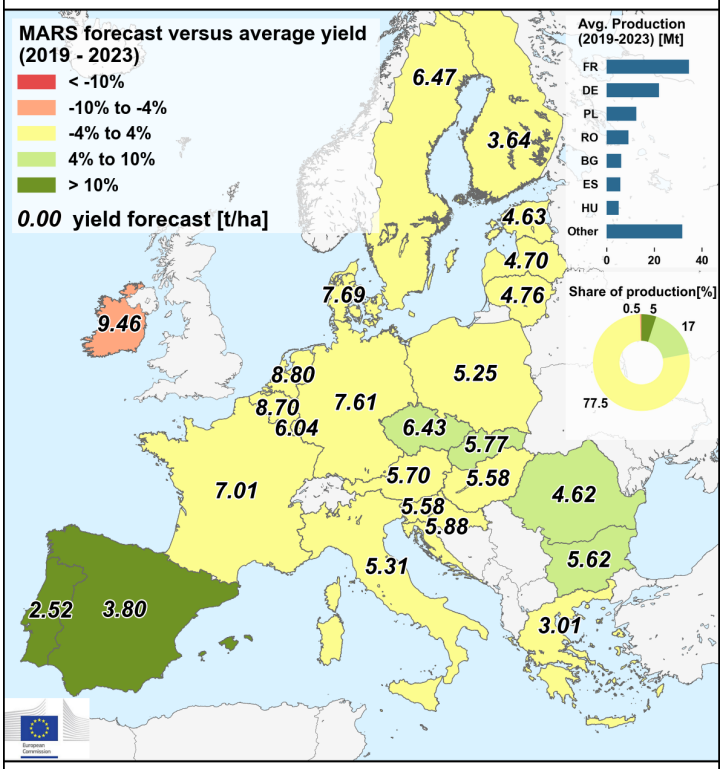
Country	Soft wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	5.87	5.82	**5.92**	+ 1	+ 2	– 0
AT	5.87	6.14	**5.70**	– 3	– 7	– 0
BE	8.80	8.91	**8.70**	– 1	– 2	– 2
BG	5.14	5.43	**5.62**	+ 9	+ 3	+ 0
CY	—	—	**—**	—	—	—
CZ	6.13	6.43	**6.43**	+ 5	+ 0	+ 1
DE	7.54	7.51	**7.61**	+ 1	+ 1	+ 0
DK	7.98	7.41	**7.69**	– 4	+ 4	+ 0
EE	4.57	4.00	**4.63**	+ 1	+ 16	+ 0
EL	2.94	2.86	**3.01**	+ 3	+ 5	+ 0
ES	3.28	2.11	**3.80**	+ 16	+ 80	+ 5
FI	3.61	3.19	**3.64**	+ 1	+ 14	+ 0
FR	7.30	7.37	**7.01**	– 4	– 5	– 1
HR	5.71	4.78	**5.88**	+ 3	+ 23	+ 0
HU	5.37	5.65	**5.58**	+ 4	– 1	– 2
IE	9.91	9.33	**9.46**	– 5	+ 2	+ 0
IT	5.34	5.08	**5.31**	– 1	+ 5	– 7
LT	4.73	4.74	**4.76**	+ 1	+ 1	+ 3
LU	5.98	5.75	**6.04**	+ 1	+ 5	+ 0
LV	4.67	4.07	**4.70**	+ 1	+ 16	+ 1
MT	—	—	**—**	—	—	—
NL	8.87	8.59	**8.80**	– 1	+ 2	– 2
PL	5.10	5.38	**5.25**	+ 3	– 3	– 0
PT	2.18	1.38	**2.52**	+ 16	+ 83	+ 10
RO	4.22	4.55	**4.62**	+ 10	+ 2	+ 2
SE	6.65	5.46	**6.47**	– 3	+ 19	+ 0
SI	5.47	5.07	**5.58**	+ 2	+ 10	+ 3
SK	5.42	6.16	**5.77**	+ 6	– 6	+ 0

Soft wheat - yield forecast 2024



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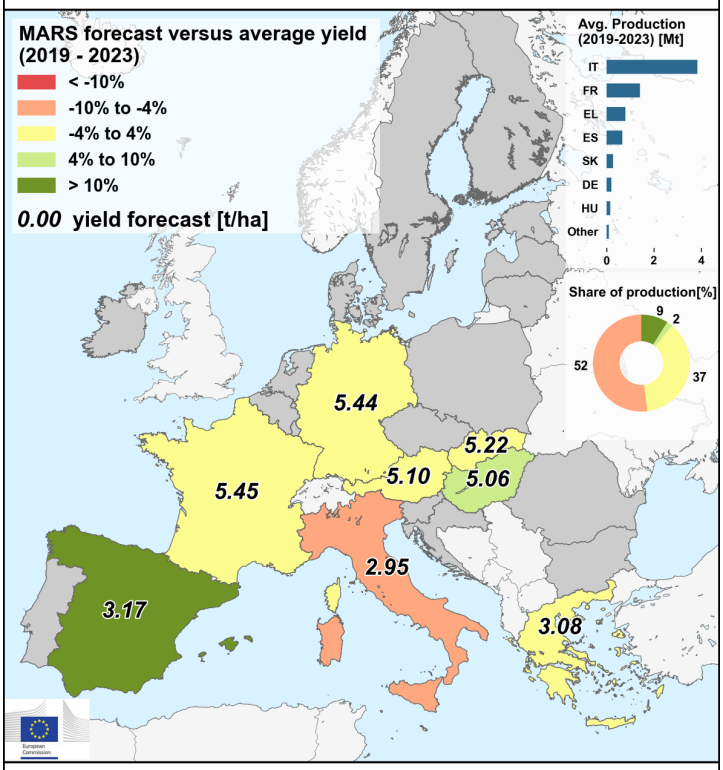
Country	Durum wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	3.44	3.29	**3.45**	+ 0	+ 5	– 1
AT	5.07	5.88	**5.10**	+ 1	– 13	+ 0
BE	—	—	**—**	—	—	—
BG	—	—	**—**	—	—	—
CY	—	—	**—**	—	—	—
CZ	—	—	**—**	—	—	—
DE	5.40	5.74	**5.44**	+ 1	– 5	+ 1
DK	—	—	**—**	—	—	—
EE	—	—	**—**	—	—	—
EL	2.98	3.31	**3.08**	+ 3	– 7	+ 0
ES	2.54	1.61	**3.17**	+ 25	+ 97	+ 9
FI	—	—	**—**	—	—	—
FR	5.53	5.44	**5.45**	– 2	+ 0	+ 0
HR	—	—	**—**	—	—	—
HU	4.63	5.20	**5.06**	+ 9	– 3	+ 4
IE	—	—	**—**	—	—	—
IT	3.11	2.91	**2.95**	– 5	+ 1	– 5
LT	—	—	**—**	—	—	—
LU	—	—	**—**	—	—	—
LV	—	—	**—**	—	—	—
MT	—	—	**—**	—	—	—
NL	—	—	**—**	—	—	—
PL	—	—	**—**	—	—	—
PT	—	—	**—**	—	—	—
RO	—	—	**—**	—	—	—
SE	—	—	**—**	—	—	—
SI	—	—	**—**	—	—	—
SK	5.35	6.14	**5.22**	– 2	– 15	+ 0

Durum wheat - yield forecast 2024



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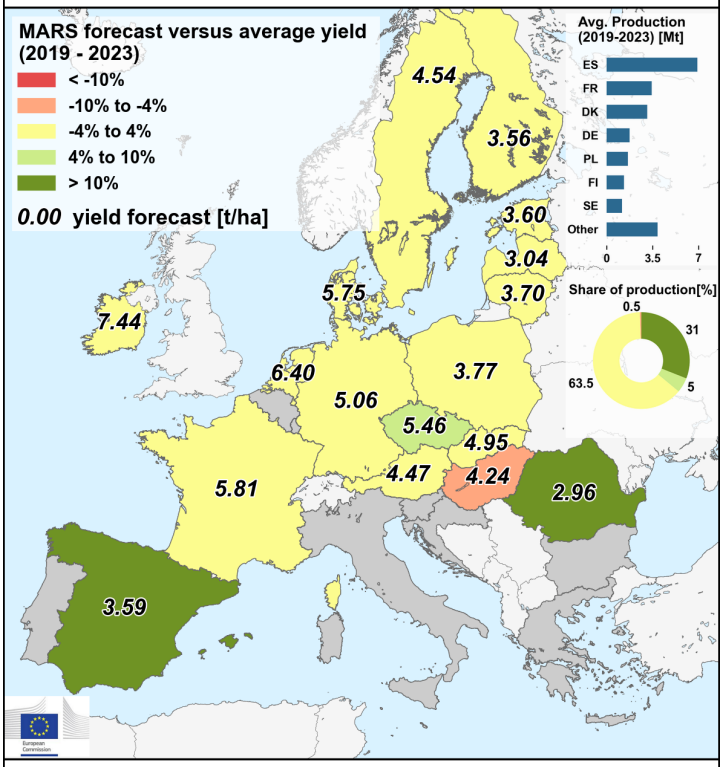
Country	Spring barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	4.09	3.18	**4.34**	+ 6	+ 36	+ 0
AT	4.49	4.75	**4.47**	– 1	– 6	+ 0
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	5.12	4.95	**5.46**	+ 7	+ 10	+ 0
DE	5.11	4.46	**5.06**	– 1	+ 14	– 2
DK	5.84	4.39	**5.75**	– 2	+ 31	+ 0
EE	3.55	2.59	**3.60**	+ 1	+ 39	+ 0
EL	—	—	—	—	—	—
ES	3.02	1.67	**3.59**	+ 19	+ 115	+ 3
FI	3.48	3.13	**3.56**	+ 2	+ 14	+ 0
FR	5.75	5.78	**5.81**	+ 1	+ 1	+ 0
HR	—	—	—	—	—	—
HU	4.51	4.40	**4.24**	– 6	– 4	– 6
IE	7.44	6.38	**7.44**	+ 0	+ 17	+ 0
IT	—	—	—	—	—	—
LT	3.60	3.40	**3.70**	+ 3	+ 9	+ 0
LU	—	—	—	—	—	—
LV	3.04	2.42	**3.04**	+ 0	+ 26	+ 0
MT	—	—	—	—	—	—
NL	6.25	4.76	**6.40**	+ 3	+ 34	– 2
PL	3.65	3.79	**3.77**	+ 3	– 1	+ 0
PT	—	—	—	—	—	—
RO	2.55	3.25	**2.96**	+ 16	– 9	+ 2
SE	4.56	3.15	**4.54**	– 1	+ 44	+ 0
SI	—	—	—	—	—	—
SK	4.79	5.10	**4.95**	+ 3	– 3	+ 0

Spring barley - yield forecast 2024



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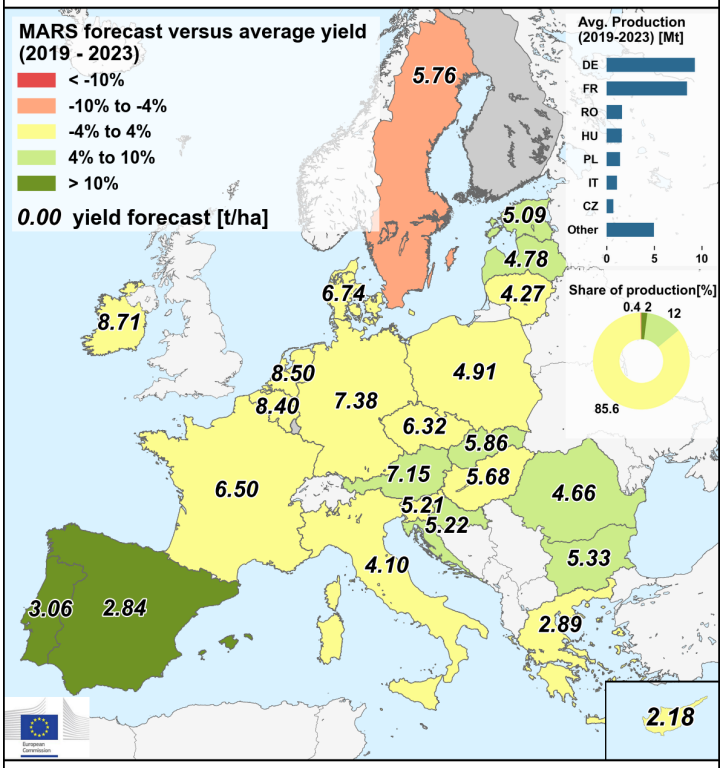
Country	Winter barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	5.91	6.05	**5.98**	+ 1	– 1	+ 0
AT	6.69	6.55	**7.15**	+ 7	+ 9	+ 7
BE	8.31	8.62	**8.40**	+ 1	– 3	– 2
BG	4.96	5.30	**5.33**	+ 8	+ 1	+ 1
CY	2.11	1.74	**2.18**	+ 3	+ 25	+ 0
CZ	6.09	6.33	**6.32**	+ 4	– 0	+ 3
DE	7.24	7.48	**7.38**	+ 2	– 1	+ 1
DK	6.92	6.53	**6.74**	– 3	+ 3	+ 0
EE	4.67	3.68	**5.09**	+ 9	+ 39	+ 9
EL	2.83	2.55	**2.89**	+ 2	+ 13	+ 0
ES	2.51	1.06	**2.84**	+ 13	+ 168	+ 1
FI	—	—	—	—	—	—
FR	6.65	7.13	**6.50**	– 2	– 9	+ 0
HR	4.89	4.00	**5.22**	+ 7	+ 30	+ 2
HU	5.62	5.51	**5.68**	+ 1	+ 3	– 3
IE	8.97	8.72	**8.71**	– 3	– 0	+ 0
IT	4.12	3.99	**4.10**	– 1	+ 3	– 5
LT	4.17	3.98	**4.27**	+ 2	+ 7	+ 3
LU	—	—	—	—	—	—
LV	4.49	3.59	**4.78**	+ 6	+ 33	+ 9
MT	—	—	—	—	—	—
NL	8.42	8.91	**8.50**	+ 1	– 5	– 2
PL	4.87	5.07	**4.91**	+ 1	– 3	– 0
PT	2.71	1.56	**3.06**	+ 13	+ 96	+ 4
RO	4.25	4.80	**4.66**	+ 10	– 3	+ 1
SE	6.06	5.19	**5.76**	– 5	+ 11	+ 0
SI	5.08	4.60	**5.21**	+ 3	+ 13	+ 1
SK	5.54	5.55	**5.86**	+ 6	+ 6	+ 5

Winter barley - yield forecast 2024



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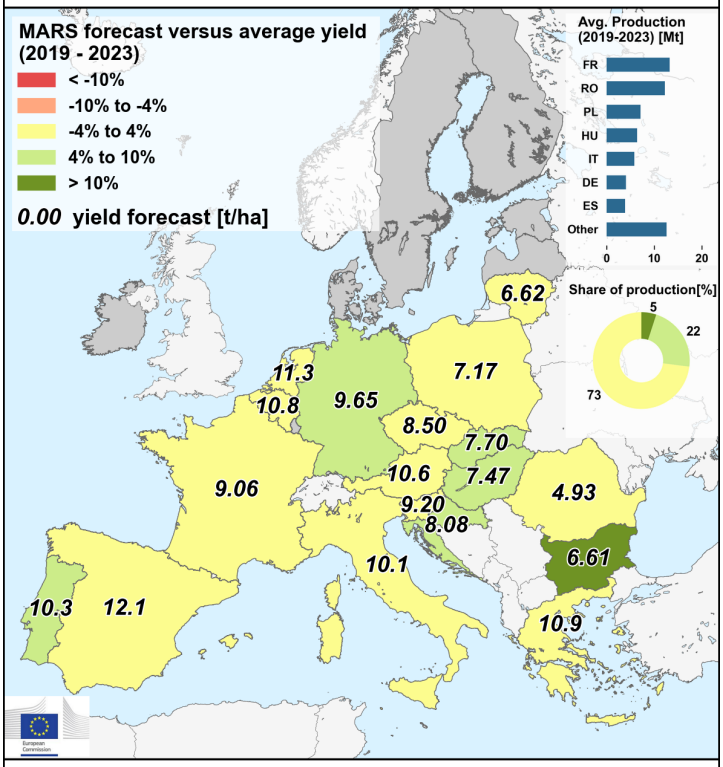
Country	Grain maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	7.34	7.45	**7.59**	+ 3	+ 2	+ 0
AT	10.5	9.93	**10.6**	+ 1	+ 7	+ 0
BE	10.5	10.6	**10.8**	+ 3	+ 2	+ 0
BG	5.44	4.20	**6.61**	+ 21	+ 57	+ 4
CY	—	—	—	—	—	—
CZ	8.76	7.94	**8.50**	– 3	+ 7	+ 0
DE	9.23	9.04	**9.65**	+ 5	+ 7	+ 0
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	10.6	9.50	**10.9**	+ 2	+ 14	+ 0
ES	12.0	11.7	**12.1**	+ 0	+ 3	+ 0
FI	—	—	—	—	—	—
FR	8.77	9.83	**9.06**	+ 3	– 8	+ 0
HR	7.76	7.42	**8.08**	+ 4	+ 9	+ 0
HU	6.93	8.17	**7.47**	+ 8	– 9	+ 0
IE	—	—	—	—	—	—
IT	10.1	10.7	**10.1**	– 0	– 6	+ 0
LT	6.51	8.24	**6.62**	+ 2	– 20	+ 0
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	11.3	12.7	**11.3**	– 0	– 11	+ 0
PL	7.05	7.29	**7.17**	+ 2	– 2	+ 0
PT	9.90	10.7	**10.3**	+ 4	– 3	+ 0
RO	4.89	4.70	**4.93**	+ 1	+ 5	– 0
SE	—	—	—	—	—	—
SI	8.96	8.79	**9.20**	+ 3	+ 5	+ 0
SK	7.17	7.57	**7.70**	+ 7	+ 2	+ 0

Grain maize - yield forecast 2024



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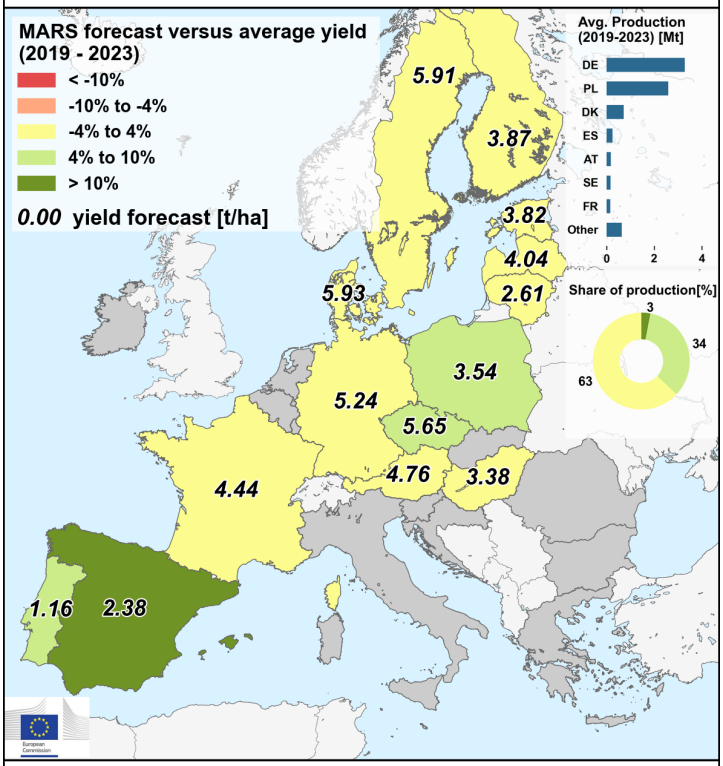
Country	Rye (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	4.16	4.11	**4.28**	+ 3	+ 4	– 0
AT	4.76	4.54	**4.76**	+ 0	+ 5	+ 0
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	5.19	5.03	**5.65**	+ 9	+ 12	+ 6
DE	5.26	5.01	**5.24**	– 0	+ 5	+ 0
DK	6.12	5.67	**5.93**	– 3	+ 5	+ 0
EE	3.86	3.66	**3.82**	– 1	+ 5	+ 0
EL	—	—	—	—	—	—
ES	2.16	1.41	**2.38**	+ 10	+ 68	+ 6
FI	3.93	3.45	**3.87**	– 2	+ 12	+ 0
FR	4.32	4.34	**4.44**	+ 3	+ 2	+ 0
HR	—	—	—	—	—	—
HU	3.27	3.34	**3.38**	+ 3	+ 1	– 3
IE	—	—	—	—	—	—
IT	—	—	—	—	—	—
LT	2.59	2.36	**2.61**	+ 1	+ 10	+ 3
LU	—	—	—	—	—	—
LV	3.94	3.20	**4.04**	+ 3	+ 26	+ 0
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	3.31	3.55	**3.54**	+ 7	– 0	– 2
PT	1.06	0.90	**1.16**	+ 9	+ 29	+ 6
RO	—	—	—	—	—	—
SE	6.06	5.25	**5.91**	– 3	+ 13	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Rye - yield forecast 2024



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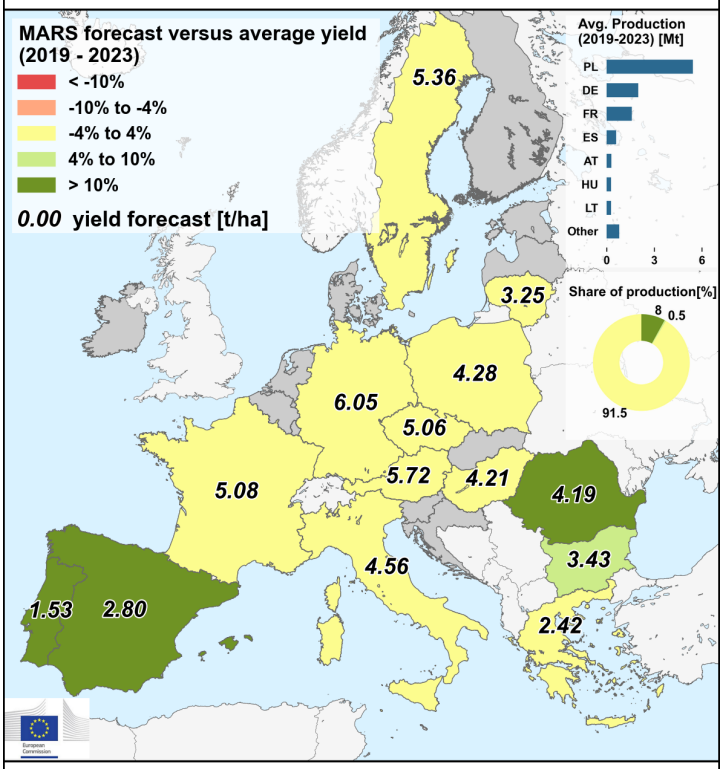
Country	Triticale (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	4.34	4.37	**4.46**	+ 3	+ 2	+ 0
AT	5.58	5.62	**5.72**	+ 3	+ 2	+ 2
BE	—	—	—	—	—	—
BG	3.22	3.76	**3.43**	+ 6	– 9	+ 1
CY	—	—	—	—	—	—
CZ	4.96	4.94	**5.06**	+ 2	+ 2	+ 0
DE	5.94	5.85	**6.05**	+ 2	+ 4	+ 0
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	2.36	1.80	**2.42**	+ 3	+ 35	+ 0
ES	2.34	1.42	**2.80**	+ 20	+ 98	+ 1
FI	—	—	—	—	—	—
FR	5.05	5.10	**5.08**	+ 1	– 1	+ 0
HR	—	—	—	—	—	—
HU	4.07	4.26	**4.21**	+ 3	– 1	– 2
IE	—	—	—	—	—	—
IT	4.44	4.54	**4.56**	+ 3	+ 0	– 1
LT	3.30	3.09	**3.25**	– 2	+ 5	+ 0
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	4.23	4.48	**4.28**	+ 1	– 5	+ 0
PT	1.33	0.75	**1.53**	+ 15	+ 105	+ 0
RO	3.79	4.30	**4.19**	+ 11	– 3	– 0
SE	5.45	4.12	**5.36**	– 2	+ 30	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Triticale - yield forecast 2024



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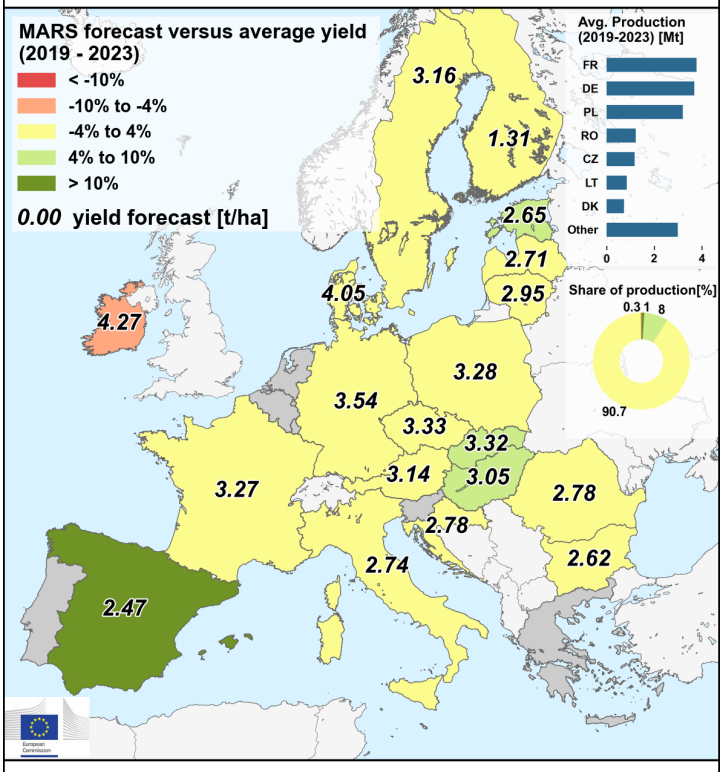
Country	Rape and turnip rape (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	3.18	3.20	**3.21**	+ 1	+ 0	– 2
AT	3.11	3.23	**3.14**	+ 1	– 3	+ 0
BE	—	—	—	—	—	—
BG	2.58	2.62	**2.62**	+ 2	+ 0	– 2
CY	—	—	—	—	—	—
CZ	3.24	3.40	**3.33**	+ 3	– 2	+ 0
DE	3.63	3.63	**3.54**	– 2	– 2	– 3
DK	4.14	3.92	**4.05**	– 2	+ 3	+ 0
EE	2.55	1.98	**2.65**	+ 4	+ 34	+ 6
EL	—	—	—	—	—	—
ES	2.12	1.62	**2.47**	+ 17	+ 53	+ 3
FI	1.30	1.29	**1.31**	+ 1	+ 2	+ 0
FR	3.26	3.17	**3.27**	+ 0	+ 3	– 2
HR	2.71	2.93	**2.78**	+ 3	– 5	+ 0
HU	2.87	3.12	**3.05**	+ 6	– 2	– 5
IE	4.50	4.32	**4.27**	– 5	– 1	+ 0
IT	2.82	2.71	**2.74**	– 3	+ 1	– 2
LT	2.85	2.57	**2.95**	+ 4	+ 14	+ 4
LU	—	—	—	—	—	—
LV	2.67	2.30	**2.71**	+ 2	+ 18	+ 3
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	3.19	3.38	**3.28**	+ 3	– 3	+ 0
PT	—	—	—	—	—	—
RO	2.69	3.01	**2.78**	+ 3	– 8	– 7
SE	3.20	2.45	**3.16**	– 1	+ 29	+ 0
SI	—	—	—	—	—	—
SK	3.12	3.55	**3.32**	+ 6	– 7	+ 0

Rapeseed - yield forecast 2024



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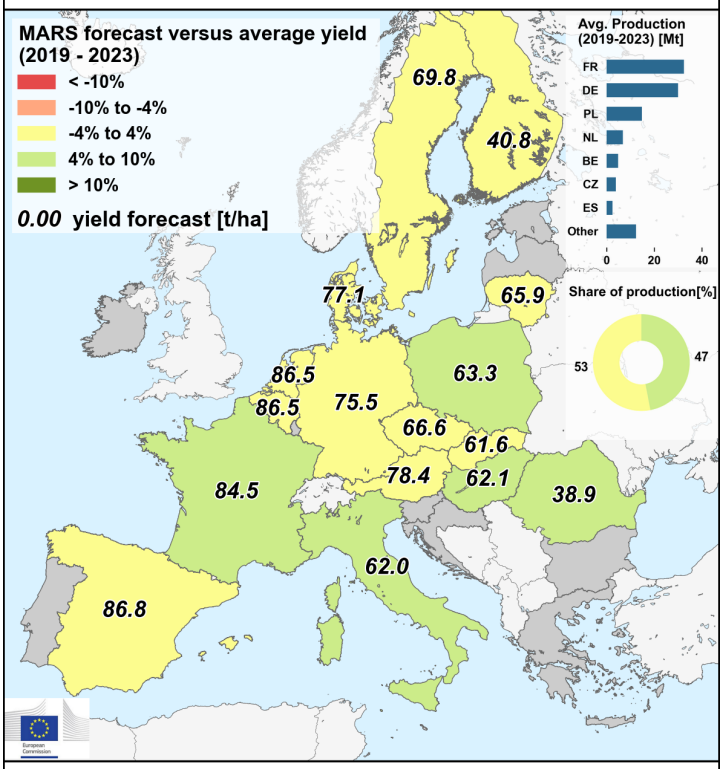
Country	Sugar beet (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	73.2	N/A	**75.4**	+ 3	N/A	– 0
AT	77.1	75.0	**78.4**	+ 2	+ 5	+ 1
BE	86.2	87.0	**86.5**	+ 0	– 1	– 3
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	65.2	65.2	**66.6**	+ 2	+ 2	+ 1
DE	75.9	79.7	**75.5**	– 1	– 5	+ 0
DK	76.4	74.8	**77.1**	+ 1	+ 3	+ 0
EE	—	—	—	—	—	—
EL	—	—	—	—	—	—
ES	85.3	81.5	**86.8**	+ 2	+ 7	+ 0
FI	40.5	38.5	**40.8**	+ 1	+ 6	+ 0
FR	78.8	83.4	**84.5**	+ 7	+ 1	– 0
HR	—	—	—	—	—	—
HU	56.8	58.0	**62.1**	+ 9	+ 7	– 1
IE	—	—	—	—	—	—
IT	58.2	N/A	**62.0**	+ 7	N/A	– 2
LT	66.5	72.2	**65.9**	– 1	– 9	+ 11
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	84.3	85.3	**86.5**	+ 3	+ 1	– 2
PL	60.8	61.3	**63.3**	+ 4	+ 3	+ 0
PT	—	—	—	—	—	—
RO	36.6	33.1	**38.9**	+ 6	+ 17	– 1
SE	67.7	60.4	**69.8**	+ 3	+ 16	+ 0
SI	—	—	—	—	—	—
SK	60.2	63.6	**61.6**	+ 2	– 3	+ 0

Sugar beet - yield forecast 2024



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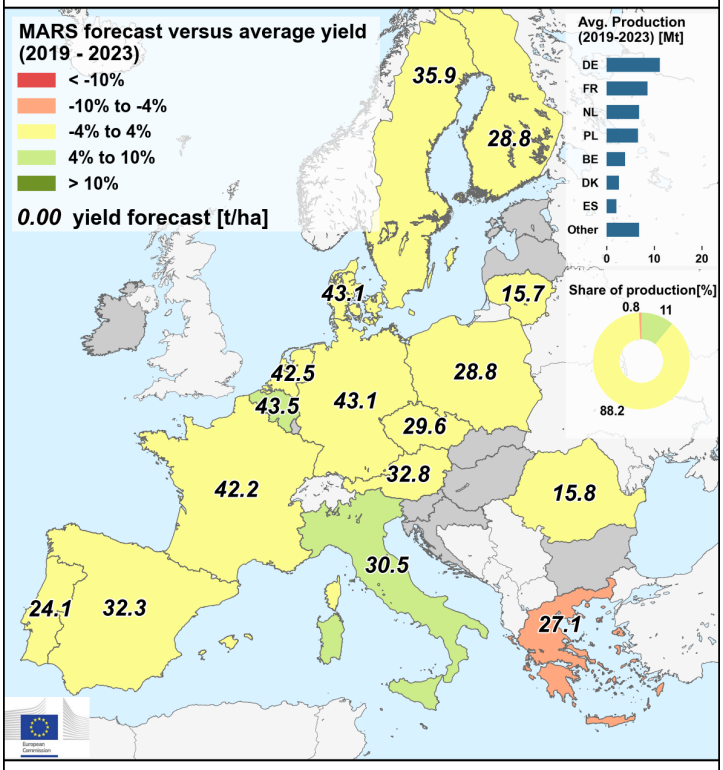
Country	Potatoes (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	35.4	36.8	**36.8**	+ 4	– 0	+ 0
AT	32.7	28.8	**32.8**	+ 0	+ 14	+ 0
BE	41.4	43.5	**43.5**	+ 5	– 0	+ 0
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	28.7	27.4	**29.6**	+ 3	+ 8	+ 0
DE	41.9	43.9	**43.1**	+ 3	– 2	+ 0
DK	43.7	45.1	**43.1**	– 1	– 5	+ 0
EE	—	—	—	—	—	—
EL	28.6	27.7	**27.1**	– 5	– 2	+ 0
ES	32.3	32.0	**32.3**	+ 0	+ 1	+ 0
FI	28.9	30.2	**28.8**	– 1	– 5	+ 0
FR	41.0	42.2	**42.2**	+ 3	– 0	+ 0
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	—	—	—	—	—	—
IT	29.0	27.8	**30.5**	+ 5	+ 10	+ 0
LT	16.1	18.1	**15.7**	– 2	– 14	+ 0
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	42.2	41.8	**42.5**	+ 1	+ 2	– 2
PL	28.8	29.6	**28.8**	+ 0	– 3	+ 0
PT	23.6	24.2	**24.1**	+ 2	– 1	+ 1
RO	15.6	14.1	**15.8**	+ 2	+ 13	– 6
SE	35.8	35.6	**35.9**	+ 0	+ 1	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Potatoes - yield forecast 2024



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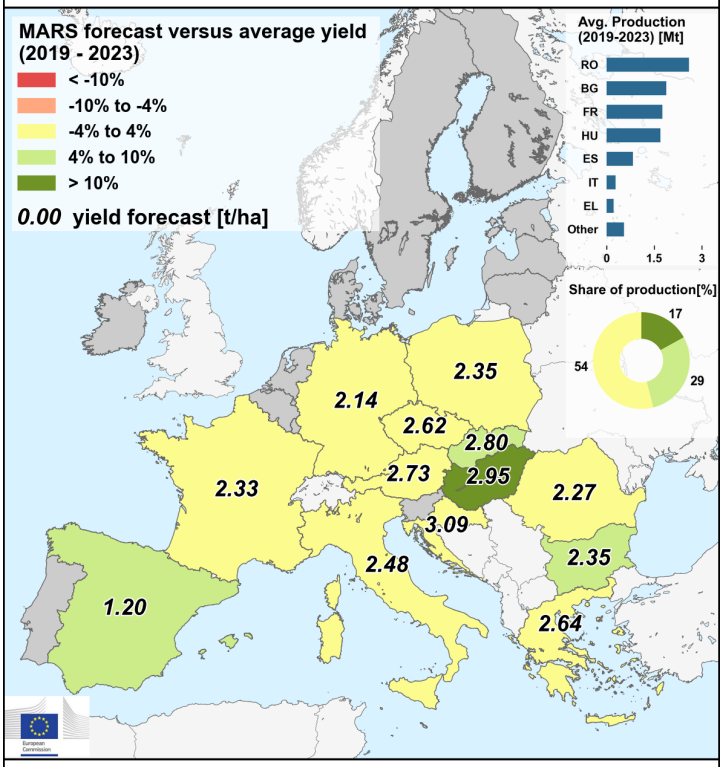
Country	Sunflower (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	2.15	2.12	**2.25**	+ 5	+ 6	+ 1
AT	2.68	2.69	**2.73**	+ 2	+ 1	+ 0
BE	—	—	—	—	—	—
BG	2.21	1.89	**2.35**	+ 6	+ 25	+ 0
CY	—	—	—	—	—	—
CZ	2.64	2.56	**2.62**	– 1	+ 3	+ 0
DE	2.18	2.41	**2.14**	– 2	– 11	+ 0
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	2.54	2.56	**2.64**	+ 4	+ 3	+ 0
ES	1.15	1.21	**1.20**	+ 4	– 1	+ 0
FI	—	—	—	—	—	—
FR	2.32	2.59	**2.33**	+ 0	– 10	+ 0
HR	3.05	3.11	**3.09**	+ 1	– 0	+ 0
HU	2.66	2.98	**2.95**	+ 11	– 1	– 1
IE	—	—	—	—	—	—
IT	2.44	2.49	**2.48**	+ 2	– 1	+ 6
LT	—	—	—	—	—	—
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.35	2.38	**2.35**	+ 0	– 1	+ 0
PT	—	—	—	—	—	—
RO	2.21	1.88	**2.27**	+ 3	+ 21	+ 3
SE	—	—	—	—	—	—
SI	—	—	—	—	—	—
SK	2.59	2.82	**2.80**	+ 8	– 1	+ 0

Sunflower - yield forecast 2024



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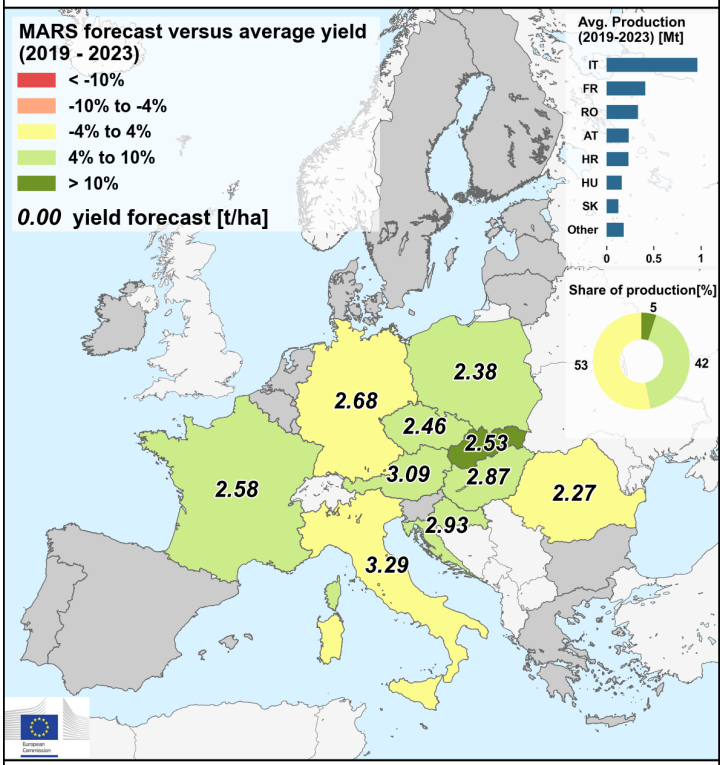
Country	Soybeans (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	2.73	2.85	**2.82**	+ 3	– 1	– 1
AT	2.95	3.06	**3.09**	+ 5	+ 1	+ 0
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	2.37	2.32	**2.46**	+ 4	+ 6	– 3
DE	2.71	2.73	**2.68**	– 1	– 2	+ 0
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	—	—	—	—	—	—
ES	—	—	—	—	—	—
FI	—	—	—	—	—	—
FR	2.42	2.50	**2.58**	+ 7	+ 4	+ 0
HR	2.79	3.00	**2.93**	+ 5	– 2	+ 0
HU	2.65	3.04	**2.87**	+ 9	– 5	+ 0
IE	—	—	—	—	—	—
IT	3.28	3.39	**3.29**	+ 0	– 3	– 4
LT	—	—	—	—	—	—
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.27	2.44	**2.38**	+ 5	– 3	+ 0
PT	—	—	—	—	—	—
RO	2.19	2.13	**2.27**	+ 4	+ 7	+ 2
SE	—	—	—	—	—	—
SI	—	—	—	—	—	—
SK	2.27	2.60	**2.53**	+ 11	– 3	+ 0

Soybeans - yield forecast 2024



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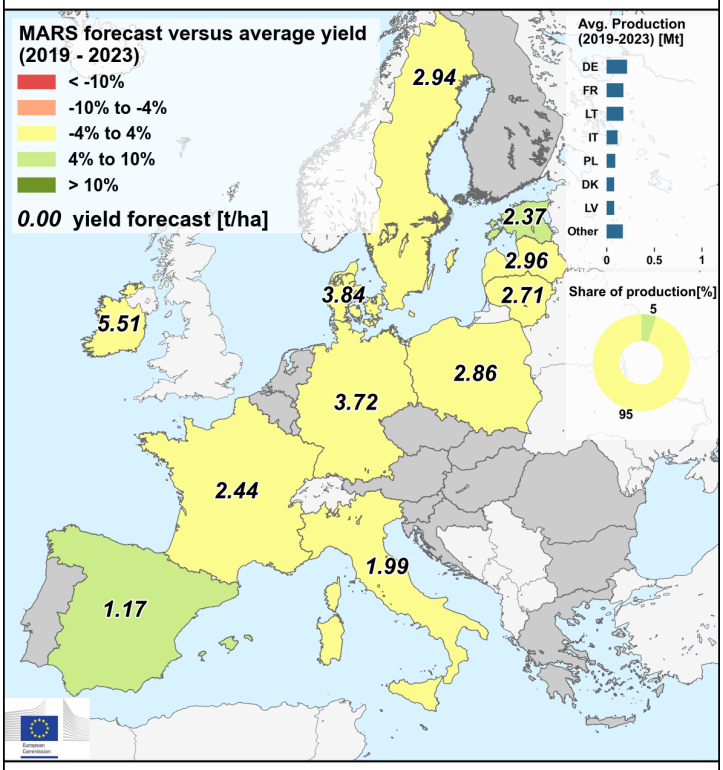
Country	Field beans (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	2.74	2.62	**2.85**	+ 4	+ 9	– 0
AT	—	—	—	—	—	—
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	—	—	—	—	—	—
DE	3.60	3.10	**3.72**	+ 3	+ 20	+ 0
DK	3.84	3.33	**3.84**	– 0	+ 15	+ 0
EE	2.26	2.40	**2.37**	+ 5	– 1	+ 0
EL	—	—	—	—	—	—
ES	1.11	0.97	**1.17**	+ 5	+ 20	+ 2
FI	—	—	—	—	—	—
FR	2.43	2.75	**2.44**	+ 0	– 11	+ 0
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	5.33	5.00	**5.51**	+ 3	+ 10	+ 0
IT	1.93	1.98	**1.99**	+ 3	+ 1	– 1
LT	2.70	2.30	**2.71**	+ 0	+ 18	+ 0
LU	—	—	—	—	—	—
LV	2.88	2.47	**2.96**	+ 3	+ 20	+ 0
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.87	3.15	**2.86**	– 1	– 9	+ 0
PT	—	—	—	—	—	—
RO	—	—	—	—	—	—
SE	2.94	2.42	**2.94**	+ 0	+ 22	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Field beans - yield forecast 2024



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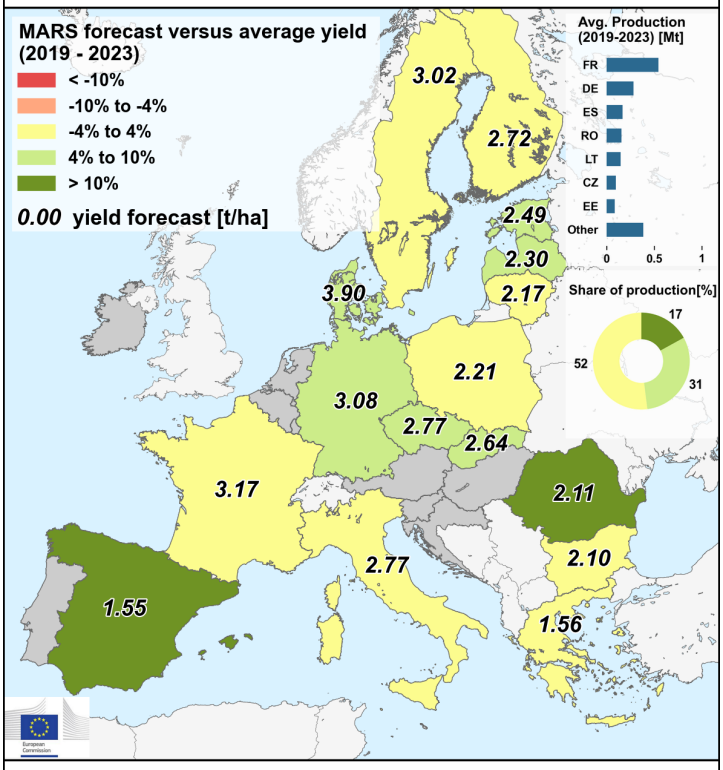
Country	Field peas (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
EU	2.34	2.02	**2.47**	+ 6	+ 23	– 1
AT	—	—	—	—	—	—
BE	—	—	—	—	—	—
BG	2.04	1.90	**2.10**	+ 3	+ 10	+ 0
CY	—	—	—	—	—	—
CZ	2.59	2.42	**2.77**	+ 7	+ 15	+ 0
DE	2.95	2.25	**3.08**	+ 4	+ 37	+ 0
DK	3.65	2.85	**3.90**	+ 7	+ 37	+ 0
EE	2.34	2.46	**2.49**	+ 6	+ 1	+ 0
EL	1.56	1.62	**1.56**	+ 0	– 4	+ 0
ES	1.16	0.67	**1.55**	+ 34	+ 131	+ 0
FI	2.64	2.54	**2.72**	+ 3	+ 7	+ 0
FR	3.16	3.21	**3.17**	+ 0	– 1	+ 0
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	—	—	—	—	—	—
IT	2.82	2.65	**2.77**	– 2	+ 4	+ 0
LT	2.12	2.00	**2.17**	+ 2	+ 8	+ 0
LU	—	—	—	—	—	—
LV	2.18	2.20	**2.30**	+ 6	+ 5	– 4
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.16	2.27	**2.21**	+ 3	– 3	+ 0
PT	—	—	—	—	—	—
RO	1.82	2.07	**2.11**	+ 16	+ 2	+ 2
SE	2.97	2.11	**3.02**	+ 2	+ 43	+ 0
SI	—	—	—	—	—	—
SK	2.47	2.07	**2.64**	+ 7	+ 27	+ 0

Field peas - yield forecast 2024



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Country	Wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
BY	3.54	3.38	**3.65**	+ 3	+ 8	+ 0
DZ	1.64	N/A	**1.66**	+ 2	N/A	+ 6
MA	1.61	1.71	**1.23**	– 24	– 28	+ 3
TN	2.07	N/A	**2.26**	+ 9	N/A	+ 0
TR	2.93	3.22	**3.03**	+ 4	– 6	– 2
UA	4.22	4.63	**4.46**	+ 6	– 4	+ 3
UK	8.17	8.10	**7.76**	– 5	– 4	– 0

Country	Barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
BY	2.88	2.75	**3.03**	+ 5	+ 10	+ 0
DZ	1.13	N/A	**1.16**	+ 3	N/A	+ 2
MA	1.04	1.09	**0.78**	– 24	– 28	+ 2
TN	1.18	N/A	**1.22**	+ 3	N/A	– 6
TR	2.52	2.78	**2.76**	+ 10	– 1	+ 1
UA	3.47	3.74	**3.73**	+ 7	– 0	+ 4
UK	6.31	6.10	**6.33**	+ 0	+ 4	+ 0

Country	Grain maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
BY	5.43	5.56	**5.74**	+ 6	+ 3	+ 0
DZ	—	—	**—**	—	—	—
MA	—	—	**—**	—	—	—
TN	—	—	**—**	—	—	—
TR	9.29	9.40	**9.52**	+ 3	+ 1	+ 0
UA	6.88	7.60	**7.44**	+ 8	– 2	+ 3
UK	—	—	**—**	—	—	—

Country	Soybean (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff May/April
BY	—	—	**—**	—	—	—
DZ	—	—	**—**	—	—	—
MA	—	—	**—**	—	—	—
TN	—	—	**—**	—	—	—
TR	4.22	4.21	**4.36**	+ 3	+ 4	+ 0
UA	2.37	2.60	**2.57**	+ 8	– 1	+ 3
UK	—	—	**—**	—	—	—

NB: Yields are forecast for crops with more than 10 000 ha per country with sufficently long and coherent yield time series.

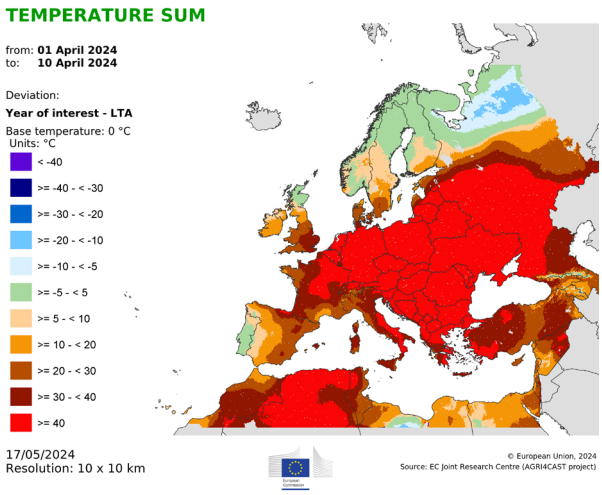
Sources: 2019-2024 data come from DG Agriculture and Rural Development short-term-outlook data (dated April 2024, received on 07.05.2024), Eurostat Eurobase (last update: 08.05.2024), ELSTAT, Statistics Netherlands (CBS) and EES (last update: 15.11.2017).
Non-EU 2019-2023 data come from USDA, INRA Maroc, ONICL Maroc, Ministère de l'Agriculture, de la Pêche Maritime du Développement Rural et des Eaux et Forêts Maroc, Ministère de l'agriculture des ressources hydrauliques et de la pêche Tunisie, MED-Amin baseline DB, DSASI-MADR Algeria, Turkish Statistical Institute (TurkStat), Eurostat Eurobase (last update: 08.05.2024), Department for Environment, Food & Rural Affairs of UK (DEFRA), Ministry for Development of Economy, Trade and Agriculture of Ukraine, FAO and PSD-online.
2024 yields come from MARS Crop Yield Forecasting System (output up to 20.05.2024).
EU aggregate after 1.2.2020 is reported.
N/A = Data not available.
The column header '%24/5yrs' stands for the 2024 change with respect to the 5-year average(%). Similarly, '%24/23' stands for the 2024 change with respect to 2023(%).

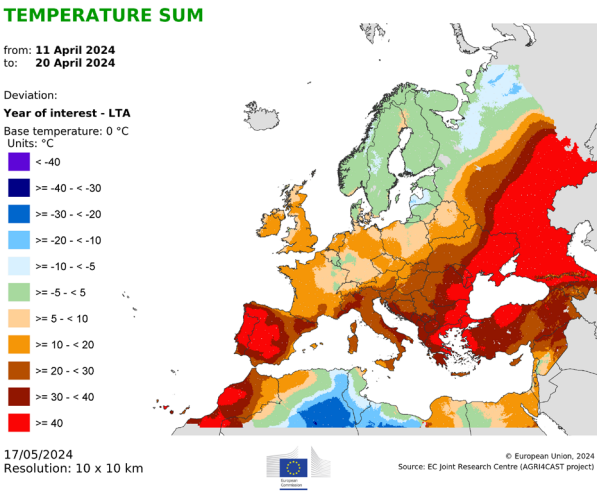
Cop name	Eurostat Crop name	Eurostat Crop Code	Official Eurostat Crop definition*
Total wheat	Wheat and spelt	C1100	Common wheat (*Triticum aestivum* L. emend. Fiori et Paol.), spelt (*Triticum spelta* L.), einkorn wheat (*Triticum monococcum* L.) and durum wheat (*Triticum durum* Desf.).
Total barley	Barley	C1300	Barley (*Hordeum vulgare* L.).
Soft wheat	Common wheat and spelt	C1110	Common wheat (*Triticum aestivum* L. emend. Fiori et Paol.), spelt (*Triticum spelta* L.) and einkorn wheat (*Triticum monococcum* L.).
Durum what	Durum wheat	C1120	*Triticum durum* Desf.
Spring barley	Spring barley	C1320	Barley (*Hordeum vulgare* L.) sown in the spring.
Winter barley	Winter barley	C1310	Barley (*Hordeum vulgare* L.) sown before or during winter.
Grain maize	Grain maize and corn-cob-mix	C1500	Maize (*Zea mays* L.) harvested for grain, as seed or as corn-cob-mix.
Green maize	Green maize	G3000	All forms of maize (*Zea mays* L.) grown mainly for silage (whole cob, parts of or whole plant) and not harvested for grain.
Rye	Rye and winter cereal mixtures (maslin)	C1200	Rye (*Secale cereale* L.) sown any time, mixtures of rye and other cereals and other cereal mixtures sown before or during the winter (maslin).
Triticale	Triticale	C1600	Triticale (x *Triticosecale* Wittmack).
Rape and turnip rape	Rape and turnip rape seeds	I1110	Rape (*Brassica napus* L.) and turnip rape (*Brassica rapa* L. var. oleifera (Lam.)) grown for the production of oil, harvested as dry grains.
Sugar beet	Sugar beet (excluding seed)	R2000	Sugar beet (*Beta vulgaris* L.) intended for the sugar industry, alcohol production or renewable energy production.
Potatoes	Potatoes (including seed potatoes)	R1000	Potatoes (*Solanum tuberosum* L.).
Sunflower	Sunflower seed	I1120	Sunflower (*Helianthus annuus* L.) harvested as dry grains.
Soybeans	Soya	I1130	Soya (*Glycine max* L. Merril) harvested as dry grains.
Field beans	Broad and field beans	P1200	All varieties of broad and field beans (Faba vulgaris (Moench) syn. Vicia faba L. (partim)) harvested dry for grain, including seed.
Field peas	Field peas	P1100	All varieties of field peas (Pisum sativum L. convar. sativum or Pisum sativum L. convar. arvense L. or convar. speciosum) harvested dry for grain, including seed.
Rice	Rice	C2000	Rice (*Oryza sativa*, L.).

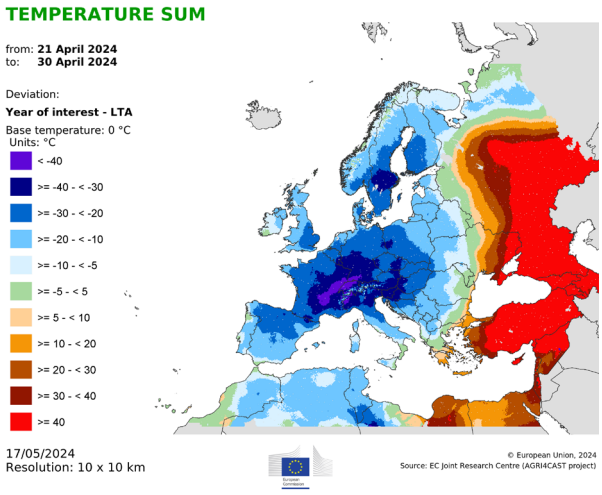
** Source:* Eurostat - Annual crop statistics (Handbook 2020 Edition)

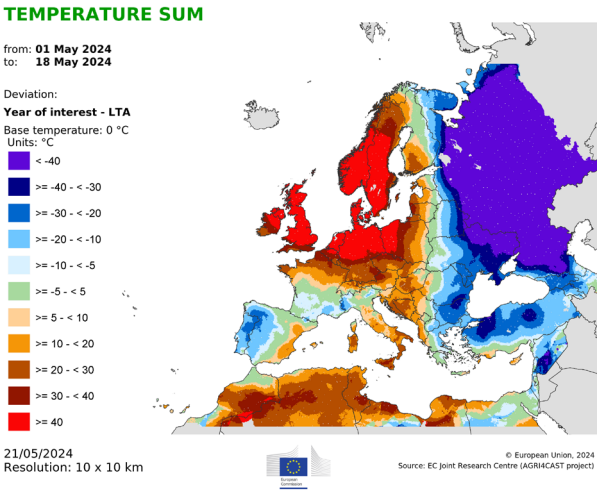
7. Atlas

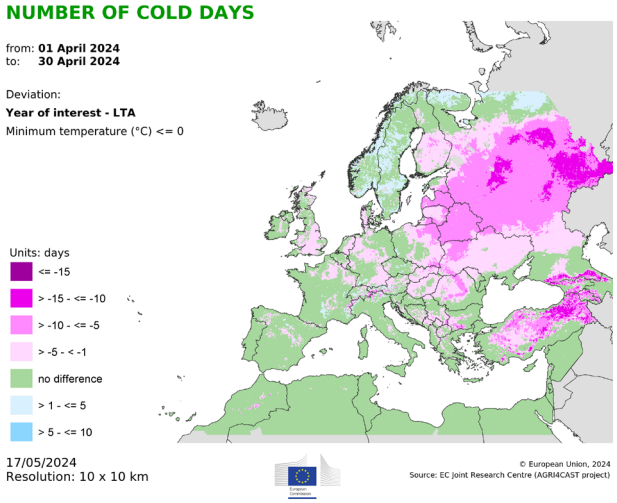
Temperature regime

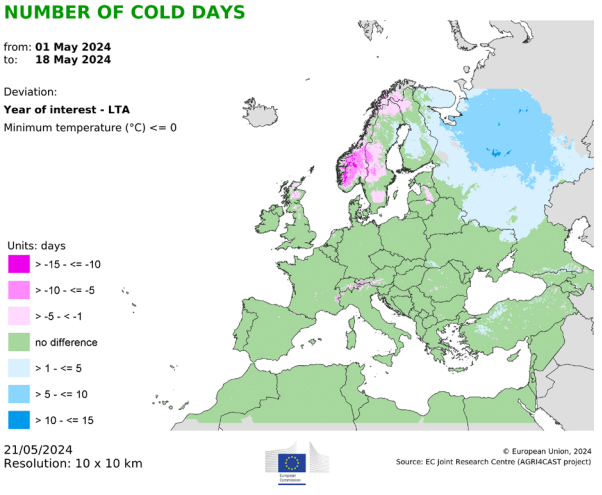


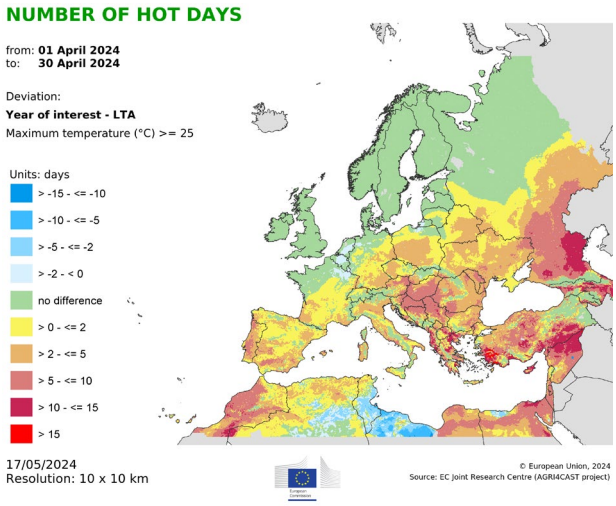


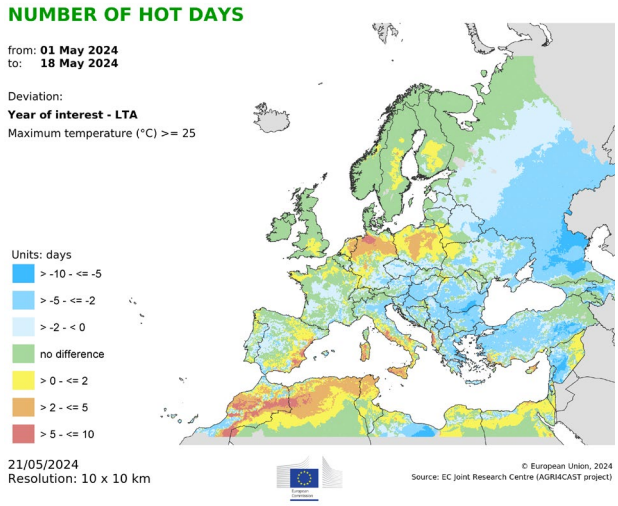




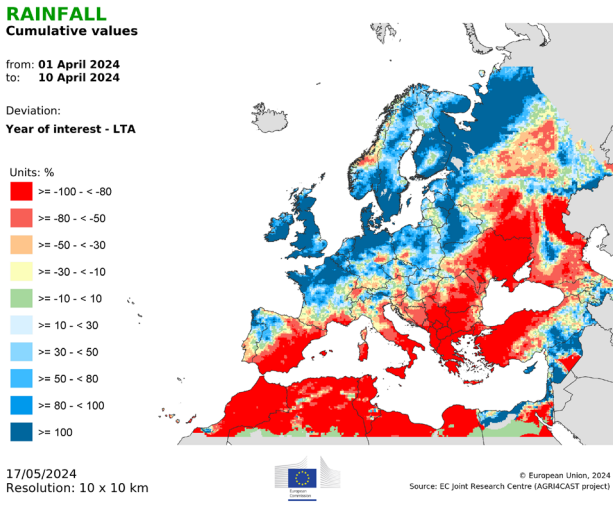


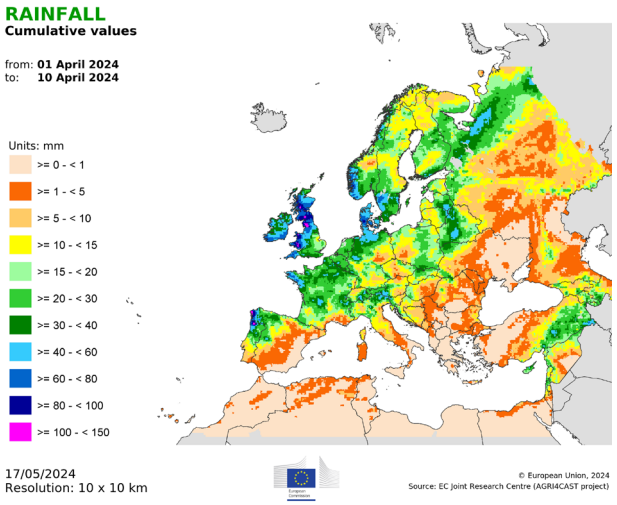


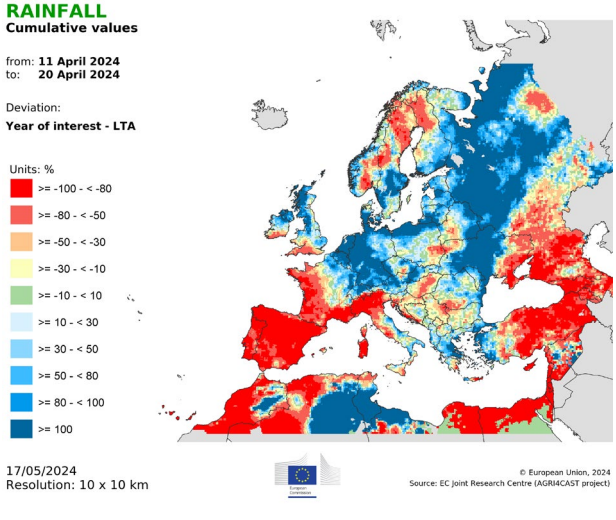


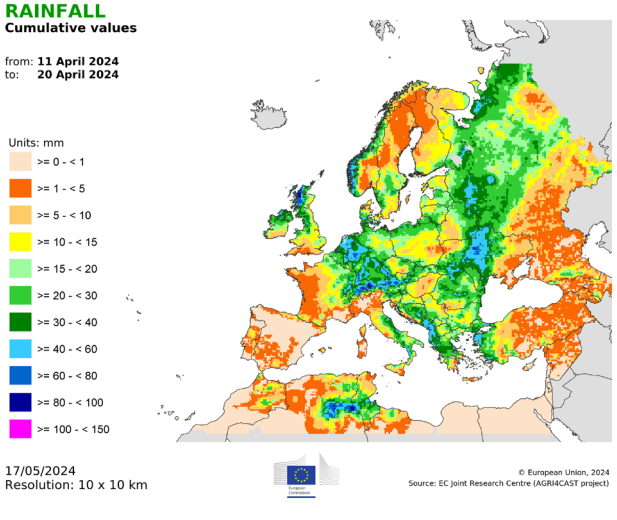


Precipitation







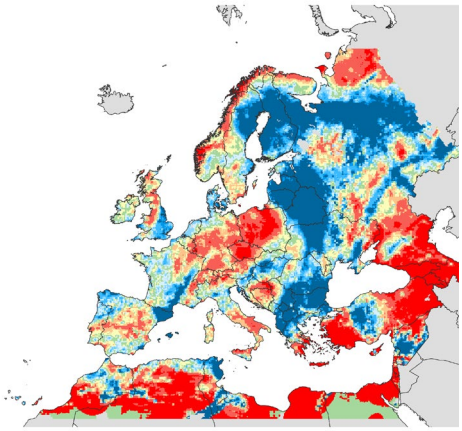


RAINFALL
Cumulative values

from: **21 April 2024**
to: **30 April 2024**

Deviation:
Year of interest - LTA

Units: %
- >= -100 - < -80
- >= -80 - < -50
- >= -50 - < -30
- >= -30 - < -10
- >= -10 - < 10
- >= 10 - < 30
- >= 30 - < 50
- >= 50 - < 80
- >= 80 - < 100
- >= 100

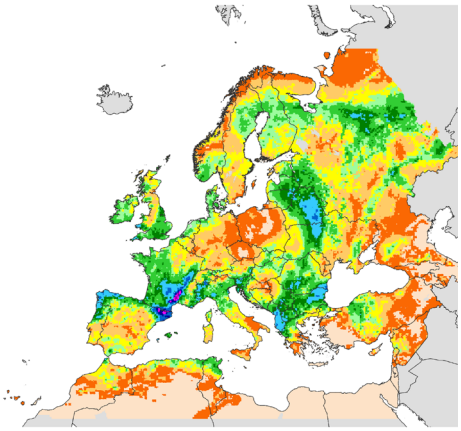


17/05/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **21 April 2024**
to: **30 April 2024**

Units: mm
- >= 0 - < 1
- >= 1 - < 5
- >= 5 - < 10
- >= 10 - < 15
- >= 15 - < 20
- >= 20 - < 30
- >= 30 - < 40
- >= 40 - < 60
- >= 60 - < 80
- >= 80 - < 100
- >= 100 - < 150
- >= 150



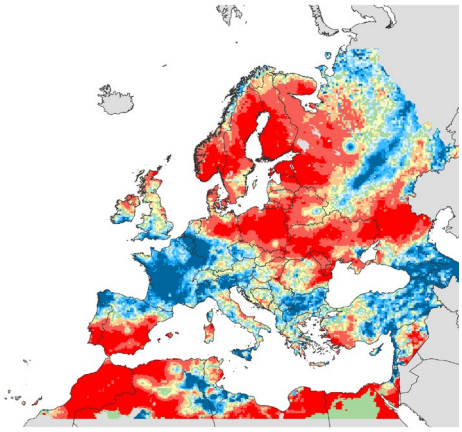
17/05/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **01 May 2024**
to: **18 May 2024**

Deviation:
Year of interest - LTA

Units: %
- >= -100 - < -80
- >= -80 - < -50
- >= -50 - < -30
- >= -30 - < -10
- >= -10 - < 10
- >= 10 - < 30
- >= 30 - < 50
- >= 50 - < 80
- >= 80 - < 100
- >= 100

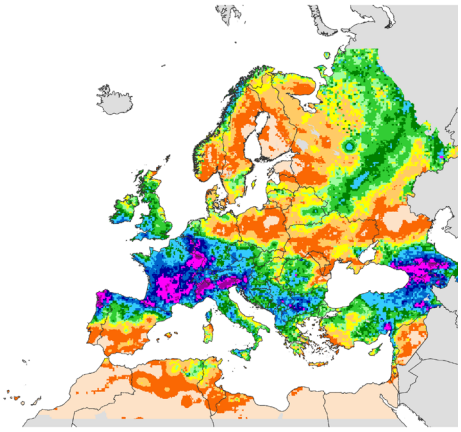


21/05/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **01 May 2024**
to: **18 May 2024**

Units: mm
- >= 0 - < 1
- >= 1 - < 5
- >= 5 - < 10
- >= 10 - < 15
- >= 15 - < 20
- >= 20 - < 30
- >= 30 - < 40
- >= 40 - < 60
- >= 60 - < 80
- >= 80 - < 100
- >= 100 - < 150
- >= 150



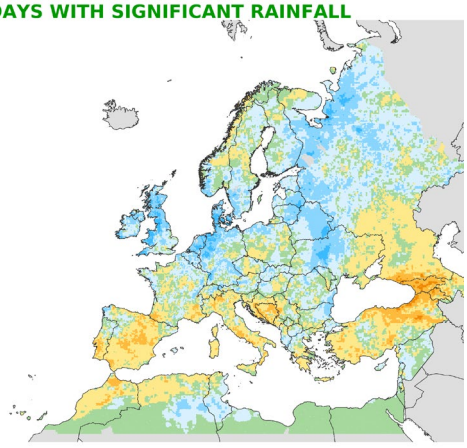
21/05/2024
Resolution: 10 x 10 km

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from: **01 April 2024**
to: **30 April 2024**

Deviation:
Year of interest - LTA
Rain (mm) > 5

Units: days
- 11 - 15
- 6 - 10
- 3 - 5
- 1 - 2
- no difference
- -2 - -1
- -5 - -3
- -10 - -6



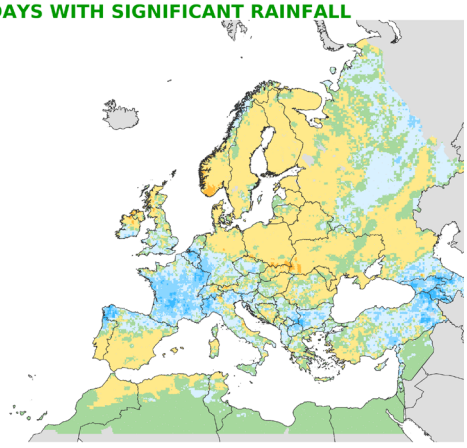
17/05/2024
Resolution: 10 x 10 km

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from: **01 May 2024**
to: **18 May 2024**

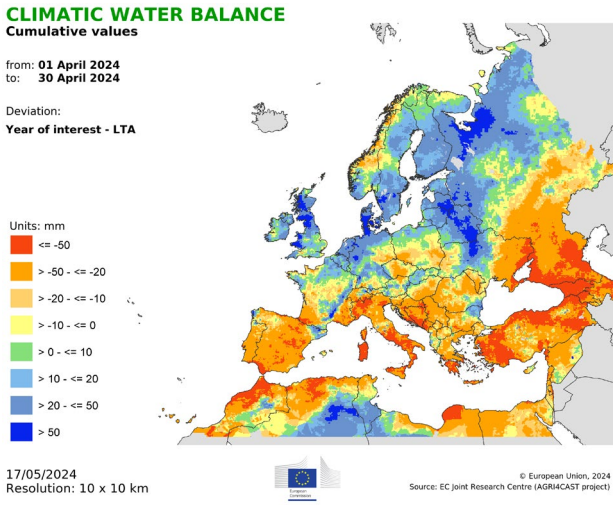
Deviation:
Year of interest - LTA
Rain (mm) > 5

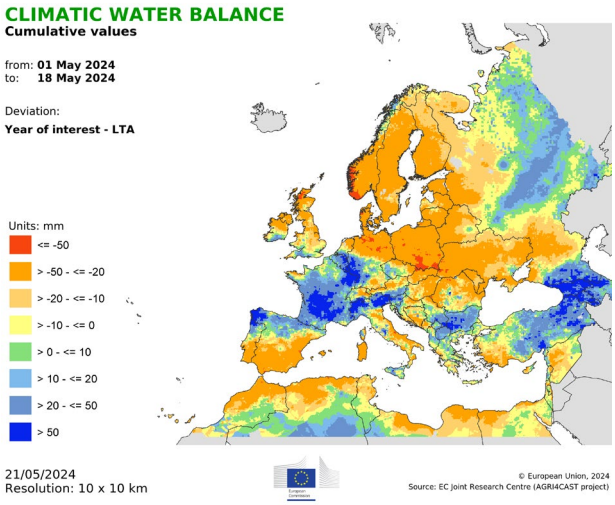
Units: days
- 11 - 15
- 6 - 10
- 3 - 5
- 1 - 2
- no difference
- -2 - -1
- -5 - -3



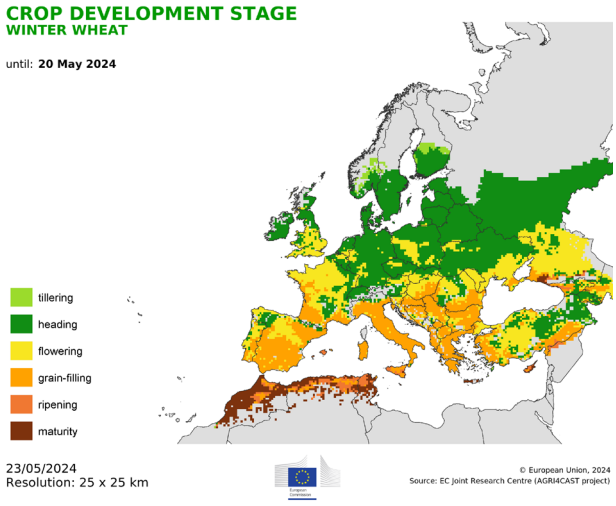
21/05/2024
Resolution: 10 x 10 km

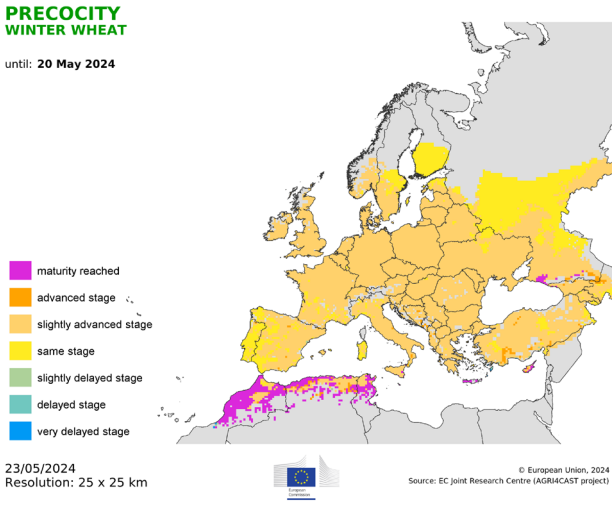
Climatic water balance

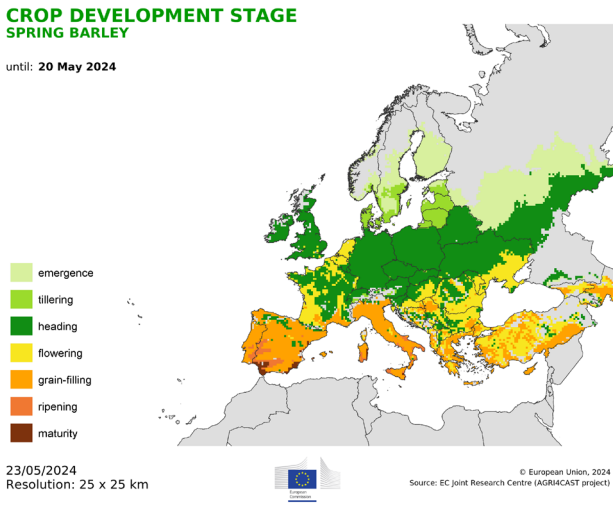


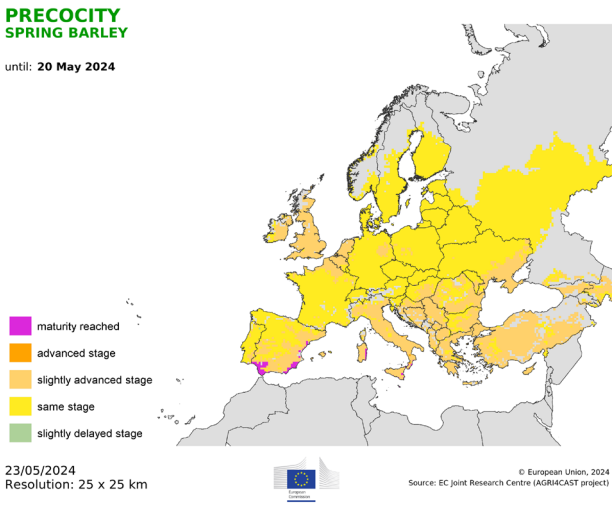


Crop development stages and precocity

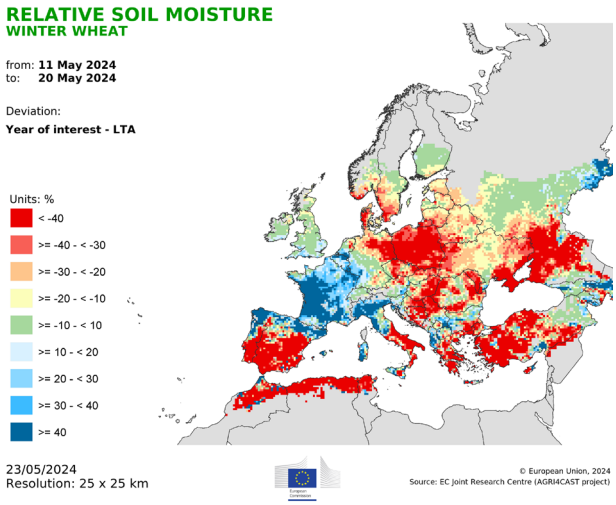


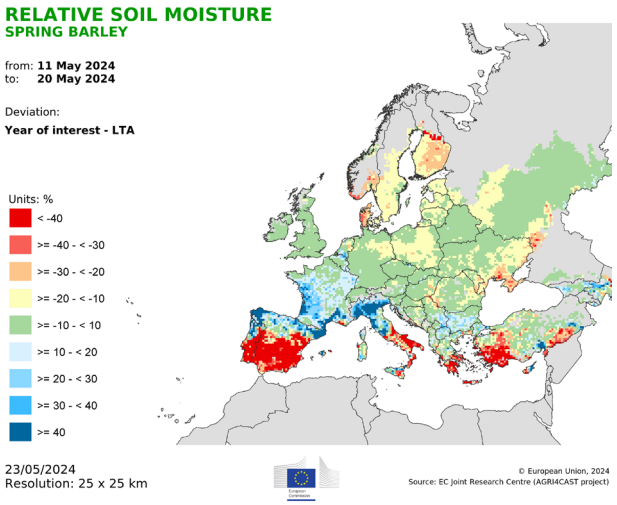




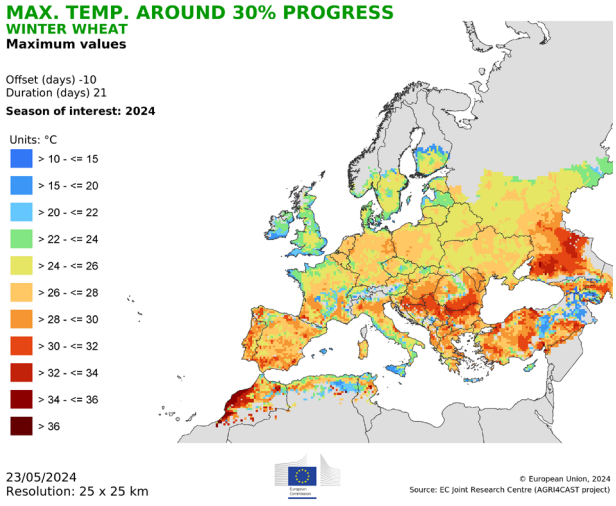


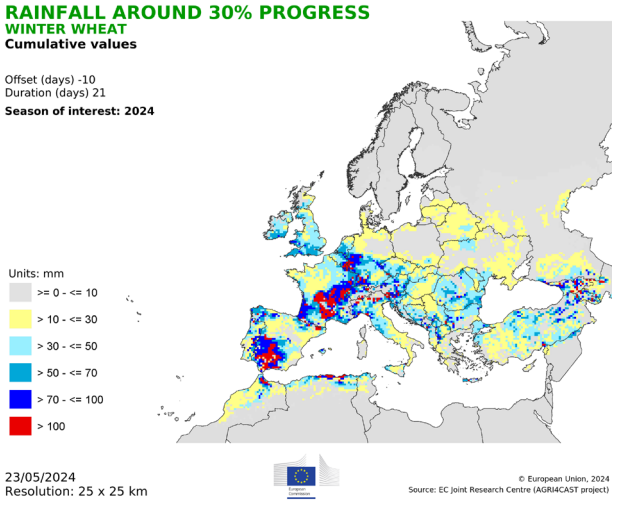
Relative soil moisture





Maximum temperature and precipitation around crops development





JRC MARS Bulletin 2024

Date	Publication	Reference
22 Jan	Agromet analysis	Vol. 32 No 1
26 Feb	Agromet analysis	Vol. 32 No 2
25 Mar	Agromet analysis, yield forecast	Vol. 32 No 3
22 Apr	Agromet analysis, remote sensing, pasture analysis, sowing conditions, yield forecast	Vol. 32 No 4
27 May	Agromet analysis, remote sensing, pasture analysis, sowing update, yield forecast	Vol. 32 No 5
24 Jun	Agromet analysis, remote sensing, pasture analysis, rice analysis, yield forecast	Vol. 32 No 6
22 Jul	Agromet analysis, remote sensing, pasture analysis, harvesting conditions, yield forecast	Vol. 32 No 7
26 Aug	Agromet analysis, remote sensing, pasture update, harvesting update, yield forecast	Vol. 32 No 8
23 Sep	Agromet analysis, remote sensing, pasture analysis, rice analysis, harvesting update, yield forecast	Vol. 32 No 9
28 Oct	Agromet analysis, pasture update, sowing conditions, harvesting update, yield forecast	Vol. 32 No 10
25 Nov	Agromet analysis, sowing update, harvesting update	Vol. 32 No 11
16 Dec	Agromet analysis	Vol. 32 No 12

Mission statement

The Joint Research Centre provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society.

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Analysis and reports

Biavetti, I., Bussay, A., Cerrani, I., Claverie, M., De Palma, P., Fumagalli, D., Luque Reyes, J., Manfron, G., Morel, J., Niemeyer, S., Nisini, L., Panarello, L., Rossi, M., Sedano, F., Seguini, L., Tarnavsky, E., Todoroff, P., van den Berg, M., Zucchini, A.

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Technical note

The long-term average (LTA) used within this Bulletin as a reference is calculated on the basis of weather data from 1991-2023.

Publications Office of the European Union