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European Commission

JRC MARS Bulletin

Crop monitoring in Europe

July 2024

Water excess in the west; hot and dry in the east

Yield forecasts revised further downwards

At EU level, yield forecasts for almost all crops were revised downwards; but remain close to the 5-year average. The most distinct downward revisions were for sunflowers, grain maize and field peas. The forecasts for spring barley and durum wheat were revised slightly upwards.

The main reasons for the worsened yield expectations are hot and dry conditions in south-eastern Europe, whereas large areas in the west continued to present unfavourable wet conditions.

In large parts of southern-central and south-eastern Europe, June and July were exceptionally hot, with several days with maximum temperatures above 35°C, negatively affecting summer crops around flowering. Notably in eastern Hungary, eastern Romania, Bulgaria, and Greece the high temperatures were coupled with a persistent rain deficit, exacerbating these negative impacts. Winter- and spring cereals were less affected in these regions, as they had already reached the end of the growth cycle.

An exception to the overall mediocre yield outlook is spring barley for which the yield forecast is comfortably above the 5-year average, and was further revised upwards, thanks to continued favourable conditions in Spain as well as in northern Europe.

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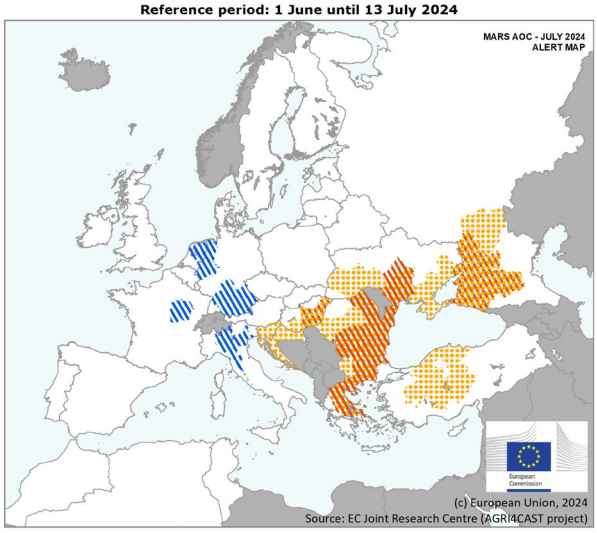
4. Country analysis
5. Crop yield forecast
6. Atlas

Covers the period from 1 June until 13 July

AREAS OF CONCERN - ALERT MAP

Reference period: 1 June until 13 July 2024



Crop	Yield t/ha				
	Avg 5yrs	June Bulletin	MARS 2024 forecasts	%24/5yrs	% Diff June
Total cereals	5.48	5.59	**5.50**	+ 0	– 2
Total wheat	5.64	5.64	**5.65**	+ 0	+ 0
Soft wheat	5.86	5.86	**5.87**	+ 0	+ 0
Durum wheat	3.45	3.30	**3.35**	– 3	+ 2
Total barley	4.93	5.14	**5.09**	+ 3	– 1
Spring barley	4.08	4.39	**4.44**	+ 9	+ 1
Winter barley	5.91	5.96	**5.76**	– 2	– 3
Grain maize	7.35	7.55	**7.24**	– 2	– 4
Rye	4.15	4.30	**4.26**	+ 3	– 1
Triticale	4.33	4.47	**4.43**	+ 2	– 1
Rape and turnip rape	3.17	3.16	**3.10**	– 2	– 2
Potatoes	35.4	35.8	**35.1**	– 1	– 2
Sugar beet	73.1	74.4	**73.4**	+ 0	– 1
Sunflower	2.15	2.20	**2.09**	– 2	– 5
Soybeans	2.73	2.91	**2.86**	+ 4	– 2
Field beans	2.72	2.83	**2.83**	+ 4	+ 0
Field peas	2.33	2.45	**2.30**	– 2	– 6
Green maize	41.7	—	**42.7**	+ 3	—

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Joint Research Centre

1. Agrometeorological overview

1.1. Areas of concern

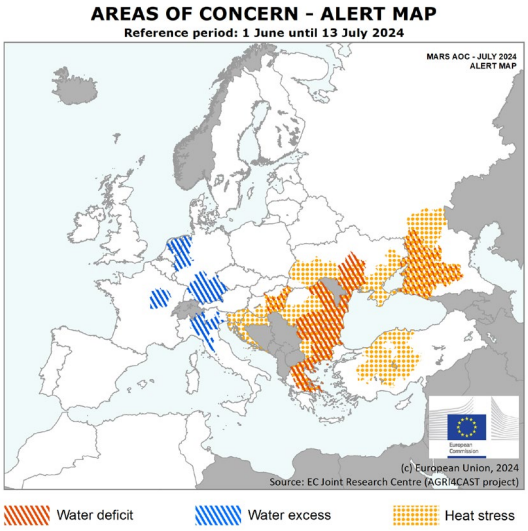
Since March, the areas-of-concern analysis has followed a different approach from that used for previous MARS Bulletins. The ***crop impacts*** *maps show regions where crops (winter, spring or summer) have been negatively affected in terms of area and/or yield. These maps show* ***impacts that have occurred since the start of the season****. However, reductions in areas sown or resowing of specific crops with no impact on expected yields are shown only once in the section on areas of concern of the reference edition of the bulletin. The* ***alert map*** *shows unusual weather events with potential negative* ***impacts on crops that occurred during the review period, from 1 June to 13 July****.*

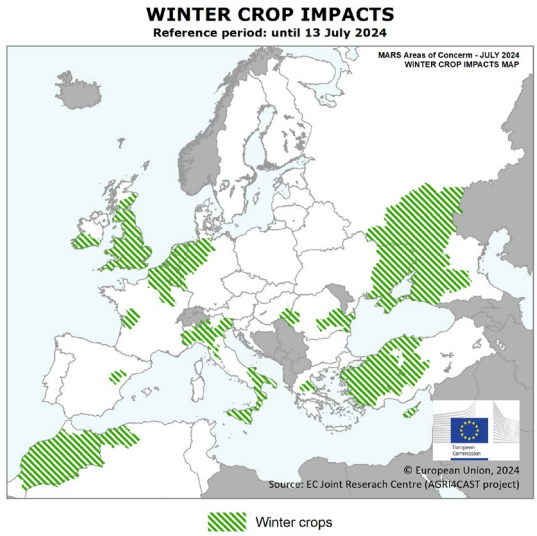
Most of the impacts shown in the impact map for winter crops are associated with negative events that have occurred since the start of the season, not during the review period. This applies to most of the areas marked as impacted in the United Kingdom, Ireland, western and northern France, western Türkiye, eastern Spain, Italy, eastern Romania, the Benelux countries, western Germany, the Maghreb region and Cyprus.

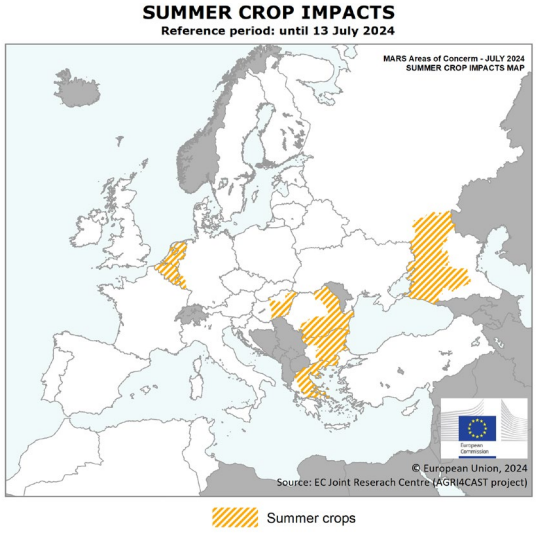
In the United Kingdom and Ireland, the overly wet conditions reported in autumn, winter and spring led to below-average growth from which crops have not recovered; and now, with crops in the grain-filling phase, yield expectations remain low, with no further room for improvement.

Water excess continues in a large part of the Netherlands, in areas in Germany bordering the Netherlands and in central-eastern France. Winter crops in those regions have been suffering since the start of the season from waterlogging, associated pest and disease pressures, and difficulties faced by farmers in conducting field operations. In the Netherlands, Belgium and Luxembourg, delays in summer crop sowing due to wet soils have not been compensated for, and it now appears unlikely that summer crops will reach average yields.

Water excess is also recorded in southern Germany and northern Italy. Despite soils being overly wet, hampering the growth of summer crops (which were sown much later than usual), these crops may still recover to produce average yields.







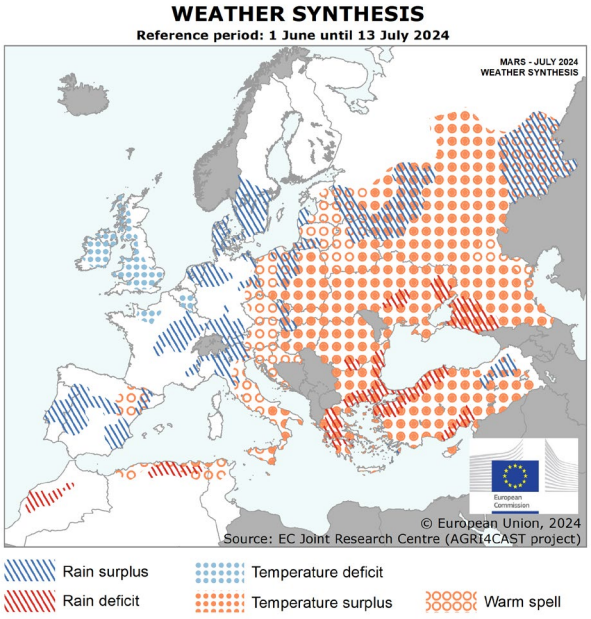
In Slovenia, Croatia, Hungary, Romania, Bulgaria, Greece and south Ukraine, the months of June and July were much hotter than usual; on several days, maximum temperatures were above 35 °C, negatively affecting summer crops near to flowering. Notably, in eastern Hungary, eastern Romania, Bulgaria and Greece the high temperatures were coupled with a persistent rain deficit, which resulted in a low level of soil moisture with a negative impact on the growth and expected yields of summer crops. Winter crops and spring cereals were not or less affected by these conditions, as they had already reached the end of their growth cycle.

In Türkiye, the temperature in June was constantly above average, thus shortening the grain-filling period for winter crops in the central region of Anatolia.

In Russia and south-east Ukraine, unfavourable dry and hot weather has been ongoing since May and has worsened the condition of spring and winter crops in all the southern oblasts.

1.2. Meteorological review (1 June –13 July)

Warmer-than-usual conditions and rain deficits persisted in southern and eastern areas, whereas cooler air travelled over the British Isles and parts of western Europe. Above-average precipitation affected many regions, from the Iberian Peninsula to the Baltic states and further north-east.



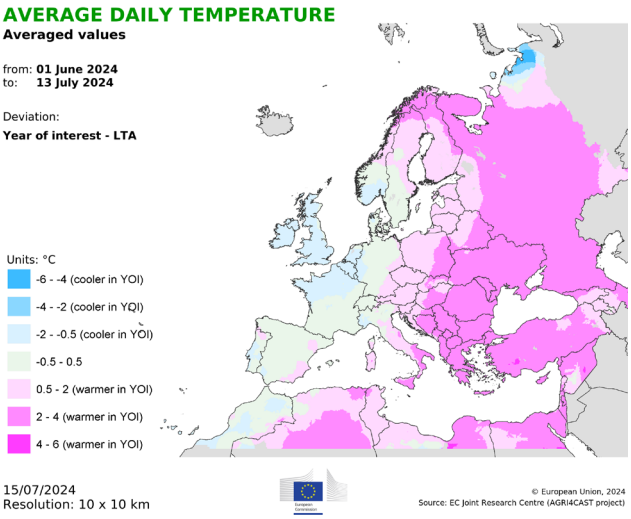
The weather synthesis map presents a summary of the most distinct weather anomalies during the reporting period (1 June to 13 July) compared with the 1991–2023 long-term average (LTA) for the same period. Temperature and rainfall surplus and deficit are unusual absolute and relative deviations from the LTA, considering the reporting period as a whole. Warm and cold spells refer to extreme temperature highs and lows, within a 5-day period relative to the 90th and 10th percentiles of the LTA, and the relevant absolute temperature thresholds. The weather synthesis map is supplemented by single-indicator maps (below), which provide further context on each type of event.

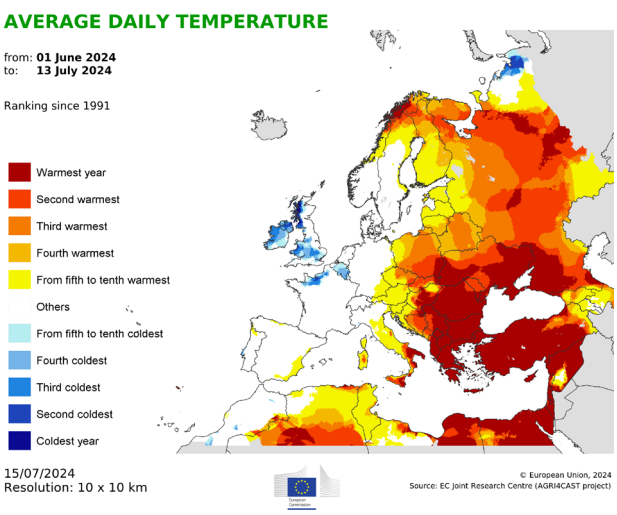
Warm spells, with average daily temperatures up to 4–6 °C above the LTA, persisted from Poland, Czechia, Austria, and Italy eastwards into the continent. A **temperature surplus** occurred in the Black Sea region and up north to inland Russia, with average daily temperatures ranking among the three warmest since our records began in 1991, and more than 6 days with a maximum daily temperature above 35 °C, particularly in the first and last dekads of the review period.

Temperature deficits, with average daily temperatures between 0.5 °C and 2 °C below the LTA, affected most of the British Isles, Belgium and the northern coast of France.

Rain surplus was most significant in parts of the Iberian Peninsula and eastern France, most of northern Italy, parts of Germany and the Netherlands, Denmark, southern Sweden, parts of Poland, the border region between Czechia and Slovakia, eastern Belarus, parts of central European Russia and the mountainous areas in north-eastern Türkiye. Particularly high rainfall surplus characterised parts of the Alps region, with more than 15 days with a cumulative daily rainfall above 5 mm. In some of these regions, cumulative rainfall was at its highest for this period since 1991, with local episodes of flooding, landslides and hail.

A marked **rain deficit**, with cumulative rainfall between 50 % and 100 % below the LTA, and less than 10 mm locally, characterised large parts of the Black Sea region and some parts of the Mediterranean region, particularly Greece and northern Africa.



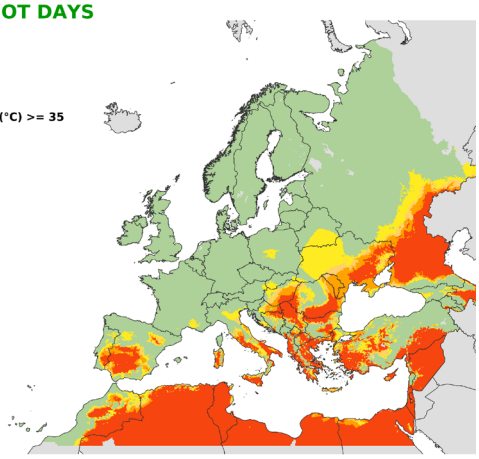


NUMBER OF HOT DAYS

from: **01 June 2024**
to: **13 July 2024**

Period of interest

Maximum temperature (°C) >= 35

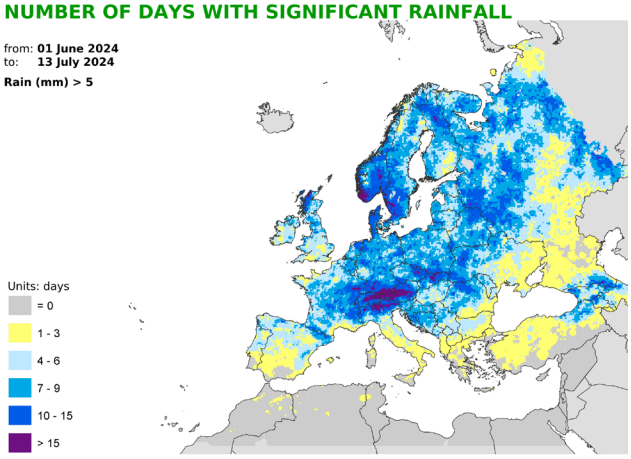


15/07/2024
Resolution: 10 x 10 km

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from: **01 June 2024**
to: **13 July 2024**

Rain (mm) > 5



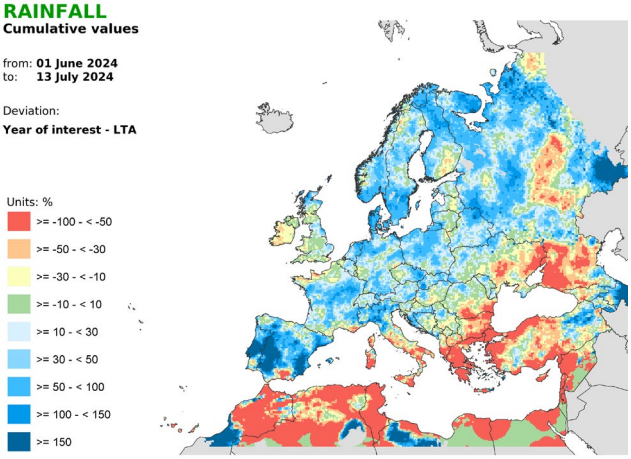
15/07/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **01 June 2024**
to: **13 July 2024**

Deviation:

Year of interest - LTA

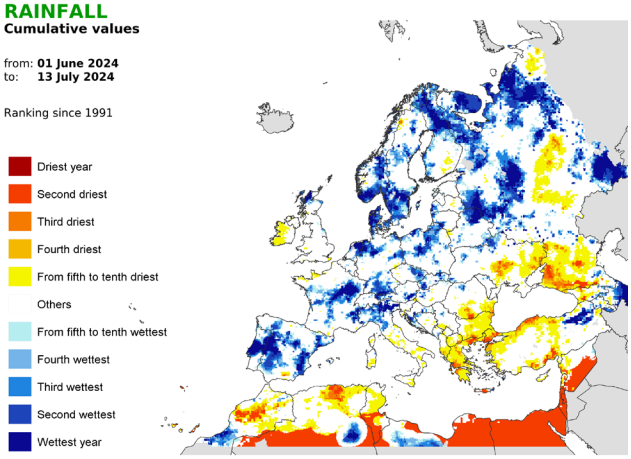


15/07/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **01 June 2024**
to: **13 July 2024**

Ranking since 1991



15/07/2024
Resolution: 10 x 10 km

1.3. Weather forecast (18 - 27 July)

Warmer-than-usual conditions persist in many parts of southern, eastern, and northern Europe, while a frontal system pushes in cold air from the Atlantic into parts of western Europe.

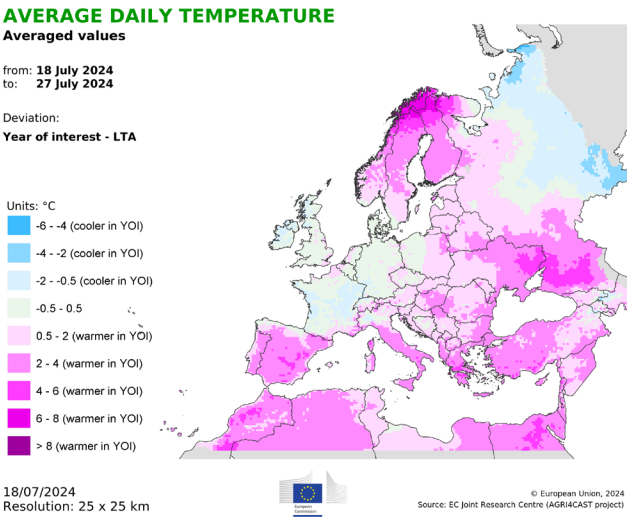
Colder-than-usual conditions (average daily temperatures up to 2 °C below the long-term average (LTA)) are forecast for Ireland and parts of France, as well as in northeastern European Russia where up to 4 °C below the LTA are forecast.

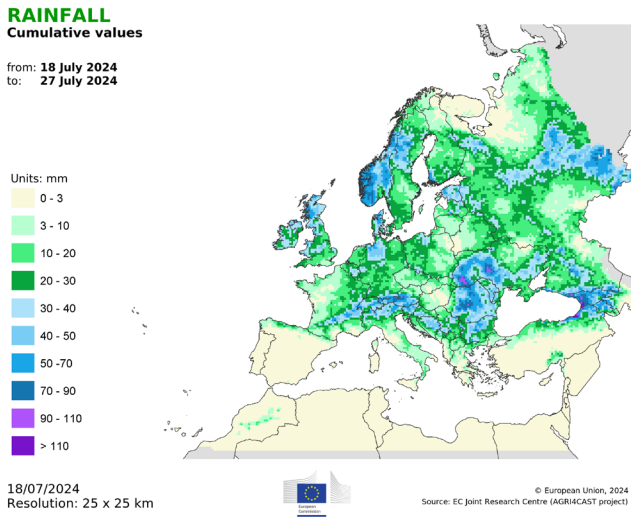
Warmer-than-usual conditions are forecast for most of the rest of Europe. The most substantial positive temperature anomalies (between 4 °C and 6 °C above the LTA) are forecast for parts of the Iberian Peninsula, eastern Ukraine, southern European Russia, and northern parts of the Scandinavian Peninsula.

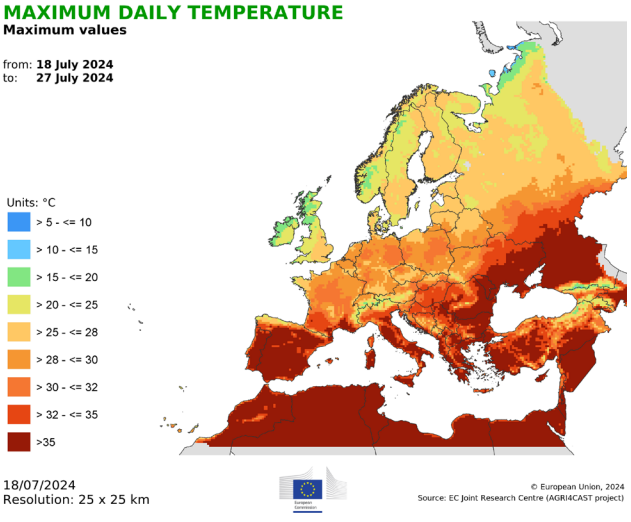
Dry conditions (total precipitation below 3 mm) are forecast for most of the Iberian Peninsula, parts of central and southern Italy (including most of Sardinia and Sicily), southern Greece, most of Türkyie, parts of Hungary and Slovakia, and the bordering region of Poland and Belarus, as well as in northern European Russia.

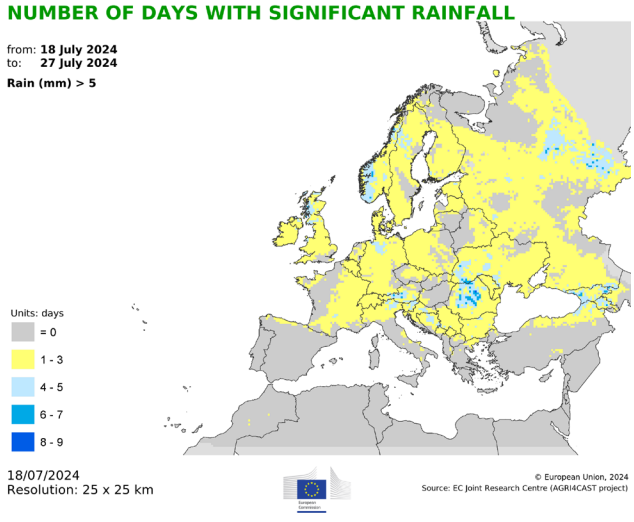
Wet conditions (precipitation above 10 mm) are forecast for most other parts of Europe, while **very wet conditions** (above 70 mm) are forecast in parts of Austria, Romania, western Ukraine, and southern Norway.

The long-range weather forecast points to highly likely warm conditions, exceeding the 24-year climatological median in August-September by up to 2 °C in most of southern Europe and up to 1 °C in the rest of Europe, and in October – by up to 1°C in most of Europe. Albeit with high uncertainty, 0-50 mm below-average precipitation is forecast for most of central and southern Europe mainly in August-September, and 0-50 mm above-average precipitation in parts of northern Europe.



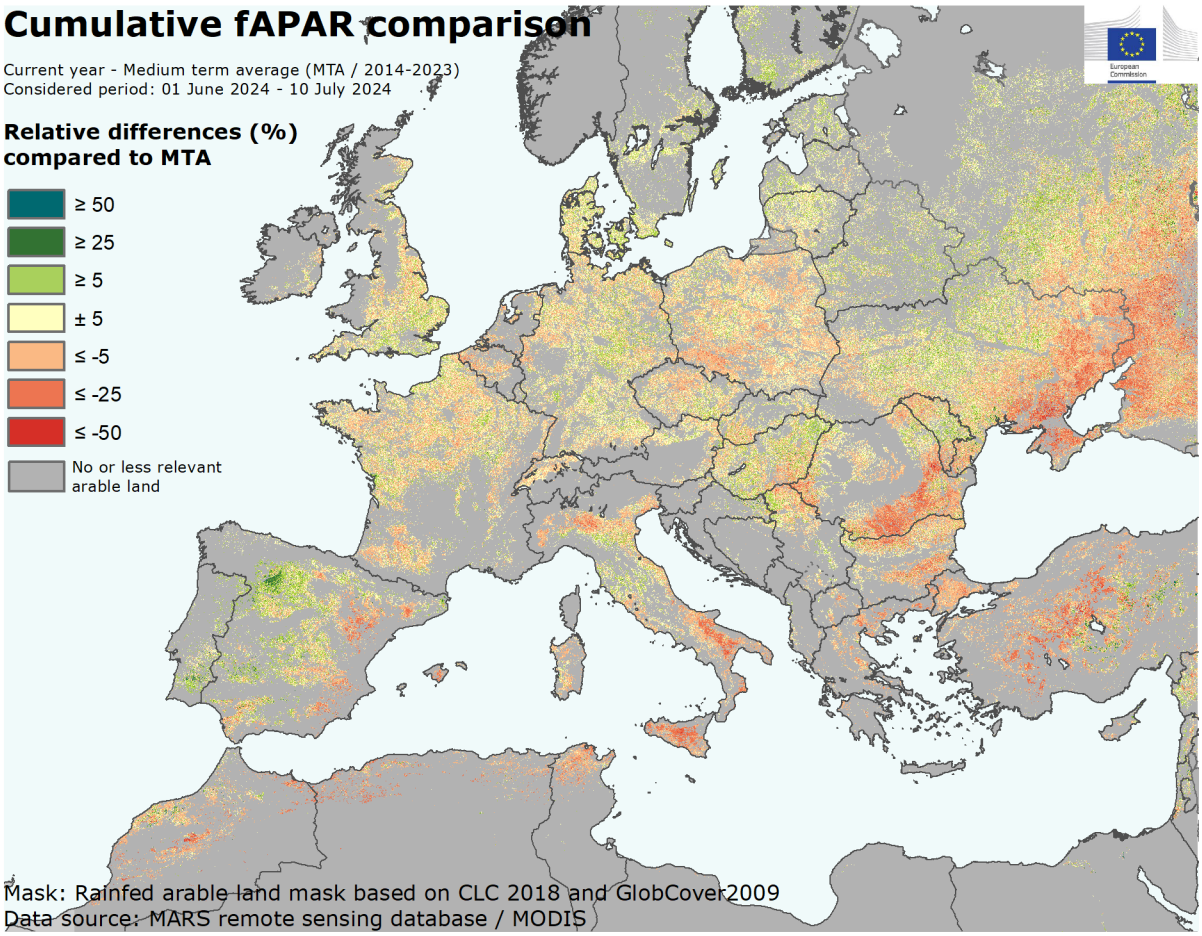






2. Remote sensing – observed canopy conditions

Worsening conditions across Europe



The map shows the difference between the fraction of absorbed photosynthetically active radiation (fAPAR) cumulated from 1 June to 10 July 2024 and the 2014-2023 medium-term average (MTA) for the same period. Positive anomalies (in green) reflect above-average canopy density, indicating above-average biomass accumulation or early crop development. Negative anomalies (in red) indicate below-average biomass accumulation or late crop development.

In southern Europe, the map predominantly depicts the state of summer crops, as winter crops either are in senescence or have already been harvested. In contrast, the results for northern Europe primarily show the condition of winter and spring crops, with summer crops contributing minimally to the overall signal. Elsewhere, the signal is a composite representation of winter, spring and summer crops.

The majority of the Iberian peninsula continues to present a positive outlook, especially in *Castilla y León* and *Castilla-La Mancha*. In the Mediterranean regions of Spain (southern *Aragon* and eastern *Albacete*) and in southern Italy, the persistent rain deficit has led to the early and accelerated ripening of winter and spring crops. The drought persisting since spring in those regions discouraged farmers from sowing rainfed summer crops in dry and sandy soil. For irrigated crops, the limited availability of water will certainly constrain irrigation. In northern Italy (e.g. *Lombardia*), the negative anomaly is attributed to the delayed growth of summer crops, due to late sowings caused by the excessive rainfall that has persisted since spring.

In south-west France, the sowing of summer crops was disrupted by continuous rainfall in May, and their early growth stages hindered by below-average temperatures. This resulted in a negative anomaly. Moving towards the north of **France** (e.g. *Picardie*), the southern **United Kingdom** and the Midlands, the **Benelux** countries and

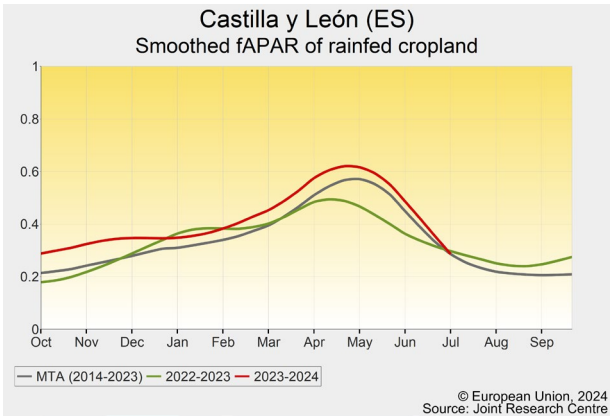
western **Germany**, the fAPAR time series reflects the impacts of excessive rainfall during most of the season, which caused unfavourable conditions for the growth of winter crops and delayed the sowing campaign for summer crops. Central **Germany** has experienced more favourable conditions, with fAPAR slightly above the MTA. In northern Europe (**Denmark** and **Sweden**), favourable conditions have resulted in fAPAR levels that are close to the average. In the **Baltic states**, the strongly positive signal observed since the start of the season was further strengthened by above-average global radiation levels present since early May (e.g. in **Latvia**).

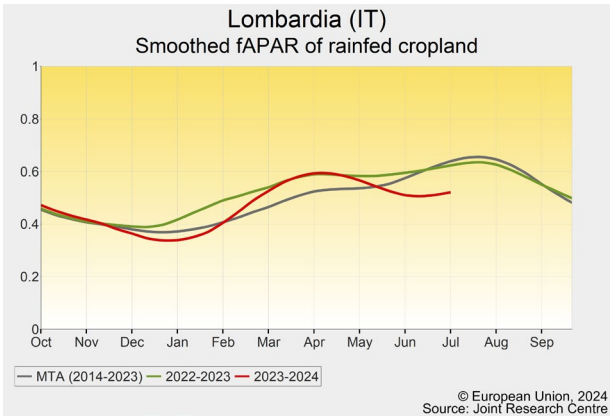
In **Poland**, eastern **Germany** and northern **Czechia**, deficits in soil moisture observed since the beginning of May have led to the premature senescence of winter crops and the early start of the harvest, resulting in lower fAPAR values.

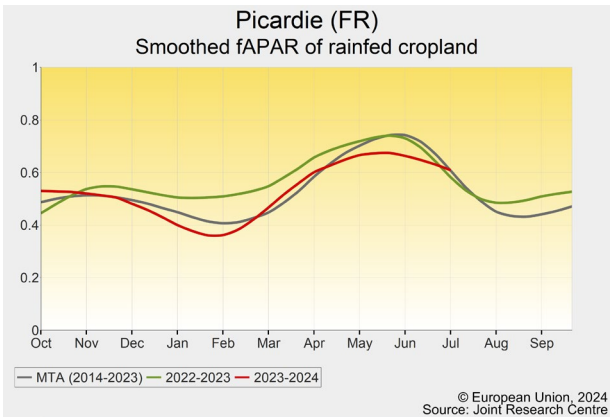
Negative anomalies associated with rain deficits and high temperatures are observed in south-eastern **Hungary** and western **Romania**. In central and western **Hungary**, conditions since May have been highly favourable, with biomass levels remaining above or close to the average (e.g. in *Dél-Dunántúl*). However, the current heatwave raises concerns.

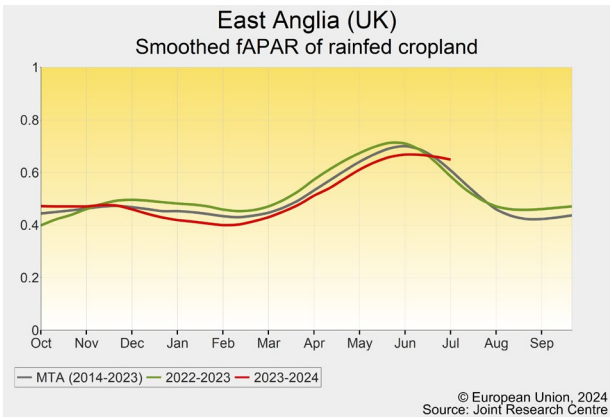
In the southern and western Black Sea regions (**Bulgaria**, **Romania** and **Türkiye**), excessively high temperatures beginning in June, coupled with a rainfall deficit starting in mid June, are having a severe impact on summer crops (e.g. in *Sud Muntenia*). This is particularly true of rainfed maize, which is currently in its flowering / early grain-filling phase. The negative anomaly in fAPAR is further exacerbated by winter crops ripening earlier than usual.

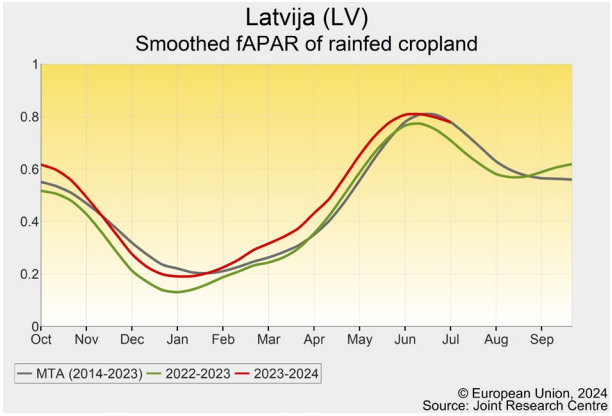
In eastern **Ukraine** and European **Russia**, the dry and hot conditions that had a detrimental effect on winter crops are continuing to adversely affect summer crops (e.g. in *Zaporz'ka*). Conversely, crops in central parts of **Ukraine** have experienced favourable conditions supported by above-average soil moisture and radiation.

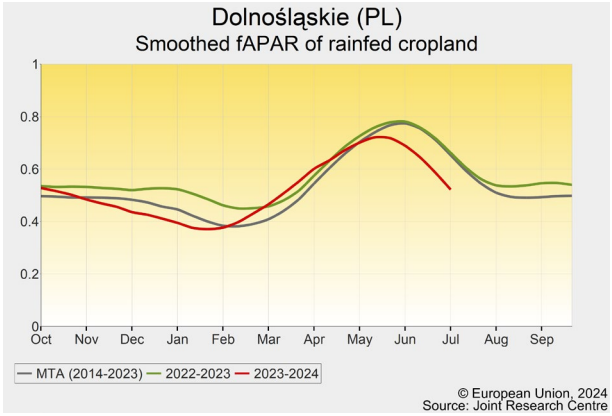


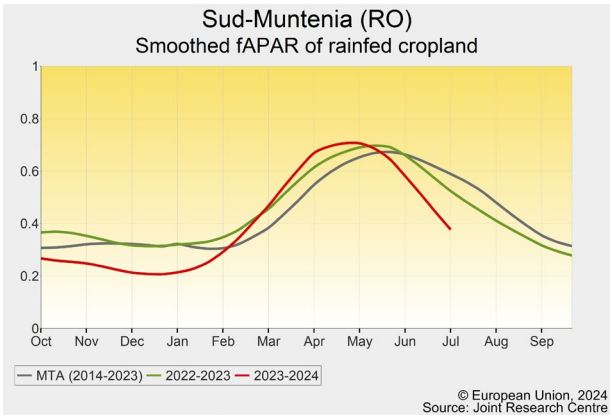


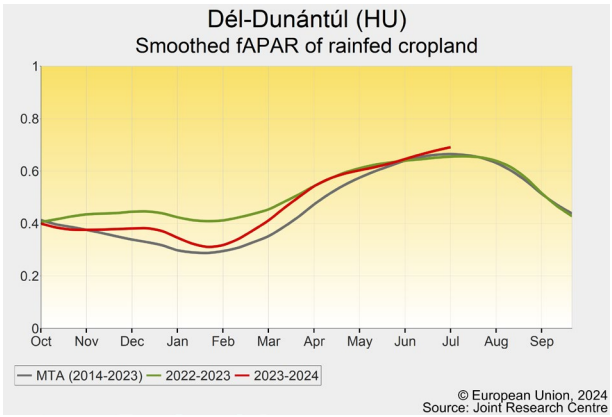





Latvija (LV)
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre


Dolnośląskie (PL)
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


Sud-Muntenia (RO)
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

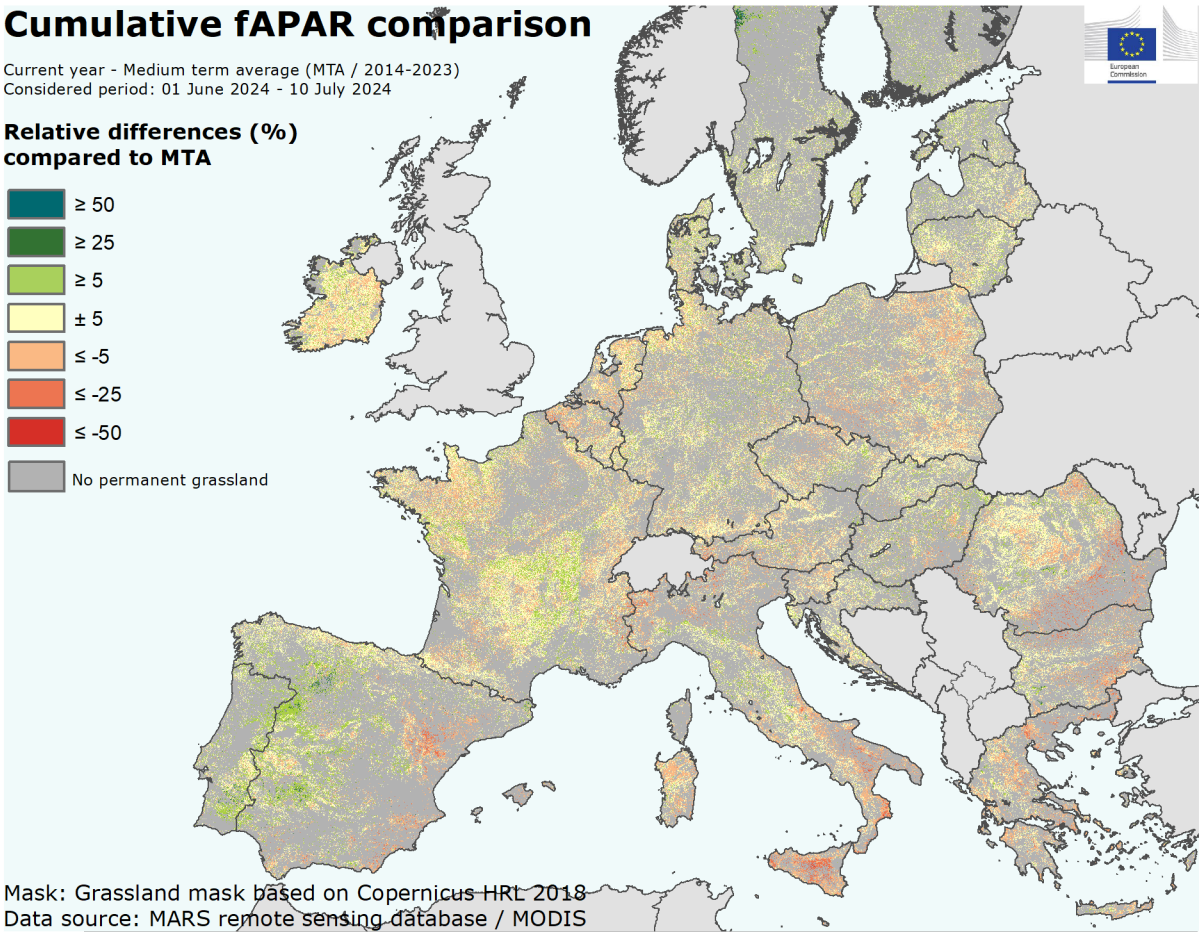

Dél-Dunántúl (HU)
Smoothed fAPAR of rainfed cropland
1
0.8
0.6
0.4
0.2
0
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre

3. Grassland and fodder monitoring

Hot periods hamper grassland growth in eastern Europe

The review period was characterised by colder-than-usual conditions and a slight radiation deficit in the north-west, and record-breaking high temperatures and rainfall deficits towards the Black Sea basin. Grassland biomass is slightly above or in line with the average in most of northern and western Europe, but wet soils are complicating field work. In the east, grasslands are negatively affected by soil water deficits and warm temperatures.

The map below displays the differences between the fAPAR accumulated from 1 June to 10 July 2024, and the MTA (2014–2023) for the same period. Positive anomalies (in green) reflect above-average photosynthetic activity and biomass accumulation, while negative anomalies (in red) reflect the opposite.



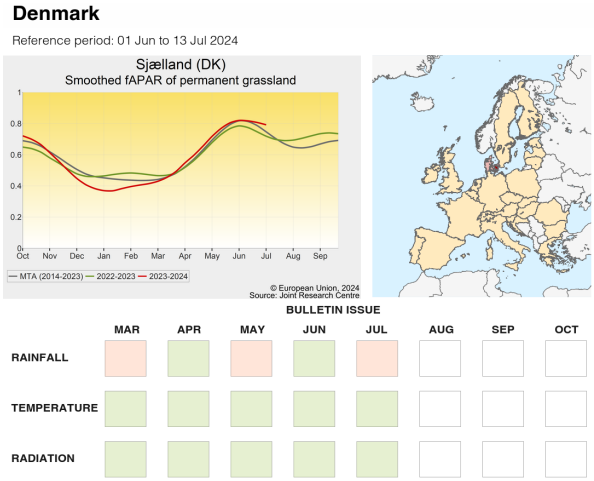
In **Ireland**, the combined lack of rainfall and relatively cool temperatures recorded over the review period are likely to have led to a reduction in the rate of biomass accumulation. In **France**, the fAPAR signal is close to average, albeit with large regional disparities. Field access in the northern half the country was complicated by prolonged rainy conditions. In the southern regions, green maize reached flowering approximately 10 days earlier than on average. In the **Benelux countries** and parts of north-western **Germany**, rainfall was less extreme but insufficient for grasslands to recover from the overly wet conditions reported in June. Colder-than-usual temperatures and a slight negative anomaly in radiation probably also contributed to limiting growth. Late-sown green maize was still affected by overly wet conditions and a lack of sunshine, reducing yield expectations. In southern **Germany**, growth conditions were generally favourable for grassland development. Negative impacts of the previously reported extreme precipitation were mostly limited to field operations hampered locally by wet conditions.

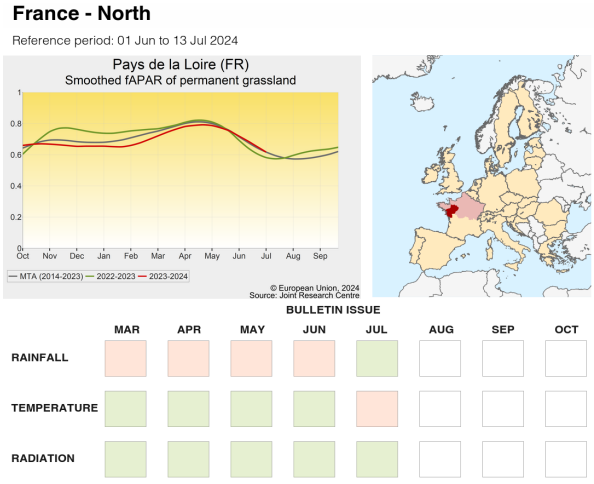
In **Finland** and the **Baltic countries**, favourable temperatures coupled with adequate rainfall helped sustain biomass accumulation, as confirmed by fAPAR signals in line with or above the MTA. Similar trends are observed for **Sweden** and **Denmark**, although wet conditions locally are complicating field access and operations for grasslands and green maize in these countries. In **Poland**, grassland biomass accumulation is at or below the average and the level in 2023, mostly because of a soil water deficit that was not completely offset by the recent rains. Rainfall has been sufficient, though, to sustain good growth of green maize.

In **Czechia**, **Slovakia** and **Austria**, weather conditions were favourable and biomass accumulation is generally in line with the MTA. In Moravia the biomass accumulation rate reached its maximum 2 weeks earlier than usual, and in northern Austria the maximum rate was reached up to 1 month earlier than usual, thanks to the warm temperatures that have prevailed since March. In **Hungary**, grassland growth is close to average, although high temperatures combined with low soil moisture reduced photosynthetic activity to below average in the eastern and south-eastern regions. In **Slovenia** and **Croatia**, excessively wet conditions led to below-average fAPAR.

In western and central **Romania**, heat spells negatively affected grasslands, with the fAPAR signal decreasing to below the average level. In southern and eastern parts of the country, the impact was even more pronounced because of the limited water availability, as shown by a fAPAR signal considerably below the MTA. Similarly, hot and dry conditions in **Bulgaria** and **Greece** were unfavourable for biomass accumulation and induced early senescence of leaves.

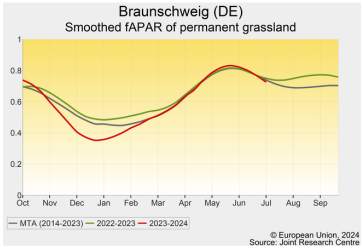
In northern **Italy**, grasslands' fAPAR signals suggest that biomass accumulation has been close to average since mid June. However, the currently very hot weather projected to last for the remainder of July could shorten the grasslands' growth cycles. Winter cereals were harvested for fodder with mixed results, and the signal of fodder summer crops (e.g. green maize) remains below average. Most of southern **Italy** suffered recurrent heatwaves, causing the early senescence of grasses. In northern **Spain** and **Portugal**, previously observed weather patterns continued and sustained above-average biomass accumulation levels. In the south, grasslands have mostly entered the summer dormancy phase.





Germany - North

Reference period: 01 Jun to 13 Jul 2024

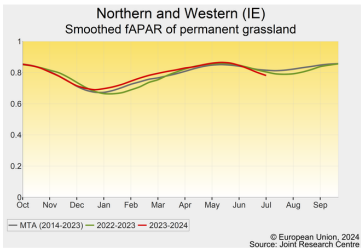


BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Ireland

Reference period: 01 Jun to 13 Jul 2024



BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Italy - North and central

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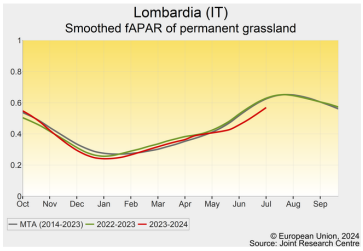

BULLETIN ISSUE

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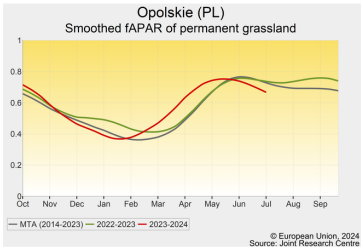
RAINFALL								
TEMPERATURE								
RADIATION								

Poland

Reference period: 01 Jun to 13 Jul 2024



BULLETIN ISSUE

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RAINFALL								
TEMPERATURE								
RADIATION								

Romania - East and South

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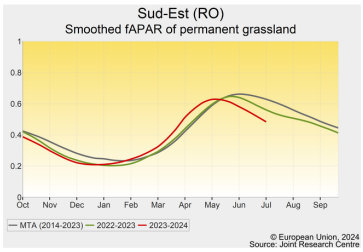
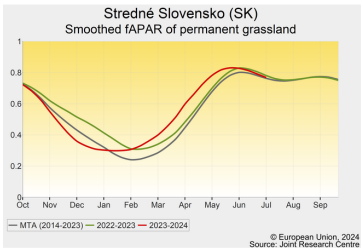


BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Slovakia

Reference period: 01 Jun to 13 Jul 2024



BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

4. Country analysis

4.1. European Union

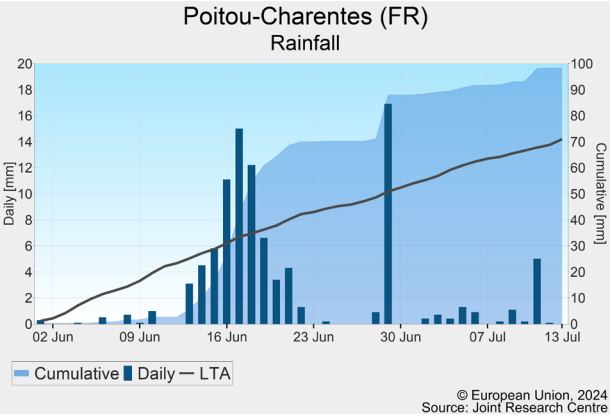
France

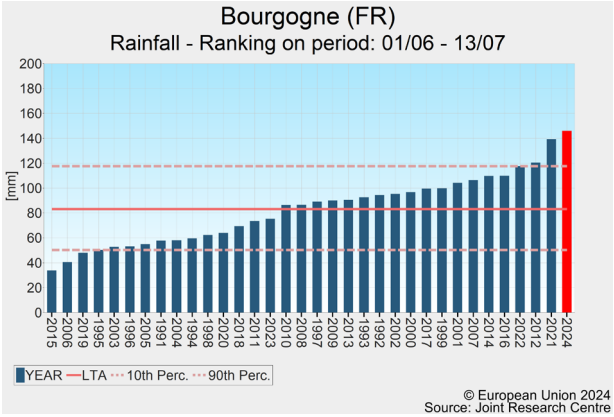
Persistent wet weather worsens the overall outlook

Farmers continued to face challenges brought by excessive rainfalls. These adverse conditions are most severely affecting winter crops being harvested, with winter barley being the first to be affected. However, these conditions have already started to affect the outlook for spring and summer crops too.

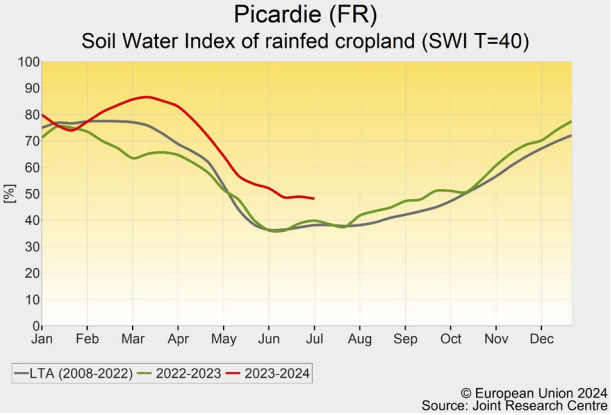
Rainy weather conditions prevailed again during the review period. Whereas June started relatively dry, rainfall intensified from 13 June, and continued with very few interruptions until mid July in the eastern half of France. In *Bourgogne*, for example, the review period is the wettest in our 30-year data record. In the western parts (e.g. *Poitou-Charentes*), rainfall was slightly above the LTA, mostly due to intense rainfall occurring from 13 to 22 June. Temperatures were below average, most markedly in the north; no extreme temperatures were recorded, though. Radiation levels were below average in most of the country, except the north-west.

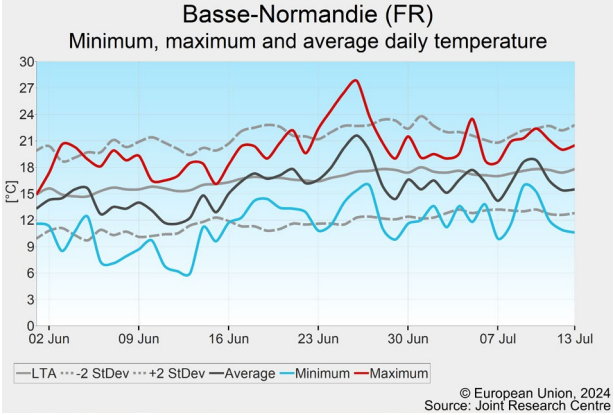
The wet conditions continued to hamper the development of crops, primarily winter and spring crops. The persistent wet conditions after mid June had a particularly adverse effect on winter barley, affecting not only grain weight but also grain quality. The impact of the wet conditions is expected to be less significant for spring barley, whose entire growing season is delayed by about 2 weeks compared with an average season. For soft wheat, the harvest commenced in early July. There was a 1- to 2-dekad delay compared with the average, as grain moisture was too high to allow its harvest. The dry conditions forecast for the coming 2 weeks are expected to facilitate the progress of harvesting. The rapeseed harvest is under way, also with delays, and, as expected, reported yields are below average ([1]). While the high soil moisture levels across France are generally favourable for summer crops, low temperatures and radiation, especially in the north of France, have amplified the phenological delays caused by late sowing; the temperature accumulated by the end of the season may be insufficient to enable the crops to reach full maturity. We have reduced all crop yield forecasts as a consequence of the persistent wet conditions during the review period. The most significant decrease is recorded for winter barley, also taking account of harvest reports.





([1]) https://agreste.agriculture.gouv.fr/agreste-web/disaron/IraGcu2482/detail/.


Picardie (FR)
Soil Water Index of rainfed cropland (SWI T=40)
[%]
100
90
80
70
60
50
40
30
20
10
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
LTA (2008-2022)
2022-2023
2023-2024
© European Union 2024
Source: Joint Research Centre


Basse-Normandie (FR)
Minimum, maximum and average daily temperature
[°C]
30
27
24
21
18
15
12
9
6
3
0
02 Jun
09 Jun
16 Jun
23 Jun
30 Jun
07 Jul
13 Jul
LTA
-2 StDev
+2 StDev
Average
Minimum
Maximum
© European Union, 2024
Source: Joint Research Centre

Germany

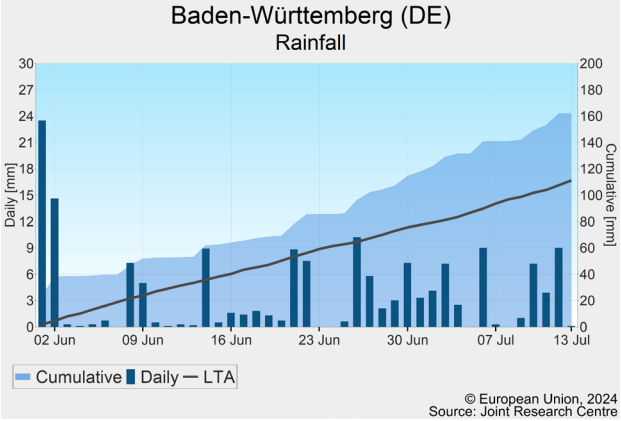
Fair weather arrived too late for winter crops

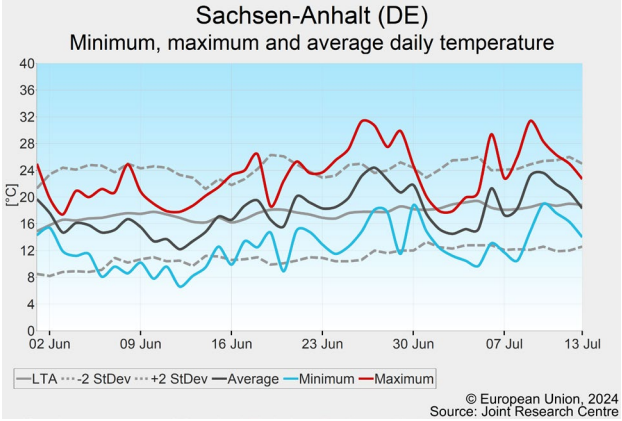
Average temperatures and cumulative rainfall comparable to the LTA generally favoured the growth of summer crops. For most winter crops, the fair weather arrived too late for them to benefit from it; the first winter barley harvest results suggest below-average yields in the west and average yields in the south.

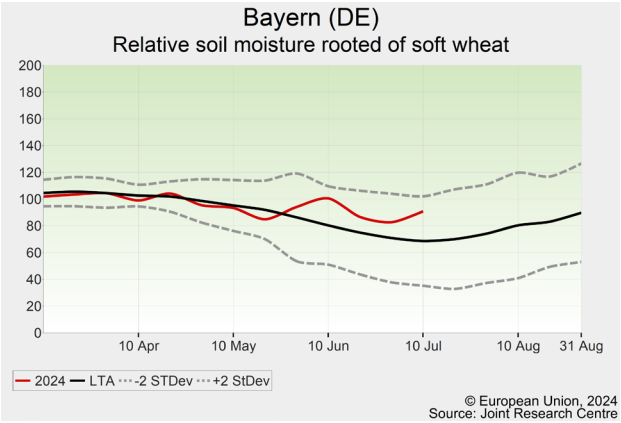
In western Germany, temperatures remained below average except for a short hot spell at the end of June and beginning of July. Rainfall was moderate but frequent across most of Germany and complemented by sporadic heavy rainfall and thunderstorms, which increased regional total rainfall considerably (e.g. in *Niedersachsen* and in the south). The high frequency of rainy days inhibited the drying of soils after the wet May, especially in southern Germany.

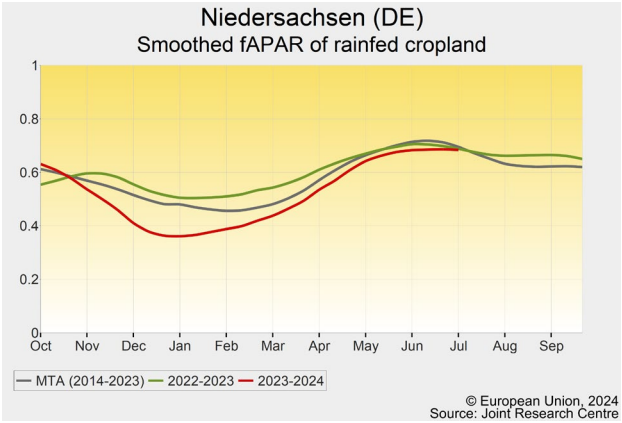
Temperatures and rainfall around average levels were generally beneficial for crop growth. However, the adverse conditions prior to mid June and the locally heavy rainfall negatively affected the grain filling of winter crops. First reports of winter barley yields remain below expectations in the north and east ([2]). Furthermore, the high frequency of rainfall events kept high moisture levels in the grains and repeatedly interrupted harvest activities. In southern and most of western Germany, soils are still very wet, limiting field access and delaying harvests. In contrast, summer crops generally benefited from the fair weather, except in the west, where more sunshine is needed to dry fields and support grain filling. In southern and western Germany, the overly wet fields increased disease pressure, especially on potatoes.

Compared with last month, we have lowered our yield estimates slightly for winter crops by about 1 %, and for winter barley by about 4 %. The summer crop yield outlook has generally been kept stable with slight adjustments, most notably for potatoes (– 2 %). Our forecasts for potatoes and sugar beet remain below the 5-year average, while maize yields are projected to be higher than the 5-year average.









([2]) https://www.agrarzeitung.de/nachrichten/ernte/ernte-2024-spaeter-start-in-die-ernte-der-wintergerste-113624.

Poland

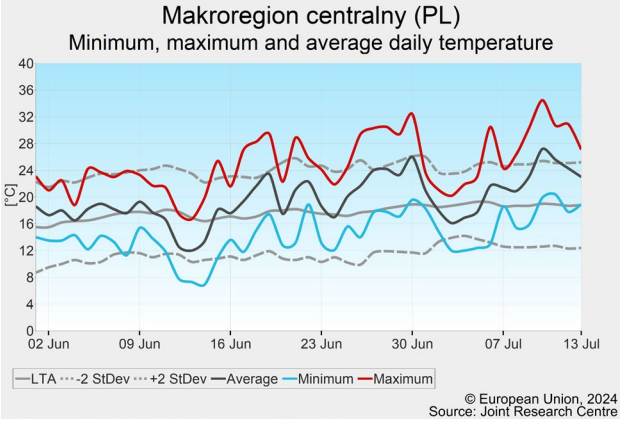
Returning rainfall alleviated water stress

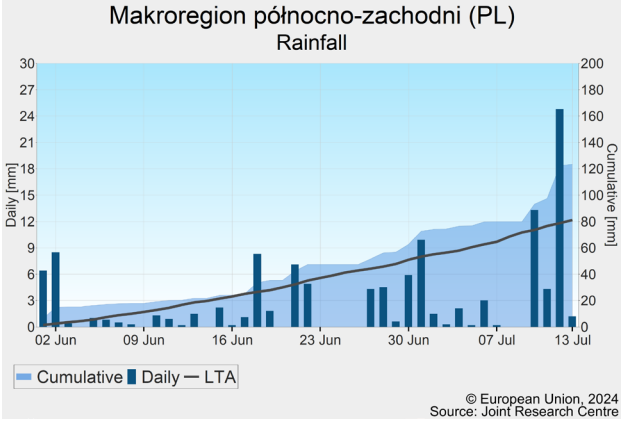
This year, the barley harvest started unusually early owing to the advanced winter crop cycle. The first reports show just average yields, due to the dry conditions during grain filling. The rain in June and July should have been beneficial to summer crops during grain filling.

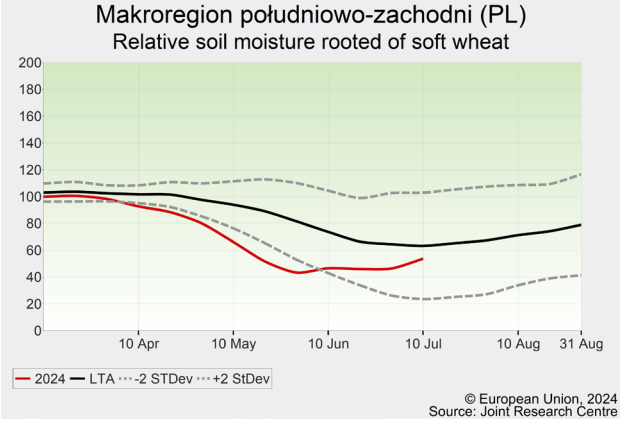
Temperatures were in line with or slightly above the average for most of the reporting period, except for the end of June. At that time, a hot spell struck the country, with maximum daily temperatures above 33 °C. Above-average precipitation occurred in most parts of the country. However, rainfall has not been sufficient so far to fully restore adequate soil moisture levels, most notably in the north-east and south-west.

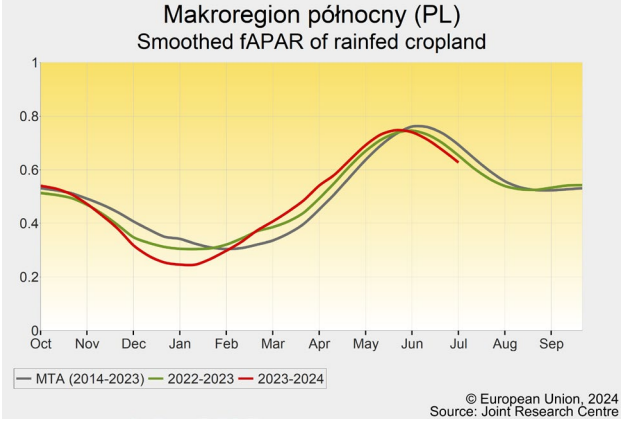
Owing to winter barley's very advanced growth cycle and rapid development, reaching maturity regionally in mid June, its harvest started unusually early, at the beginning of July. The first results show average yields due to the dry conditions and frequent hot days during late stages of flowering and grain filling. Results were better in the north than in the south. The harvest of rapeseed and winter soft wheat should be starting in mid July. Summer crops benefited from the return of rainfall, but the remaining water deficit may keep slowing down crop development. In the upcoming days, even more rainfall is projected, which should further support soil moisture recovery and crop growth during the current grain-filling stages of most summer crops.

The forecasts for winter crops have been slightly corrected downwards but remain above average, except for winter barley (down 3 % from June) as a result of the continued soil water limitations and its shortened growth cycle. Summer crop estimates remain stable and slightly above average, with only some minor changes, within 1 %.









Romania

Hot and dry conditions worsened the yield outlook for summer crops

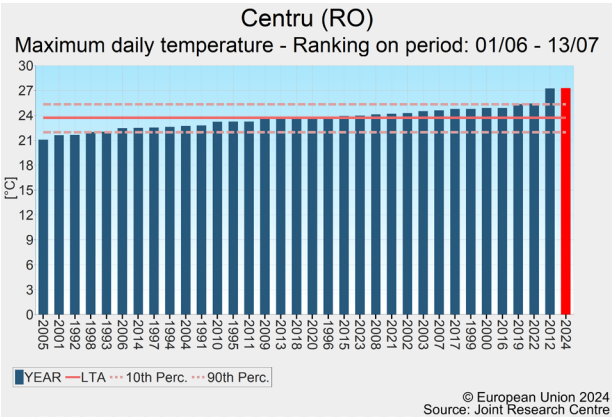
The conditions for ripening and harvesting winter cereals were fair. Limited water supply and very high temperatures during the flowering and early grain-filling period reduced the yield potential of summer crops.

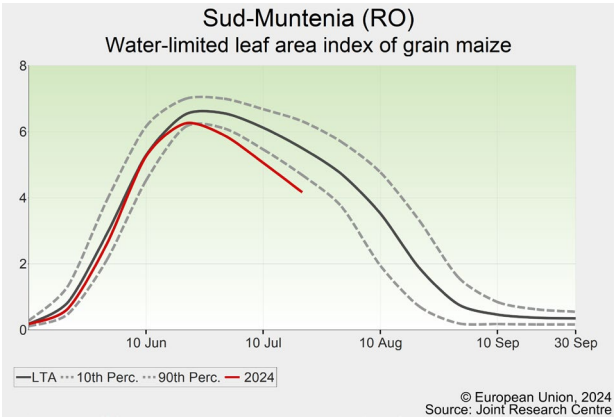
Considering the review period as a whole (1 June to 13 July), it was the hottest since 1975 and comparable only to 2012. Overall positive thermal anomalies reached 2–4 °C. Daily temperatures fluctuated continually above the LTA, except for two short mild periods in mid June and early July. The warmest southern regions experienced 27–39 hot days (11–22 days more than usual), with daily maximum temperatures reaching 38–41 °C on the hottest days during the peak of the heatwave in the second dekad of July.

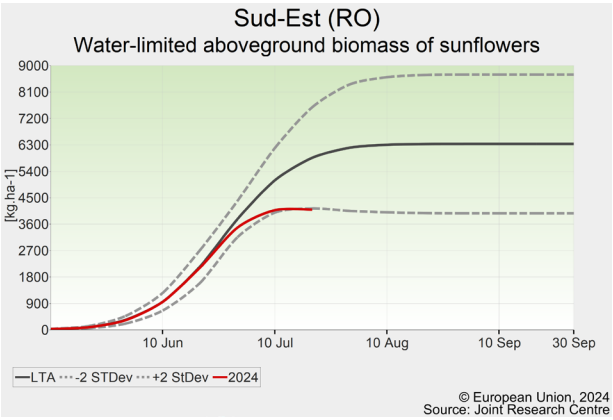
Rainfall was abundant in north-western Romania and near average in central and eastern regions, but the south-east, along the Bulgarian border, suffered from a 30–70 % rain deficit compared with the LTA. Precipitation became sparse after 3 July, intensifying the effect of the hot spell on the crops.

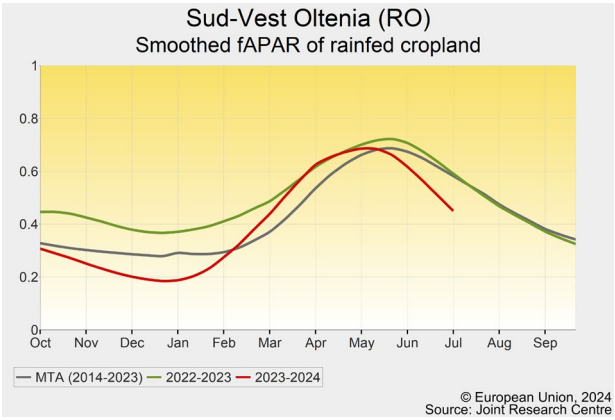
The grain-filling period of winter cereals finished before the onset of the severe hot spell thanks to the advanced phenological development this year. The dry weather of July favoured harvest progress. Yield forecasts for winter cereals were slightly increased, while the forecast for rapeseed remains the same.

Concerning summer crops, beneficial rains kept soil moisture at the seasonal level in the *Nord-Est* and *Nord-Vest* regions. In central and (more distinctly) southern regions, soil moisture levels in rainfed fields have been below average since early or mid June. An inadequate crop water supply, combined with very high temperatures, hampered leaf area expansion and biomass accumulation during the vegetative stage and negatively affected the fertilisation of flowers. The negative impacts of water shortages and heatwaves are already reflected in satellite images. Our yield forecast for summer crops was revised downwards below the 5-year average, but may further worsen if the drought conditions persist.









Spain and Portugal

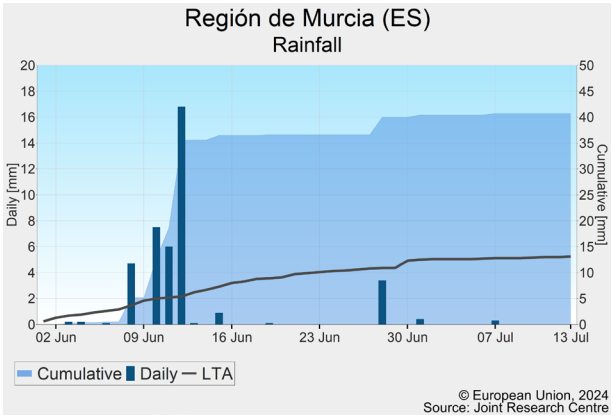
Harvest of winter crops underway under overall favourable conditions

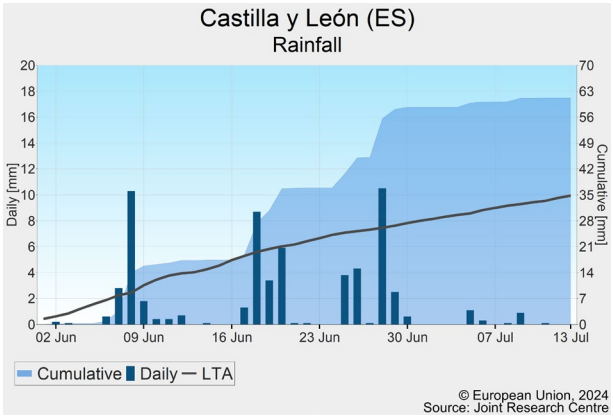
Winter and spring crops harvest is well underway in the Iberian Peninsula, despite rain delays. Overall, crops completed their cycle favourably and good yields are expected. Summer crops benefited from adequate water availability and relatively mild temperatures, with yield forecasts slightly above the 5-year average.

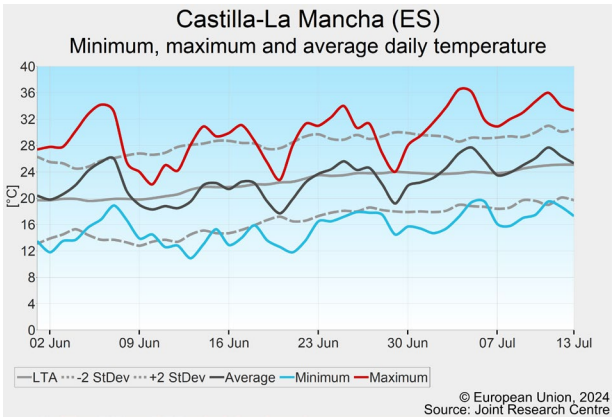
Temperatures across the Iberian Peninsula fluctuated around the LTA during the review period, except for some warmer days in early June and July. Rainfall was 10 to 50 mm above the LTA throughout the peninsula. Some precipitation events were particularly intense, causing damage to fruit trees in the central-western and south-eastern regions (e.g. *Extremadura, Centro* and *Murcia*).

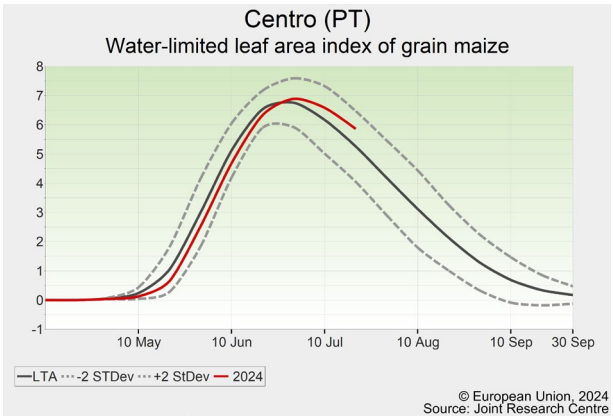
The harvest of winter crops and spring barley has already been completed in the south. However, the rains during the review period caused delays to the completion of the harvest in central areas, and to the start of harvesting in the north. In *Castilla y León,* the harvest began with a delay of 1 to 2 weeks during the first half of July, following a few days without rain. The forecasted high temperatures and low precipitation in the coming days are expected to facilitate the progress of the harvest. Our yield forecasts for winter crops have been revised further upwards, to around 20% above the 5-year average.

Despite some delays in sowing in the northern part of the peninsula, conditions during the review period were also favourable for summer crops. They are generally faring well, in-line-with or above an average season. In *Andalucía*, the sunflower harvest is about to start. Water reservoirs are estimated at 60% of their full capacity – above the 10 years average – in Spain[3], and close to capacity in Portugal[4], guaranteeing the summer irrigation campaign for maize, potatoes and sugar beet in most of the production areas. Our yield forecasts for summer crops remain close to or slightly above the 5-year average.









[3] www.embalses.net

[4] https://sir.dgadr.gov.pt/outras/reserva-de-agua-nas-albufeiras

Hungary

Winter crops finished well, but maize yield expectations reduced by heat wave

The harvest of winter cereals occurred earlier than usual and progressed well with a good yield outlook. The warm weather after mid June lowered the soil moisture content under spring and summer crops, and a hot spell in early July affected the yield outlook considerably.

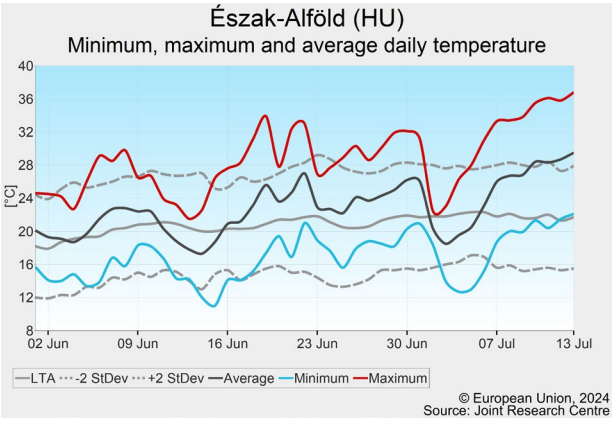
June started with near-seasonal temperatures, but, from mid June onwards, temperatures increased to above average, with daily maximum temperatures frequently above 30 °C in the south and east. Since early July, an extraordinary heatwave has formed with daily peak temperatures exceeding 35 °C, locally reaching 40 °C.

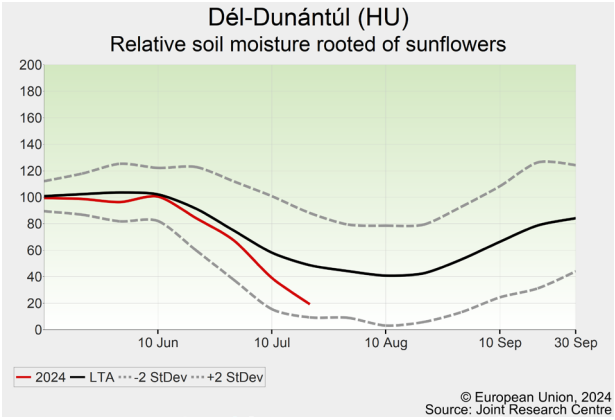
Precipitation was abundant in June with a surplus between 30 % and 100 % above the LTA, locally up to 160 %, in the west (*Nyugat-Dunántúl* and *Közép-Dunántúl*) and north (*Észak-Magyarország*), while elsewhere near-average totals were observed. In July, rainfall became sparse with only locally intense storms. The dry spell and heatwave are forecast to persist until at least 24 July.

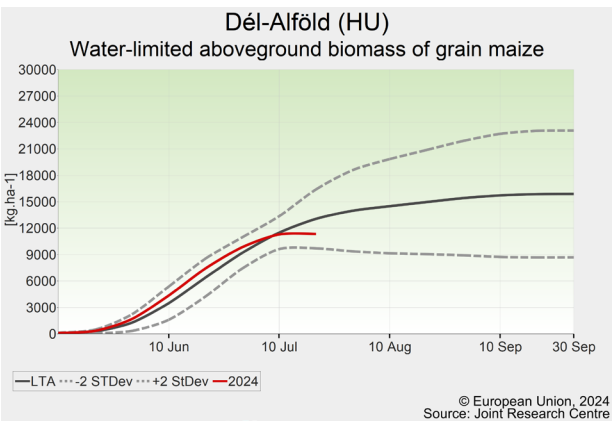
Winter crop ripening and the start of reaping were highly advanced in time in this year. Our model simulations indicate relatively less biomass accumulation for rapeseed than for winter cereals, probably caused by the difficult sowing in a dry autumn and early flowering after a warm winter and spring, with a considerably shortened crop cycle. The harvest of winter crops progressed well, especially in July.

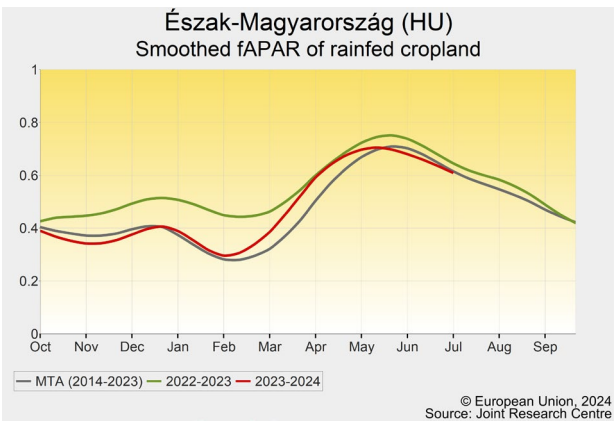
Because the rainfall stopped and temperatures increased, soil moisture decreased to below-average levels under summer crops in late June. The heatwave of July increased the transpirative demand further. High temperatures and the water deficit affected sunflowers and grain maize, which are currently in the flowering- or early grain-filling phase. A reduction in pollination is also probable because of the high temperatures. The situation is particularly delicate in the east, in the centre and along the southern border. Early-sown summer crops might have already finished flowering before the hot spell, thus being less susceptible to damage.

Our yield expectations for winter cereals exceed the 5-year average. The forecast for rapeseed was revised downwards to below the average. The forecast for summer crops was lowered to below the historical trend, but remains close to the 5-year average.









Italy

Winter crop season ended with mixed outcomes

In Italy, a difficult season for winter crops ended with overall low yield expectations. Summer crops are recovering from a challenging sowing campaign.

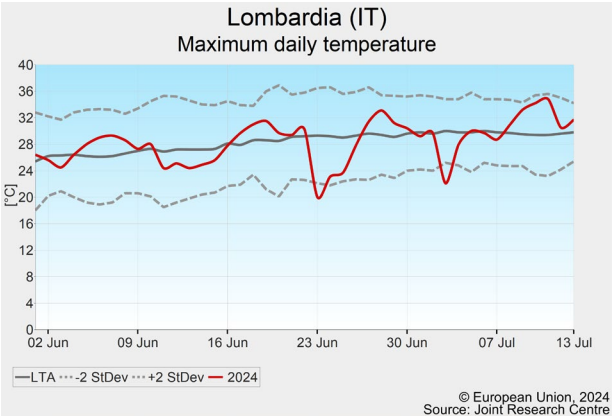
In the north, the abundant precipitation since spring continued until 23 June. While precipitation became less frequent thereafter, severe storms have been occurring increasingly, often with hail and locally with considerable damage. Since 23 June, temperatures have increased, and the first heatwave of the season was recorded at the end of June. A second, more intense one started from 8 July with maximum temperatures up to 35 °C.

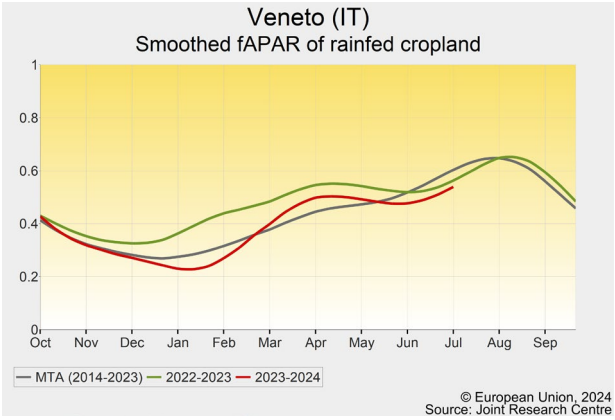
In northern Italy, winter crops reached maturity towards the end of June, and harvest was almost completed by 10 July, with crops in suboptimal conditions in most of the fields. Storms locally slowed down the harvest and damaged fruit trees and vineyards. Summer crops are proceeding with significant delay in phenological development and biomass accumulation. The temperatures of July should help maize and soybean to speed up recovery to average conditions; such recovery is already visible for *Veneto* in the fAPAR signal from satellite observations. Overall, average yields can be still expected, if farmers were able to adapt their agricultural practices, for instance by planting maize with lower thermal requirements.

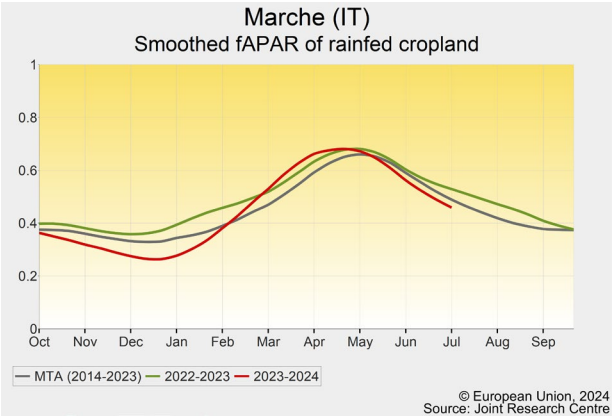
In central Italy (*Marche*, *Toscana*, *Umbria*, *Lazio*), the grain filling of winter crops, which started in late May, continued in the first 10 days of June with beneficially dry and not-too-hot weather. Winter crops reached maturity around 15 June, and harvest was concluded before the end of the same month. Sunflowers, the most-cultivated summer crop in the area, are developing well, and are currently past the flowering stage in fair conditions.

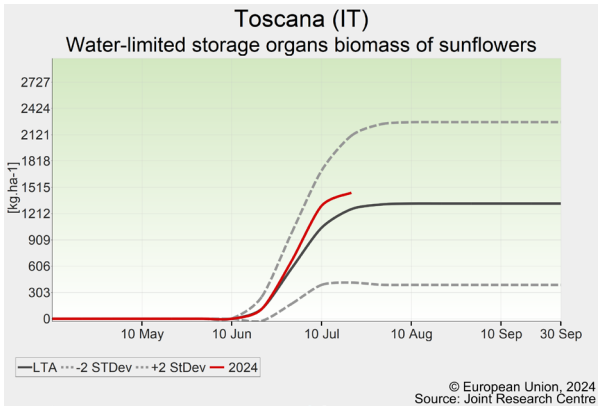
In the south, the continued dry and hot season concluded with poor yield expectations, notably in *Sicilia*.

The yield forecast for durum wheat was revised upwards due to the above-average yields in central regions, but overall, the reduced yield expectations for winter crops have been confirmed. For summer crops, our yield forecasts have been kept at the trend level or slightly increased.









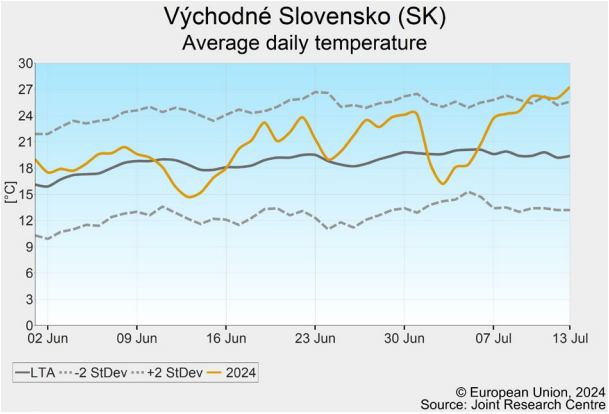
Czechia, Austria and Slovakia

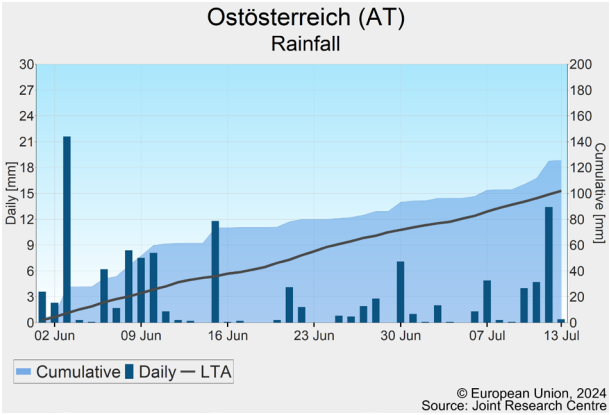
Slightly below-average outlook for winter crops; good prospects for spring and summer crops.

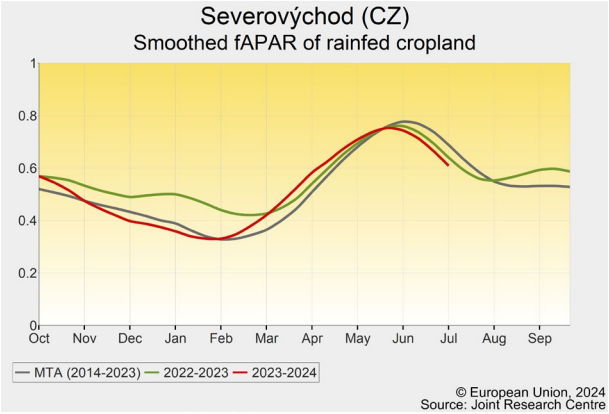
Drier weather helps winter crops to partially recover. Favourable weather continues to sustain the growth of spring crops.

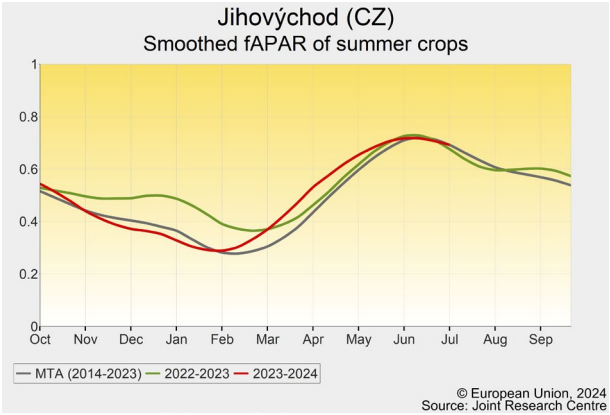
Temperatures in line with or slightly above the LTA prevailed during the review period, disrupted by short cold snaps, together with above-average rainfall rates. Thanks to the warm temperatures since spring, winter crops reached maturity 2 weeks earlier than usual, but their above-ground biomass, as expected after poor root development during winter, was lower than the LTA and in the previous year, confirmed by remote sensing imagery. In the south, hailstorms have been causing severe damage to crops locally, especially in Upper Austria and eastern Slovakia. Overall, spring crops are in good condition, following the favourable weather of the review period. They are developing rapidly, despite temporary cold snaps, and their biomass level is equal to the LTA, as suggested by remote sensing imagery. Continued warm temperatures without heat stress and with sufficient rainfall, as forecast for the next 2 weeks, will be the key to a positive season.

Our yield forecasts for winter crops are revised downwards, to lower than the historical trend, while our forecasts for spring and summer crops are increased to slightly higher than the historical trend.









Bulgaria

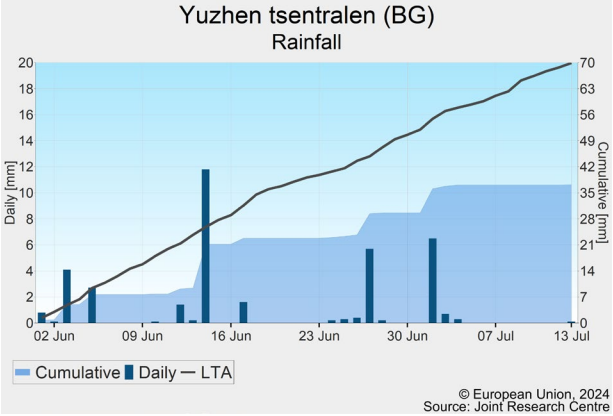
Strongly reduced yield expectations for summer crops

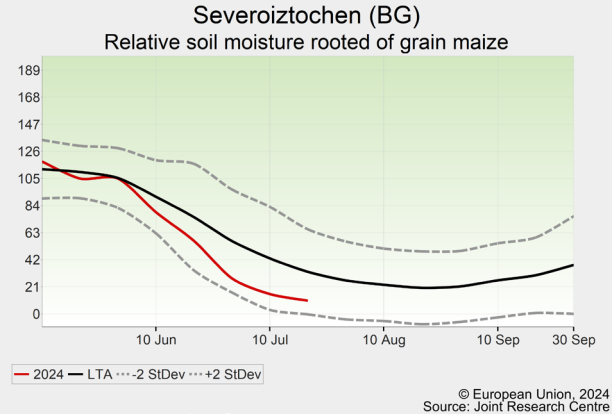
For winter cereals, the final stage of grain formation and harvesting conditions were adequate, and good yields are forecast. Limited water supply and hot temperatures adversely affected the flowering and early yield formation of grain maize and sunflowers. Our yield forecasts for these crops were revised down severely.

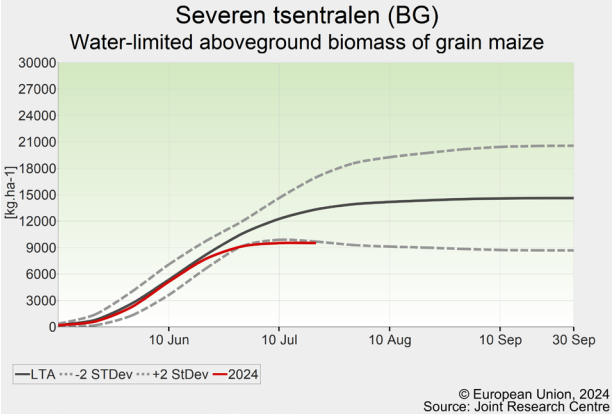
Bulgaria experienced extremely warm weather conditions. On average, the review period (1 June to 13 July) was 2.5–4.0 °C warmer than usual. Daily maximum temperatures fluctuated far above the LTA, and the number of hot days (T_{max} > 30 °C) exceeded the LTA by 15–20. Maximum temperatures on the hottest days reached 38–40 °C. Rainfall distribution was uneven in space and time. In western regions, few intensive rainfall events (with long breaks in between) occurred during June, and precipitation totals remained below the LTA. Central and eastern areas experienced a more considerable rainfall deficit of 40–80 % compared with the LTA, and hardly any rainfall after mid June.

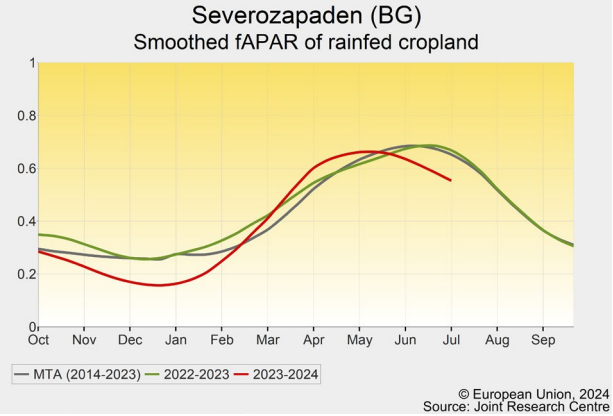
Overall, these weather conditions were favourable for winter cereals. Soil moisture contents during the final stage of grain filling were satisfactory. Ripening and the start of harvest were quite early this year owing to advanced phenology caused by the long-lasting positive thermal anomaly. The harvest campaign progressed well thanks to the predominantly dry weather conditions. Crop model simulations indicate above-average biomass accumulation in winter cereals; therefore, our yield forecasts were revised upwards, further above the 5-year average. Yield expectations for rapeseed are less optimistic, slightly below average.

For summer crops, the weather conditions were unfavourable. Soil moisture contents have decreased to below-average levels since mid June, and water supply during the cardinal flowering and early grain-filling stages has been inadequate. Moreover, the high temperatures adversely affected the pollination and fertilisation of the flowers. These conditions triggered a reversal of yield expectations; and our yield forecasts for summer crops have dropped to well below the 5-year average.









Denmark and Sweden

Positive yield outlook for winter and spring crops

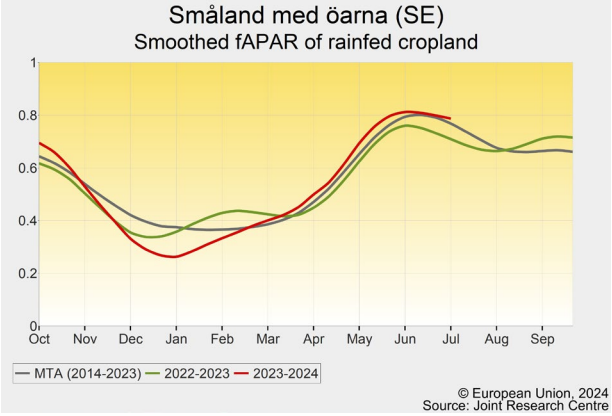
Wet conditions prevailed in the Nordic countries, but overall both winter and spring crops are expected to be in good condition. The yield outlook remains positive despite the challenging start to the season, and yields are maintained slightly above the 5-year average.

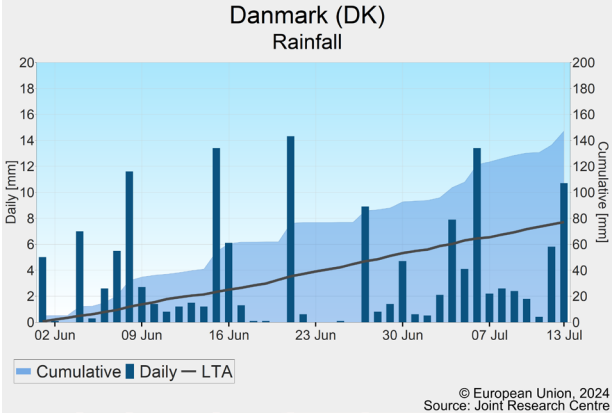
Precipitation was well distributed across the review period and included several episodes of significant rainfall (> 10 mm per day). Rainfall totals were well above average for both countries, by 91 % in Denmark and 81 % in *Södra Sverige*. Temperatures largely fluctuated during the review period, with a warm start in early June followed by colder-than-average conditions until approximately the middle of the month, when temperatures returned to near normal until a warm spell occurred in late June. The rest of the review period was characterised by near- or slightly below-normal temperatures. Cumulated radiation levels were close to normal.

MODIS satellite observations indicate that the peak biomass accumulation was reached around mid June in Sweden, as usual, while a delay of approximately 10 days was observed in Denmark. Peak values were similar to the MTA in both countries, suggesting average levels of biomass accumulation and overall good conditions for both winter and spring crops in Denmark and Sweden, despite some regional disparities.

Our crop models indicate that both winter and spring cereals are in their grain-filling stages, and, despite the relatively cold temperatures, still ahead of normal by approximately 10 days.

Drier topsoils will be needed in the coming weeks when winter cereals will be getting close to maturity and harvest. Nevertheless, our yield forecasts for winter and spring crops remain above the 5-year average, while our estimates for summer crops remain close to the average.





Estonia, Latvia, Lithuania, Finland

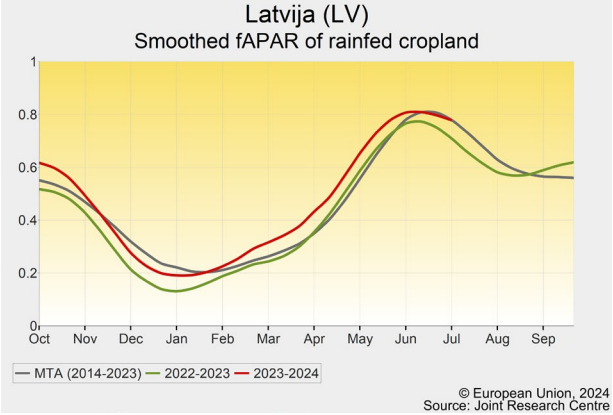
Positive outlook for crops

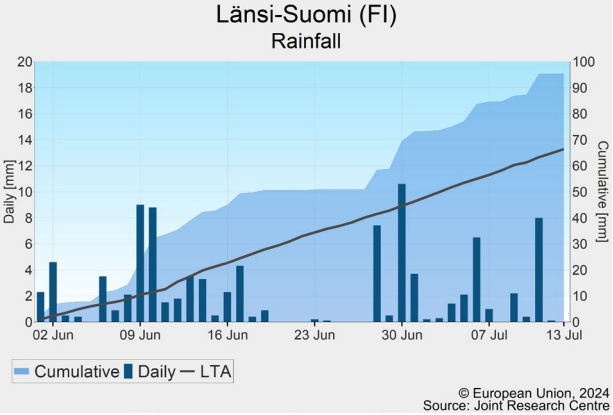
Overall, adequate rainfall and temperatures prevailed during the review period. Crops are in fair to good condition in Finland and the Baltic countries, with levels of biomass above normal. The crop yield outlook is positive.

Moderate rainfall events occurred regularly throughout the review period, with a few episodes of more intensive precipitation. Only in Estonia and Finland were dry conditions reported in the second half of June. Rainfall totals of 80 mm to 100 mm were close to or slightly above the LTA in all four countries. Temperatures remained close to or above average, except for the second week of June, which was slightly colder than the LTA. Cumulative temperatures (base 0 °C) were above the LTA by approximately 10 % for all countries, and cumulated radiation levels were close to or slightly above the LTA, except in Latvia, where there was a slight negative anomaly.

In Lithuania and Latvia, fAPAR values from MODIS satellite data remained close to the MTA, although largely above-normal values have been reported since early spring. The peak of biomass accumulation occurred around 1 June, approximately 10 days ahead of normal. In Finland and Estonia, MODIS-derived fAPAR remained close to average. In agreement with findings from remote sensing, our models indicate that crops are in good condition and have above-average biomass levels.

Overall, our indicators converge to provide a positive outlook in the Baltic countries and in Finland. Previously reported fair conditions in Finland and Estonia, and good conditions in Latvia and Lithuania, were confirmed in this review period, and suggest that yields should reach the 5-year average in Finland and Estonia and exceed it in Latvia and Lithuania. Our winter and spring crop yield forecasts are maintained.





Greece

Summer crops stressed by hot and dry conditions

Record-high temperatures exceeding the LTA by around 3 °C and hardly any rainfall are putting summer crop yields at risk.

The period under review was characterised by dry conditions, with 10–30 mm of precipitation during the review period across the three major maize-producing regions of Greece, *Central Macedonia, East Macedonia and Thrace*, and *Thessaly*.

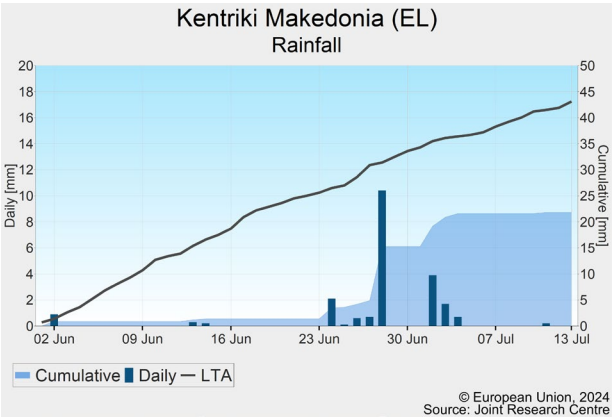
Typically, summer crops in Greece are irrigated, which has helped keep the biomass accumulation of maize and sunflowers close to average levels in *Central Macedonia* and in *East Macedonia and Thrace*. However, in *Thessaly* the analysis of satellite imagery identified a slowdown in biomass accumulation at the beginning of vegetative growth, most probably related to a prolonged soil moisture deficit.

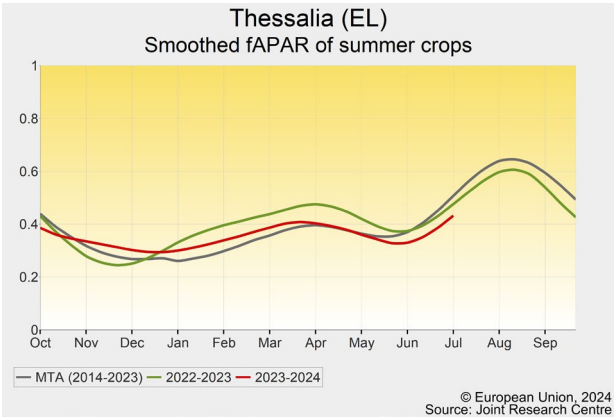
Maize is currently around the critical stage of flowering, when water and heat stress may limit the benefits of fertiliser application and can significantly affect final yields.

As in the previous season (in 2023), the cultivated area of potato is well below the medium-term average. Potatoes are also at risk from prolonged heat and water stress, as these factors may prevent tubers from forming or increasing in volume.

Although sunflowers are significantly more resistant to dry conditions than maize, our remote sensing imagery suggest slightly below-average biomass accumulation.

A drop in temperatures to average summer conditions would be desirable to sustain the good development of summer crops, especially during the upcoming reproductive stages at the end of July. However, weather forecasts do not predict an end to above-average temperatures until the end of the month. Owing to the heat stress during the review period, our yield forecasts for maize and sunflowers have been moderately revised downwards to around average, while our yield forecast for potato remains below average.





Ireland

Cool and dry conditions confirm low yield expectations

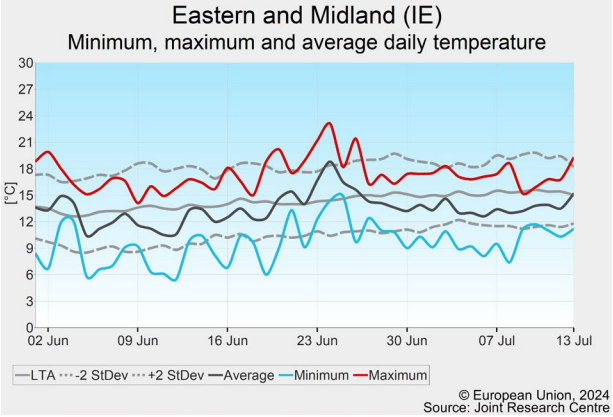
Relatively cool and dry conditions are expected to have eased disease pressure, but have also limited crop growth. Large variations in winter and spring cereals yields are expected depending on the time of sowing. Our yield forecasts remain unchanged

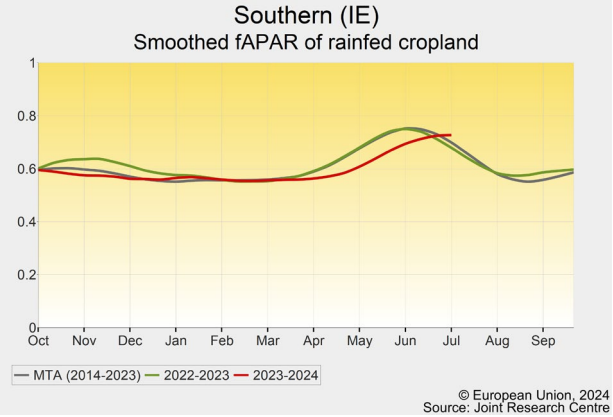
Rainfall levels were below normal throughout most of June and became closer to normal in July, resulting in totals of 60–70 mm, approximately 20 % less than average. Despite a few days warmer than average around 24 June, temperatures were prevalently below the LTA. Cumulative temperatures (base 0 °C) were below the LTA by approximately 10 %. Cumulated radiation levels were in line with the LTA.

MODIS satellite data indicate that the peak of biomass accumulation was reached around early June in the *Eastern and Midland Region*, in line with the MTA, while in the *Southern Region* the peak was delayed by approximately 1 month. In both regions, peaks were lower than normal, suggesting below-average levels of accumulated biomass.

According to our models, soft wheat and spring barley are in their grain-filling phase, respectively slightly ahead of and in line with normal. However, large variations in development can be expected for both crops, considering the sowing delays reported in the previous editions.

The low temperatures reported may have, to some extent, slowed down the development of crops, while dry conditions should facilitate field work. The cool and dry weather is expected to have reduced the disease pressure that was previously reported. Our yield 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

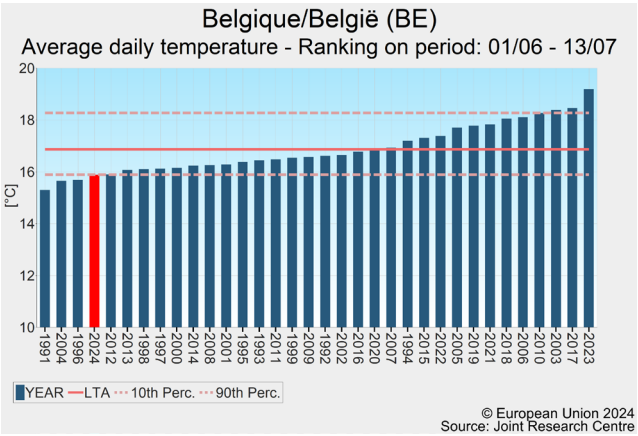
Cold and/or continued wet conditions further reduce yield outlook

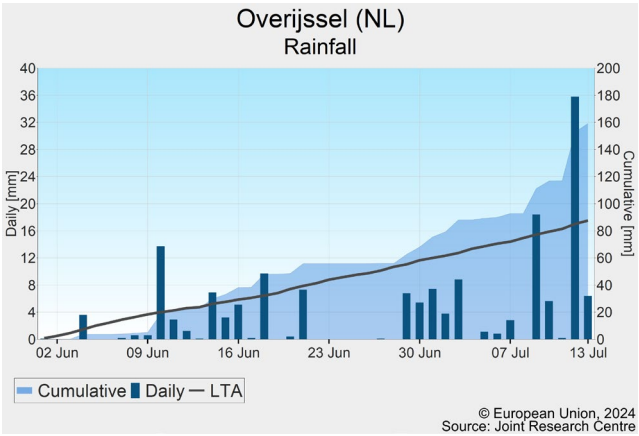
Continued well-above average rainfall in the north, combined with below-average sunshine, and below-average temperatures during most of the period - most distinctly in the south – did not allow crops to recover. Yield forecasts for all crops are below the 5-year average.

Temperatures were predominantly below the LTA, except for the last week of June. Even though, considering the review period as a whole, mean average temperatures were only 1.2 °C or less below the LTA (with the smallest anomalies in the Netherlands), it was the coldest of the past 20 years in Belgium, and of the past 12 years in the Netherlands and Luxembourg. Rainfall varied from close to the LTA in western Belgium and Luxembourg, to 80% above the LTA in north-eastern parts of the Netherlands, where the review period was the wettest in our database. The first and last week of June were predominantly dry in most regions, whereas the second week of July was particularly wet. Solar radiation was slightly below the LTA.

Even though these weather conditions, as such, were not particularly exceptional, they remained predominantly unfavourable for crops, given the negative impacts already incurred due to the exceptionally wet conditions in preceding months. Soils prone to water logging remained excessively wet; summer crops remained behind in growth and development; and frequent rainfall in July hampered the harvesting of winter barley, with negative effects on yields and grain quality. Pest and disease pressure also remained high, particularly in potatoes.

Our yield forecasts were maintained or further reduced; all below the 5-year average, and with few exceptions also below last year's level.





Slovenia and Croatia

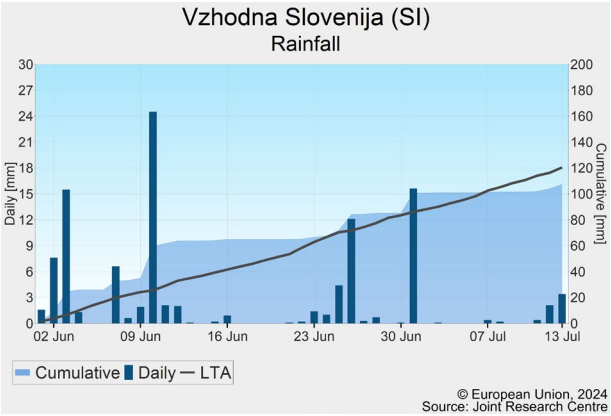
Winter crop harvest under way; high temperatures boosted growth of summer crops

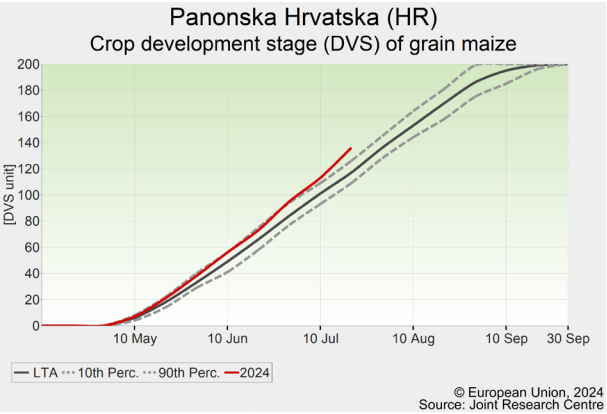
Rain at the end of June interrupted the harvest of winter crops, with yield forecasts around the 5-year average in Slovenia and in Croatia. While yield forecasts for summer crops are still slightly above average, the impact of the ongoing heatwave remains to be seen.

Except for a few colder days in mid June and early July, temperatures in Slovenia and Croatia were generally above the LTA during the review period. The heatwave between 5 and 13 July was particularly significant, with maximum daily temperatures reaching 35 °C in both countries. Total rainfall over the entire review period was around average in Slovenia and *Sjeverna Hrvatska*, and well above average in *Panonska Hrvatska* and *Jadranska Hrvatska*.

Winter crops were in good condition in general, but the persistence of wet conditions during the final grain-filling stage of winter cereals in Slovenia favoured the spread of crop diseases and fungal infections, limiting to some extent the yield potential of the crops during their vegetative phase. A dry period in mid June allowed the harvest of winter crops to progress well in Croatia; however, the returning rain at the end of the month delayed the completion of the harvest in Croatia and the start of the harvest in Slovenia. Our yield forecasts for winter crops are now in line with the 5-year averages in Slovenia and above average in Croatia.

High temperatures and sunny conditions at the end of the review period accelerated the vegetative growth of summer crops, which are now around the flowering stage, according to our models. It will be important to closely monitor these conditions, as they could potentially damage the inflorescence of grain maize and sunflower crops. While the yield forecasts for summer crops remain slightly above the 5-year averages, the impact of the ongoing heatwave will have to be evaluated in the coming weeks.





4.2. United Kingdom

Winter crop harvest in favourable conditions, spring crops with good yield expectations

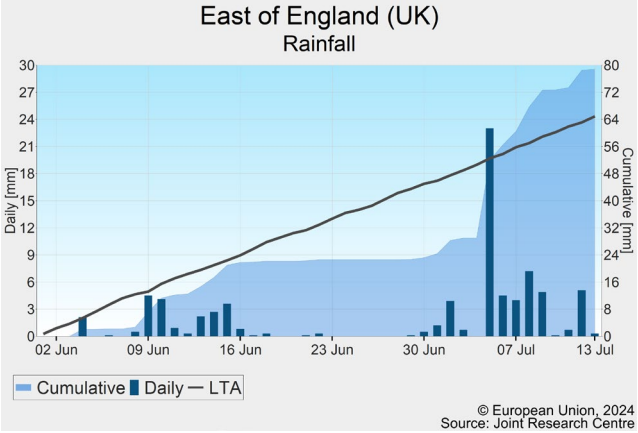
Drier weather allows a winter crop harvest in regular conditions, while spring crops are faring well.

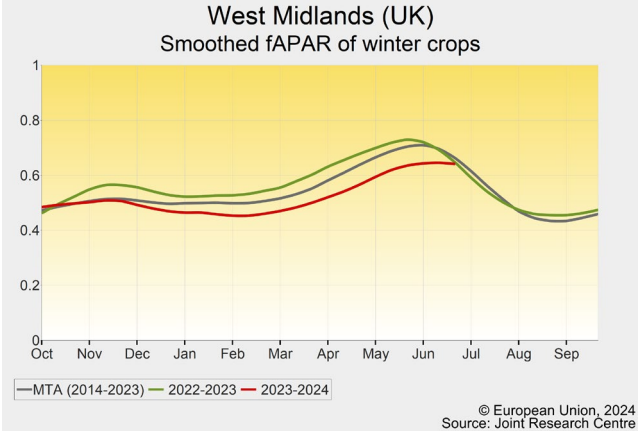
Rainfall continued to decrease throughout the review period over most of the country. In the meantime, after a warm May, temperatures fell below the LTA during the 1st half of June, and fell sharply again in the end of June after a temporary warming. .

Winter crops continued to recover from the wet winter and spring, without fully returning to normal conditions. However, the cold spell may have negatively affected the grain-filling and ripening stages, and biomass was already significantly below average as a result of the past adverse weather conditions. The harvest began at the end of June, disrupted by a few showers in the first dekad of July.

The cold episode also temporarily slowed down the development of spring crops, which are, however, in good condition, with satisfactory water supply. Above-LTA temperatures are expected in the second half of July, giving hope for the favourable development of spring crops.

Our yield forecast remains almost 5 % below the historical trend for winter crops, while it is set to almost 5 % above the historical trend for spring barley.





4.3. Black Sea Area

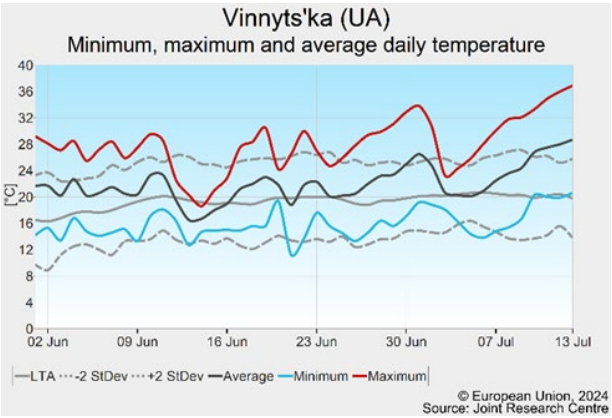
Ukraine

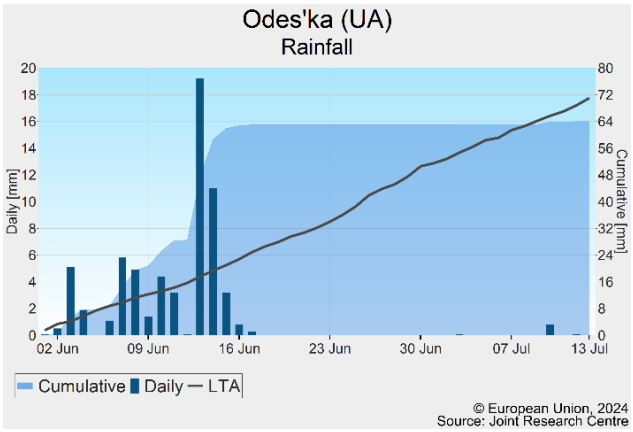
Dry and hot conditions in the south affect summer crops

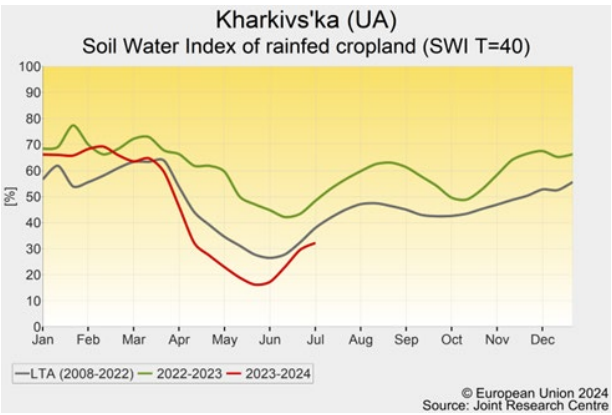
The country experienced one of its warmest periods on record, combined in the south with dry conditions after mid June. These conditions have had a negative impact on summer crops, especially in the south and east.

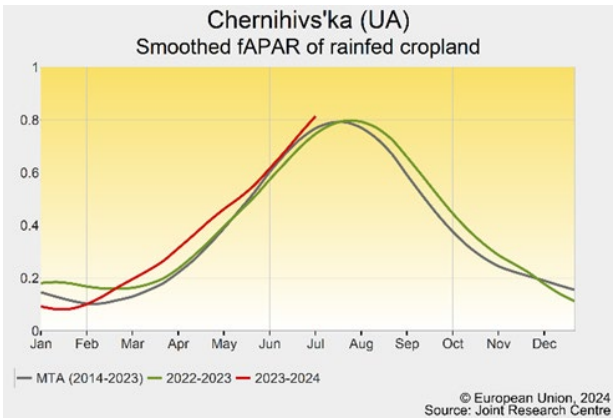
High temperatures prevailed during the review period, with the average temperature in the country being 23.0 °C – that is, 2.8 °C above the LTA. A large southern area from *L'vivs'ka* to *Kharkivs'ka* experienced its warmest period on the 30-year record. Overall, the review period was drier than average, except in the oblasts adjacent to the Polish border. In the western half of the country, rainfall was concentrated in the first and second weeks of June. In the eastern half, only a few rainfall events were recorded in the first half of June, followed by 20–40 mm of rainfall around mid June and less than 20 mm since then, especially in the Black Sea region. *Odes'ka* reported a total absence of rainfall after 16 June.

Above-average temperatures have fostered the development of summer crops. Grain maize has reached the flowering stage throughout the country. Conditions are favourable in the west and north (e.g. *Chernihivs'ka*), but east of *Cherkas'ka* the situation has worsened. This is particularly true in the Black Sea region, where the dry and hot conditions have significantly affected maize, which now has a similar negative outlook as that for winter and spring crops. The outlook for soybean is less significantly affected, as it is cultivated mostly in western Ukraine. Sunflowers, predominantly grown in the south and east, are most significantly affected by the dry conditions.









Türkiye

High temperatures decrease winter crop yield expectations

High temperatures in June and July shortened the grain-filling period for winter crops but favoured the biomass accumulation of soybean and maize.

In Türkiye, the weather throughout the entire review period was hotter than usual; the mean daily average temperature was close to 4 °C above the LTA in all agricultural regions.

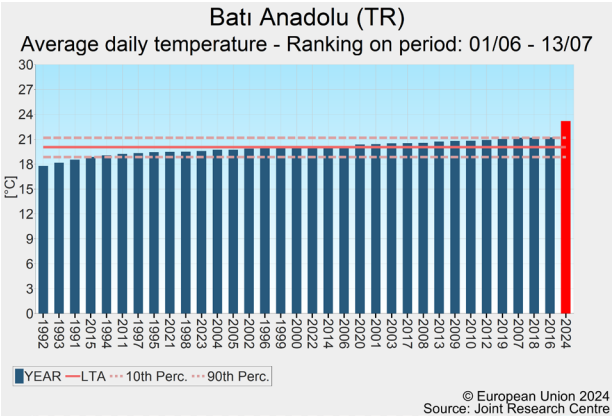
In the Aegean region, the previously good crop conditions worsened because of a heatwave at the beginning of June that accelerated the crop cycle and shortened the grain-filling phase. Crops entered maturity by mid June and harvest started earlier than usual, with only average yield expectations.

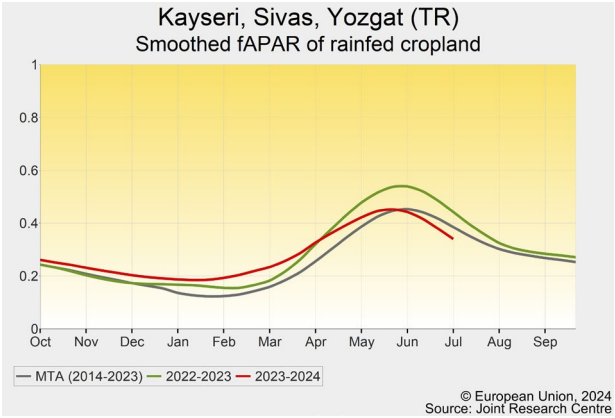
In western and central Anatolia, the review period was dry as usual but the hottest since 1990 by far. The development of winter crops, already advanced, was further accelerated. In *Ankara* and *Konya*, winter crops were harvested around the end of June, 10 to 15 days earlier than average. In *Kirikkale* and *Kayseri*, the grain-filling phase for winter crops was shortened, and they were expected to reach maturity by mid July. In addition, summer crops, mostly grown in *Konya*, are developing well thanks to the availability of plentiful water for irrigation and the high temperatures, which promote biomass accumulation.

In the south-eastern regions (e.g. *Mardin*, *Sanliurfa*), after a very positive first winter crop cycle, the second cycle of crops (summer crops) is just beginning. Crops are well established thanks to irrigation, which is fundamental for the water supply of crops and to lower canopy temperatures in the usually very hot summer weather.

In Mediterranean regions (e.g. *Hatay*, *Adana*), summer crops are developing under favourable conditions (high temperatures and sufficient water for irrigation), and the second and most productive cycle is in full vegetative development; flowering is expected by the end of the month.

Overall, yield expectations for winter crops have decreased slightly since our last assessment, but they remain above the 5-year average. Our summer crop yield forecasts have increased to slightly above the historical trend.





4.4. European Russia and Belarus

European Russia

Low yield expectations for winter wheat

Hot and dry conditions in south-western Russia have led to water-supply problems affecting crops. The yield outlook for winter wheat is below average. Yields of summer crops are also likely to be impacted in these regions. Spring cereals in the north and east are in better shape.

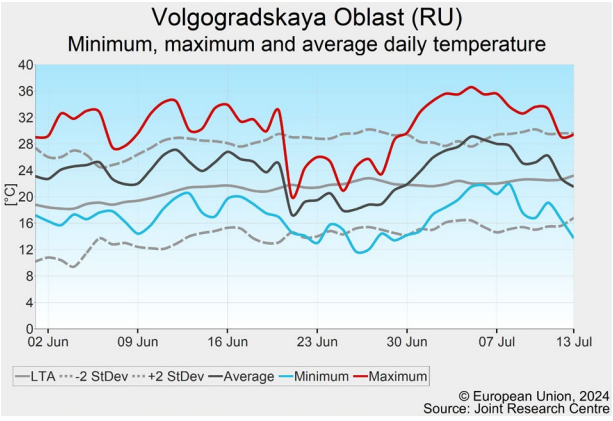
Daily temperatures significantly exceeded the LTA during the review period, except in the last dekad of June, when colder-than-usual thermal conditions prevailed. Overall, the review period was among the hottest in our database, with positive anomalies in the range of 1.5–3.5 °C. The number of hot days (T_{max} > 30 °C) exceeded the LTA by 10 to 21 days, and daily maximum temperatures reached 36–42 °C on the hottest days in southern Russia and along the Kazakh border.

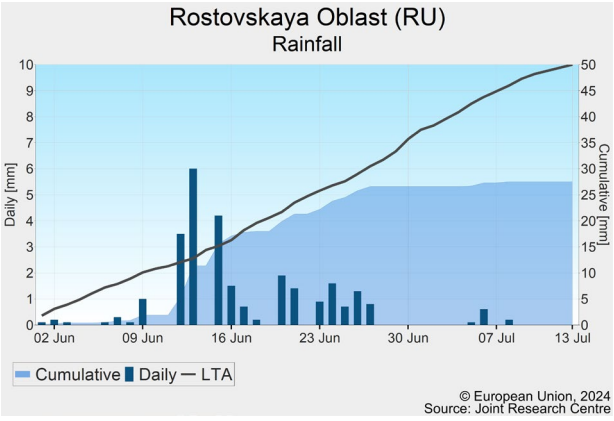
In the first two dekads of June, abundant rain fell on the Central and Volga okrugs. Meanwhile, south-western Russia suffered from rainfall scarcity, with only 5–30 mm of precipitation recorded. After 20 June, the overall trend was towards lower precipitation, and only the easternmost areas (bordering the Ural Mountains) received ample rainfall; locally (e.g. in *Bashkortostan*), there was up to 170 mm of torrential rain.

Winter wheat was in advanced development. Soil moisture in the North Caucasus and Southern okrugs decreased to very low levels during the grain-filling period, while the exceptionally hot conditions exposed winter cereals to thermal stress, thus causing the early senescence of leaves and adversely affecting yield formation. In the Central okrug and most of the Volga okrug, water supply was adequate. Yield expectations for winter wheat are below the 5-year average and far below last year's level [5].

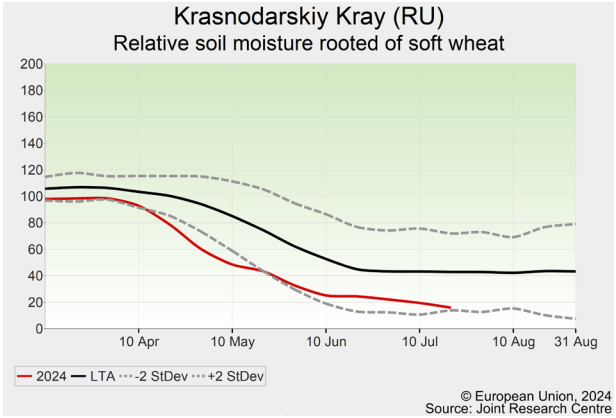
For spring cereals, water supply was adequate in the most relevant okrugs (the Central and Volga okrugs), leading to above-average leaf area expansion and biomass accumulation. The overall yield outlook for spring cereals in European Russia slightly exceeds the 5-year average.

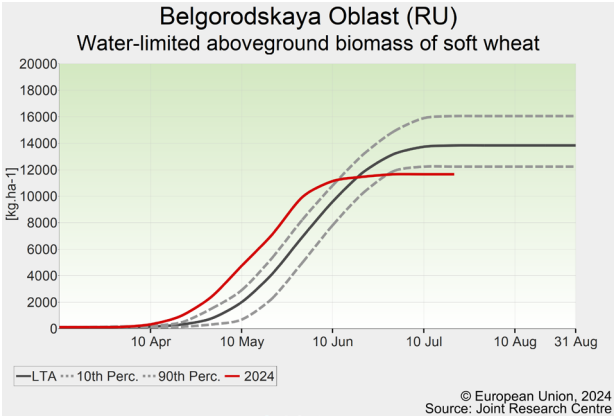
Unusually high temperatures accelerated the vegetative development of grain maize in June. While favourable conditions prevailed in the Central and Volga okrugs, in the south below-average soil moisture and hot spells raise concerns about severe impacts on yields due to heat and water stress. The yield outlook for grain maize has dropped to average and continues to decrease as the drought unfolds.





(5) For a detailed overview see https://publications.jrc.ec.europa.eu/repository/handle/JRC136673





Belarus

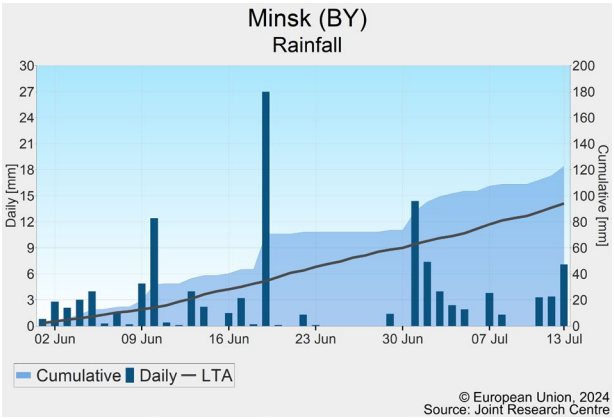
Wet and warm conditions assist the winter crop campaign

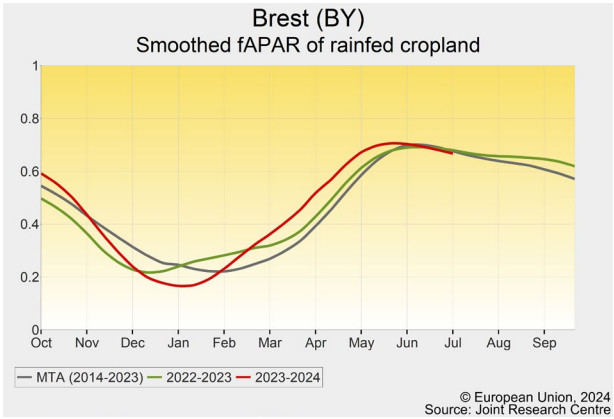
Belarus experienced abundant precipitation and warmer-than-usual conditions. Overall, the positive yield expectations are confirmed. Small adjustments have been made to account for the potential detrimental effect of a persistent heatwave, as suggested by the weather forecast.

The first half of June was characterised by relatively wet conditions affecting all regions. The third dekad was dry, whereas precipitation was observed again in the last dekad of the review period. Precipitation was especially prevalent in the *Vitebsk* region, where cumulative rainfall over the review period exceeds the LTA by 50 %.

Daily average temperatures were slightly above the LTA at the beginning of the review period. This positive temperature anomaly has been increasing since the third dekad of June. However, whereas minimum temperatures remained around the LTA, maximum temperatures exceeded the LTA. On more than 10 days during the review period, maximum temperatures of above 30 °C were experienced, and extreme heat (with maximum temperatures reaching 35 °C) occurred during the last week of June. Overall, the average daily temperature exceeded the LTA by up to 2–4 °C, with the largest anomalies observed in the south (*Brest* and *Gomel*).

The warm and humid weather conditions accelerated the growth of winter crops towards maturity and will favour early harvesting. The development of spring barley and grain maize is also advanced. The rainfall regime of recent months has restored soil water reserves, which will have a positive impact on yields. However, the weather forecast suggests that hot conditions will continue, mostly affecting the southern part of the country. Therefore, the yield forecast for wheat is confirmed, while a slight downward adjustment has been made to the forecasts for barley and maize.

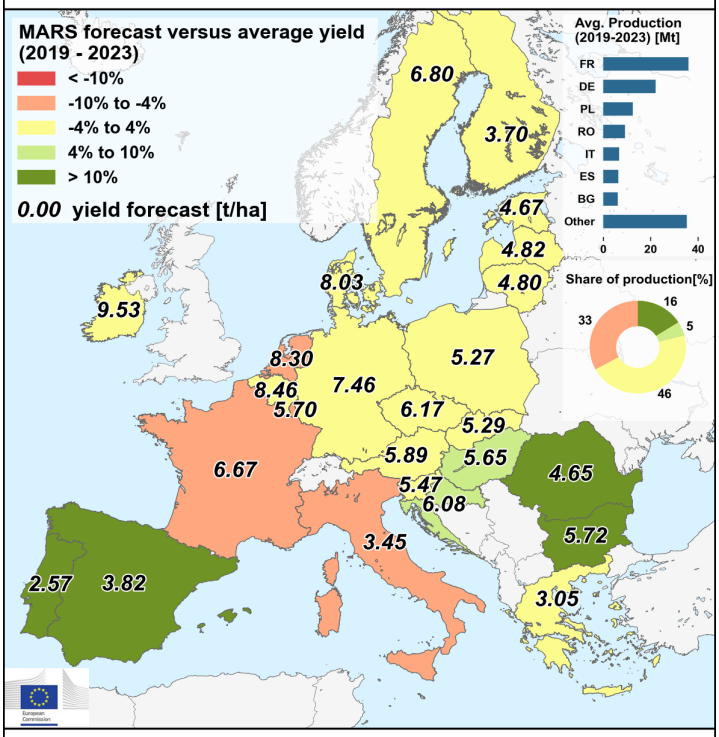




5. Crop yield forecast

Country	Total wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	5.64	5.59	**5.65**	+ 0	+ 1	+ 0
AT	5.81	6.12	**5.89**	+ 1	– 4	+ 7
BE	8.75	8.66	**8.46**	– 3	– 2	+ 0
BG	5.13	5.43	**5.72**	+ 11	+ 5	+ 2
CY	—	—	—	—	—	—
CZ	6.14	6.44	**6.17**	+ 1	– 4	+ 0
DE	7.50	7.43	**7.46**	– 1	+ 0	– 1
DK	7.97	7.36	**8.03**	+ 1	+ 9	+ 0
EE	4.57	4.00	**4.67**	+ 2	+ 17	+ 1
EL	2.97	3.15	**3.05**	+ 3	– 3	– 0
ES	3.18	2.04	**3.82**	+ 20	+ 87	+ 3
FI	3.62	3.23	**3.70**	+ 2	+ 15	+ 2
FR	7.21	7.28	**6.67**	– 7	– 8	– 2
HR	5.71	4.78	**6.08**	+ 6	+ 27	+ 3
HU	5.35	5.63	**5.65**	+ 6	+ 0	+ 4
IE	9.91	9.33	**9.53**	– 4	+ 2	+ 1
IT	3.78	3.60	**3.45**	– 9	– 4	+ 2
LT	4.73	4.74	**4.80**	+ 2	+ 1	+ 0
LU	5.98	5.75	**5.70**	– 5	– 1	+ 0
LV	4.67	4.07	**4.82**	+ 3	+ 18	+ 0
MT	—	—	—	—	—	—
NL	8.88	8.63	**8.30**	– 7	– 4	+ 0
PL	5.10	5.38	**5.27**	+ 3	– 2	– 0
PT	2.18	1.38	**2.57**	+ 18	+ 86	+ 0
RO	4.22	4.55	**4.65**	+ 10	+ 2	+ 5
SE	6.65	5.46	**6.80**	+ 2	+ 25	+ 0
SI	5.47	5.07	**5.47**	+ 0	+ 8	– 2
SK	5.41	6.16	**5.29**	– 2	– 14	– 12

Total wheat - yield forecast 2024



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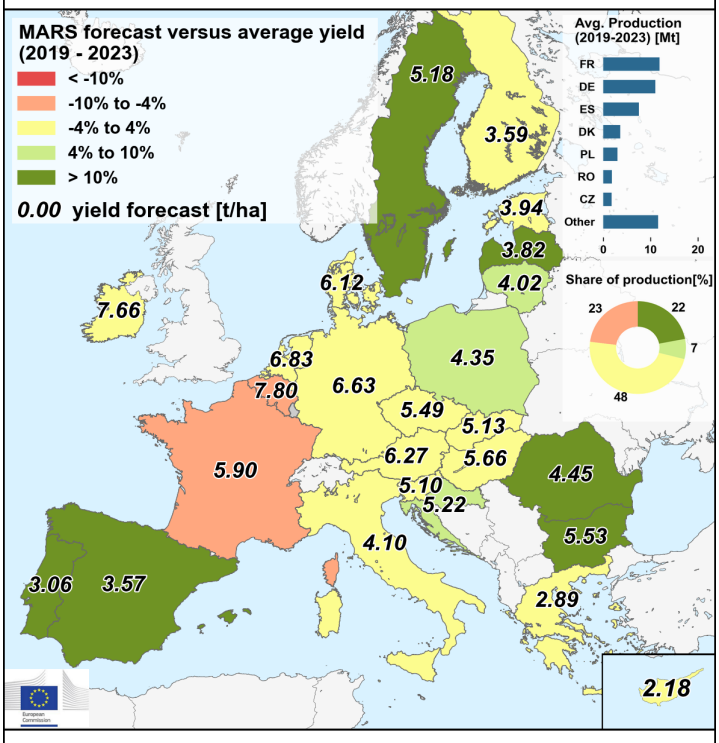
Country	Total barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	4.93	4.63	**5.09**	+ 3	+ 10	– 1
AT	6.18	6.22	**6.27**	+ 1	+ 1	– 4
BE	8.26	8.37	**7.80**	– 6	– 7	– 3
BG	4.93	5.18	**5.53**	+ 12	+ 7	+ 5
CY	2.11	1.74	**2.18**	+ 3	+ 25	+ 0
CZ	5.46	5.49	**5.49**	+ 0	– 0	– 5
DE	6.78	6.82	**6.63**	– 2	– 3	– 3
DK	5.97	4.58	**6.12**	+ 2	+ 33	– 0
EE	3.81	2.95	**3.94**	+ 3	+ 33	+ 0
EL	2.83	2.55	**2.89**	+ 2	+ 13	+ 0
ES	2.97	1.61	**3.57**	+ 20	+ 121	+ 2
FI	3.48	3.13	**3.59**	+ 3	+ 15	+ 1
FR	6.36	6.80	**5.90**	– 7	– 13	– 6
HR	4.89	4.00	**5.22**	+ 7	+ 30	+ 0
HU	5.54	5.46	**5.66**	+ 2	+ 4	– 1
IE	7.98	7.05	**7.66**	– 4	+ 9	– 1
IT	4.12	3.99	**4.10**	– 0	+ 3	+ 0
LT	3.71	3.56	**4.02**	+ 8	+ 13	+ 0
LU	—	—	—	—	—	—
LV	3.31	2.79	**3.82**	+ 15	+ 37	+ 1
MT	—	—	—	—	—	—
NL	6.96	6.58	**6.83**	– 2	+ 4	– 1
PL	4.14	4.49	**4.35**	+ 5	– 3	– 2
PT	2.71	1.56	**3.06**	+ 13	+ 96	+ 0
RO	3.98	4.61	**4.45**	+ 12	– 4	+ 7
SE	4.68	3.30	**5.18**	+ 11	+ 57	+ 0
SI	5.08	4.60	**5.10**	+ 0	+ 11	– 2
SK	5.09	5.31	**5.13**	+ 1	– 3	– 9

Total barley - yield forecast 2024



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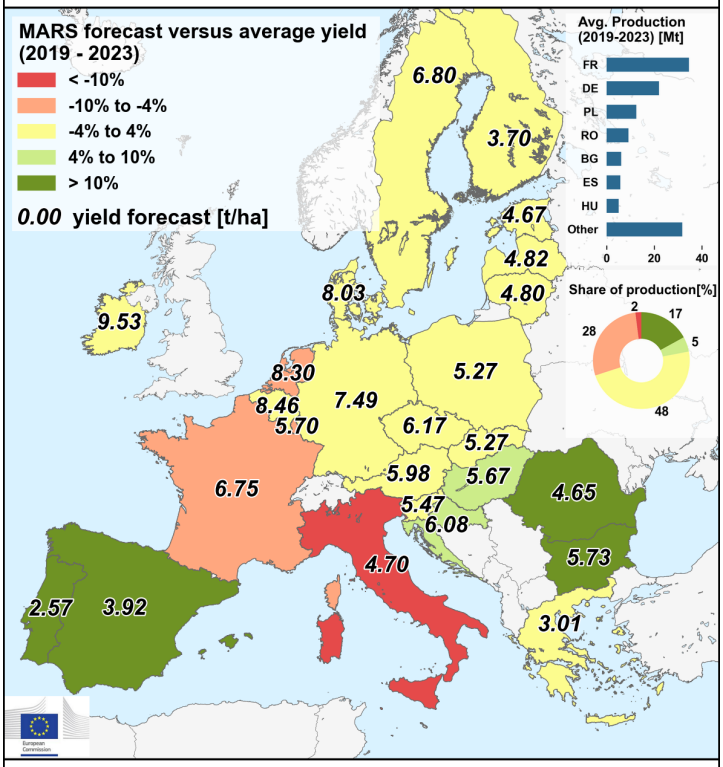
Country	Soft wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	5.86	5.81	**5.87**	+ 0	+ 1	+ 0
AT	5.87	6.14	**5.98**	+ 2	– 3	+ 8
BE	8.75	8.66	**8.46**	– 3	– 2	+ 0
BG	5.14	5.43	**5.73**	+ 11	+ 5	+ 2
CY	—	—	**—**	—	—	—
CZ	6.14	6.44	**6.17**	+ 1	– 4	+ 0
DE	7.53	7.46	**7.49**	– 1	+ 0	– 1
DK	7.97	7.36	**8.03**	+ 1	+ 9	+ 0
EE	4.57	4.00	**4.67**	+ 2	+ 17	+ 1
EL	2.94	2.86	**3.01**	+ 2	+ 5	+ 0
ES	3.28	2.11	**3.92**	+ 20	+ 86	+ 3
FI	3.62	3.23	**3.70**	+ 2	+ 15	+ 2
FR	7.30	7.37	**6.75**	– 7	– 8	– 2
HR	5.71	4.78	**6.08**	+ 6	+ 27	+ 3
HU	5.37	5.65	**5.67**	+ 6	+ 0	+ 4
IE	9.91	9.33	**9.53**	– 4	+ 2	+ 1
IT	5.34	5.08	**4.70**	– 12	– 7	+ 0
LT	4.73	4.74	**4.80**	+ 2	+ 1	+ 0
LU	5.98	5.75	**5.70**	– 5	– 1	+ 0
LV	4.67	4.07	**4.82**	+ 3	+ 18	+ 0
MT	—	—	**—**	—	—	—
NL	8.88	8.63	**8.30**	– 7	– 4	+ 0
PL	5.10	5.38	**5.27**	+ 3	– 2	– 0
PT	2.18	1.38	**2.57**	+ 18	+ 86	+ 0
RO	4.22	4.55	**4.65**	+ 10	+ 2	+ 5
SE	6.65	5.46	**6.80**	+ 2	+ 25	+ 0
SI	5.47	5.07	**5.47**	+ 0	+ 8	– 2
SK	5.42	6.16	**5.27**	– 3	– 14	– 14

Soft wheat - yield forecast 2024



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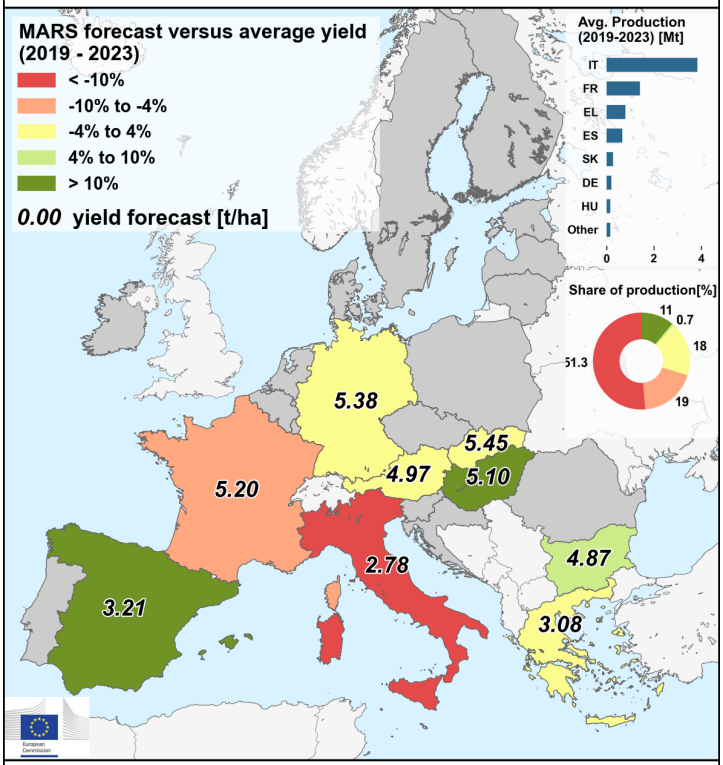
Country	Durum wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	3.45	3.30	**3.35**	– 3	+ 2	+ 2
AT	5.07	5.88	**4.97**	– 2	– 15	– 3
BE	—	—	**—**	—	—	—
BG	4.61	4.81	**4.87**	+ 6	+ 1	+ 3
CY	—	—	**—**	—	—	—
CZ	—	—	**—**	—	—	—
DE	5.40	5.75	**5.38**	– 0	– 6	+ 0
DK	—	—	**—**	—	—	—
EE	—	—	**—**	—	—	—
EL	2.98	3.31	**3.08**	+ 3	– 7	+ 0
ES	2.54	1.61	**3.21**	+ 26	+ 99	+ 1
FI	—	—	**—**	—	—	—
FR	5.53	5.44	**5.20**	– 6	– 4	– 1
HR	—	—	**—**	—	—	—
HU	4.63	5.20	**5.10**	+ 10	– 2	– 2
IE	—	—	**—**	—	—	—
IT	3.11	2.91	**2.78**	– 11	– 4	+ 3
LT	—	—	**—**	—	—	—
LU	—	—	**—**	—	—	—
LV	—	—	**—**	—	—	—
MT	—	—	**—**	—	—	—
NL	—	—	**—**	—	—	—
PL	—	—	**—**	—	—	—
PT	—	—	**—**	—	—	—
RO	—	—	**—**	—	—	—
SE	—	—	**—**	—	—	—
SI	—	—	**—**	—	—	—
SK	5.35	6.14	**5.45**	+ 2	– 11	+ 7

Durum wheat - yield forecast 2024



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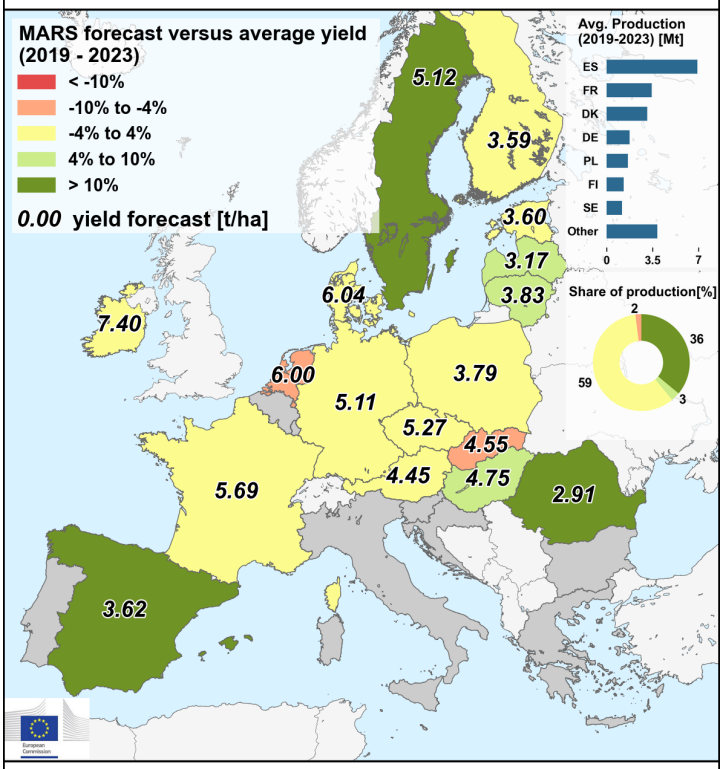
Country	Spring barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	4.08	3.18	**4.44**	+ 9	+ 40	+ 1
AT	4.49	4.75	**4.45**	– 1	– 6	– 0
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	5.12	4.94	**5.27**	+ 3	+ 7	– 3
DE	5.10	4.41	**5.11**	+ 0	+ 16	+ 1
DK	5.84	4.37	**6.04**	+ 3	+ 38	+ 0
EE	3.55	2.59	**3.60**	+ 1	+ 39	+ 0
EL	—	—	—	—	—	—
ES	3.02	1.67	**3.62**	+ 20	+ 117	+ 2
FI	3.48	3.13	**3.59**	+ 3	+ 15	+ 1
FR	5.75	5.78	**5.69**	– 1	– 2	– 2
HR	—	—	—	—	—	—
HU	4.51	4.40	**4.75**	+ 5	+ 8	+ 7
IE	7.44	6.38	**7.40**	– 0	+ 16	– 1
IT	—	—	—	—	—	—
LT	3.60	3.40	**3.83**	+ 6	+ 13	+ 0
LU	—	—	—	—	—	—
LV	3.04	2.42	**3.17**	+ 4	+ 31	+ 0
MT	—	—	—	—	—	—
NL	6.26	4.82	**6.00**	– 4	+ 24	+ 0
PL	3.65	3.79	**3.79**	+ 4	– 0	+ 0
PT	—	—	—	—	—	—
RO	2.55	3.25	**2.91**	+ 14	– 10	+ 0
SE	4.56	3.15	**5.12**	+ 12	+ 62	+ 0
SI	—	—	—	—	—	—
SK	4.79	5.10	**4.55**	– 5	– 11	– 16

Spring barley - yield forecast 2024



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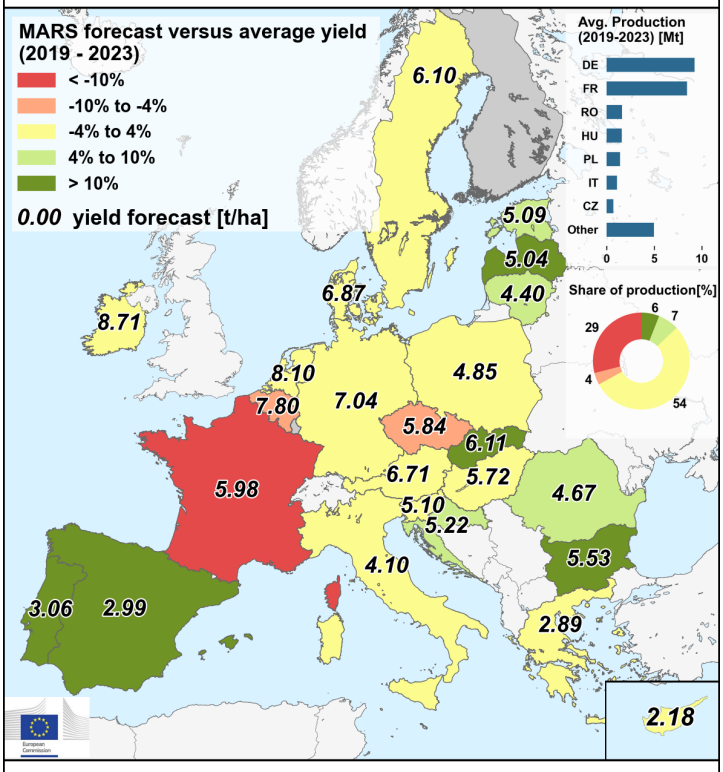
Country	Winter barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	5.91	6.03	**5.76**	– 2	– 4	– 3
AT	6.69	6.55	**6.71**	+ 0	+ 2	– 6
BE	8.26	8.37	**7.80**	– 6	– 7	– 3
BG	4.93	5.18	**5.53**	+ 12	+ 7	+ 5
CY	2.11	1.74	**2.18**	+ 3	+ 25	+ 0
CZ	6.09	6.32	**5.84**	– 4	– 8	– 8
DE	7.23	7.43	**7.04**	– 3	– 5	– 4
DK	6.91	6.48	**6.87**	– 1	+ 6	+ 0
EE	4.67	3.68	**5.09**	+ 9	+ 39	+ 0
EL	2.83	2.55	**2.89**	+ 2	+ 13	+ 0
ES	2.51	1.06	**2.99**	+ 19	+ 182	+ 5
FI	—	—	—	—	—	—
FR	6.65	7.13	**5.98**	– 10	– 16	– 8
HR	4.89	4.00	**5.22**	+ 7	+ 30	+ 0
HU	5.62	5.51	**5.72**	+ 2	+ 4	– 2
IE	8.97	8.72	**8.71**	– 3	– 0	+ 0
IT	4.12	3.99	**4.10**	– 0	+ 3	+ 0
LT	4.17	3.98	**4.40**	+ 6	+ 11	+ 0
LU	—	—	—	—	—	—
LV	4.49	3.59	**5.04**	+ 12	+ 40	+ 0
MT	—	—	—	—	—	—
NL	8.43	8.96	**8.10**	– 4	– 10	– 2
PL	4.87	5.07	**4.85**	– 0	– 4	– 2
PT	2.71	1.56	**3.06**	+ 13	+ 96	+ 0
RO	4.25	4.80	**4.67**	+ 10	– 3	+ 7
SE	6.06	5.19	**6.10**	+ 1	+ 17	+ 0
SI	5.08	4.60	**5.10**	+ 0	+ 11	– 2
SK	5.54	5.55	**6.11**	+ 10	+ 10	+ 2

Winter barley - yield forecast 2024



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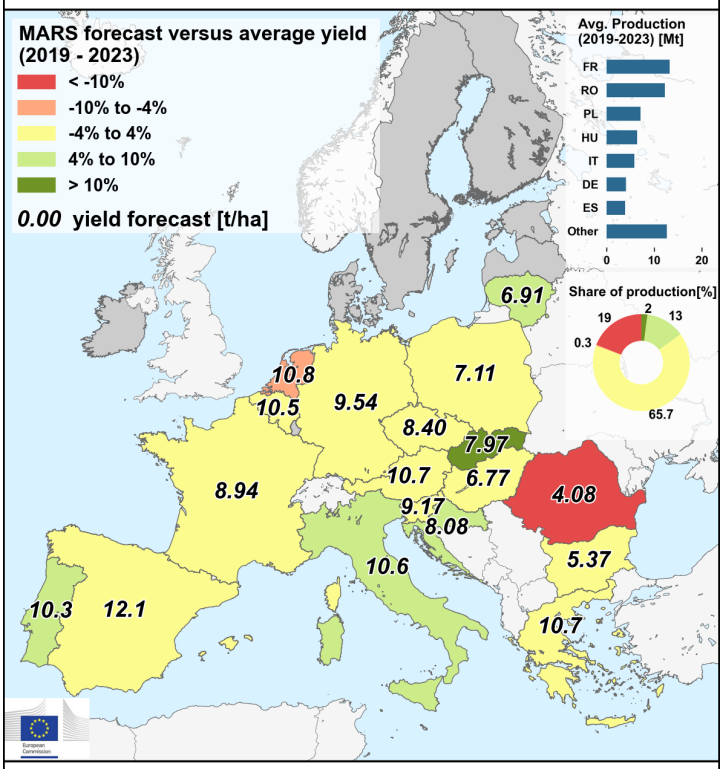
Country	Grain maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	7.35	7.51	**7.24**	– 2	– 4	– 4
AT	10.5	9.93	**10.7**	+ 1	+ 8	+ 1
BE	10.8	12.1	**10.5**	– 3	– 13	+ 0
BG	5.50	4.48	**5.37**	– 2	+ 20	– 15
CY	—	—	**—**	—	—	—
CZ	8.75	7.88	**8.40**	– 4	+ 7	– 1
DE	9.36	9.65	**9.54**	+ 2	– 1	– 0
DK	—	—	**—**	—	—	—
EE	—	—	**—**	—	—	—
EL	10.6	9.50	**10.7**	+ 0	+ 12	– 2
ES	12.0	11.7	**12.1**	+ 0	+ 3	+ 0
FI	—	—	**—**	—	—	—
FR	8.77	9.83	**8.94**	+ 2	– 9	– 0
HR	7.76	7.42	**8.08**	+ 4	+ 9	+ 0
HU	6.93	8.17	**6.77**	– 2	– 17	– 14
IE	—	—	**—**	—	—	—
IT	10.1	10.7	**10.6**	+ 5	– 1	– 1
LT	6.51	8.24	**6.91**	+ 6	– 16	+ 4
LU	—	—	**—**	—	—	—
LV	—	—	**—**	—	—	—
MT	—	—	**—**	—	—	—
NL	11.3	12.8	**10.8**	– 4	– 15	– 4
PL	7.05	7.29	**7.11**	+ 1	– 3	– 1
PT	9.90	10.7	**10.3**	+ 4	– 3	+ 0
RO	4.89	4.70	**4.08**	– 17	– 13	– 10
SE	—	—	**—**	—	—	—
SI	8.96	8.79	**9.17**	+ 2	+ 4	– 0
SK	7.17	7.57	**7.97**	+ 11	+ 5	+ 0

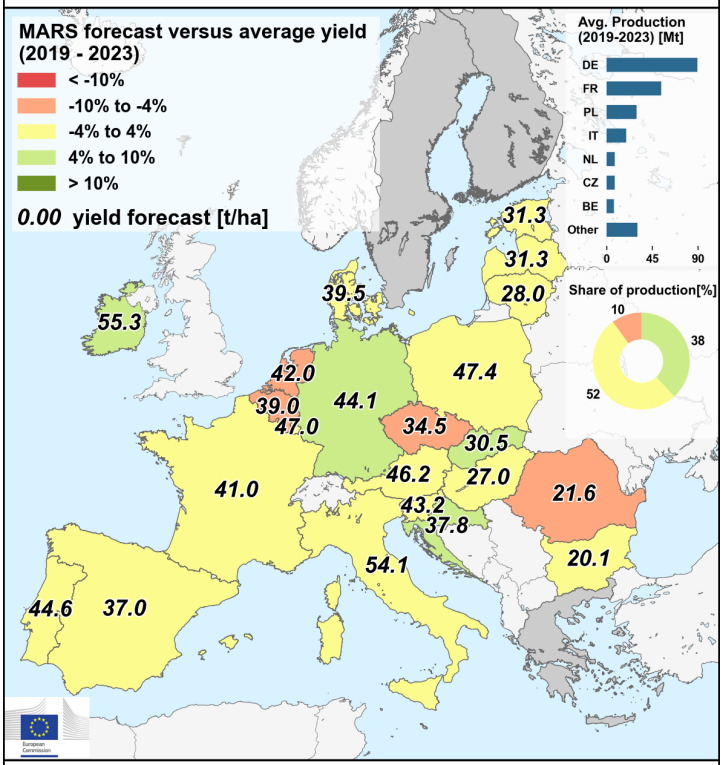
Grain maize - yield forecast 2024



MARS Bulletin Vol. 32 No.7 (2024)

Country	Green maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU*	41.7	43.2	**42.7**	+3	-1	—
AT	46.2	42.0	**46.2**	+ 0	+ 10	—
BE	40.9	41.1	**39.0**	– 5	– 5	—
BG	20.9	18.9	**20.1**	– 4	+ 6	—
CY	—	—	**—**	—	—	—
CZ	36.3	32.3	**34.5**	– 5	+ 7	—
DE	41.5	42.1	**44.1**	+ 6	+ 5	—
DK	38.9	37.0	**39.5**	+ 2	+ 7	—
EE	31.6	30.2	**31.3**	– 1	+ 4	—
EL	—	—	**—**	—	—	—
ES	38.4	47.3	**37.0**	– 3	– 22	—
FI	—	—	**—**	—	—	—
FR	40.9	46.0	**41.0**	+ 0	– 11	—
HR	35.4	34.9	**37.8**	+ 7	+ 8	—
HU	27.8	31.1	**27.0**	– 3	– 13	—
IE	51.7	54.6	**55.3**	+ 7	+ 1	—
IT	52.2	54.1	**54.1**	+ 4	+ 0	—
LT	28.2	27.9	**28.0**	– 1	+ 1	—
LU	46.2	50.9	**47.0**	+ 2	– 8	—
LV	31.4	27.3	**31.3**	– 0	+ 15	—
MT	—	—	**—**	—	—	—
NL	44.0	45.7	**42.0**	– 5	– 8	—
PL	46.0	46.7	**47.4**	+ 3	+ 2	—
PT	44.4	45.1	**44.6**	+ 0	– 1	—
RO	24.0	21.4	**21.6**	– 10	+ 1	—
SE	—	—	**—**	—	—	—
SI	42.2	39.9	**43.2**	+ 2	+ 8	—
SK	29.1	31.5	**30.5**	+ 5	– 3	—

Green maize - yield forecast 2024



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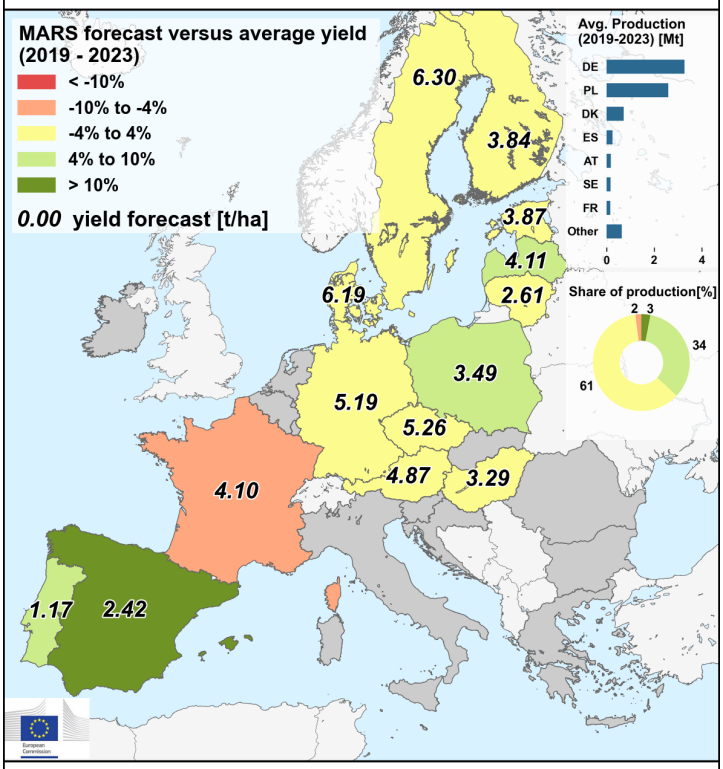
Country	Rye (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	4.15	4.10	**4.26**	+ 3	+ 4	– 1
AT	4.76	4.54	**4.87**	+ 2	+ 7	+ 2
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	5.20	5.07	**5.26**	+ 1	+ 4	– 7
DE	5.26	4.99	**5.19**	– 1	+ 4	– 1
DK	6.11	5.60	**6.19**	+ 1	+ 11	+ 0
EE	3.86	3.66	**3.87**	+ 0	+ 6	+ 1
EL	—	—	—	—	—	—
ES	2.16	1.41	**2.42**	+ 12	+ 71	+ 0
FI	3.95	3.53	**3.84**	– 3	+ 9	– 1
FR	4.32	4.34	**4.10**	– 5	– 5	– 8
HR	—	—	—	—	—	—
HU	3.27	3.34	**3.29**	+ 0	– 2	+ 0
IE	—	—	—	—	—	—
IT	—	—	—	—	—	—
LT	2.59	2.36	**2.61**	+ 1	+ 10	+ 0
LU	—	—	—	—	—	—
LV	3.94	3.20	**4.11**	+ 4	+ 28	+ 0
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	3.31	3.55	**3.49**	+ 5	– 2	– 1
PT	1.06	0.90	**1.17**	+ 10	+ 30	+ 0
RO	—	—	—	—	—	—
SE	6.06	5.25	**6.30**	+ 4	+ 20	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Rye - yield forecast 2024



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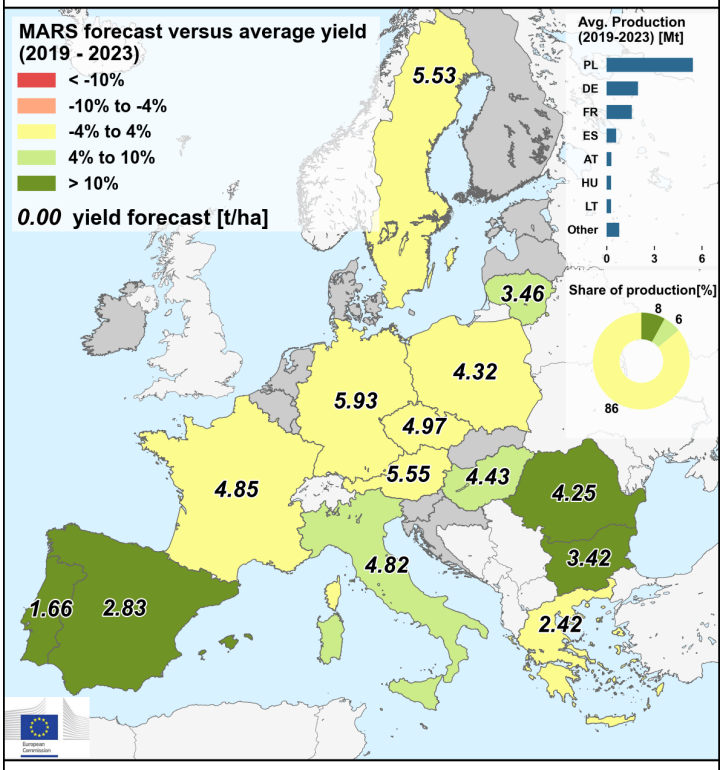
Country	Triticale (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	4.33	4.35	**4.43**	+ 2	+ 2	– 1
AT	5.58	5.62	**5.55**	– 1	– 1	– 3
BE	—	—	—	—	—	—
BG	3.10	3.20	**3.42**	+ 11	+ 7	+ 0
CY	—	—	—	—	—	—
CZ	4.97	4.98	**4.97**	+ 0	– 0	– 2
DE	5.95	5.88	**5.93**	– 0	+ 1	– 1
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	2.36	1.80	**2.42**	+ 3	+ 35	+ 0
ES	2.34	1.42	**2.83**	+ 21	+ 100	+ 1
FI	—	—	—	—	—	—
FR	5.05	5.10	**4.85**	– 4	– 5	– 4
HR	—	—	—	—	—	—
HU	4.07	4.26	**4.43**	+ 9	+ 4	+ 0
IE	—	—	—	—	—	—
IT	4.44	4.54	**4.82**	+ 8	+ 6	+ 0
LT	3.30	3.09	**3.46**	+ 5	+ 12	+ 0
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	4.23	4.48	**4.32**	+ 2	– 4	– 0
PT	1.33	0.75	**1.66**	+ 25	+ 122	+ 0
RO	3.79	4.30	**4.25**	+ 12	– 1	+ 4
SE	5.45	4.12	**5.53**	+ 1	+ 34	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Triticale - yield forecast 2024



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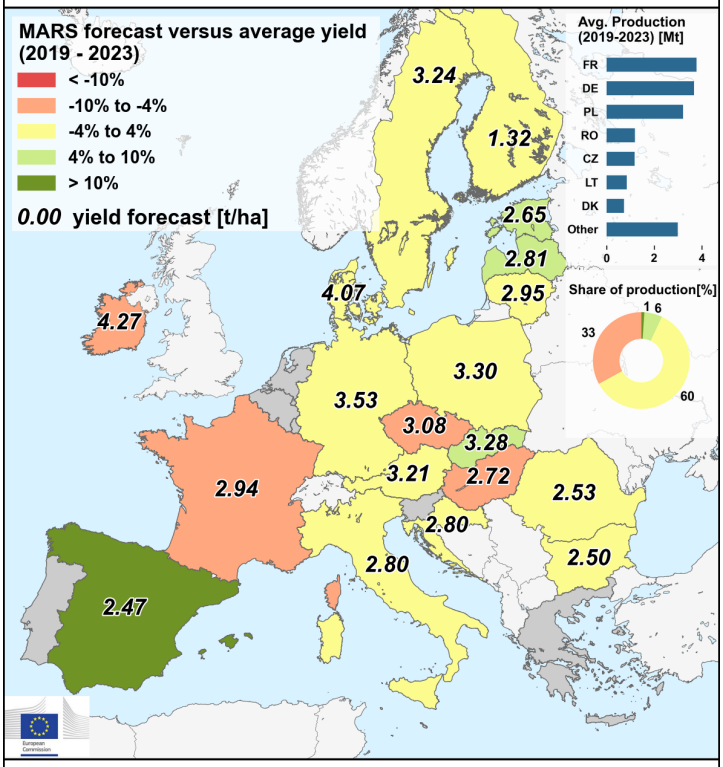
Country	Rape and turnip rape (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	3.17	3.17	**3.10**	– 2	– 2	– 2
AT	3.11	3.23	**3.21**	+ 3	– 1	– 2
BE	—	—	**—**	—	—	—
BG	2.57	2.58	**2.50**	– 3	– 3	– 4
CY	—	—	**—**	—	—	—
CZ	3.25	3.45	**3.08**	– 5	– 11	– 4
DE	3.62	3.58	**3.53**	– 2	– 2	– 0
DK	4.14	3.90	**4.07**	– 2	+ 5	+ 1
EE	2.51	1.80	**2.65**	+ 6	+ 47	+ 0
EL	—	—	**—**	—	—	—
ES	2.13	1.62	**2.47**	+ 16	+ 53	+ 0
FI	1.30	1.31	**1.32**	+ 1	+ 1	+ 1
FR	3.26	3.17	**2.94**	– 10	– 7	– 5
HR	2.70	2.82	**2.80**	+ 4	– 1	+ 1
HU	2.89	3.27	**2.72**	– 6	– 17	– 9
IE	4.50	4.33	**4.27**	– 5	– 1	+ 0
IT	2.82	2.71	**2.80**	– 1	+ 3	+ 0
LT	2.87	2.67	**2.95**	+ 3	+ 10	+ 0
LU	—	—	**—**	—	—	—
LV	2.68	2.35	**2.81**	+ 5	+ 19	+ 0
MT	—	—	**—**	—	—	—
NL	—	—	**—**	—	—	—
PL	3.20	3.39	**3.30**	+ 3	– 3	– 1
PT	—	—	**—**	—	—	—
RO	2.58	2.63	**2.53**	– 2	– 4	– 2
SE	3.21	2.51	**3.24**	+ 1	+ 29	+ 0
SI	—	—	**—**	—	—	—
SK	3.14	3.62	**3.28**	+ 4	– 10	– 1

Rapeseed - yield forecast 2024



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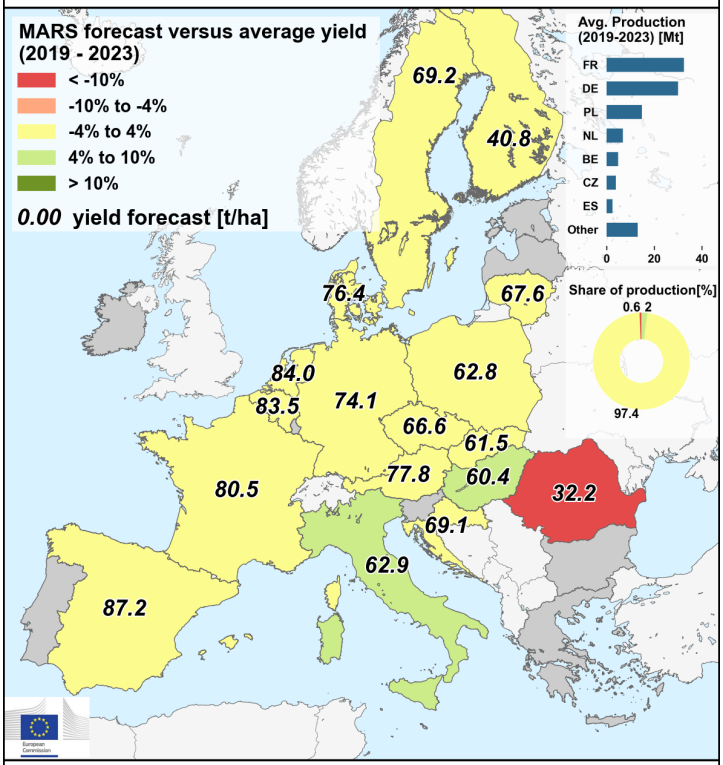
Country	Sugar beet (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	73.1	N/A	**73.4**	+ 0	N/A	– 1
AT	77.1	75.0	**77.8**	+ 1	+ 4	– 4
BE	86.2	87.0	**83.5**	– 3	– 4	– 1
BG	—	—	**—**	—	—	—
CY	—	—	**—**	—	—	—
CZ	65.2	65.2	**66.6**	+ 2	+ 2	+ 0
DE	75.9	79.7	**74.1**	– 2	– 7	– 1
DK	76.4	74.8	**76.4**	– 0	+ 2	– 1
EE	—	—	**—**	—	—	—
EL	—	—	**—**	—	—	—
ES	85.3	81.5	**87.2**	+ 2	+ 7	– 0
FI	40.5	38.5	**40.8**	+ 1	+ 6	+ 0
FR	78.8	83.4	**80.5**	+ 2	– 4	– 2
HR	66.6	62.4	**69.1**	+ 4	+ 11	+ 0
HU	56.8	58.0	**60.4**	+ 6	+ 4	– 7
IE	—	—	**—**	—	—	—
IT	58.2	N/A	**62.9**	+ 8	N/A	+ 0
LT	66.5	72.2	**67.6**	+ 2	– 6	+ 3
LU	—	—	**—**	—	—	—
LV	—	—	**—**	—	—	—
MT	—	—	**—**	—	—	—
NL	84.3	85.3	**84.0**	– 0	– 2	+ 0
PL	60.8	61.3	**62.8**	+ 3	+ 2	– 1
PT	—	—	**—**	—	—	—
RO	36.6	33.1	**32.2**	– 12	– 3	– 15
SE	67.7	60.4	**69.2**	+ 2	+ 15	– 1
SI	—	—	**—**	—	—	—
SK	60.2	63.6	**61.5**	+ 2	– 3	– 4

Sugar beet - yield forecast 2024



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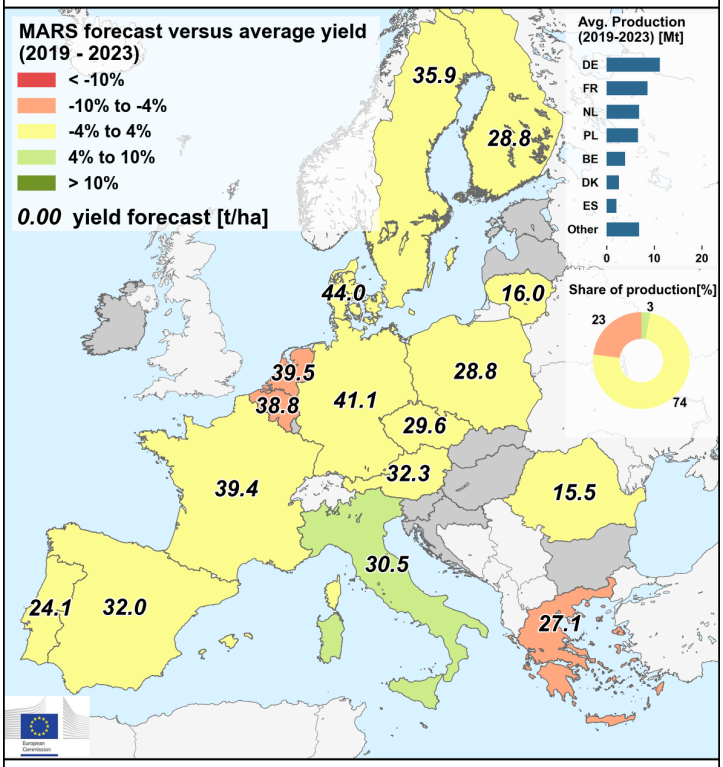
Country	Potatoes (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	35.4	36.8	**35.1**	– 1	– 5	– 2
AT	32.7	28.8	**32.3**	– 1	+ 12	– 2
BE	41.4	43.5	**38.8**	– 6	– 11	– 1
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	28.7	27.4	**29.6**	+ 3	+ 8	+ 0
DE	41.9	43.9	**41.1**	– 2	– 6	– 2
DK	43.7	45.1	**44.0**	+ 1	– 2	+ 0
EE	—	—	—	—	—	—
EL	28.6	27.7	**27.1**	– 5	– 2	+ 0
ES	32.3	32.0	**32.0**	– 1	+ 0	– 1
FI	28.9	30.2	**28.8**	– 1	– 5	+ 0
FR	41.0	42.2	**39.4**	– 4	– 7	– 4
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	—	—	—	—	—	—
IT	29.0	27.8	**30.5**	+ 5	+ 10	+ 0
LT	16.1	18.1	**16.0**	– 1	– 12	+ 2
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	42.2	41.8	**39.5**	– 6	– 6	– 1
PL	28.8	29.6	**28.8**	+ 0	– 3	– 0
PT	23.6	24.2	**24.1**	+ 2	– 1	– 0
RO	15.6	14.1	**15.5**	– 1	+ 10	– 3
SE	35.8	35.6	**35.9**	+ 0	+ 1	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Potatoes - yield forecast 2024



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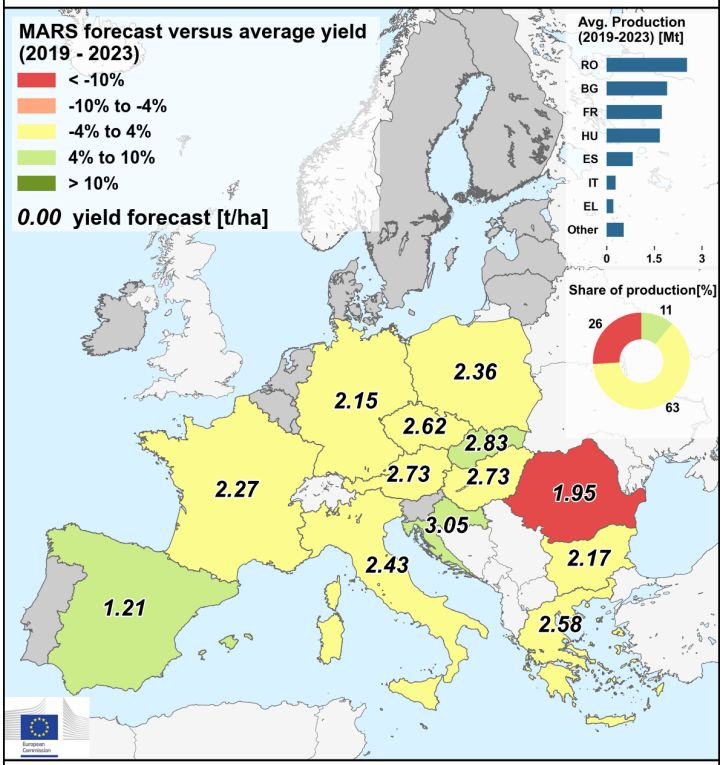
Country	Sunflower (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	2.15	2.10	**2.09**	– 2	– 0	– 5
AT	2.68	2.69	**2.73**	+ 2	+ 1	+ 0
BE	—	—	—	—	—	—
BG	2.24	2.03	**2.17**	– 3	+ 7	– 8
CY	—	—	—	—	—	—
CZ	2.63	2.49	**2.62**	– 0	+ 5	+ 0
DE	2.20	2.47	**2.15**	– 2	– 13	+ 0
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	2.52	2.42	**2.58**	+ 2	+ 7	– 2
ES	1.13	1.12	**1.21**	+ 7	+ 7	+ 1
FI	—	—	—	—	—	—
FR	2.30	2.50	**2.27**	– 1	– 9	– 0
HR	2.93	2.64	**3.05**	+ 4	+ 15	+ 0
HU	2.64	2.90	**2.73**	+ 4	– 6	– 9
IE	—	—	—	—	—	—
IT	2.44	2.49	**2.43**	– 0	– 2	+ 5
LT	—	—	—	—	—	—
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.35	2.36	**2.36**	+ 0	– 0	+ 0
PT	—	—	—	—	—	—
RO	2.21	1.86	**1.95**	– 12	+ 5	– 6
SE	—	—	—	—	—	—
SI	—	—	—	—	—	—
SK	2.58	2.78	**2.83**	+ 10	+ 2	– 4

Sunflower - yield forecast 2024



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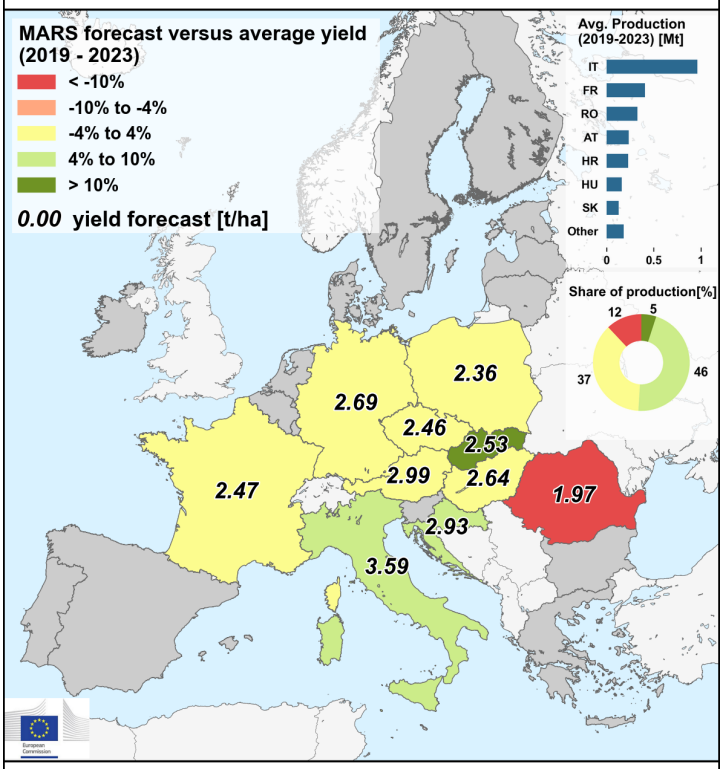
Country	Soybeans (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	2.73	2.85	**2.86**	+ 4	+ 0	– 2
AT	2.95	3.06	**2.99**	+ 1	– 2	+ 0
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	2.38	2.39	**2.46**	+ 3	+ 3	+ 0
DE	2.75	2.88	**2.69**	– 2	– 6	+ 0
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	—	—	—	—	—	—
ES	—	—	—	—	—	—
FI	—	—	—	—	—	—
FR	2.41	2.44	**2.47**	+ 3	+ 1	– 4
HR	2.76	2.86	**2.93**	+ 6	+ 2	+ 1
HU	2.65	3.04	**2.64**	– 0	– 13	– 11
IE	—	—	—	—	—	—
IT	3.28	3.39	**3.59**	+ 10	+ 6	+ 0
LT	—	—	—	—	—	—
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.31	2.58	**2.36**	+ 2	– 8	– 1
PT	—	—	—	—	—	—
RO	2.19	2.14	**1.97**	– 10	– 8	– 8
SE	—	—	—	—	—	—
SI	—	—	—	—	—	—
SK	2.27	2.59	**2.53**	+ 11	– 2	+ 0

Soybeans - yield forecast 2024



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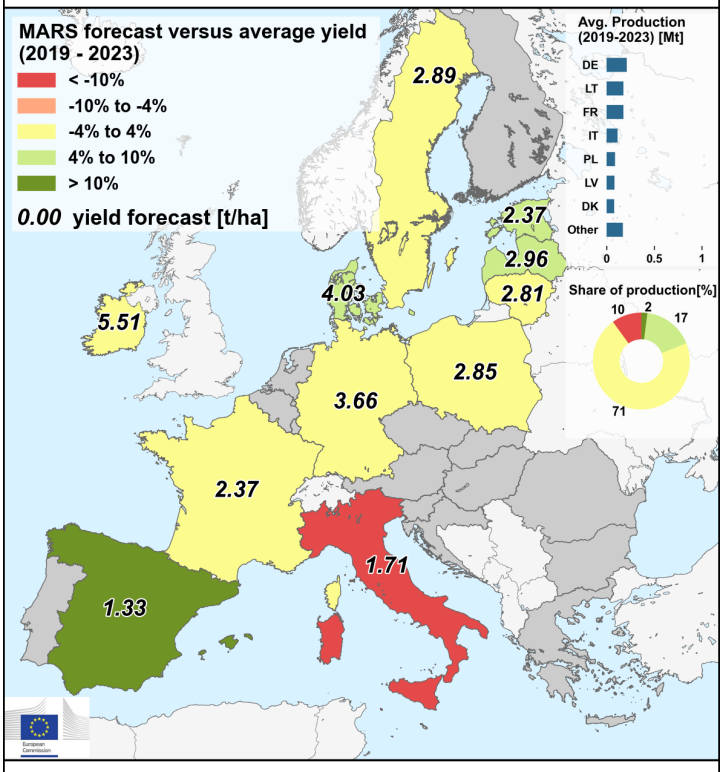
Country	Field beans (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	2.72	2.53	**2.83**	+ 4	+ 12	+ 0
AT	—	—	—	—	—	—
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	—	—	—	—	—	—
DE	3.55	2.88	**3.66**	+ 3	+ 27	– 2
DK	3.83	3.27	**4.03**	+ 5	+ 23	+ 5
EE	2.25	2.32	**2.37**	+ 5	+ 2	+ 0
EL	—	—	—	—	—	—
ES	1.12	1.00	**1.33**	+ 19	+ 34	+ 13
FI	—	—	—	—	—	—
FR	2.41	2.66	**2.37**	– 2	– 11	– 3
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	5.33	5.00	**5.51**	+ 3	+ 10	+ 0
IT	1.93	1.98	**1.71**	– 11	– 14	– 6
LT	2.72	2.37	**2.81**	+ 3	+ 18	+ 4
LU	—	—	—	—	—	—
LV	2.83	2.30	**2.96**	+ 5	+ 29	+ 0
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.74	2.61	**2.85**	+ 4	+ 9	– 1
PT	—	—	—	—	—	—
RO	—	—	—	—	—	—
SE	2.94	2.42	**2.89**	– 2	+ 19	– 2
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—

Field beans - yield forecast 2024



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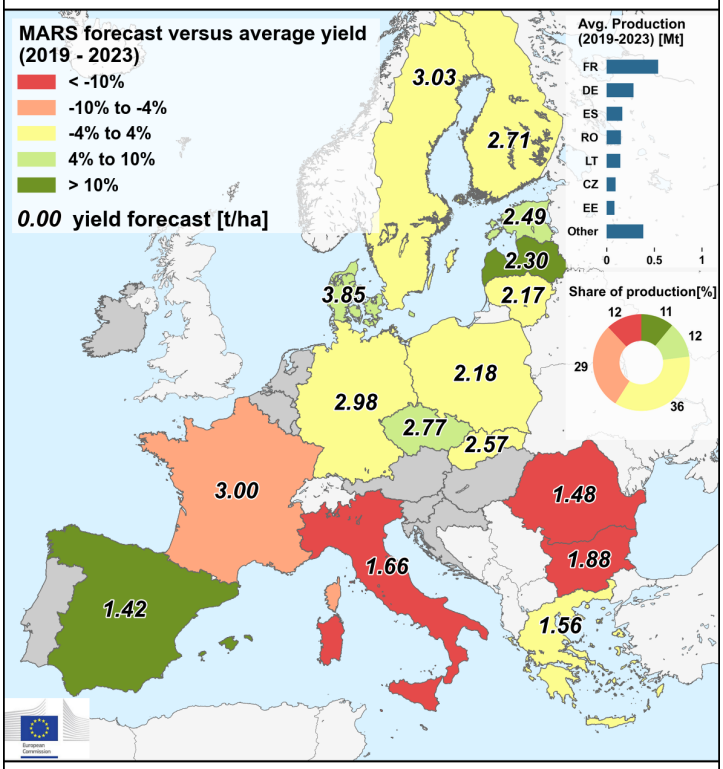
Country	Field peas (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
EU	2.33	1.99	**2.30**	– 2	+ 15	– 6
AT	—	—	—	—	—	—
BE	—	—	—	—	—	—
BG	2.09	2.25	**1.88**	– 10	– 17	– 11
CY	—	—	—	—	—	—
CZ	2.55	2.25	**2.77**	+ 9	+ 23	+ 0
DE	2.95	2.25	**2.98**	+ 1	+ 32	– 3
DK	3.67	2.88	**3.85**	+ 5	+ 34	– 1
EE	2.28	2.20	**2.49**	+ 9	+ 13	+ 0
EL	1.55	1.60	**1.56**	+ 1	– 2	+ 0
ES	1.18	0.67	**1.42**	+ 20	+ 111	– 8
FI	2.64	2.54	**2.71**	+ 3	+ 7	– 0
FR	3.16	3.21	**3.00**	– 5	– 6	– 5
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	—	—	—	—	—	—
IT	2.82	2.65	**1.66**	– 41	– 38	– 35
LT	2.14	2.10	**2.17**	+ 1	+ 3	+ 0
LU	—	—	—	—	—	—
LV	2.05	1.84	**2.30**	+ 12	+ 25	+ 0
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.12	2.12	**2.18**	+ 3	+ 3	– 1
PT	—	—	—	—	—	—
RO	1.73	1.67	**1.48**	– 15	– 11	– 15
SE	2.95	2.06	**3.03**	+ 3	+ 47	+ 0
SI	—	—	—	—	—	—
SK	2.47	2.08	**2.57**	+ 4	+ 23	– 5

Field peas - yield forecast 2024



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Country	Wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
BY	3.54	3.38	**3.80**	+ 7	+ 12	– 0
TR	2.93	3.22	**2.97**	+ 2	– 8	– 3
UA	4.20	4.53	**4.07**	– 3	– 10	– 1
UK	8.17	8.10	**7.70**	– 6	– 5	– 1

Country	Barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
BY	2.88	2.75	**3.00**	+ 4	+ 9	– 3
TR	2.52	2.78	**3.00**	+ 19	+ 8	+ 0
UA	3.46	3.64	**3.48**	+ 1	– 4	– 3
UK	6.31	6.10	**6.19**	– 2	+ 2	– 2

Country	Grain maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
BY	5.43	5.56	**5.63**	+ 4	+ 1	– 2
TR	9.29	9.40	**9.82**	+ 6	+ 5	+ 3
UA	6.90	7.73	**6.85**	– 1	– 11	– 3
UK	—	—	—	—	—	—

Country	Soybean (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff July/June
BY	—	—	—	—	—	—
TR	4.22	4.21	**4.48**	+ 6	+ 6	+ 3
UA	2.38	2.61	**2.43**	+ 2	– 7	– 2
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 June 2024, received on 08.07.2024), Eurostat Eurobase (last update: 08.07.2024), ELSTAT, Statistics Netherlands (CBS), DESTATIS and EES (last update: 15.11.2017).

Non-EU 2019-2023 data come from USDA, Turkish Statistical Institute (TurkStat), Eurostat Eurobase (last update: 08.07.2024), Ministry for Development of Economy, Trade and Agriculture of Ukraine, Department for Environment, Food & Rural Affairs of UK (DEFRA), FAO and PSD-online.

2024 yields come from MARS Crop Yield Forecasting System (output up to 10.07.2024).

EU aggregate after 1.2.2020 is reported.

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(%).

N/A = Data not available.

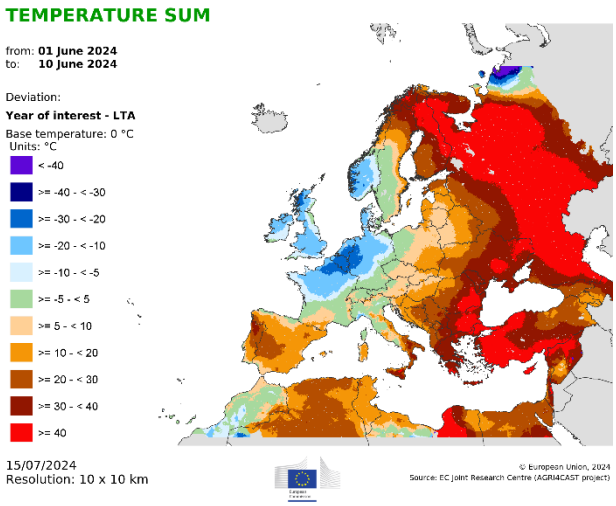
* The EU figures do not include green maize forecasts for Sweden since recent data on yields were not consistent.

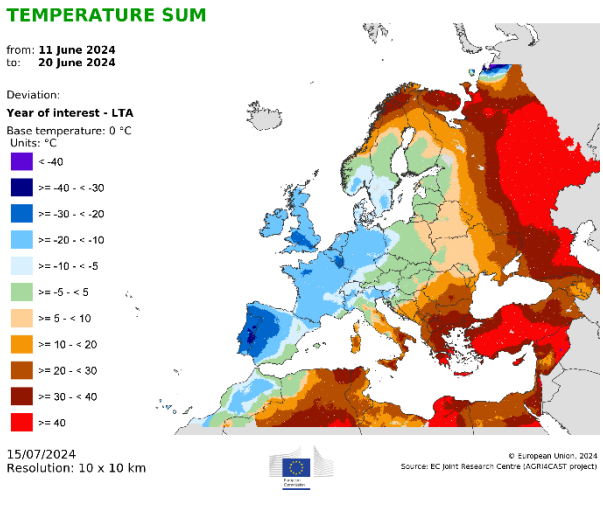
Cop name	Eurostat Crop name	Eurostat Crop Code	Official Eurostat Crop definition*
Total wheat	Wheat and spelt	C1100	Common wheat (*Triticum aestivum* L. emend. Fiori et Paol.), spelt (*Triticum spelta* L.), einkorn wheat (*Triticum monococcum* L.) and durum wheat (*Triticum durum* Desf.).
Total barley	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.).

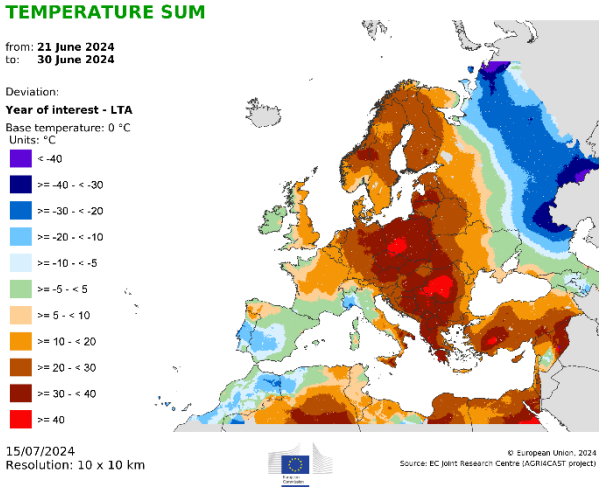
** Source:* Eurostat - Annual crop statistics (Handbook 2020 Edition)

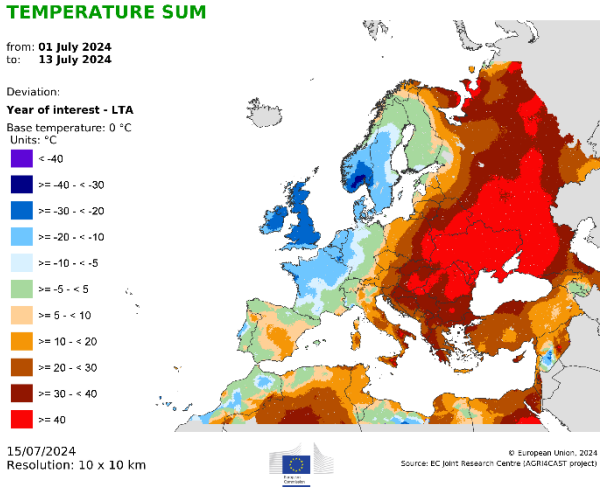
6. Atlas

Temperature regime

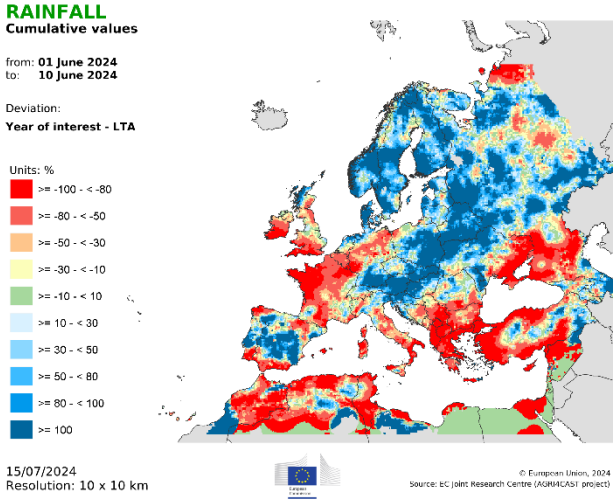


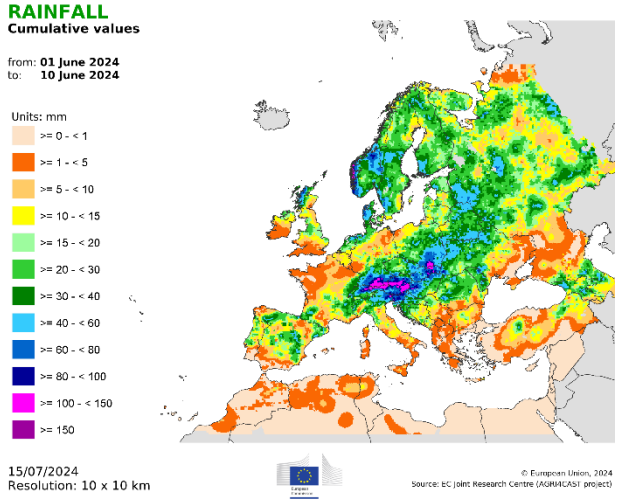






Precipitation



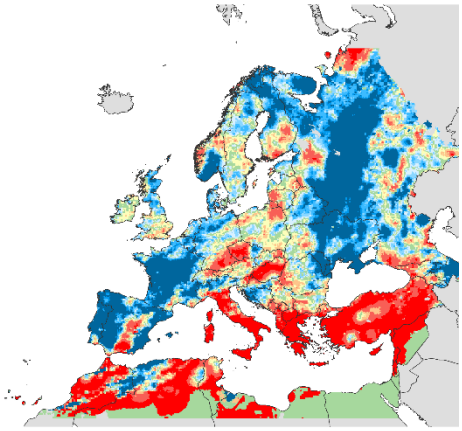


RAINFALL
Cumulative values

from: **11 June 2024**
to: **20 June 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

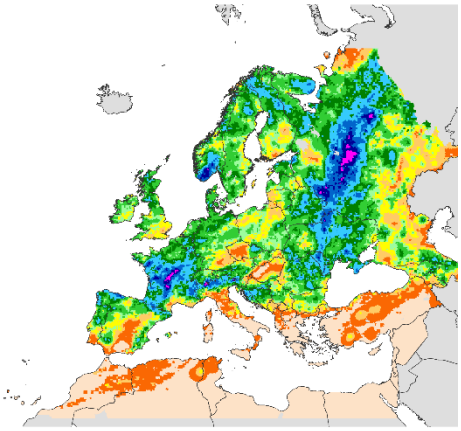


15/07/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **11 June 2024**
to: **20 June 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



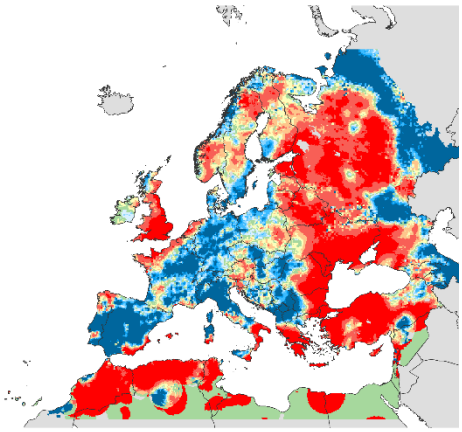
15/07/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **21 June 2024**
to: **30 June 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

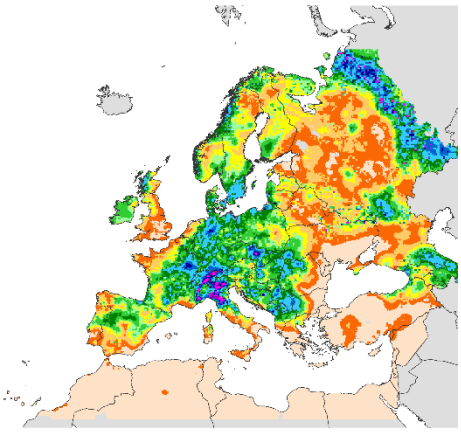


15/07/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **21 June 2024**
to: **30 June 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



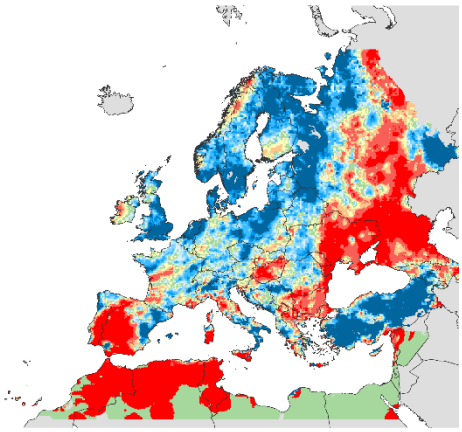
15/07/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

from: **01 July 2024**
to: **13 July 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

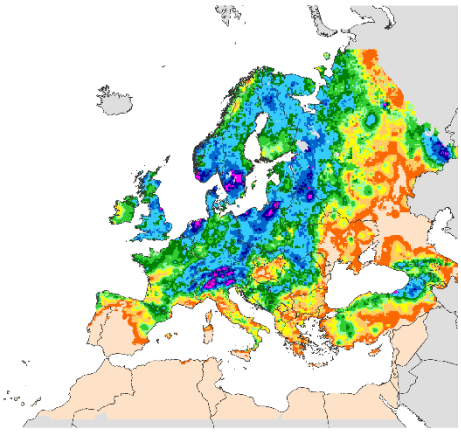


15/07/2024
Resolution: 10 x 10 km

RAINFALL
Cumulative values

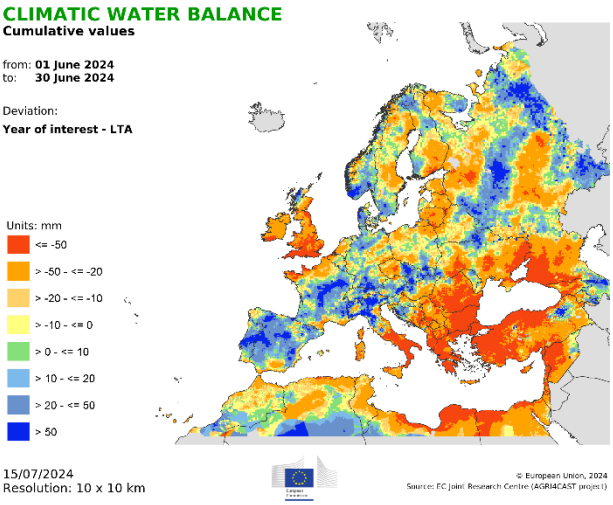
from: **01 July 2024**
to: **13 July 2024**

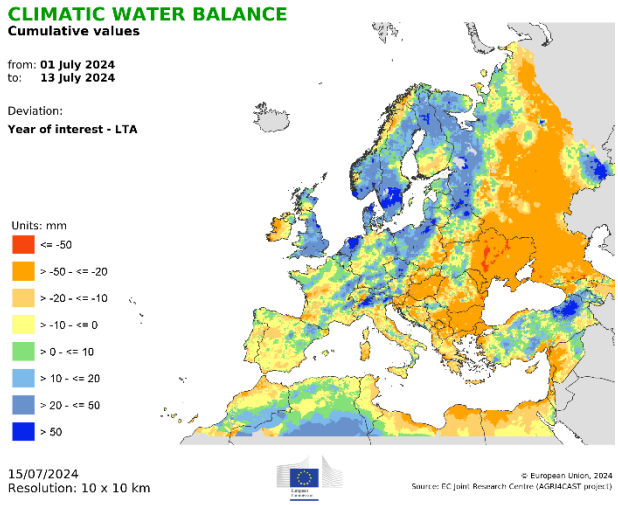
Units: mm
- >= 0 - < 1
- >= 1 - < 5
- >= 5 - < 10
- >= 10 - < 15
- >= 15 - < 20
- >= 20 - < 30
- >= 30 - < 40
- >= 40 - < 60
- >= 60 - < 80
- >= 80 - < 100
- >= 100 - < 150
- >= 150



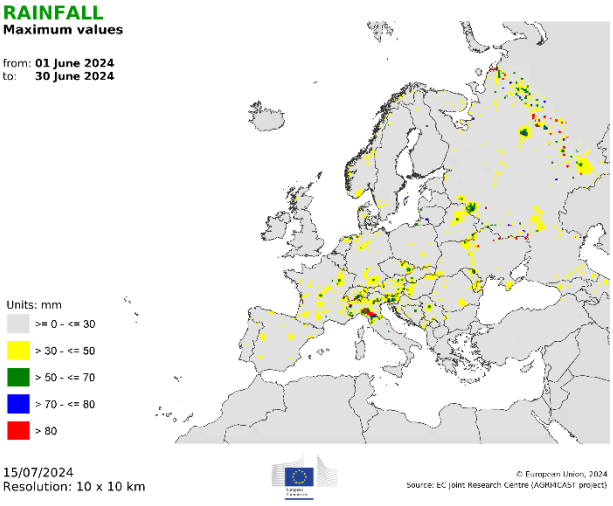
15/07/2024
Resolution: 10 x 10 km

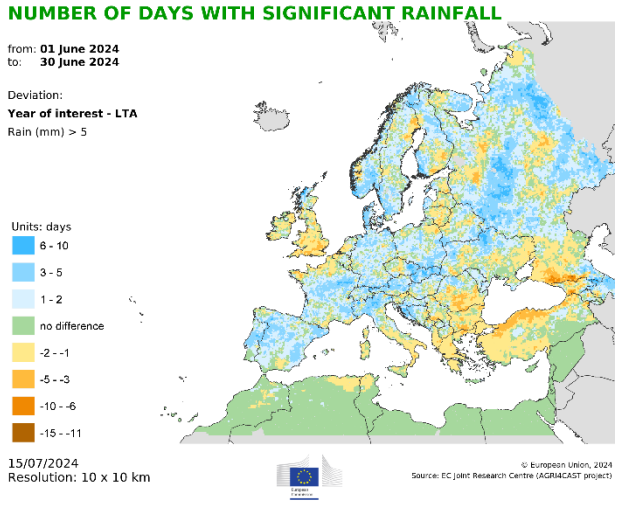
Climatic water balance

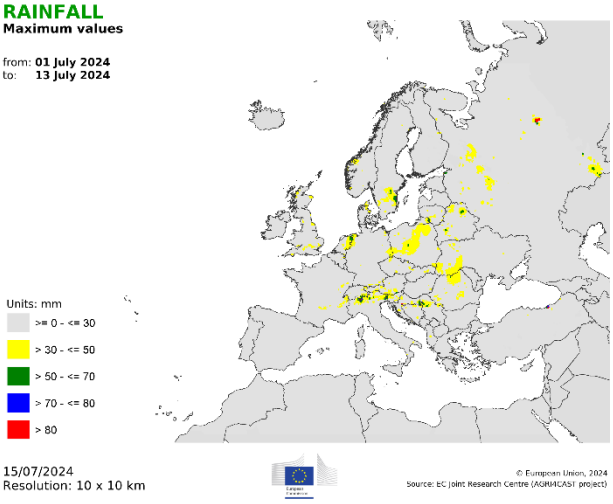


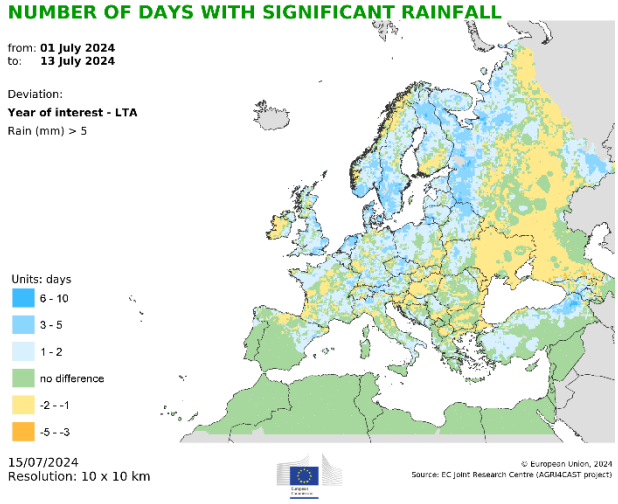


Weather events



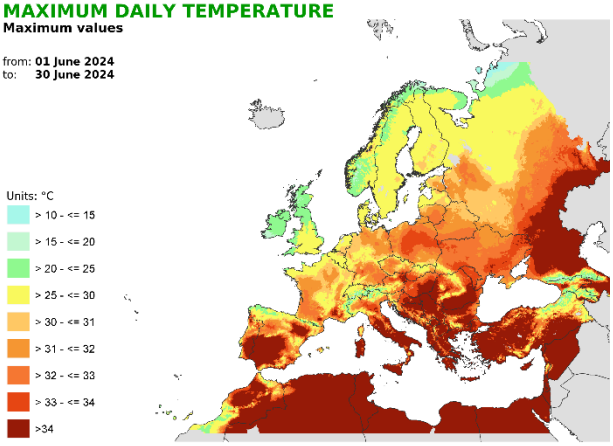






MAXIMUM DAILY TEMPERATURE
Maximum values

from: **01 June 2024**
to: **30 June 2024**

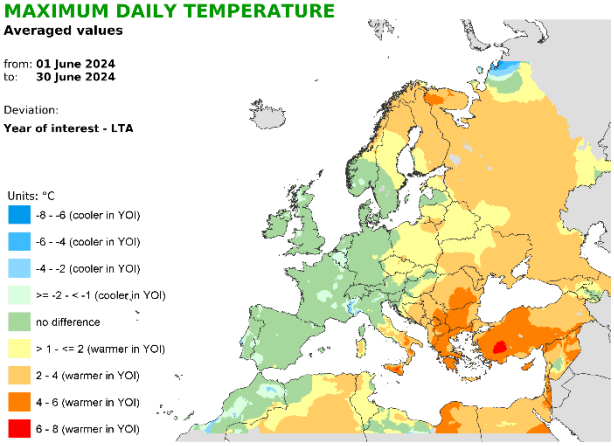


15/07/2024
Resolution: 10 x 10 km

MAXIMUM DAILY TEMPERATURE
Averaged values

from: **01 June 2024**
to: **30 June 2024**

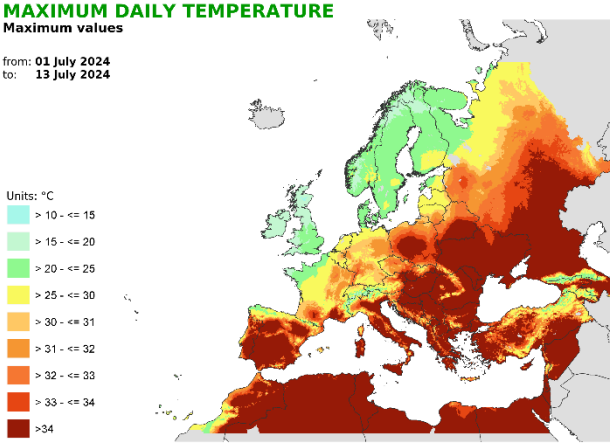
Deviation:
Year of interest - LTA



15/07/2024
Resolution: 10 x 10 km

MAXIMUM DAILY TEMPERATURE
Maximum values

from: **01 July 2024**
to: **13 July 2024**

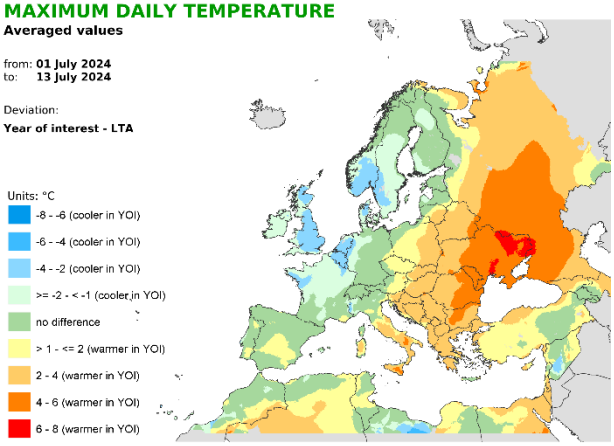


15/07/2024
Resolution: 10 x 10 km

MAXIMUM DAILY TEMPERATURE
Averaged values

from: **01 July 2024**
to: **13 July 2024**

Deviation:
Year of interest - LTA

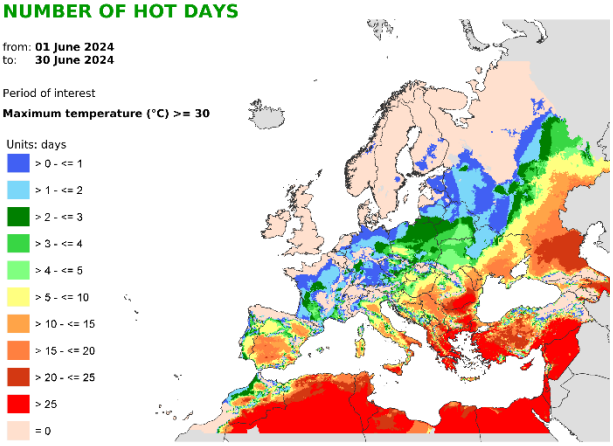


15/07/2024
Resolution: 10 x 10 km

NUMBER OF HOT DAYS

from: **01 June 2024**
to: **30 June 2024**

Period of interest
Maximum temperature (°C) >= 30

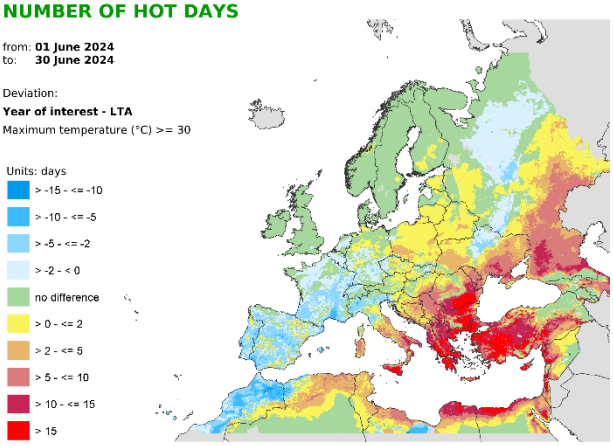


15/07/2024
Resolution: 10 x 10 km

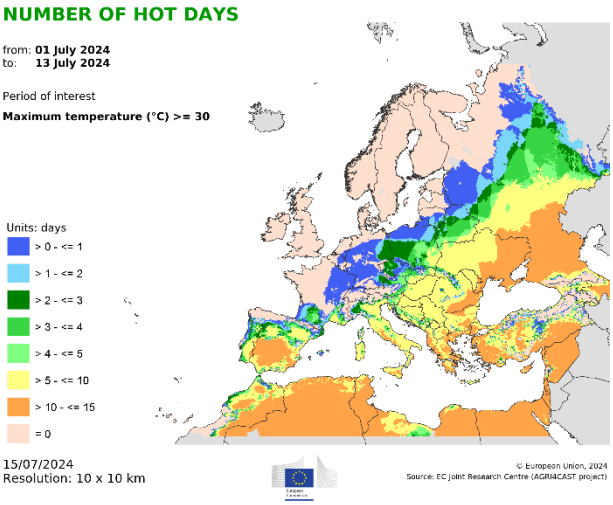
NUMBER OF HOT DAYS

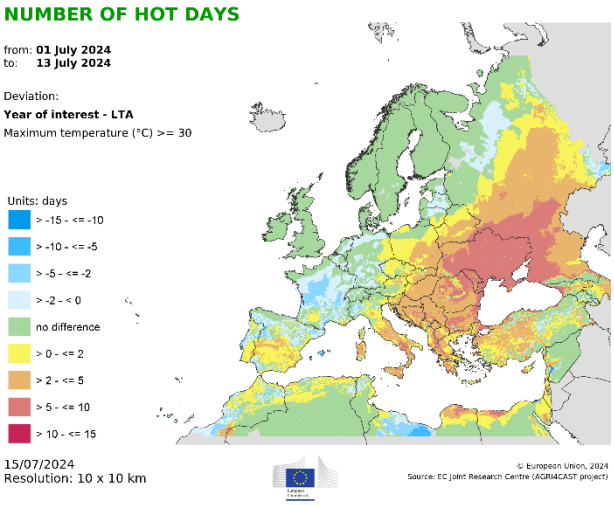
from: **01 June 2024**
to: **30 June 2024**

Deviation:
Year of interest - LTA
Maximum temperature (°C) >= 30

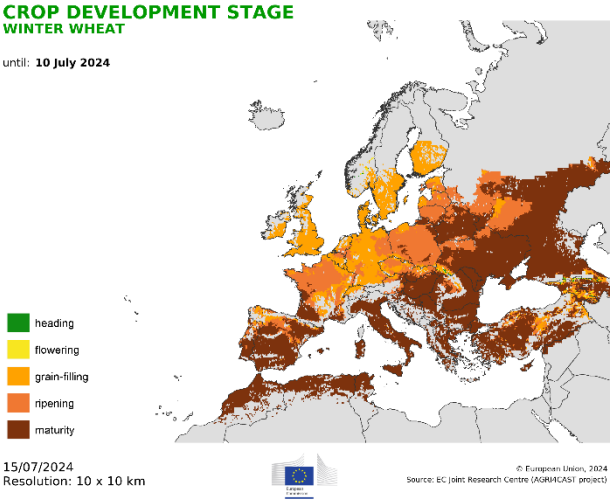


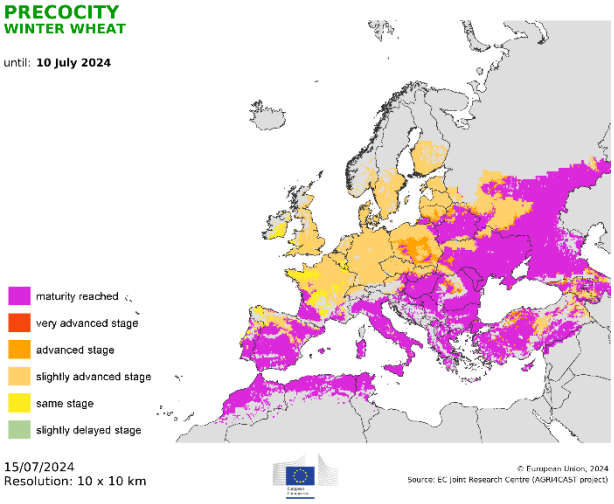
15/07/2024
Resolution: 10 x 10 km

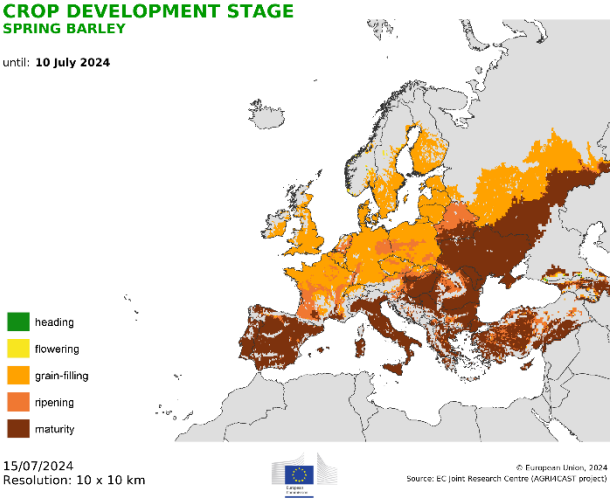


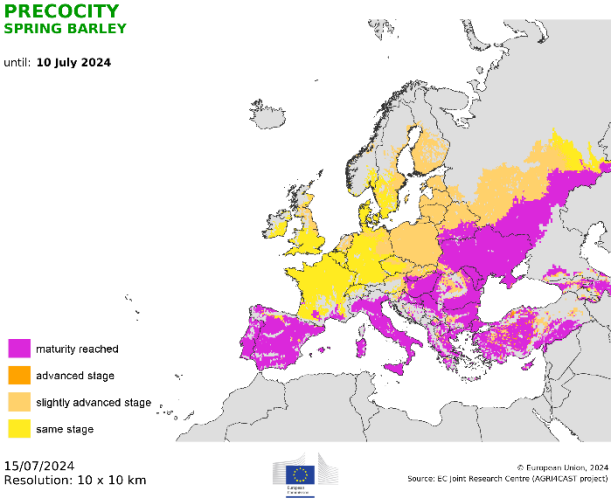


Crop development stages and precocity



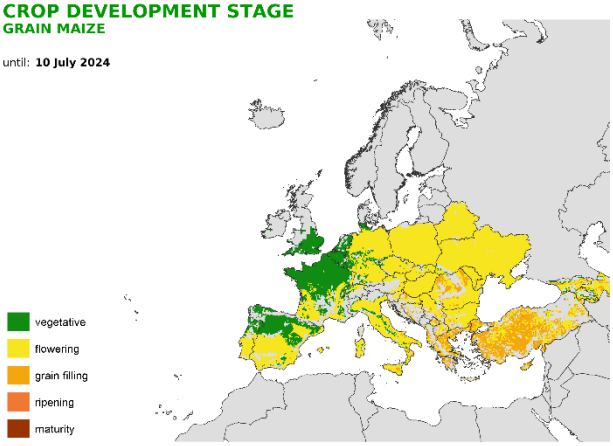






CROP DEVELOPMENT STAGE
GRAIN MAIZE

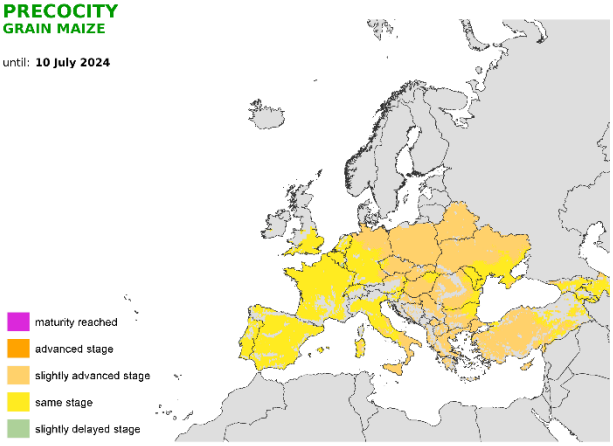
until: **10 July 2024**



15/07/2024
Resolution: 10 x 10 km

PRECOCITY
GRAIN MAIZE

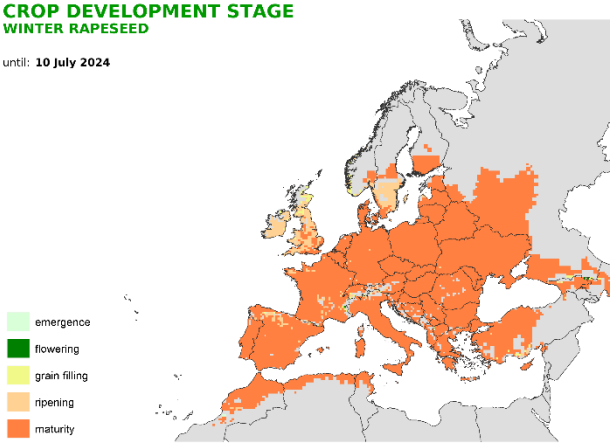
until: **10 July 2024**



15/07/2024
Resolution: 10 x 10 km

CROP DEVELOPMENT STAGE
WINTER RAPESEED

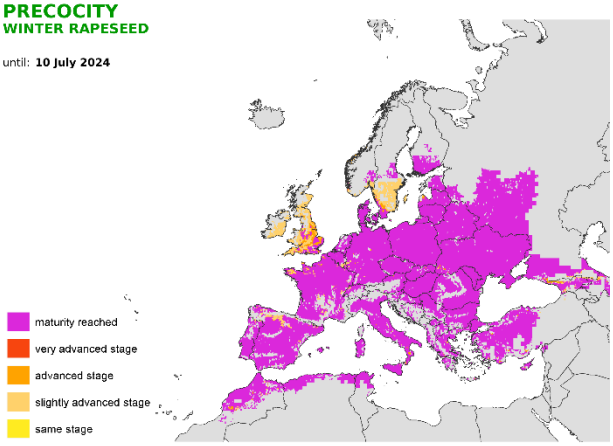
until: **10 July 2024**



15/07/2024
Resolution: 25 x 25 km

PRECOCITY
WINTER RAPESEED

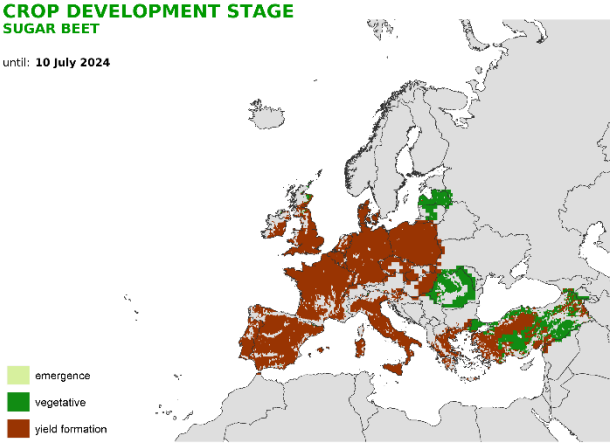
until: **10 July 2024**



15/07/2024
Resolution: 10 x 10 km

CROP DEVELOPMENT STAGE
SUGAR BEET

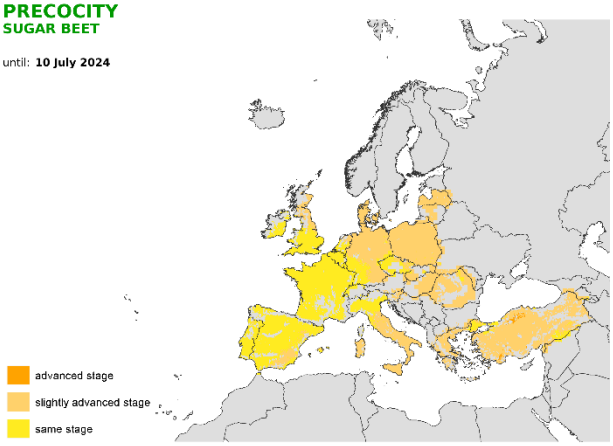
until: **10 July 2024**



15/07/2024
Resolution: 10 x 10 km

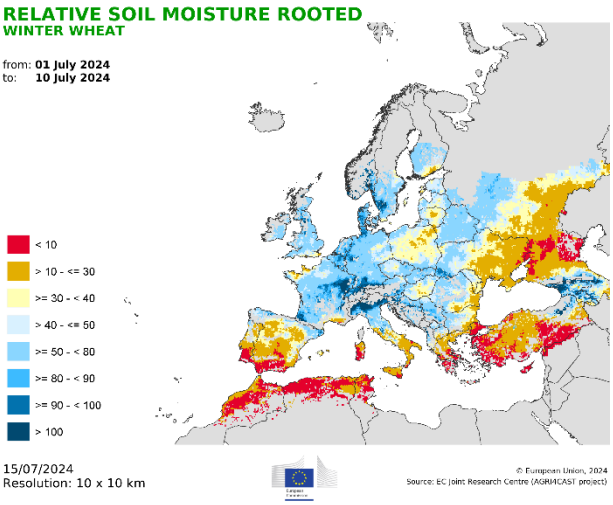
PRECOCITY
SUGAR BEET

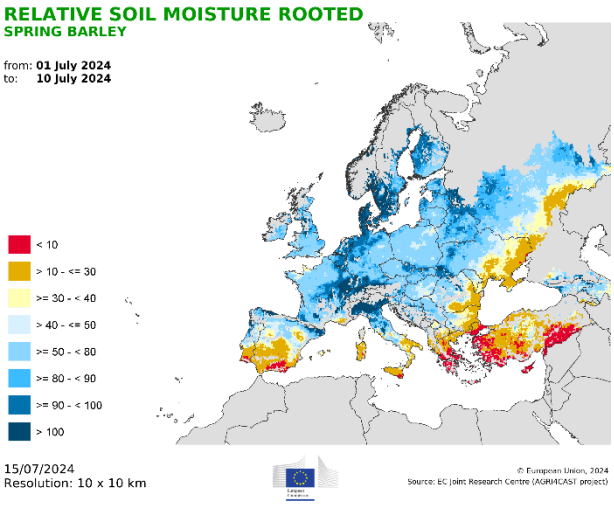
until: **10 July 2024**

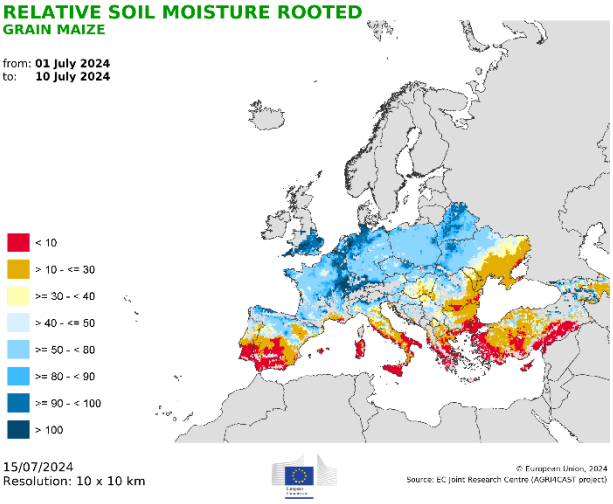


15/07/2024
Resolution: 10 x 10 km

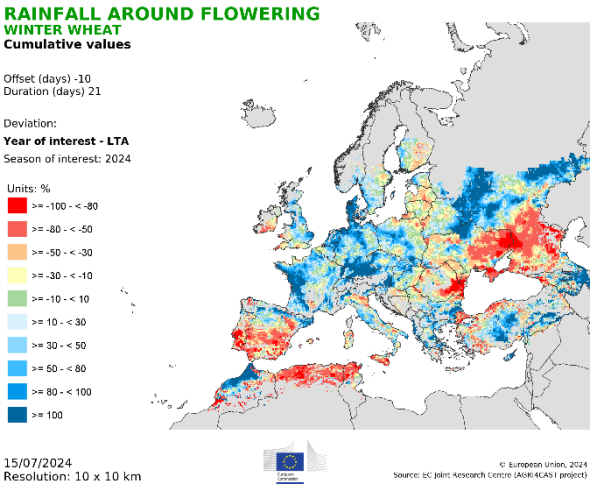
Relative soil moisture

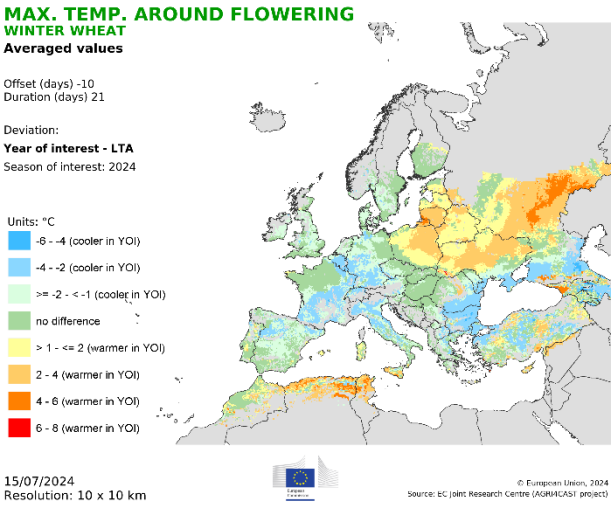


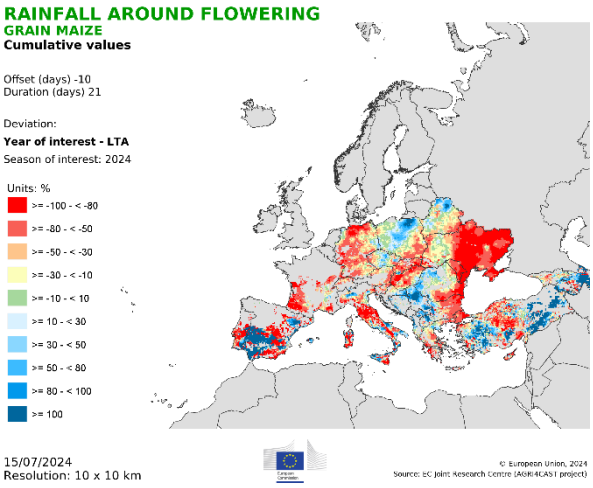


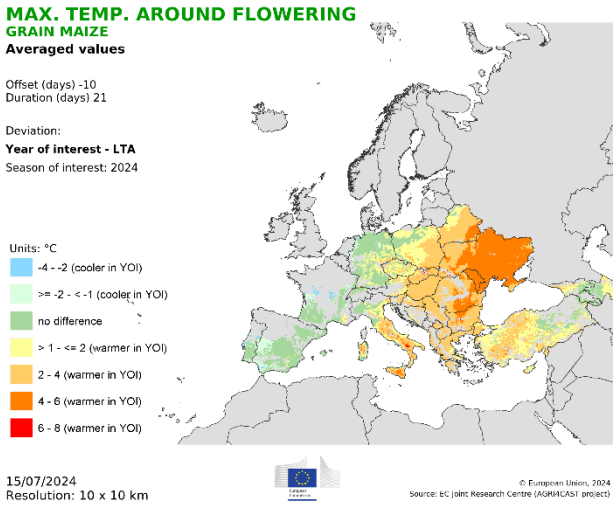


Precipitation and temperature anomalies around flowering

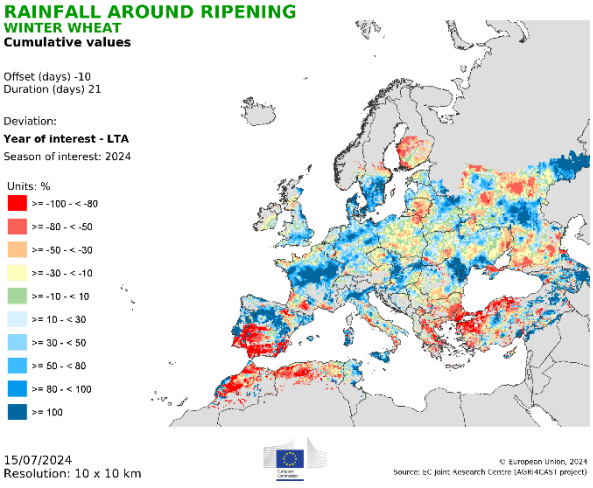


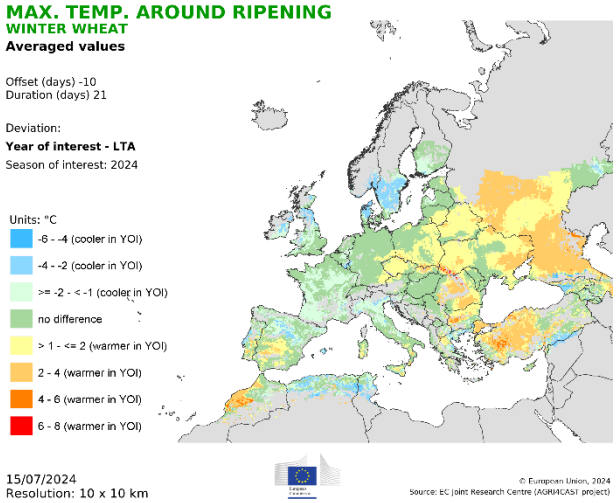


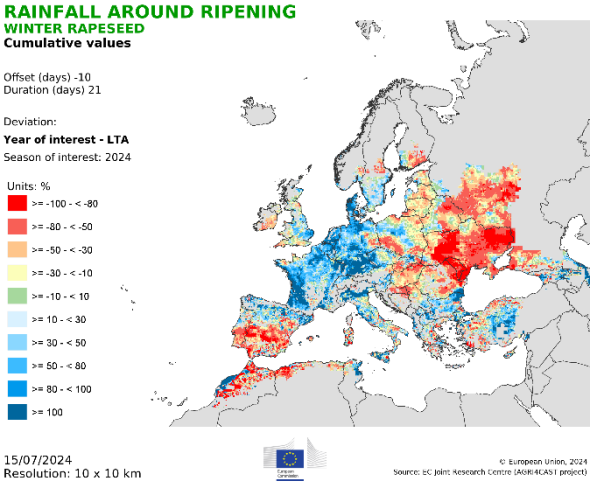


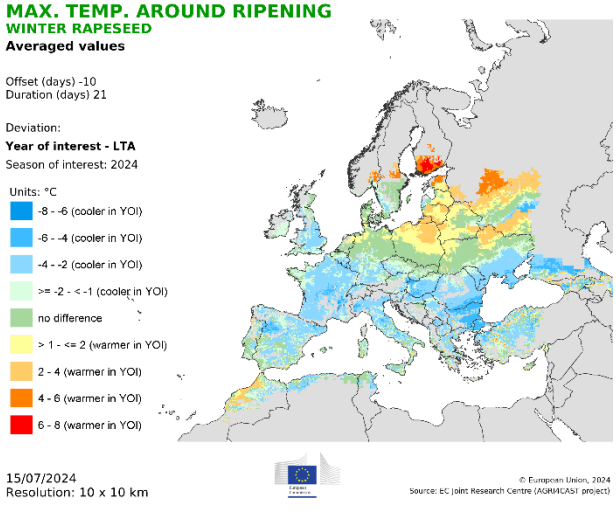


Precipitation and temperatures anomalies around ripening









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

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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.

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