Issued: 26 August 2024
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JRC MARS Bulletin
Crop monitoring in Europe
August 2024

Severe impacts of hot conditions in the south
Difficult end of season for winter crops in the north

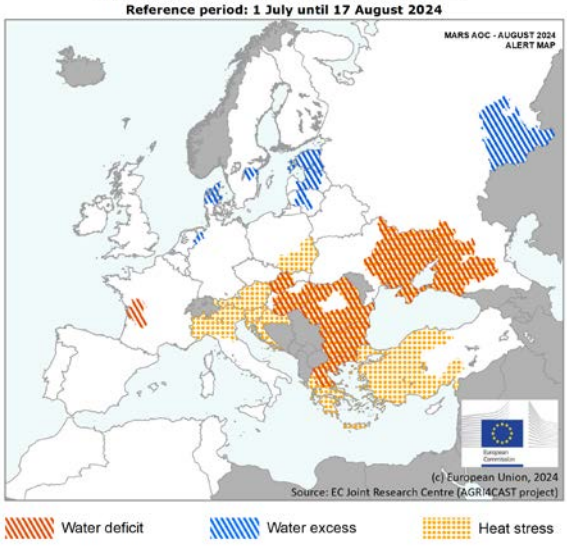
At EU level, yield forecasts were revised downwards for almost all crops, and are now below the 5-year average for most crops.

The downward revision of the yield forecast for summer crops (particularly grain maize and sunflowers) is mainly due to exceptionally high temperatures that occurred during the review period in most of southern, southern-central and eastern Europe. Summer crops were particularly severely impacted in regions where the hot conditions coincided with limited water availability, as was often the case in Hungary, Romania, Bulgaria and Greece. The poor performance of winter cereals (in particular soft wheat and winter barley), is mostly due to excessively wet conditions that affected large parts of western and northern Europe. During the current review period, this was particularly the case in the Baltic countries, where an extremely intense rainfall event resulted in lodging and reduced grain quality, substantially decreasing the hitherto positive yield expectations. Frequent, yet less extreme, rainfall also hampered harvesting in northern France, the Benelux countries and north-western Germany, where winter crops had already been impacted by overly wet conditions during most of the season.

Contents:

Covers the period from 1 July until 17 August

AREAS OF CONCERN - ALERT MAP
Reference period: 1 July until 17 August 2024



Crop	Yield t/ha				
	Avg 5yrs	July Bulletin	MARS 2024 forecasts	%24/5yrs	% Diff July
Total cereals	5.48	5.50	**5.36**	– 2	– 3
Total wheat	5.64	5.65	**5.47**	– 3	– 3
Soft wheat	5.86	5.87	**5.68**	– 3	– 3
Durum wheat	3.45	3.35	**3.38**	– 2	+ 1
Total barley	4.93	5.09	**5.01**	+ 2	– 2
Spring barley	4.08	4.44	**4.43**	+ 9	– 0
Winter barley	5.91	5.76	**5.62**	– 5	– 2
Grain maize	7.35	7.24	**7.03**	– 4	– 3
Rye	4.15	4.26	**4.21**	+ 1	– 1
Triticale	4.33	4.43	**4.37**	+ 1	– 1
Rape and turnip rape	3.17	3.10	**3.07**	– 3	– 1
Potatoes	35.4	35.1	**35.1**	– 1	– 0
Sugar beet	73.1	73.4	**73.4**	+ 0	+ 0
Sunflower	2.15	2.09	**2.04**	– 5	– 2
Soybeans	2.73	2.86	**2.75**	+ 1	– 4
Field beans	2.72	2.83	**2.81**	+ 4	– 1
Field peas	2.34	2.30	**2.24**	– 4	– 3
Green maize	41.7	42.7	**42.7**	+ 3	– 0

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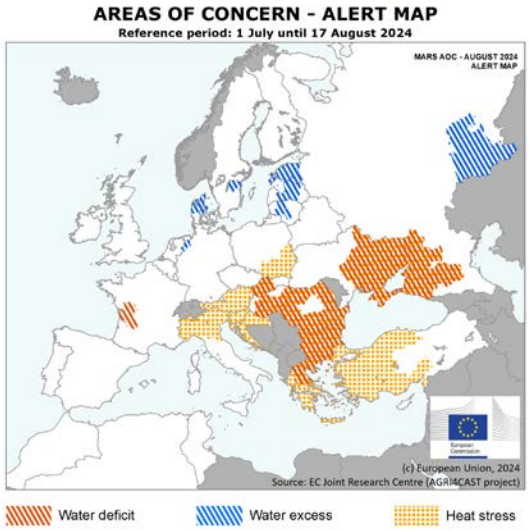
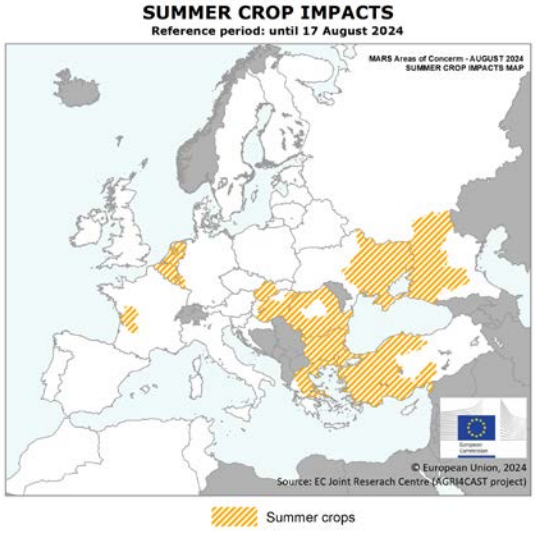
Joint Research Centre

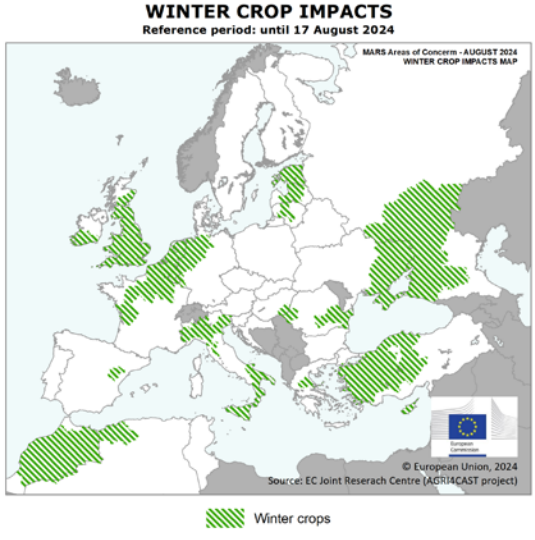
1. Agrometeorological overview

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 and/or summer) have been negatively affected in terms of area and/or yield. These maps shows* ***impacts that have occurred since the start of the season****. However, reductions in areas sown or resowing of specific crops without significant impact on expected yields are not repeated in subsequent editions of the bulletin once reduced areas have been reflected in the statistics. The* ***alert map*** *shows unusual weather events with potential negative* ***impacts on crops that occurred during the review period, from 1 July to 17 August****.*







Very high temperatures were recorded in most of southern, southern-central and eastern Europe, with negative impacts on summer crops in many of the regions affected; winter crops had already been harvested. On the hottest days, maximum temperatures often exceeded 35 °C, with peaks close to 40 °C in Romania, Bulgaria and Greece. The hot (among the hottest in our records) and dry weather, with only a few local intense rain events, caused a significant depletion in soil moisture in the non-irrigated areas of western Slovakia, Hungary, Romania, Bulgaria, Greece, western Türkiye, eastern Ukraine and south-western European Russia. In those regions, summer crops suffered from the combination of heat stress around the reproductive stages and lack of water to properly sustain crop growth. In regions with the highest peak temperatures, even the yield potential of well-watered fields was impacted, if the hot conditions occurred around flowering. Heat stress occurred even in Italy, Slovenia, Croatia, Austria and Poland, but with less severe impacts thanks to lower peak temperatures and/or temperature mitigation from irrigation.

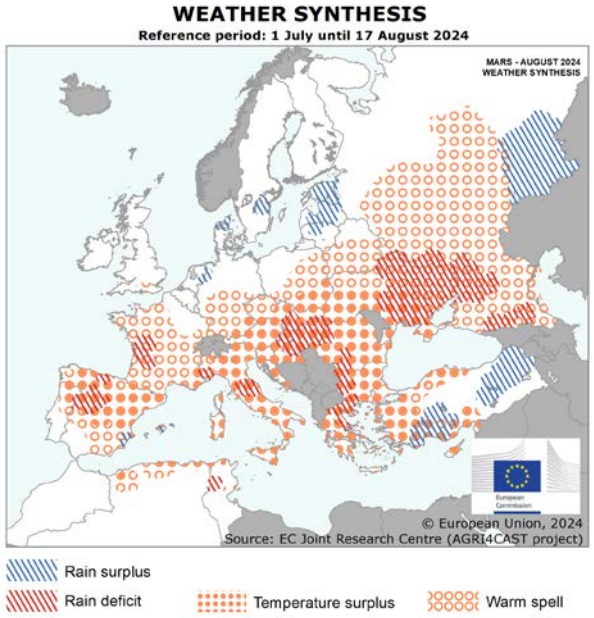
In western France, rainfall scarcity since early July has negatively affected non-irrigated summer crops. In eastern Ukraine and southern Russia persistently hot and dry conditions negatively impacted summer crops.

The impacts shown for summer crops in the Benelux countries are related to the late and excessively wet start to the season, as described in the June edition of the Bulletin.

Overly wet conditions have also been observed in northern Europe (in continental Denmark, in limited parts of central Sweden and in the Baltic countries) where the harvest of winter crops was hampered; most notably in the Baltic countries, where an extremely intense rainfall event on 28 July, resulted in water logging, lodging and reduced grain quality, substantially decreasing the hitherto positive yield expectations. In eastern European Russia (Volga okrug), continued rainfall surplus may result in unfavourable conditions for the harvest of spring cereals. The impacts on winter crops reported for other countries are associated with negative events that occurred (or started to occur) earlier in the season. Overly wet conditions negatively affected winter crops during most of the season in northern France, Ireland, the United Kingdom, the Benelux countries, western Germany and northern Italy. In central Greece, floods in early winter damaged crops. In western Spain, southern Italy and Cyprus, winter crops were negatively impacted by dry conditions throughout the season. Dry spring and early summer conditions had a negative impact on winter crops in Romania, Türkiye, eastern Ukraine and southern Russia.

1.2. Meteorological review (1 July –17 August)

While cooler northern air masses brought wetter-than-usual conditions to northern and mountainous regions, intense heat conditions characterised most southern regions of Europe and parts of central Europe.



The weather synthesis map presents a summary of the most distinct weather anomalies during the reporting period (1 July–17 August) 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, taking into account the reporting period as a whole. Warm spells refer to extreme temperature highs, within a 5-day period, reaching the 90th percentile of the LTA and the relevant absolute temperature threshold. The weather synthesis map is supplemented by single-indicator maps (see below), which provide further context for each type of event.

A distinct rain surplus was observed in the north-eastern Netherlands, northern Denmark, southern Sweden and most of the Baltic countries, as well as southern Spain (*Alicante*) and the Balearic Islands, large parts of Türkiye and eastern parts of central European Russia (*Bashkortostan*, *Orenburgskaya* oblast). In most of these regions, cumulative rainfall exceeded the LTA by 100–150 %, or even more, and this ranked among the wettest three such periods (1 July–17 August) in our records since 1991. In most of northern Europe, and from central Europe to the Alps region, more than 10 days with daily rainfall of more than 5 mm were observed, and cumulative rainfall reached 250 mm or more.

A rainfall deficit was observed in parts of Spain (*Castilla y León*, *Extremadura*), western and south-easternmost France and central Italy, as well as in most of Hungary, western Slovakia, parts of western Romania in the north and in the south extending into western Bulgaria and Greece, and eastern Ukraine and parts of southern European Russia. In these areas, cumulative rainfall was between 50 % and 100 % below the LTA and this ranked among the driest three such periods in our records since 1991. In most of these regions, up to 3 days with daily rainfall exceeding the 5 mm threshold were observed.

A temperature surplus was observed almost throughout Europe, with the most noteworthy occurrences in parts of the Iberian peninsula, coastal Algeria, southern France, Italy, Austria, Slovenia, Croatia, Hungary, Slovakia, parts of Czechia, southern Poland and south-western Ukraine, as well as Romania, Bulgaria, Greece and western parts of Türkiye. In most of Italy and the Balkan peninsula, average daily temperatures exceeded the LTA by as much as 2–4 °C and this ranked among the warmest three such periods in our records since 1991.

Exceptionally **warm spells** were observed in most of Europe south from the Great European Plain, as well as in coastal regions of Algeria. In many regions in the south, average daily temperatures above 35 °C were observed for 20 or more days due to distinct heatwave episodes of more than 5 consecutive days with maximum daily temperatures exceeding 40 °C.

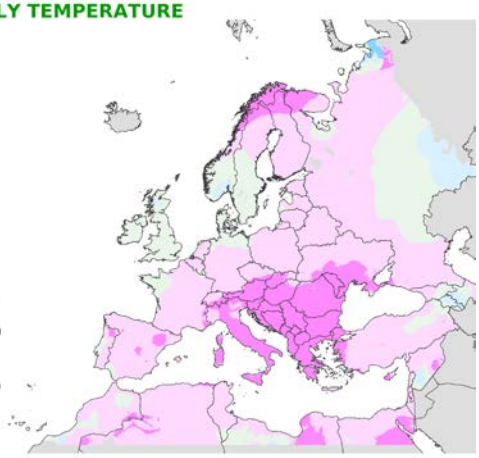
AVERAGE DAILY TEMPERATURE

Averaged values

from: **01 July 2024**
to: **17 August 2024**

Deviation:
Year of interest - LTA

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



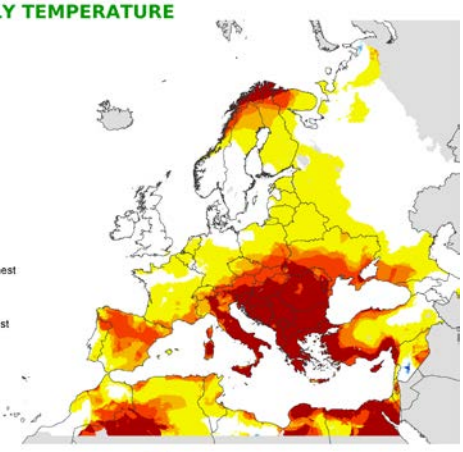
20/08/2024
Resolution: 10 x 10 km

AVERAGE DAILY TEMPERATURE

from: **01 July 2024**
to: **17 August 2024**

Ranking since 1991

Warmest year
Second warmest
Third warmest
Fourth warmest
From fifth to tenth warmest
Others
From fifth to tenth coldest
Fourth coldest
Third coldest
Second coldest
Coldest year



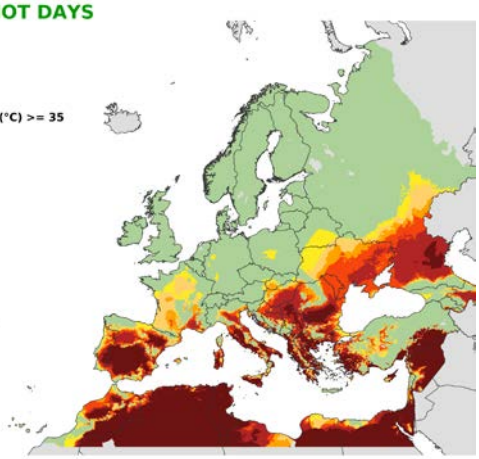
20/08/2024
Resolution: 10 x 10 km

NUMBER OF HOT DAYS

from: **01 July 2024**
to: **17 August 2024**

Period of interest
Maximum temperature (°C) >= 35

Units: days
0
1
2 - 3
4 - 5
6 - 10
10 - 20
>= 20

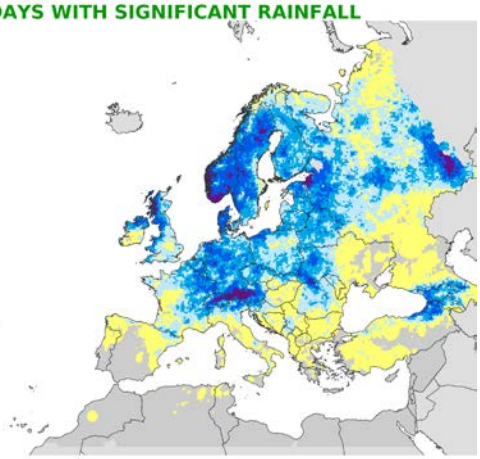


20/08/2024
Resolution: 10 x 10 km

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from: **01 July 2024**
to: **17 August 2024**
Rain (mm) > 5

Units: days
= 0
1 - 3
4 - 6
7 - 9
10 - 15
> 15



20/08/2024
Resolution: 10 x 10 km

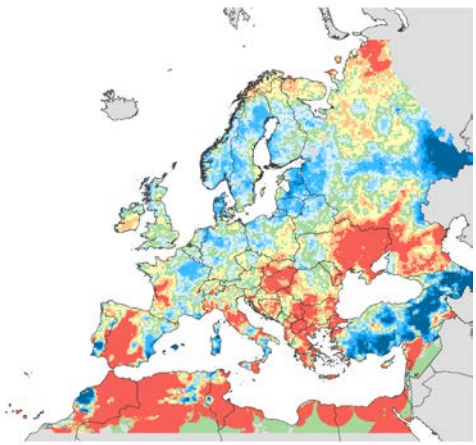
RAINFALL

Cumulative values

from: **01 July 2024**
to: **17 August 2024**

Deviation:
Year of interest - LTA

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



20/08/2024
Resolution: 10 x 10 km

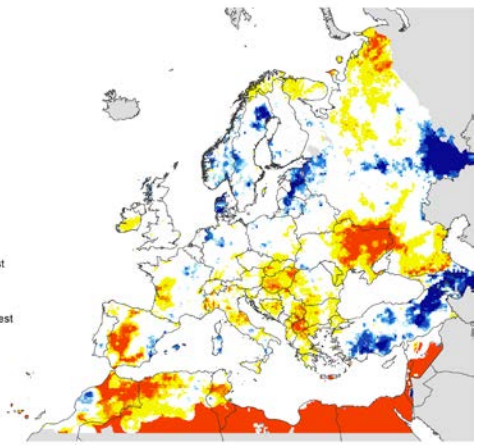
RAINFALL

Cumulative values

from: **01 July 2024**
to: **17 August 2024**

Ranking since 1991

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



20/08/2024
Resolution: 10 x 10 km

1.3. Weather forecast (22 - 31 August)

Warmer-than-usual conditions are forecast to persist in most of Europe; rain is forecast for north-western parts.

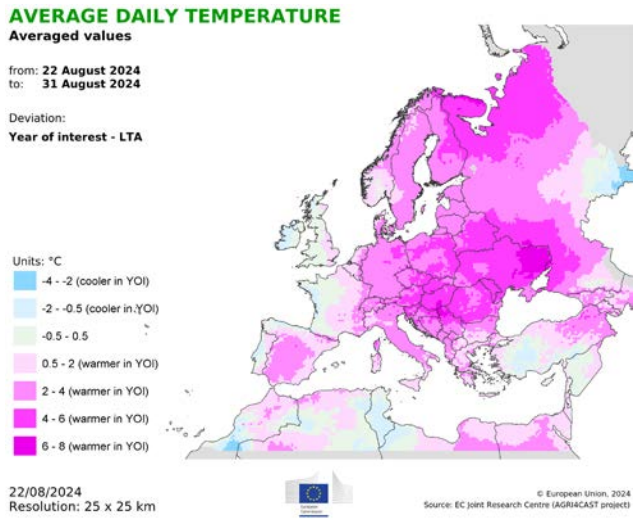
Colder-than-usual conditions, with average daily temperatures up to 2 °C below the LTA, are forecast for parts of Scotland, most of Ireland, the Atlantic coastal regions of Portugal, Spain and France, western and southern Türkyie, and Tunisia. In parts of European Russia (*Orenburgskaya* oblast) temperatures up to 4 °C below the LTA are forecast.

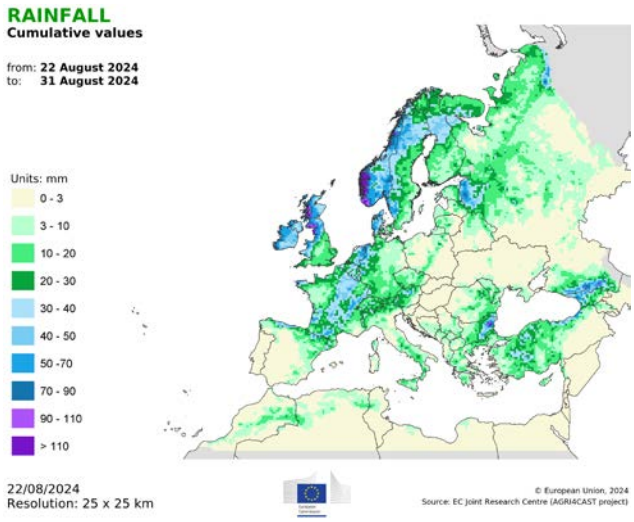
Warmer-than-usual conditions are forecast for the rest of Europe. The most substantial positive temperature anomalies (4–6 °C above the LTA) are forecast for most of central and eastern Europe, eastern Finland and northern European Russia, with temperatures up to 8 °C above the LTA in parts of southern Hungary, Serbia and eastern Ukraine.

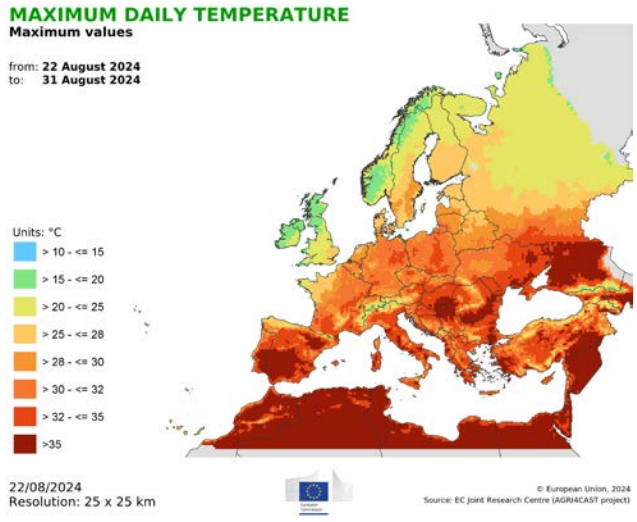
Wet conditions (more than 10 mm of precipitation) are forecast for most of northern and western Europe, parts of central Europe and most of the Black Sea region, while **very wet conditions** (more than 70 mm) are forecast for parts of western Scotland, the south-western coast of Norway and locally in north-eastern Bulgaria.

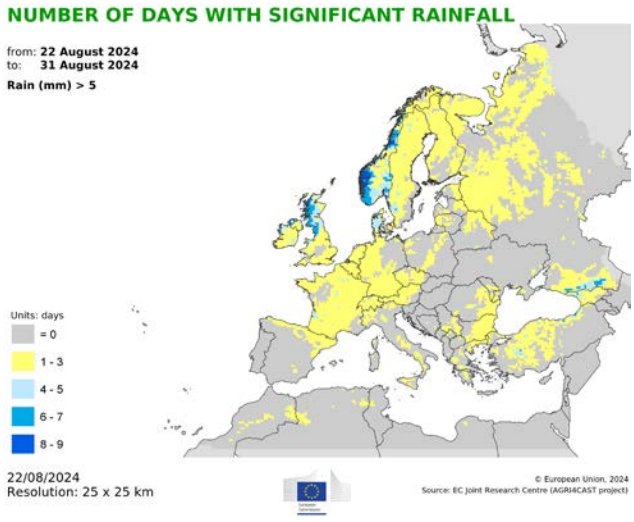
Dry conditions (total precipitation below 3 mm) are forecast for most other regions.

The long-range weather forecast points to highly to moderately likely warm conditions (September to October–November), with temperatures exceeding the 24-year climatological median by up to 2 °C in most of south-eastern Europe and up to 1 °C in the rest of Europe. Albeit with a high degree of uncertainty, precipitation 0–50 mm below average levels is forecast for the Balkan peninsula in September, and precipitation 0–50 mm above average levels is forecast for most of northern Europe.



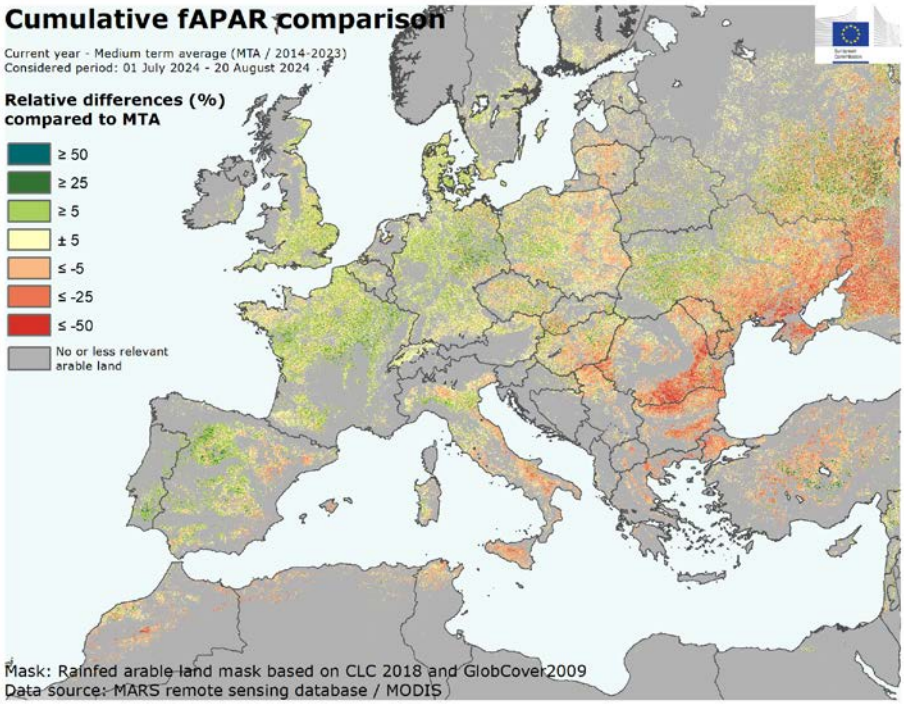






2. Remote sensing – observed canopy conditions

Severe degradation of summer crops in Black Sea region



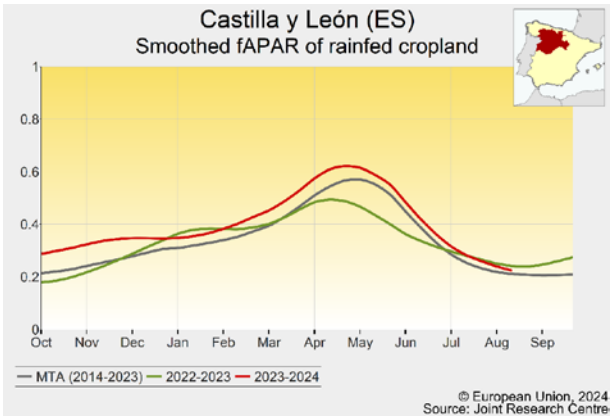
The map above displays the difference between the fraction of absorbed photosynthetically active radiation (fAPAR) cumulated from 1 July to 20 August 2024 and the medium-term average (2014–2023) for the same period. Positive anomalies (in green) reflect above-average canopy density, associated with above-average biomass accumulation, while negative anomalies (in red) reflect the opposite.

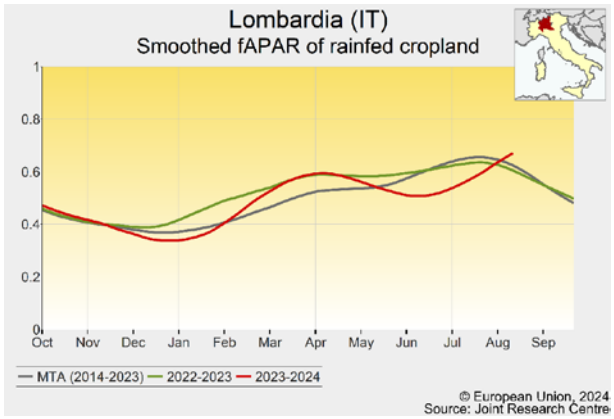
In the Iberian peninsula, summer crops are ending the growth cycle, with positive fAPAR anomalies confirming the favourable conditions in central **Spain** (e.g. *Castilla y León*). In the Mediterranean regions of Spain, as well as in southern **Italy**, the season has come to an end. Towards the north of **Italy**, as well as in **France**, the **Benelux** countries, **Germany** and **Czechia**, the rainfall surplus experienced this season led to delays in the sowing and development of summer crops. These delays, coupled with the advanced ripening of winter crops, resulted in noticeable break points in the fAPAR curves, around April to May, corresponding to the start of leaf area decline in winter crops after flowering. These break points are evident in regions with balanced winter and summer crop areas (e.g. *Lombardia*, *Alsace*, *Münster*). Ahead of these break points, the fAPAR trajectories are driven mostly by summer crops, often showing positive anomalies consistent with above-average biomass growth.

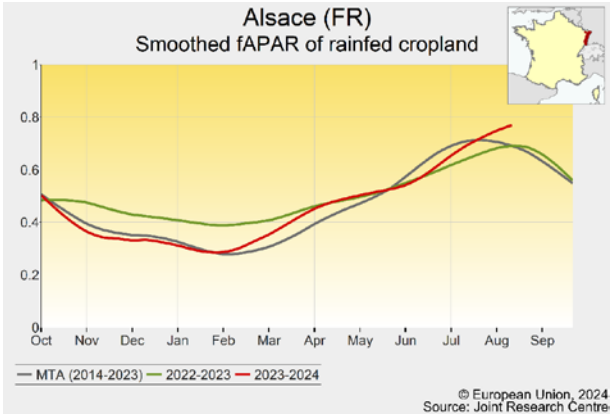
In **Denmark** and **Sweden**, fAPAR remains slightly above average, reflecting a positive season overall for crop growth. In the **Baltic states** and **Poland**, the negative fAPAR anomalies can be attributed mainly to early ripening and harvesting associated with the advanced development of winter and spring crops due to the warm conditions in spring and early summer (e.g. in *Lubelskie*).

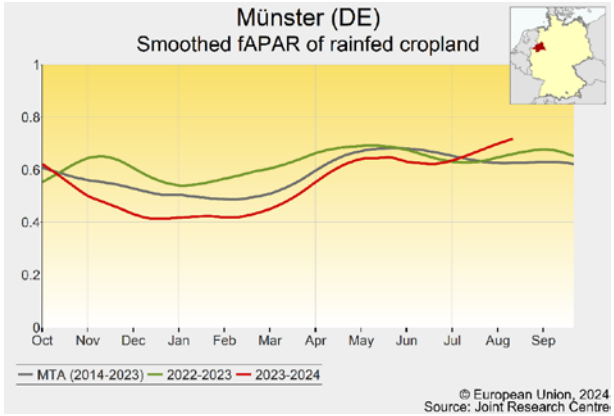
In central Europe (**Slovakia**, **Hungary** and western **Romania**), recent droughts have affected summer crops, resulting in below-average fAPAR. In northern and central **Ukraine** and the Central okrug of **Russia**, the favourable conditions since June have led to above-average growth of summer crops.

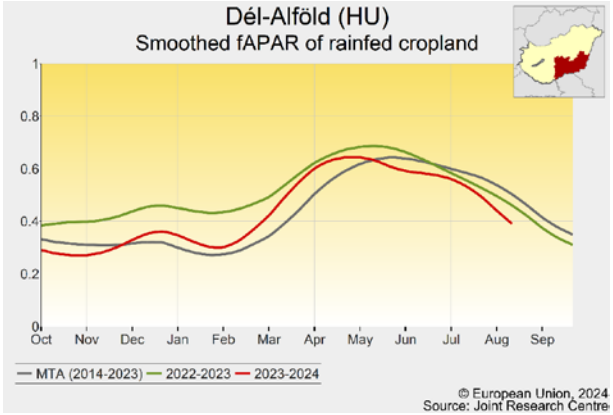
In a very large zone around the Black Sea (comprising eastern and southern **Türkiye**, **Bulgaria**, eastern and southern **Romania**, **Greece**, southern and eastern **Ukraine** and the Southern okrug of **Russia**), persistent dry conditions since late spring have led to very poor growth of summer crops. In most of these regions, the negative fAPAR anomaly has been amplified by early harvesting of winter and spring cereals.

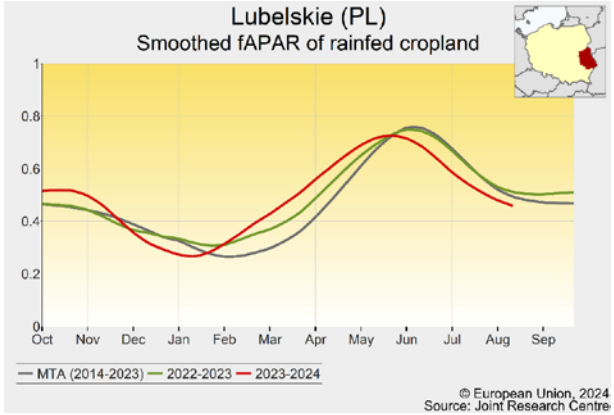

Castilla y León (ES)
Smoothed fAPAR of rainfed cropland
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre

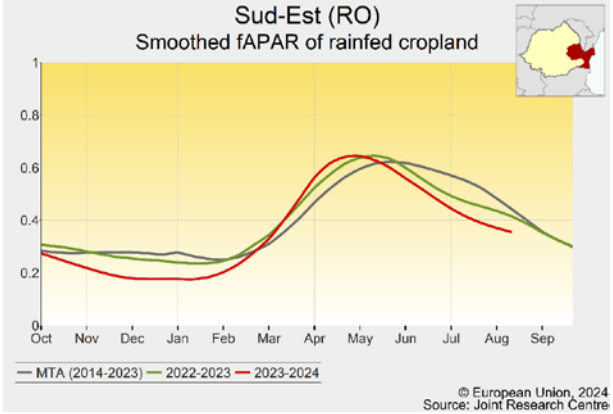

Lombardia (IT)
Smoothed fAPAR of rainfed cropland
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre

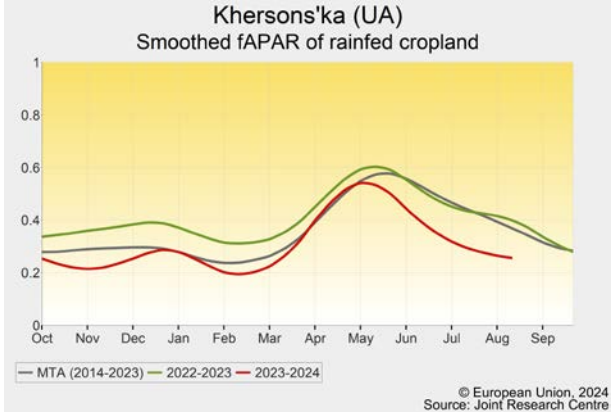

Alsace (FR)
Smoothed fAPAR of rainfed cropland
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre


Münster (DE)
Smoothed fAPAR of rainfed cropland
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-Alföld (HU)
Smoothed fAPAR of rainfed cropland
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


Lubelskie (PL)
Smoothed fAPAR of rainfed cropland
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-Est (RO)
Smoothed fAPAR of rainfed cropland
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

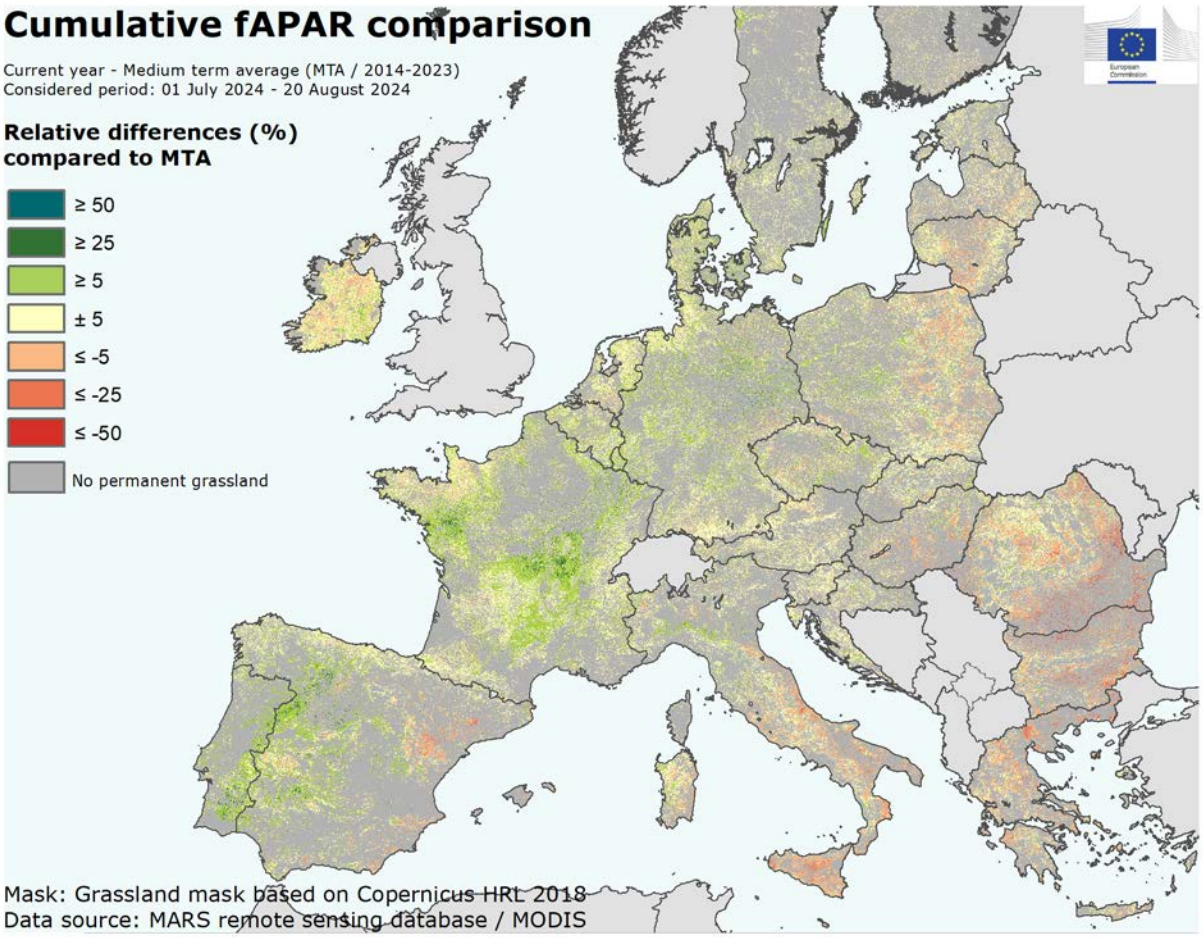

Khersons'ka (UA)
Smoothed fAPAR of rainfed cropland
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
MTA (2014-2023) 2022-2023 2023-2024
© European Union, 2024
Source: Joint Research Centre

3. Grassland and fodder monitoring

Grasslands thrive in most of western Europe but continue to deteriorate in the east

Grasslands benefited from adequate conditions throughout most of western, central and northern Europe. In Ireland, a water deficit hindered productivity, while in the Baltic countries very intense rainfall resulted in waterlogged fields. In southern and eastern Europe, prolonged hot and dry conditions further worsened the condition of grasslands.

The map below displays the differences between the fraction of absorbed photosynthetically active radiation (fAPAR) cumulated from 1 July to 20 August 2024 and the medium-term average (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**, drier- and cooler-than-usual conditions since June have been unfavourable for biomass accumulation, as reflected in the fAPAR signal. In **France**, warm temperatures and abundant rainfall fostered biomass accumulation, as indicated by the average to above-average fAPAR signal; however, the continued wet conditions may complicate field work and reduce the overall quality of the fodder. In the **Benelux** countries, grasslands and green maize benefited from adequate weather conditions; grassland growth recovered to slightly above-average levels in most areas, while green maize remains behind due to the poor start to the season. In **Germany**, grasslands are in good condition overall, although wet conditions in the north-west and in the Alpine foreland may limit access to fields and reduce the quality of hay. In northern regions, it is expected that cereals with low grain quality will be used as livestock fodder.

In western **Poland**, biomass accumulation returned to average or above-average levels thanks to frequent rainfall, whereas in the east high temperatures further reduced biomass accumulation rates to slightly below average.

In **Denmark** and **Sweden**, grasslands benefited from favourable conditions, and the fAPAR signal suggests average to above-average levels of biomass accumulation, although wet conditions may complicate field work locally.

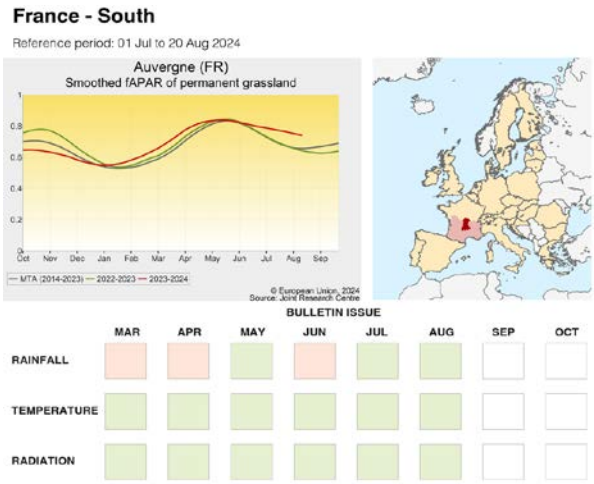
In **Finland**, the fAPAR is close to or slightly below the MTA, but wet conditions in western parts of the country may complicate field work locally. In the **Baltic countries**, the early start to the season combined with the extremely intense rainfall episode that occurred on 28 July lowered the fAPAR signal to below the MTA. Moreover, the overly wet conditions that followed the rainfall on 28 July may have damaged the fields.

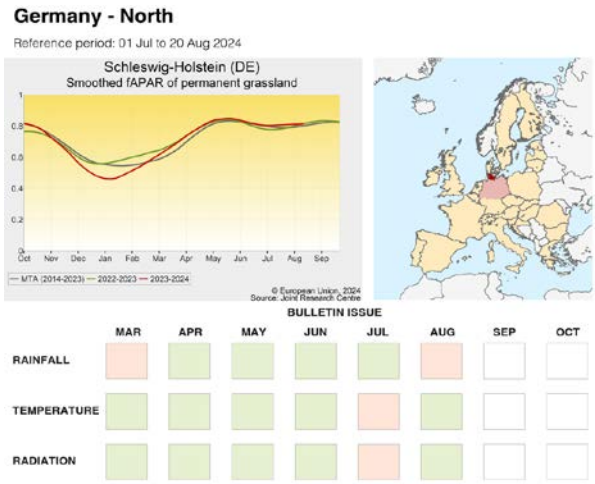
In **Austria** and **Czechia**, warmer-than-usual temperatures and adequate precipitation led to biomass accumulation rates in line with or above the MTA. In **Croatia** and **Slovenia**, the fAPAR signal returned to close to average thanks to favourable conditions.

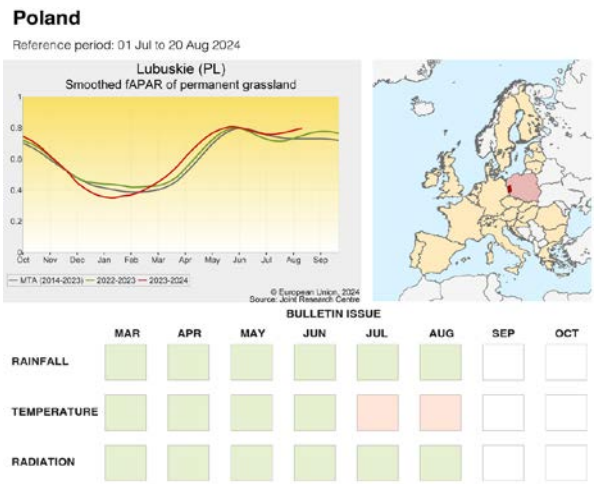
In western **Slovakia** and **Hungary**, very dry and warm conditions reduced growth rates to below the MTA.

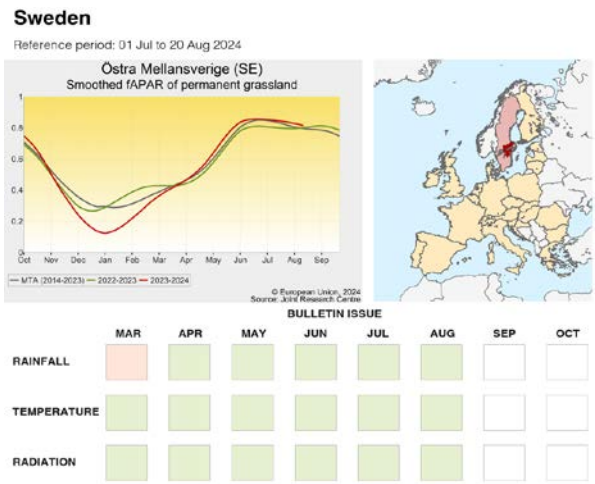
In **Romania** and **Bulgaria**, prolonged dry and very warm conditions, prevailing since early June, hindered biomass accumulation, as evidenced by the fAPAR signal, which is now well below average.

In **Greece**, prolonged hot and dry weather hampered biomass accumulation. Similarly, in southern **Italy**, continued hot and dry conditions further depleted the already scarce water resources available. In northern **Italy**, the very high temperatures recorded in July boosted the growth of grassland and fodder crops. In north-western regions of the **Iberian peninsula**, rainfall and temperatures were particularly beneficial for grasslands, while in north-eastern regions the signal remains slightly below average. Grasslands in southern **Spain** are in their dormancy phase.



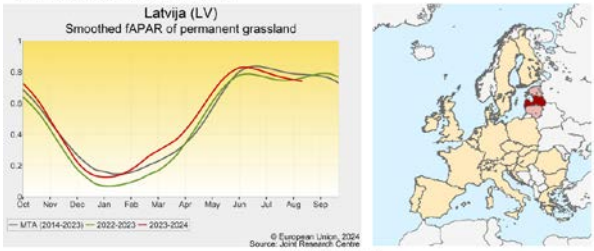






Baltic countries

Reference period: 01 Jul to 20 Aug 2024

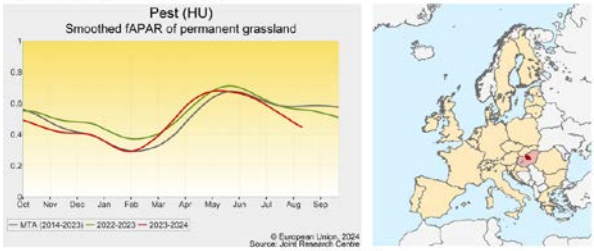


BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Hungary

Reference period: 01 Jul to 17 Aug 2024

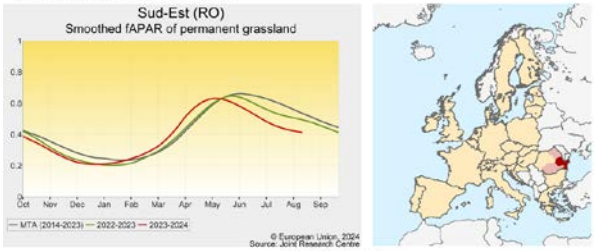


BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Romania - East and South

Reference period: 01 Jul to 17 Aug 2024

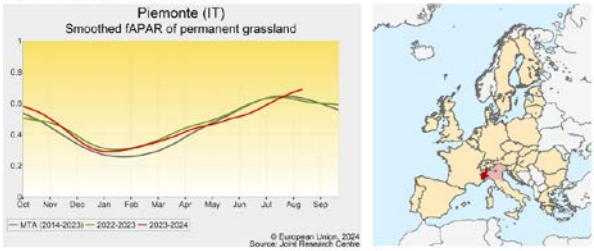


BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

Italy - North and central

Reference period: 01 Jul to 17 Aug 2024



BULLETIN ISSUE

	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
RAINFALL								
TEMPERATURE								
RADIATION								

4. Country analysis

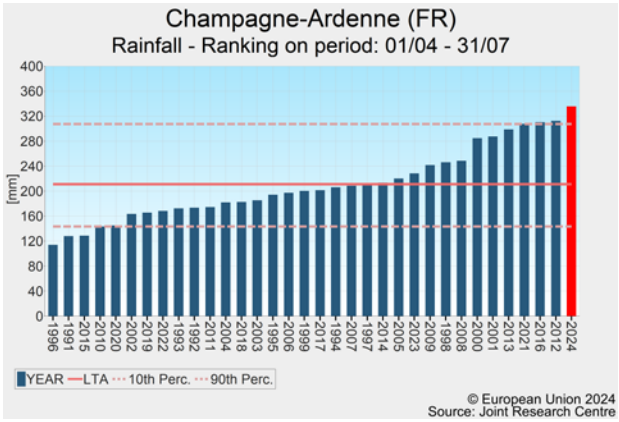
4.1. European Union

France

Winter crop forecasts downgraded due to extremely wet conditions since spring

Temperatures during the review period fluctuated around the LTA, and no prolonged heatwaves were observed. A rainfall surplus persisted in north-eastern France, while significant rainfall deficits affected a large south-western area of the country (e.g. Poitou-Charentes received less than 50 % of the LTA rainfall).

The wet conditions experienced in June and July significantly impacted the grain filling, ripening and harvesting of winter and spring crops, for which conditions had already been suboptimal since the start of the season, particularly for winter cereals in a large area of northern France (see the impact map on page 2). Yield forecasts have been further downgraded, particularly for soft wheat. Summer crops continue to be behind in development, notably in western France, with approximately 2 weeks' delay. Maize is now entering the grain-filling phase. Abundant rainfall in most of France has generally been beneficial for summer crops. However, rainfall deficits in south-western regions may negatively affect the yield of summer crops. The continued wet conditions in the north and east pose challenges for potatoes and sugar beet, as they increase pest and disease pressure.



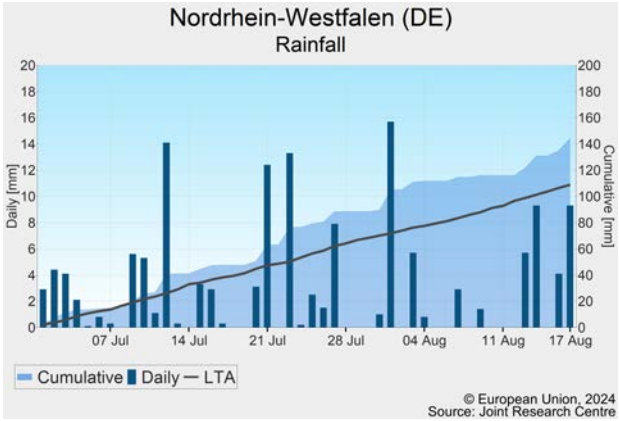
Germany

Lowered expectations for winter crops, summer crops faring well

Temperatures were generally comparable with the LTA, with no significant hot spell until mid August. Rainfall totals returned to normal levels throughout the country, with regular but frequent showers and without notable excessive events. Soil water levels slowly normalised in the west and south.

The harvest of winter barley has already finished across the country, while the harvest of other winter crops has finished in the south but is still ongoing in the north. Frequent rainfall caused harvest delays, most notably for soft wheat and rapeseed, and raised concerns about the quality of grains, which locally face the risk of being downgraded to fodder. The weather was beneficial for summer crops during grain filling, and the lack of heavy rainfall events helped the development of potatoes and sugar beet, although the impact of overly wet soils in recent months is unlikely to be completely mitigated.

We have further lowered our yield expectations for winter crops to account for harvest delays and the impacts of persistent overly wet conditions and lack of radiation, and these forecasts now range from – 1 % (triticale) to – 6 % (winter barley) below the 5-year average. Our estimates of summer crop yields have been left unchanged or revised slightly upwards, within 2 %.



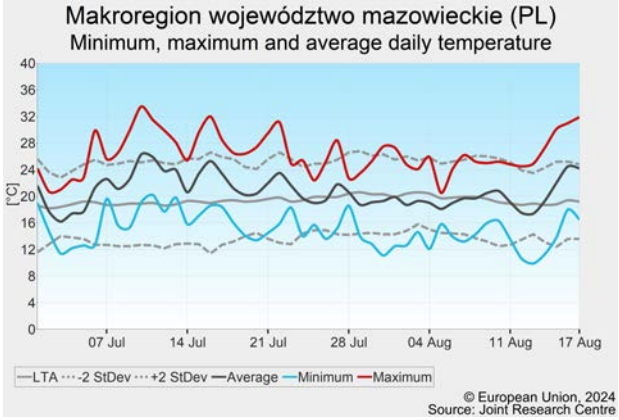
Poland

Winter crop yields below expectations

High temperatures were recorded in the first half of July; temperatures stabilised around the LTA thereafter. At the same time, regular rainfall occurred in the north and west, while rain was scarce in eastern Poland.

The harvest of winter barley in Poland has finished, while winter wheat and rapeseed harvests are nearly finished – all well ahead of time and without notable delays. However, the first field results suggest average or below-average yields for winter crops, as they were substantially affected by the dry weather during the grain-filling stage. Summer crops, on the other hand, benefited from the rainfall before and during their grain-filling stage, as well as from average temperatures since mid July. The current soil water levels are satisfactory for the final growth phases of summer crops.

Our yield forecasts for winter crops have been reduced and are now close to average, while forecasts for summer crops have risen slightly to average or above average.



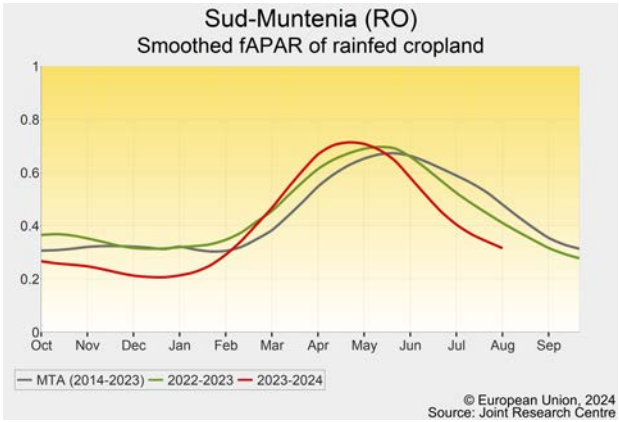
Romania

Yield expectations for summer crops worsening further

Temperatures were on average 2.0–3.5 °C higher than usual in most of Romania, making this the warmest 1 July–17 August period in our records. Periods around mid July and mid August were particularly warm, with maximum temperatures persistently exceeding 30° C and reaching 36–41 °C on the hottest days. In southern Romania, 35–46 days with maximum temperatures exceeding 30 °C occurred during the review period.

Rainfall was 20–60 % below the LTA in western and south-western regions but close to average elsewhere.

Soil moisture remained low and was unable to fulfil the water requirements of summer crops; the pollination and early grain-filling phases took place under unfavourably dry and hot conditions. These conditions led to irreversible damage, as reflected in satellite images. The harvesting of summer crops has already started (2–4 weeks earlier than usual). It is probable that some grain maize fields will be harvested as fodder. The yield forecasts for summer crops have been revised further downwards and are now well below the 5-year average.



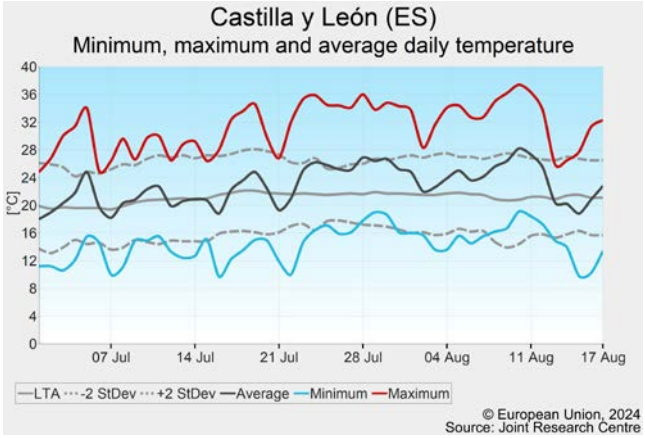
Spain and Portugal

Summer crop forecasts in line with 5-year average

The southern part of the Iberian peninsula experienced no rainfall during the review period. Rainfall in the north was close to the LTA, except in southern *Castilla y León*, which was drier than usual. In mid August, unusual rainfall events and strong winds locally affected fruit trees in *Comunitat Valenciana* and *Illes Balears*.

Warmer-than-usual temperatures have prevailed throughout the peninsula since mid July. Daily maximum temperatures reached peaks of 35–40 °C during the review period, which may have had a negative impact on summer crops during flowering. Grain maize, potatoes and sugar beet remain in average condition thanks to irrigation. Sunflowers, which are normally not irrigated, have already been harvested in *Andalucía*, while in the north they are still standing strong against the heatwaves, thanks to deep soil moisture.

Our yield forecasts for summer crops have been revised downwards slightly, but they still align with or surpass the 5-year average. The harvesting of winter and spring crops has been completed, with some delay (e.g. in *Castilla y León*); our yield forecasts for these crops remain essentially unchanged.



Hungary

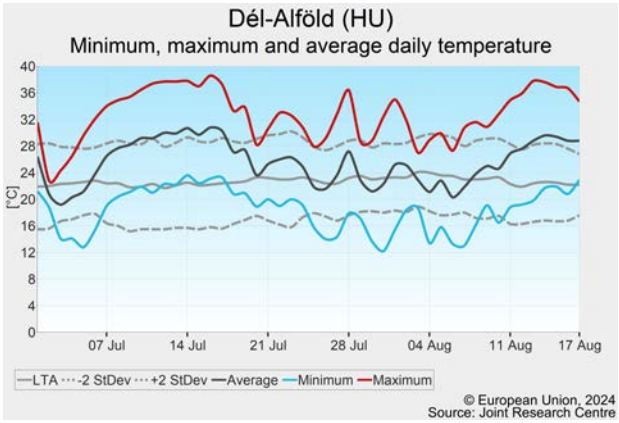
Hot and dry weather conditions pose challenges for summer crops

Above-average daily temperatures dominated the review period. Exceptionally high temperatures occurred around mid July and mid August, when maximum temperatures reached 35–40 °C. The south-eastern regions were particularly hot.

Precipitation totals typically remained below 40 mm, representing a 30–80 % rainfall deficit compared with the LTA. In addition, the temporal distribution of rainfall was unfavourable, with long-lasting dry periods during the heatwaves.

Summer crops are in good shape in Nyugat-Dunántúl and in fair condition elsewhere in the north and west, where abundant rainfall arrived in June and provided an adequate supply of water for flowering and early grain filling. Elsewhere, soils are exceptionally dry, for instance in the eastern and central regions, where sunflowers and particularly grain maize are in poor condition. Our yield forecasts for summer crops have been revised downwards to below average at the national level, considering the widespread effects of water deficit and heat stress.

The winter crop harvest has been completed, and our winter crop yield forecasts remain at the historical trend level.



Italy

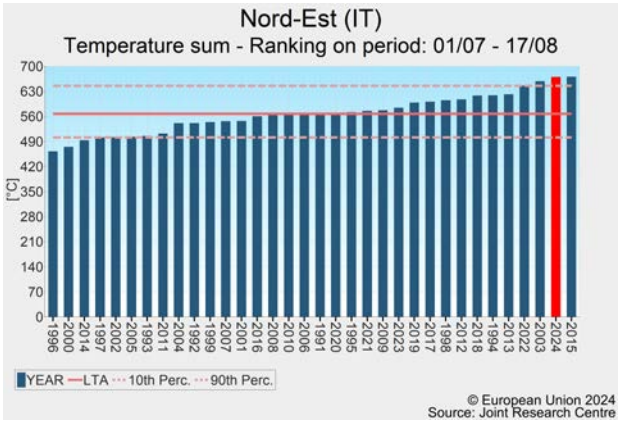
Hot temperatures favour summer crop growth

Several heatwaves have occurred since 1 July, with peak temperatures in August, when for several days maximum temperatures remained above 35 °C in the north and above 40 °C in the south.

In the north, where most of the summer crops are grown, crop development was favoured by the warm weather and sufficient water for irrigation available from reservoirs that had been fully replenished during springtime. The delays in development from the rainy spring were partially recovered, and maize is now close to flowering, with only 2 weeks' delay remaining. However, in some fields, crop growth remains suboptimal due to the overly wet sowing period, which prevented the good establishment of crops.

In the south, damage to agriculture caused by the heatwaves was limited to pasture and permanent crops, as the cropping season for annual crops had finished in June.

Winter crops were harvested by the first days of July; yield forecasts for them remain well below the historical trend, while yield forecasts for summer crops have been revised downwards and are now close to the trend..



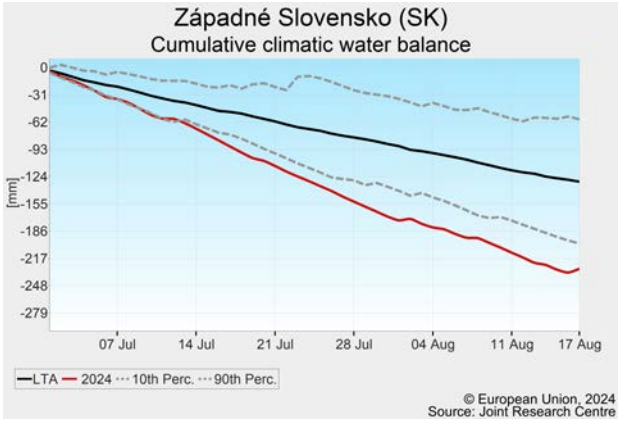
Czechia, Austria and Slovakia

Fair weather for harvest of winter and spring crops, summer crops still on track despite local water deficit

Over the review period, temperatures were up to three standard deviations above the LTA in Austria and Slovakia, while they remained around the LTA in Czechia. In addition, a significant rainfall deficit has been developing in western Slovakia, where cumulative precipitation during the review period reached only one third of the LTA. High temperatures and low precipitation caused the soil water deficit to continuously increase in this region. In Austria, Czechia and the rest of Slovakia, rainfall was in line with the LTA or slightly below it.

The harvest of winter and spring cereals, as well as of rapeseed, is almost complete, 2 weeks earlier than last year. For summer crops, rainfall in the next few weeks will be crucial for crop development and yield formation.

Our yield forecasts for winter crops are close to the historical trend in the southern regions and slightly below the trend elsewhere for most winter crops, due to intense rainfall and challenging temperatures in winter and at the beginning of spring, while our forecasts for spring crops are slightly higher than the historical trend. Our forecasts for summer crops remain aligned with the historical trend, but they may have been revised downwards by the time of the next bulletin if water supply becomes a critical issue.



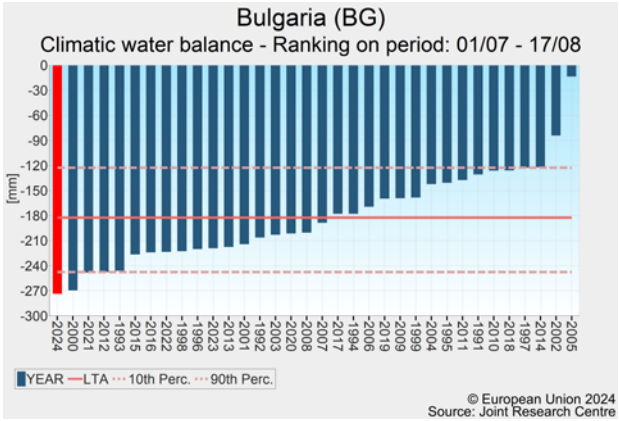
Bulgaria

Lowered yield expectations for summer crops

Bulgaria experienced extremely hot and dry weather conditions. Temperatures exceeded the LTA by 2–3 °C over the review period as a whole, which was the hottest such period since 1975. The highest temperatures were recorded in mid July and mid August, when daily maxima reached 36–41 °C.

Precipitation during the review period was only half of the LTA. Significant rainfall events occurred mainly around 20 July. Based on the climatic water balance (which can be considered a drought index), the review period is the driest such period in our records.

With persistent dry conditions and long rainless periods, soil moisture reserves decreased quickly. Summer crops suffered from severe water and heat stress during the critical grain-filling period. Locally, crops were damaged by runaway fires. Yield forecasts for grain maize and sunflowers have been revised further downwards and now are close to last year's disappointing levels. The harvest of winter crops has been completed. Preliminary reports confirm fair yields for cereals and (slightly) below-average yields for rapeseed.



Denmark and Sweden

Winter crop harvest in full swing

Precipitation occurred mostly during the first half of July, with several intense rainfall events (> 15 mm) reported in both countries. The rest of the review period was drier, with only a few days of significant precipitation reported in early August. Rainfall totals varied regionally from close to the LTA (e.g. in *Sydsverige* and *Sjælland*) to significantly above the LTA (up to 40 % above the LTA in *Västsverige* and 60 % above it in *Jylland*). Temperatures overall were generally close to the LTA, except for a few colder days in early July and a couple of short warmer episodes in the second half of July. Cumulated radiation levels were close to or slightly below the LTA.

The winter crop harvest is in full swing in both countries. Both winter and spring crops have been affected to some extent by the rainy conditions in the abovementioned regions. Our forecasts have been revised downwards but remain close to the 5-year average.

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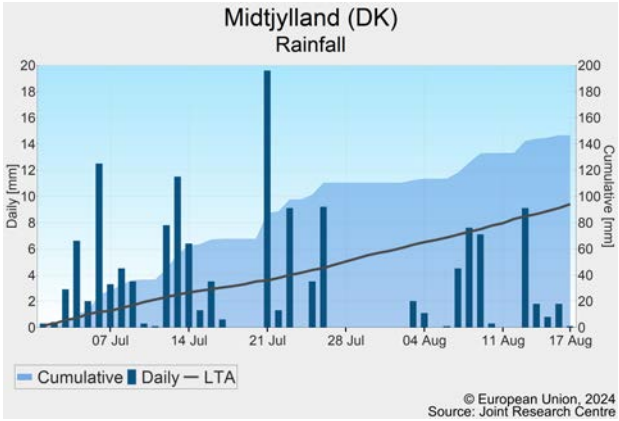
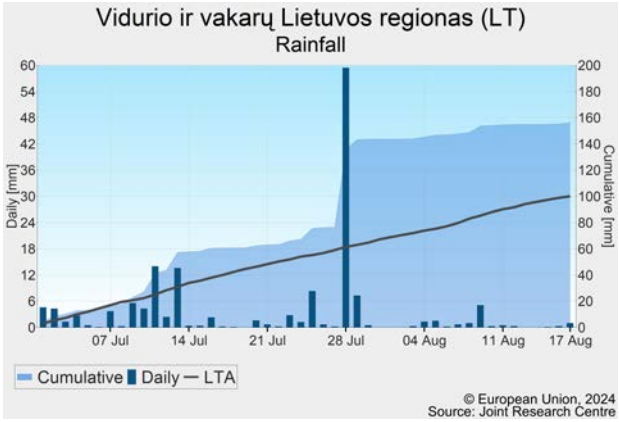


Estonia, Latvia, Lithuania, Finland

Winter crops harvest complicated by extreme rainfall in the Baltic countries

Temperatures were generally above the LTA in July and close to average in August, resulting in a slight temperature accumulation surplus. Precipitation levels were largely above average, with an extremely intense rainfall episode in the Baltic countries on 28 July; up to 200 mm were recorded locally on a single day. Rainfall totals were up to 50 % above average, except in southern and south-eastern regions of Finland, where only a 10 % surplus was observed. A negative radiation anomaly of up to – 10 % was reported for all countries except Lithuania, where radiation levels were normal.

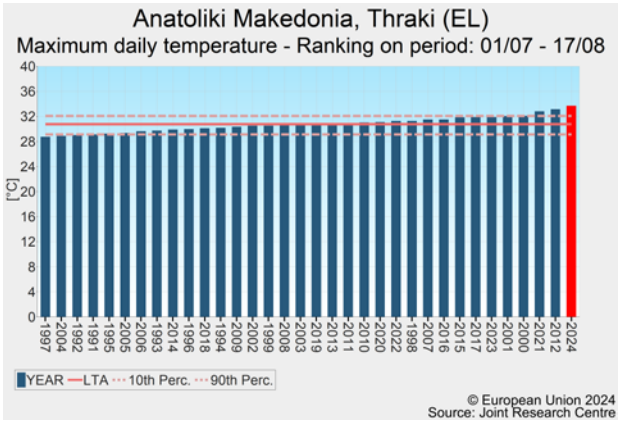
The harvest of winter crops started 2 weeks earlier than usual but was complicated by wet soils. In addition, the warm and humid conditions may have fostered crop diseases, and the exceptional rain episode may have damaged crops locally. Our winter and spring yield forecasts, except that for Finland, have been revised downwards to close to or slightly below the 5-year average.



Greece

Persistent hot and dry conditions result in stress during flowering

The review period in Greece was marked by persistent hot and dry conditions. A prolonged heatwave occurred in the northern regions, which are the most important areas for summer crop production, from 8 July to 22 July, negatively impacting summer crops during their flowering stages. Average daily temperatures during this period were between 30 °C and 32 °C, exceeding the LTA by 5–8 °C. Maximum temperatures reached 35–40 °C on those days, significantly surpassing the tolerance of summer crops during flowering. Rainfall events were few and of low magnitude across Greece, with only up to 30 mm during the review period in the northern crop-producing regions, which is only 50 % or less of the LTA. Furthermore, satellite-derived biomass indicators clearly show below-average biomass accumulation in July and August in *Anatoliki Makedonia* and *Dytiki Makedonia*, during the reproductive stages of summer crops. To take into account these adverse weather conditions, our yield forecasts for maize and sunflowers have been revised significantly downwards to below the trend; the forecast for potatoes has been only slightly reduced.

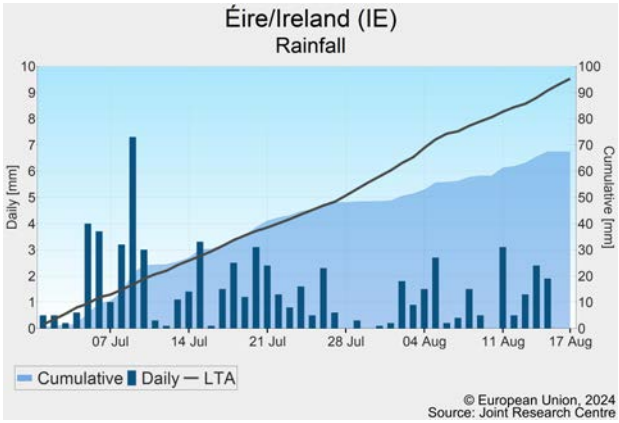


Ireland

Swift progress of winter crop harvest thanks to dry conditions

Regular precipitation occurred throughout most of July, while August was drier than usual. Total rainfall of approximately 65 mm during the review period was about 30 % below the LTA. Temperatures were colder than usual in the first half of July and close to the LTA thereafter, resulting in a minor negative temperature accumulation anomaly. Cumulated radiation levels were slightly below the LTA, by approximately 5 %.

Thanks to the drier-than-average conditions that prevailed from early August, the winter crop harvest progressed swiftly and was almost complete by the end of the review period, except for winter wheat. The spring barley harvest should start in the coming weeks. 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

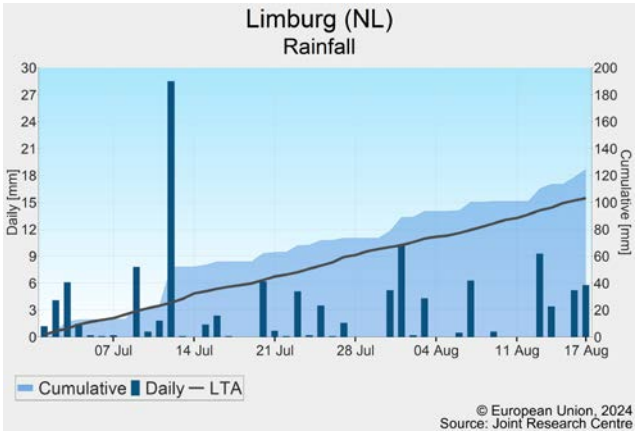
Damp end of excessively wet season for winter crops

Temperatures gradually increased, from slightly below the LTA in the first half of July, to up to 4 °C above the LTA towards the end of the review period. Maximum temperatures rarely exceeded 30 °C and remained below 35 °C. Rainfall was average to above-average, with the highest positive anomalies (up to 80% above the LTA) in the north-east. It was distributed over many - mostly small - events, throughout the review period.

Harvesting of winter cereals has finished, or is about to be finished. The continued frequent rainfall events hampered progress, further affected grain quality, and caused some additional loss to the already compromised yields. First field results suggest even lower yields than hitherto expected.

For summer crops, the weather conditions were reasonable, but did not help to improve yield prospects.

Our yield forecasts for winter crops and spring barley were revised further downwards. The below-average forecasts for summer crops were maintained.



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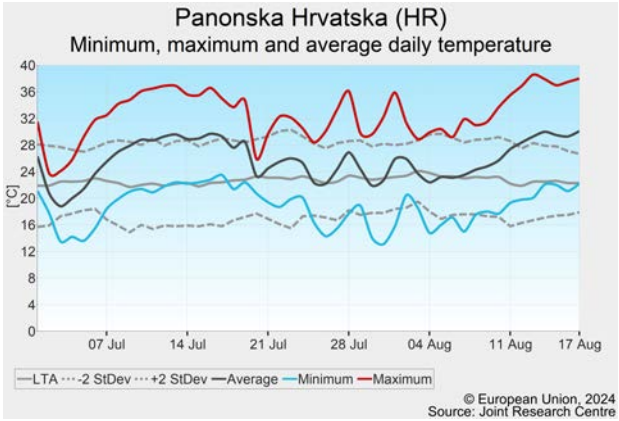
Slovenia and Croatia

Summer crops impacted by heatwaves

With the exception of some areas of *Sjeverna Hrvatska* and *Vzhodna Slovenija*, Slovenia and Croatia experienced below-average rainfall during the review period. The water deficit was particularly pronounced in *Jadranska Hrvatska* and eastern *Panonska Hrvatska* from the second dekad of July onwards.

Warmer-than-usual temperatures persisted in both countries. In fact, both July and the first half of August were the warmest such periods in our records (since 1991), accelerating and negatively affecting the overall development of summer crops. The exceptional heatwaves in the second dekad of July and in August were particularly concerning. Average daily temperatures were 4–6 °C above the LTA, peaking at 35 °C in Slovenia and 39 °C in Croatia. These extreme temperatures have affected maize development, both at the sensitive flowering stage and also during grain filling, thus limiting its yield potential.

The summer crop yield forecasts have therefore been revised downwards, to around the 5-year average. The winter crop harvesting campaign has been completed as normal, confirming our yield forecasts of last month.



4.2. United Kingdom

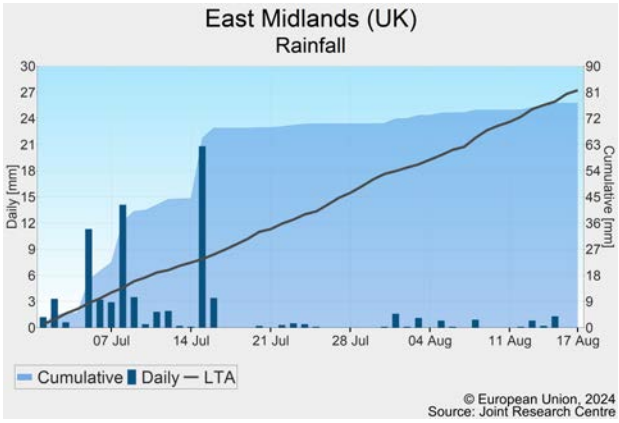
Winter crop harvest almost complete with below-average yields; above-average yields expected for spring barley

Over the review period, temperatures were in line with the LTA, as was precipitation; there was more rain before mid July and less subsequently.

The relatively dry weather during the last three dekads of the review period allowed winter crop grains to dry and reach levels of moisture content acceptable for harvest; it also supported the ripening of spring crops.

The harvest of winter barley was completed under favourable weather conditions, 2 weeks ahead of the normal cycle. The harvest of winter wheat was approaching 50 % completion, with yields varying from region to region, while the harvest of spring barley had just started. Weather had been favourable for spring barley, which was faring well, with good yield expectations.

For winter crops, our yield forecasts remain at 5 % below the historical trend, while we have increased our yield forecast for spring barley to almost 5 % above the trend.



4.3. Black Sea Area

Ukraine

Summer crops severely impacted by intense heatwave and drought in the east

Hot and dry conditions prevailed during the review period. Average temperatures were 1.5 °C above the LTA at the country level, making this the second-hottest 1 July–17 August period since 1991. A significant heatwave occurred during 9–19 July, characterised by minimum temperatures above 20 °C and maximum temperatures above 34 °C. Rainfall was around average in western regions, while dry conditions persisted in the eight eastern oblasts (e.g. *Dnipropetrovs'ka*), making the review period the driest on record.

The persistent hot and dry conditions in the east remain extremely unfavourable for summer crops. East of Kyiv, the outlook is very poor for all summer crops. In the west, the situation is less concerning, as only the July heatwave negatively affected the crops. The yield forecasts for grain maize and soybean have been revised downwards. The yield forecasts for wheat and barley are at the level of the *JRC MARS Bulletin* global outlook on Ukraine of June 2024 ([1]).

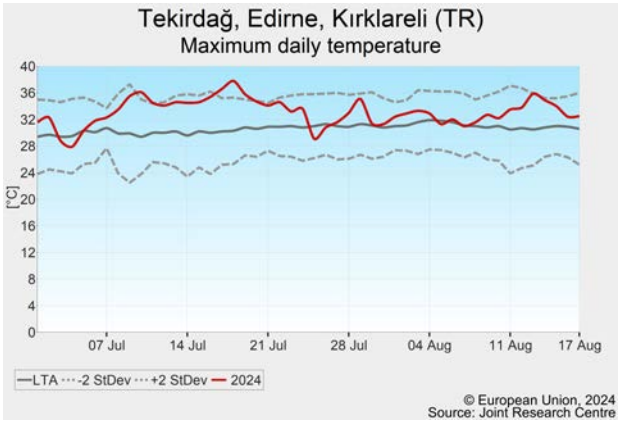
Türkiye

Summer crops suffer from heat in July

In Türkiye, July was hotter than usual, with average daily temperatures 2–4 °C above the LTA. In the same period, few – but more than usual – rainfall events occurred in the south, while the rest of the country was almost completely dry. During August, the weather was dry everywhere, with temperatures returning to normal summer levels without extreme peak values.

The winter crop season had ended by 15 July, with the end of the harvest in Central Anatolia; our yield forecasts remain unchanged and are above the historical trend.

The summer crop season is proceeding under mixed conditions. While vegetative growth proceeded under favourable conditions, well sustained by irrigation, crop reproductive stages were hampered by heat stress. In particular, the high temperatures were suboptimal for the reproductive stages of maize. As a consequence, flowering duration and flower fertility were reduced and the number of grains formed suffered. Soybean was less affected, as flowering started only in August, under average summer conditions. Due to the heat, our yield forecasts for maize and sugar beet have been reduced to below the trend.



([1]) https://publications.jrc.ec.europa.eu/repository/handle/JRC136677.

4.4. European Russia and Belarus

European Russia

Maize yield expectations lowered by heatwaves and water deficit

July was warmer than usual (by 1–4 °C) in southern and western European Russia, while near-average thermal conditions prevailed in the east. The first half of August was colder than usual (by 1.5–3.5 °C) in all significant agricultural regions. Precipitation was below or near average in southern and western regions, which allowed good progress on harvesting of winter wheat and later of spring cereals. In contrast, large areas of the Volga okrug and northern parts of the Central okrug experienced high levels of rainfall in frequent events, causing considerable delays in harvesting; harvest losses and reduced grain quality can also be expected.

Yield expectations for winter wheat remain below the 5-year average. Spring cereals, for which the Central and Volga okrugs are the most important production regions, benefited from the abundant water supply. The overall yield outlook for spring cereals in European Russia slightly exceeds the 5-year average, but drier weather is needed now to create adequate conditions for harvesting.

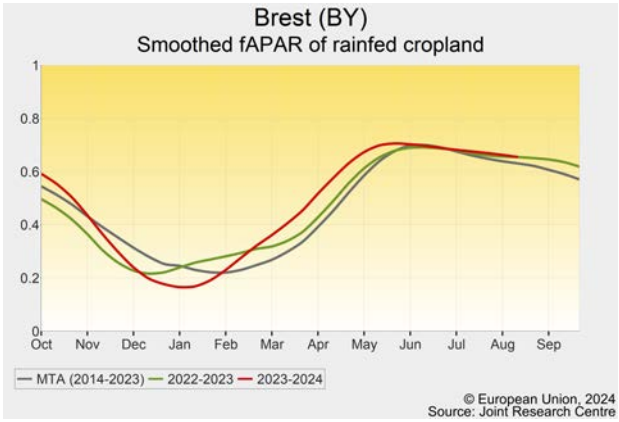
Grain maize also benefited from the rainfall in the Central and Volga okrugs. However, in the Southern and North Caucasian okrugs, limited water supply accompanied by extremely high temperatures in July severely affected the crops during the flowering and grain-filling periods. Consequently, overall yield expectations for grain maize have decreased to below the 5-year average.

Belarus

Fair end of season for winter cereals

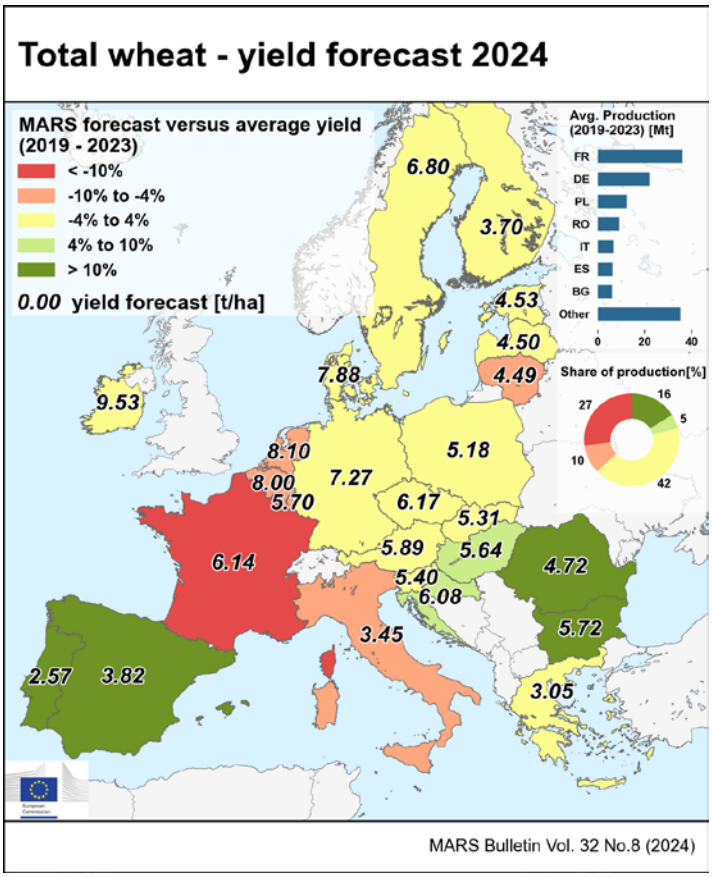
Weather conditions in Belarus were characterised by an unusual warm July, followed by slightly cooler-than-usual conditions during the rest of the review period. Highest temperatures on the hottest days exceeded 30°C in the southern half of the country, but 35°C was reached on one day only. Rainfall ranged from slightly above the LTA in the north, to slightly below the LTA in the south. It was distributed over many - mostly small - events, with the highest frequency in July.

Harvesting of winter cereals has finished, or is about to be finished. Frequent rainfall events hampered progress in July and may have affected grain quality, but yields are not expected to have been significantly affected. Grain maize is generally in good condition. The high temperatures in July are not expected to have caused significant damage to the crops, which were generally well-watered. Our positive yield forecasts were maintained for all crops.

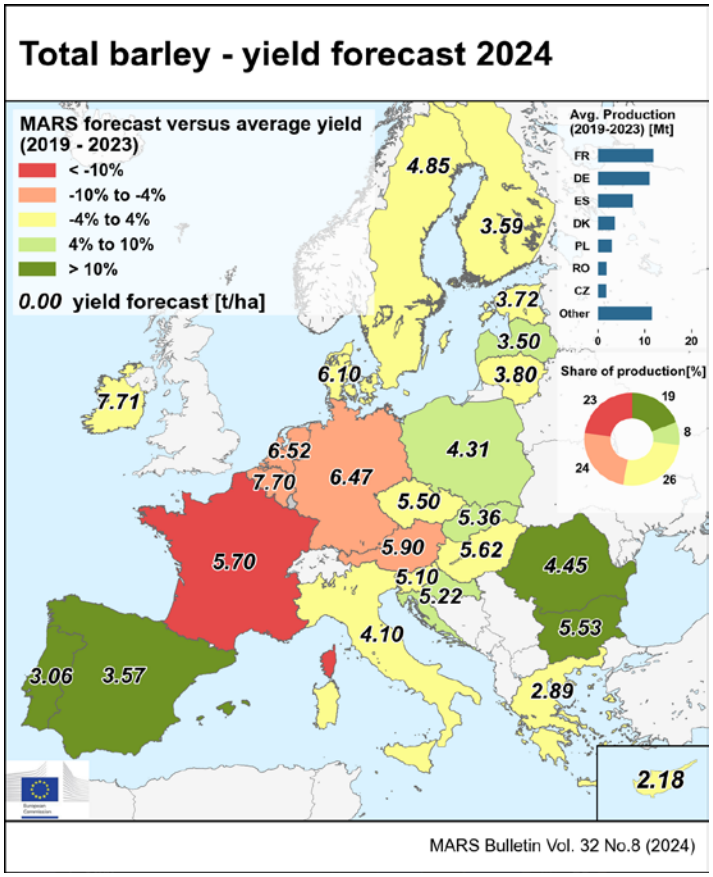


5. Crop yield forecast

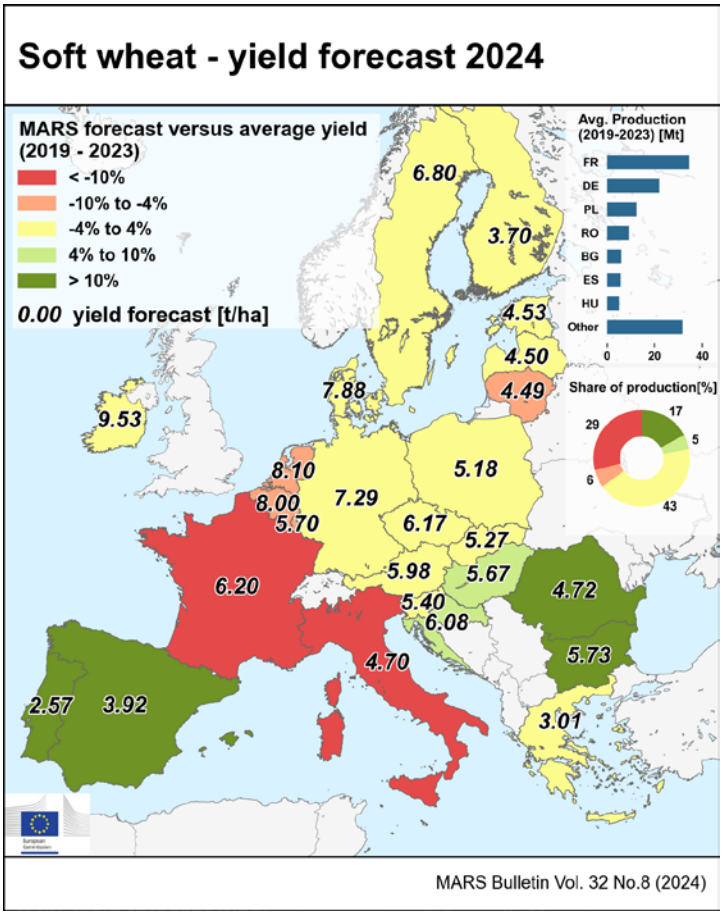
Country	Total wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	5.64	5.59	**5.47**	– 3	– 2	– 3
AT	5.81	6.12	**5.89**	+ 1	– 4	+ 0
BE	8.75	8.66	**8.00**	– 9	– 8	– 5
BG	5.13	5.43	**5.72**	+ 11	+ 5	+ 0
CY	—	—	**—**	—	—	—
CZ	6.14	6.44	**6.17**	+ 1	– 4	+ 0
DE	7.50	7.43	**7.27**	– 3	– 2	– 3
DK	7.97	7.36	**7.88**	– 1	+ 7	– 2
EE	4.57	4.00	**4.53**	– 1	+ 13	– 3
EL	2.97	3.15	**3.05**	+ 3	– 3	+ 0
ES	3.18	2.04	**3.82**	+ 20	+ 87	– 0
FI	3.62	3.23	**3.70**	+ 2	+ 15	+ 0
FR	7.21	7.28	**6.14**	– 15	– 16	– 8
HR	5.71	4.78	**6.08**	+ 6	+ 27	+ 0
HU	5.35	5.63	**5.64**	+ 5	+ 0	– 0
IE	9.91	9.33	**9.53**	– 4	+ 2	+ 0
IT	3.78	3.60	**3.45**	– 9	– 4	+ 0
LT	4.73	4.74	**4.49**	– 5	– 5	– 7
LU	5.98	5.75	**5.70**	– 5	– 1	+ 0
LV	4.67	4.07	**4.50**	– 4	+ 11	– 7
MT	—	—	**—**	—	—	—
NL	8.88	8.63	**8.10**	– 9	– 6	– 2
PL	5.10	5.38	**5.18**	+ 2	– 4	– 2
PT	2.18	1.38	**2.57**	+ 18	+ 86	+ 0
RO	4.22	4.55	**4.72**	+ 12	+ 4	+ 1
SE	6.65	5.46	**6.80**	+ 2	+ 25	+ 0
SI	5.47	5.07	**5.40**	– 1	+ 7	– 1
SK	5.41	6.16	**5.31**	– 2	– 14	+ 0



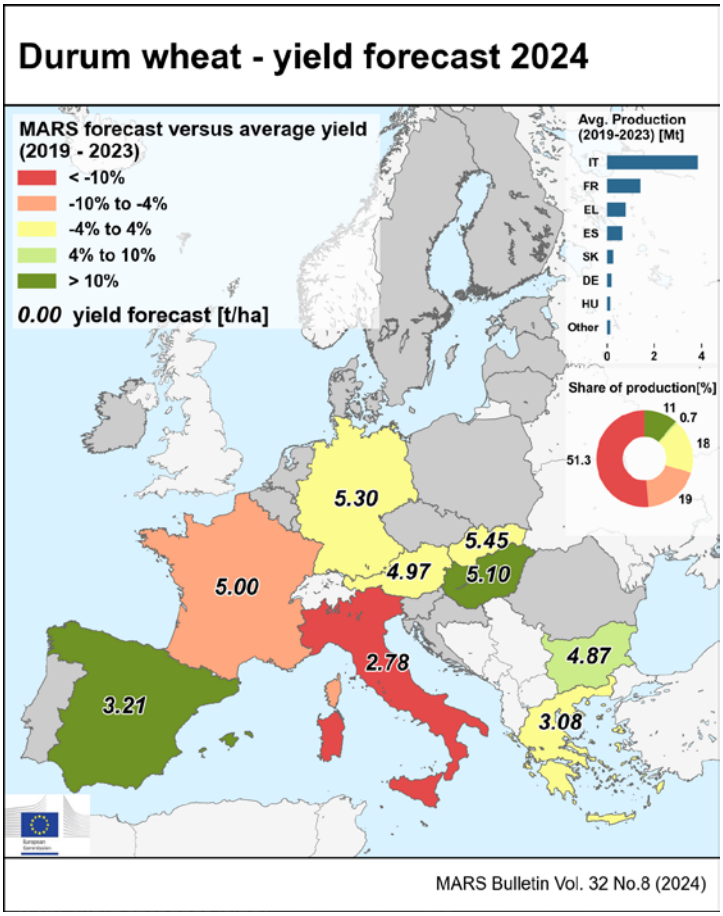
Country	Total barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	4.93	4.63	**5.01**	+ 2	+ 8	– 2
AT	6.18	6.22	**5.90**	– 5	– 5	– 6
BE	8.26	8.37	**7.70**	– 7	– 8	– 1
BG	4.93	5.18	**5.53**	+ 12	+ 7	+ 0
CY	2.11	1.74	**2.18**	+ 3	+ 25	+ 0
CZ	5.46	5.49	**5.50**	+ 1	+ 0	+ 0
DE	6.78	6.82	**6.47**	– 4	– 5	– 2
DK	5.97	4.58	**6.10**	+ 2	+ 33	– 0
EE	3.81	2.95	**3.72**	– 2	+ 26	– 6
EL	2.83	2.55	**2.89**	+ 2	+ 13	+ 0
ES	2.97	1.61	**3.57**	+ 20	+ 121	+ 0
FI	3.48	3.13	**3.59**	+ 3	+ 15	+ 0
FR	6.36	6.80	**5.70**	– 10	– 16	– 3
HR	4.89	4.00	**5.22**	+ 7	+ 30	+ 0
HU	5.54	5.46	**5.62**	+ 2	+ 3	– 1
IE	7.98	7.05	**7.71**	– 3	+ 9	+ 1
IT	4.12	3.99	**4.10**	– 0	+ 3	+ 0
LT	3.71	3.56	**3.80**	+ 2	+ 7	– 5
LU	—	—	**—**	—	—	—
LV	3.31	2.79	**3.50**	+ 6	+ 26	– 8
MT	—	—	**—**	—	—	—
NL	6.96	6.58	**6.52**	– 6	– 1	– 5
PL	4.14	4.49	**4.31**	+ 4	– 4	– 1
PT	2.71	1.56	**3.06**	+ 13	+ 96	+ 0
RO	3.98	4.61	**4.45**	+ 12	– 4	+ 0
SE	4.68	3.30	**4.85**	+ 4	+ 47	– 6
SI	5.08	4.60	**5.10**	+ 0	+ 11	+ 0
SK	5.09	5.31	**5.36**	+ 5	+ 1	+ 5



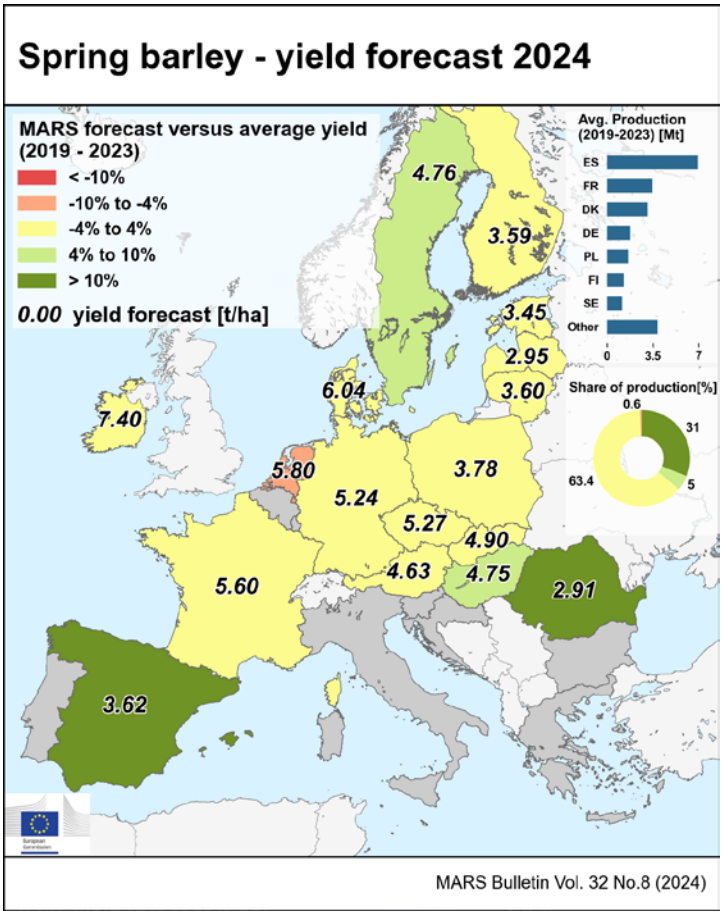
Country	Soft wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	5.86	5.81	**5.68**	– 3	– 2	– 3
AT	5.87	6.14	**5.98**	+ 2	– 3	+ 0
BE	8.75	8.66	**8.00**	– 9	– 8	– 5
BG	5.14	5.43	**5.73**	+ 11	+ 5	+ 0
CY	—	—	**—**	—	—	—
CZ	6.14	6.44	**6.17**	+ 1	– 4	+ 0
DE	7.53	7.46	**7.29**	– 3	– 2	– 3
DK	7.97	7.36	**7.88**	– 1	+ 7	– 2
EE	4.57	4.00	**4.53**	– 1	+ 13	– 3
EL	2.94	2.86	**3.01**	+ 2	+ 5	+ 0
ES	3.28	2.11	**3.92**	+ 20	+ 86	+ 0
FI	3.62	3.23	**3.70**	+ 2	+ 15	+ 0
FR	7.30	7.37	**6.20**	– 15	– 16	– 8
HR	5.71	4.78	**6.08**	+ 6	+ 27	+ 0
HU	5.37	5.65	**5.67**	+ 6	+ 0	+ 0
IE	9.91	9.33	**9.53**	– 4	+ 2	+ 0
IT	5.34	5.08	**4.70**	– 12	– 7	+ 0
LT	4.73	4.74	**4.49**	– 5	– 5	– 7
LU	5.98	5.75	**5.70**	– 5	– 1	+ 0
LV	4.67	4.07	**4.50**	– 4	+ 11	– 7
MT	—	—	**—**	—	—	—
NL	8.88	8.63	**8.10**	– 9	– 6	– 2
PL	5.10	5.38	**5.18**	+ 2	– 4	– 2
PT	2.18	1.38	**2.57**	+ 18	+ 86	+ 0
RO	4.22	4.55	**4.72**	+ 12	+ 4	+ 1
SE	6.65	5.46	**6.80**	+ 2	+ 25	+ 0
SI	5.47	5.07	**5.40**	– 1	+ 7	– 1
SK	5.42	6.16	**5.27**	– 3	– 14	+ 0



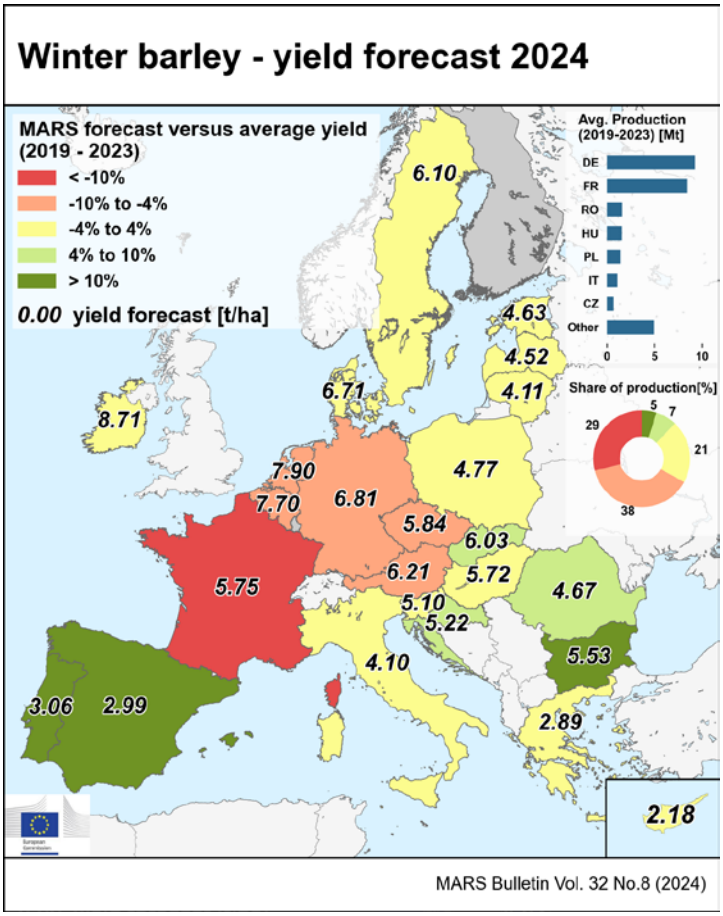
Country	Durum wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	3.45	3.30	**3.38**	– 2	+ 3	+ 1
AT	5.07	5.88	**4.97**	– 2	– 15	+ 0
BE	—	—	**—**	—	—	—
BG	4.61	4.81	**4.87**	+ 6	+ 1	+ 0
CY	—	—	**—**	—	—	—
CZ	—	—	**—**	—	—	—
DE	5.40	5.75	**5.30**	– 2	– 8	– 2
DK	—	—	**—**	—	—	—
EE	—	—	**—**	—	—	—
EL	2.98	3.31	**3.08**	+ 3	– 7	+ 0
ES	2.54	1.61	**3.21**	+ 26	+ 99	+ 0
FI	—	—	**—**	—	—	—
FR	5.53	5.44	**5.00**	– 10	– 8	– 4
HR	—	—	**—**	—	—	—
HU	4.63	5.20	**5.10**	+ 10	– 2	+ 0
IE	—	—	**—**	—	—	—
IT	3.11	2.91	**2.78**	– 11	– 4	+ 0
LT	—	—	**—**	—	—	—
LU	—	—	**—**	—	—	—
LV	—	—	**—**	—	—	—
MT	—	—	**—**	—	—	—
NL	—	—	**—**	—	—	—
PL	—	—	**—**	—	—	—
PT	—	—	**—**	—	—	—
RO	—	—	**—**	—	—	—
SE	—	—	**—**	—	—	—
SI	—	—	**—**	—	—	—
SK	5.35	6.14	**5.45**	+ 2	– 11	+ 0



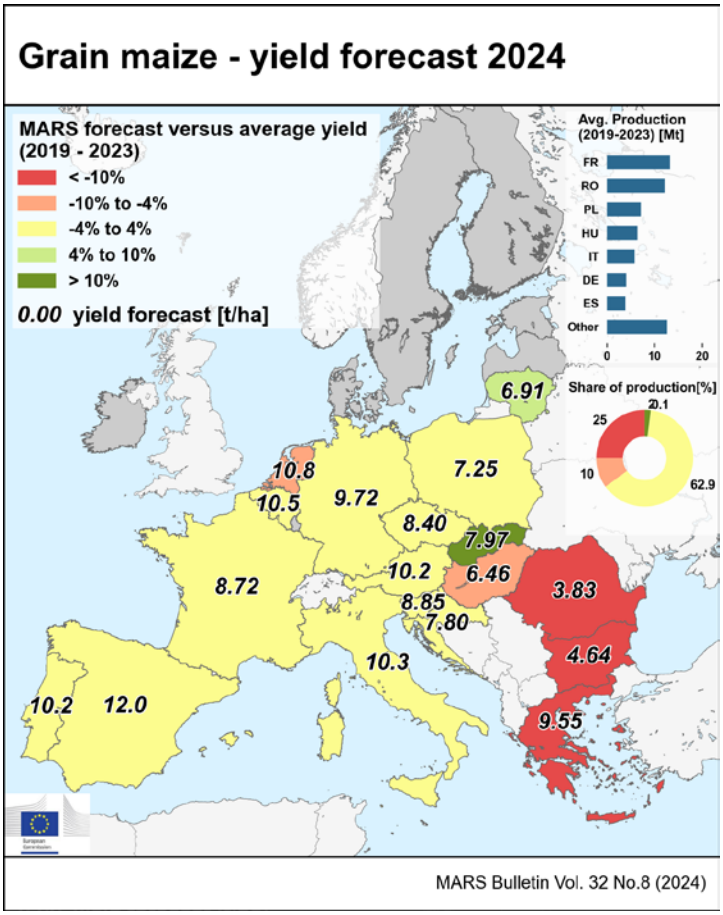
Country	Spring barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	4.08	3.18	**4.43**	+ 9	+ 40	– 0
AT	4.49	4.75	**4.63**	+ 3	– 3	+ 4
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	5.12	4.94	**5.27**	+ 3	+ 7	+ 0
DE	5.10	4.41	**5.24**	+ 3	+ 19	+ 3
DK	5.84	4.37	**6.04**	+ 3	+ 38	+ 0
EE	3.55	2.59	**3.45**	– 3	+ 33	– 4
EL	—	—	—	—	—	—
ES	3.02	1.67	**3.62**	+ 20	+ 117	+ 0
FI	3.48	3.13	**3.59**	+ 3	+ 15	+ 0
FR	5.75	5.78	**5.60**	– 3	– 3	– 2
HR	—	—	—	—	—	—
HU	4.51	4.40	**4.75**	+ 5	+ 8	+ 0
IE	7.44	6.38	**7.40**	– 0	+ 16	+ 0
IT	—	—	—	—	—	—
LT	3.60	3.40	**3.60**	– 0	+ 6	– 6
LU	—	—	—	—	—	—
LV	3.04	2.42	**2.95**	– 3	+ 22	– 7
MT	—	—	—	—	—	—
NL	6.26	4.82	**5.80**	– 7	+ 20	– 3
PL	3.65	3.79	**3.78**	+ 3	– 0	– 0
PT	—	—	—	—	—	—
RO	2.55	3.25	**2.91**	+ 14	– 10	+ 0
SE	4.56	3.15	**4.76**	+ 4	+ 51	– 7
SI	—	—	—	—	—	—
SK	4.79	5.10	**4.90**	+ 2	– 4	+ 8



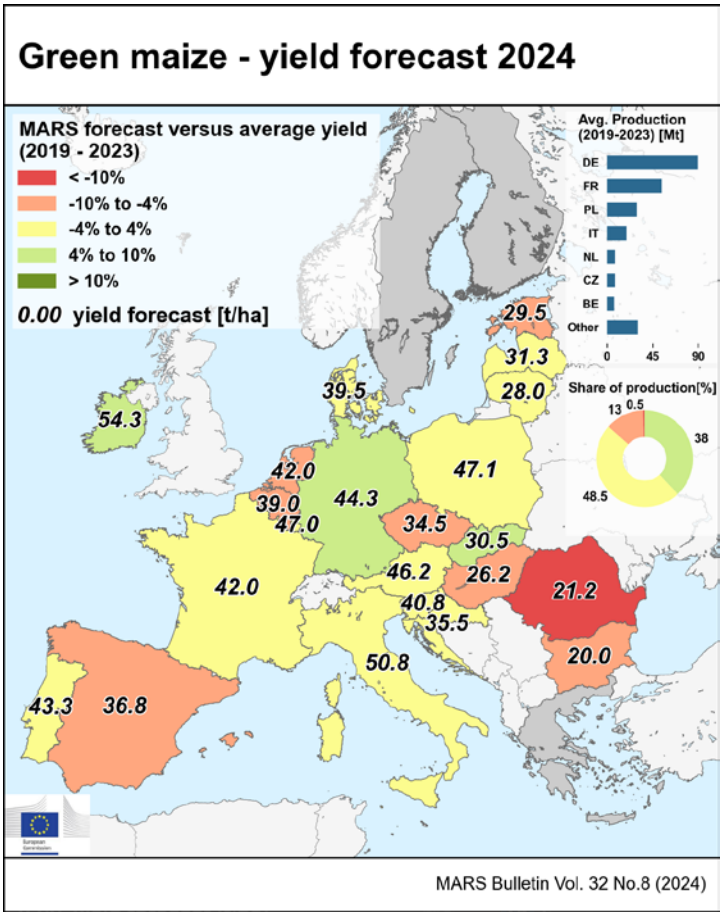
Country	Winter barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	5.91	6.03	**5.62**	– 5	– 7	– 2
AT	6.69	6.55	**6.21**	– 7	– 5	– 7
BE	8.26	8.37	**7.70**	– 7	– 8	– 1
BG	4.93	5.18	**5.53**	+ 12	+ 7	+ 0
CY	2.11	1.74	**2.18**	+ 3	+ 25	+ 0
CZ	6.09	6.32	**5.84**	– 4	– 8	+ 0
DE	7.23	7.43	**6.81**	– 6	– 8	– 3
DK	6.91	6.48	**6.71**	– 3	+ 4	– 2
EE	4.67	3.68	**4.63**	– 1	+ 26	– 9
EL	2.83	2.55	**2.89**	+ 2	+ 13	+ 0
ES	2.51	1.06	**2.99**	+ 19	+ 182	+ 0
FI	—	—	—	—	—	—
FR	6.65	7.13	**5.75**	– 14	– 19	– 4
HR	4.89	4.00	**5.22**	+ 7	+ 30	+ 0
HU	5.62	5.51	**5.72**	+ 2	+ 4	+ 0
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	**4.11**	– 1	+ 3	– 7
LU	—	—	—	—	—	—
LV	4.49	3.59	**4.52**	+ 1	+ 26	– 10
MT	—	—	—	—	—	—
NL	8.43	8.96	**7.90**	– 6	– 12	– 2
PL	4.87	5.07	**4.77**	– 2	– 6	– 2
PT	2.71	1.56	**3.06**	+ 13	+ 96	+ 0
RO	4.25	4.80	**4.67**	+ 10	– 3	+ 0
SE	6.06	5.19	**6.10**	+ 1	+ 17	+ 0
SI	5.08	4.60	**5.10**	+ 0	+ 11	+ 0
SK	5.54	5.55	**6.03**	+ 9	+ 9	– 1



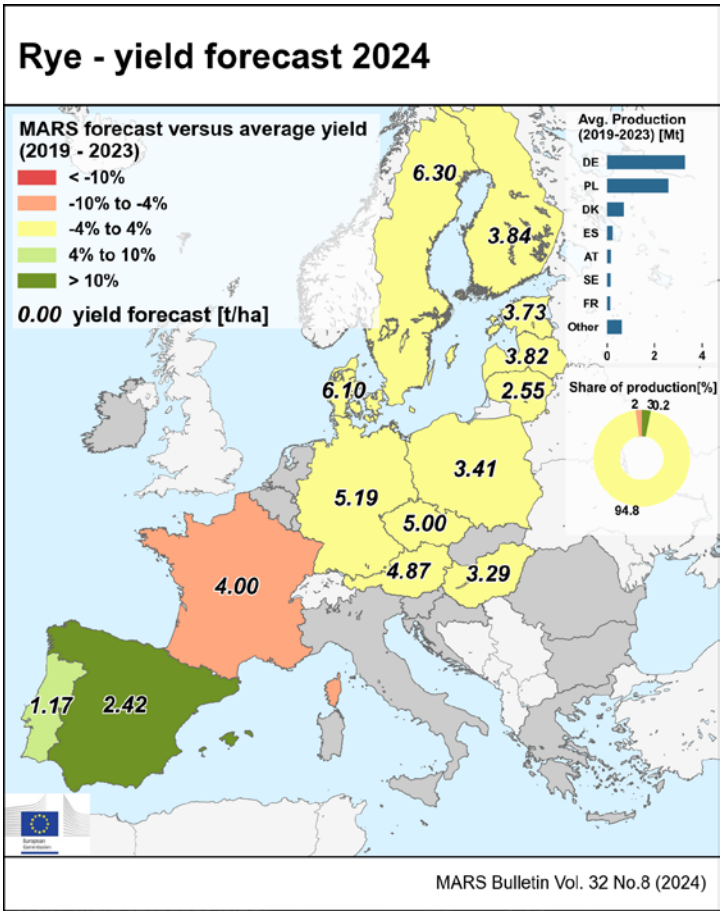
Country	Grain maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	7.35	7.51	**7.03**	– 4	– 6	– 3
AT	10.5	9.93	**10.2**	– 4	+ 2	– 5
BE	10.8	12.1	**10.5**	– 3	– 13	+ 0
BG	5.50	4.48	**4.64**	– 16	+ 4	– 14
CY	—	—	**—**	—	—	—
CZ	8.75	7.88	**8.40**	– 4	+ 7	+ 0
DE	9.36	9.65	**9.72**	+ 4	+ 1	+ 2
DK	—	—	**—**	—	—	—
EE	—	—	**—**	—	—	—
EL	10.6	9.50	**9.55**	– 10	+ 1	– 11
ES	12.0	11.7	**12.0**	– 0	+ 3	– 1
FI	—	—	**—**	—	—	—
FR	8.77	9.83	**8.72**	– 1	– 11	– 2
HR	7.76	7.42	**7.80**	+ 1	+ 5	– 4
HU	6.93	8.17	**6.46**	– 7	– 21	– 5
IE	—	—	**—**	—	—	—
IT	10.1	10.7	**10.3**	+ 2	– 4	– 3
LT	6.51	8.24	**6.91**	+ 6	– 16	+ 0
LU	—	—	**—**	—	—	—
LV	—	—	**—**	—	—	—
MT	—	—	**—**	—	—	—
NL	11.3	12.8	**10.8**	– 4	– 15	+ 0
PL	7.05	7.29	**7.25**	+ 3	– 1	+ 2
PT	9.90	10.7	**10.2**	+ 3	– 4	– 1
RO	4.89	4.70	**3.83**	– 22	– 18	– 6
SE	—	—	**—**	—	—	—
SI	8.96	8.79	**8.85**	– 1	+ 1	– 3
SK	7.17	7.57	**7.97**	+ 11	+ 5	+ 0



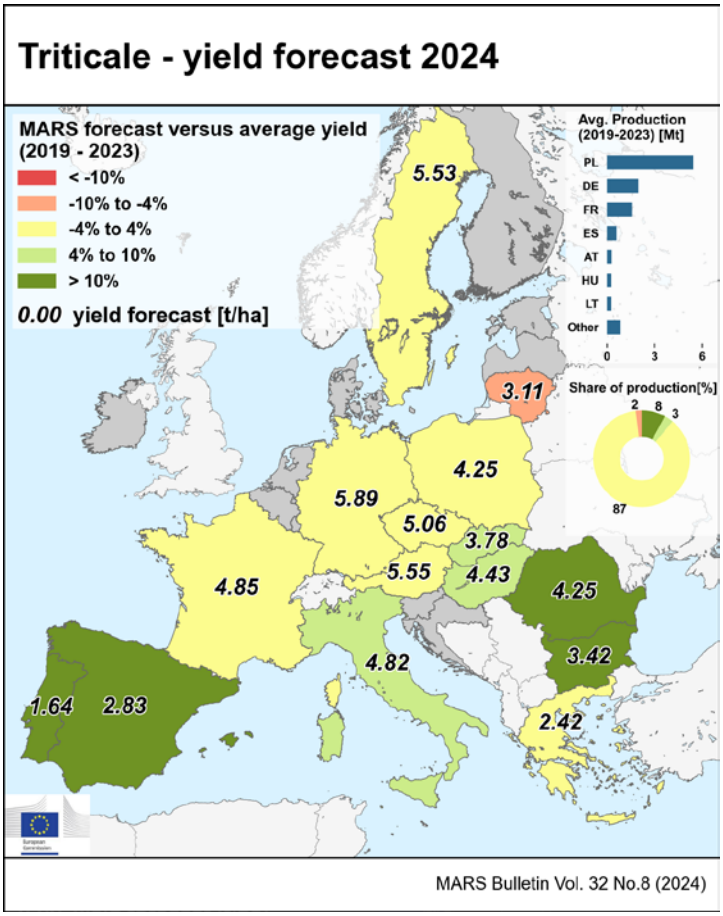
Country	Green maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU*	41.7	43.2	**42.7**	+ 3	– 1	– 0
AT	46.2	42.0	**46.2**	+ 0	+ 10	+ 0
BE	40.9	41.1	**39.0**	– 5	– 5	+ 0
BG	20.9	18.9	**20.0**	– 4	+ 6	– 1
CY	—	—	**—**	—	—	—
CZ	36.3	32.3	**34.5**	– 5	+ 7	+ 0
DE	41.5	42.1	**44.3**	+ 7	+ 5	+ 0
DK	38.9	37.0	**39.5**	+ 2	+ 7	+ 0
EE	31.6	30.2	**29.5**	– 7	– 2	– 6
EL	—	—	**—**	—	—	—
ES	38.4	47.3	**36.8**	– 4	– 22	– 1
FI	—	—	**—**	—	—	—
FR	40.9	46.0	**42.0**	+ 3	– 9	+ 3
HR	35.4	34.9	**35.5**	+ 0	+ 2	– 6
HU	27.8	31.1	**26.2**	– 6	– 16	– 3
IE	51.7	54.6	**54.3**	+ 5	– 1	– 2
IT	52.2	54.1	**50.8**	– 3	– 6	– 6
LT	28.2	27.9	**28.0**	– 1	+ 1	+ 0
LU	46.2	50.9	**47.0**	+ 2	– 8	+ 0
LV	31.4	27.3	**31.3**	– 0	+ 15	+ 0
MT	—	—	**—**	—	—	—
NL	44.0	45.7	**42.0**	– 5	– 8	+ 0
PL	46.0	46.7	**47.1**	+ 2	+ 1	– 1
PT	44.4	45.1	**43.3**	– 2	– 4	– 3
RO	24.0	21.4	**21.2**	– 12	– 1	– 2
SE	—	—	**—**	—	—	—
SI	42.2	39.9	**40.8**	– 3	+ 2	– 5
SK	29.1	31.5	**30.5**	+ 5	– 3	+ 0



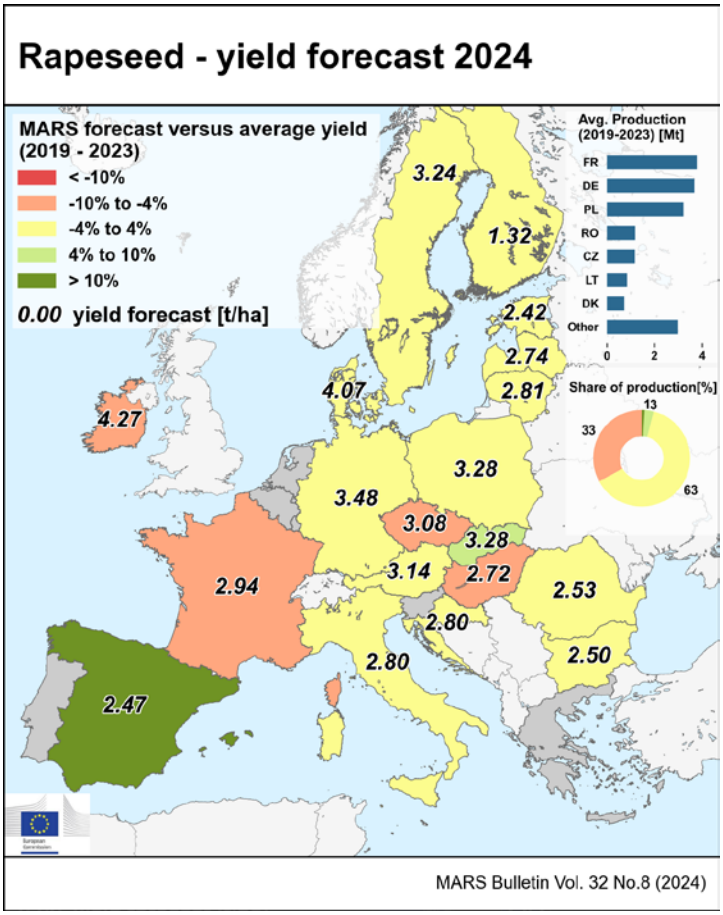
Country	Rye (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	4.15	4.10	**4.21**	+ 1	+ 3	– 1
AT	4.76	4.54	**4.87**	+ 2	+ 7	+ 0
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	5.20	5.07	**5.00**	– 4	– 1	– 5
DE	5.26	4.99	**5.19**	– 1	+ 4	+ 0
DK	6.11	5.60	**6.10**	– 0	+ 9	– 2
EE	3.86	3.66	**3.73**	– 3	+ 2	– 4
EL	—	—	—	—	—	—
ES	2.16	1.41	**2.42**	+ 12	+ 71	+ 0
FI	3.95	3.53	**3.84**	– 3	+ 9	+ 0
FR	4.32	4.34	**4.00**	– 7	– 8	– 2
HR	—	—	—	—	—	—
HU	3.27	3.34	**3.29**	+ 0	– 2	+ 0
IE	—	—	—	—	—	—
IT	—	—	—	—	—	—
LT	2.59	2.36	**2.55**	– 2	+ 8	– 2
LU	—	—	—	—	—	—
LV	3.94	3.20	**3.82**	– 3	+ 19	– 7
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	3.31	3.55	**3.41**	+ 3	– 4	– 2
PT	1.06	0.90	**1.17**	+ 10	+ 30	+ 0
RO	—	—	—	—	—	—
SE	6.06	5.25	**6.30**	+ 4	+ 20	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—



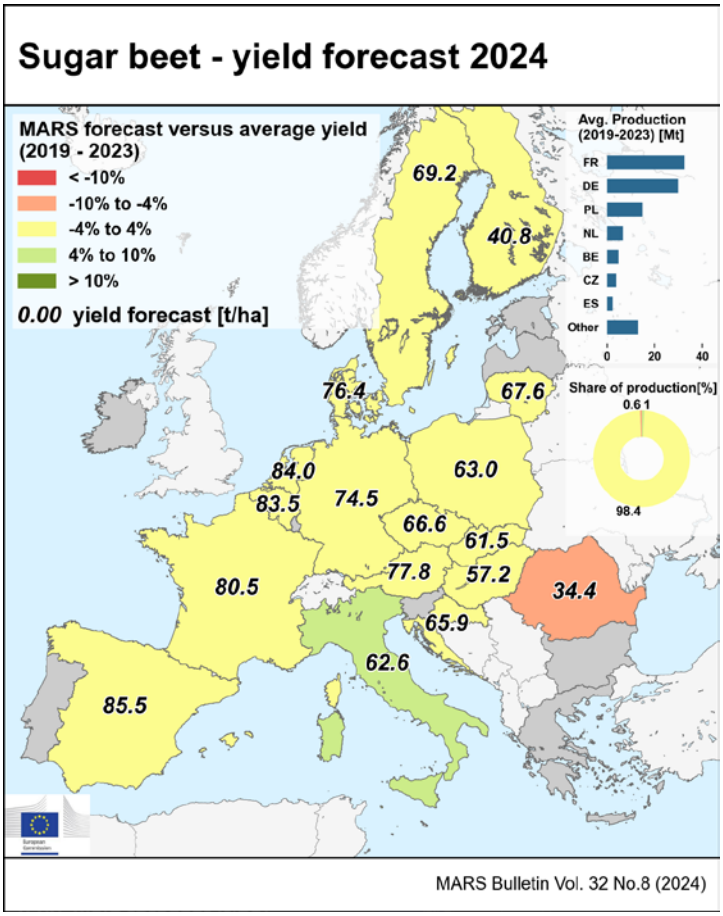
Country	Triticale (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	4.33	4.35	**4.37**	+ 1	+ 0	– 1
AT	5.58	5.62	**5.55**	– 1	– 1	+ 0
BE	—	—	—	—	—	—
BG	3.10	3.20	**3.42**	+ 11	+ 7	+ 0
CY	—	—	—	—	—	—
CZ	4.97	4.98	**5.06**	+ 2	+ 2	+ 2
DE	5.95	5.88	**5.89**	– 1	+ 0	– 1
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	2.36	1.80	**2.42**	+ 3	+ 35	+ 0
ES	2.34	1.42	**2.83**	+ 21	+ 100	+ 0
FI	—	—	—	—	—	—
FR	5.05	5.10	**4.85**	– 4	– 5	+ 0
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	**3.11**	– 6	+ 1	– 10
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	4.23	4.48	**4.25**	+ 0	– 5	– 2
PT	1.33	0.75	**1.64**	+ 23	+ 119	– 1
RO	3.79	4.30	**4.25**	+ 12	– 1	+ 0
SE	5.45	4.12	**5.53**	+ 1	+ 34	+ 0
SI	—	—	—	—	—	—
SK	3.49	3.41	**3.78**	+ 8.3	+ 11.0	—



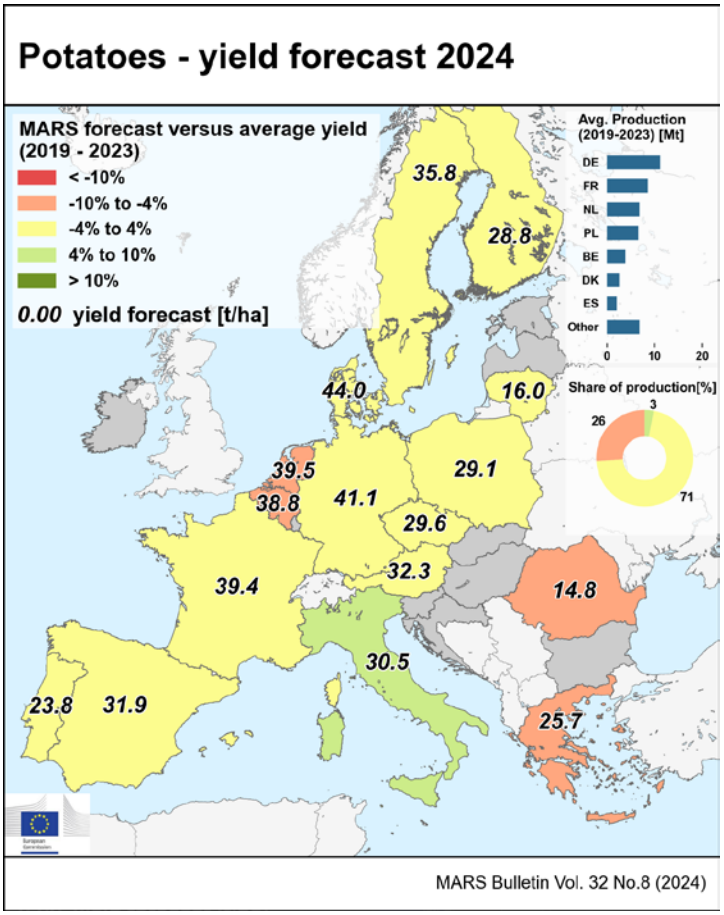
Country	Rape and turnip rape (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	3.17	3.17	**3.07**	– 3	– 3	– 1
AT	3.11	3.23	**3.14**	+ 1	– 3	– 2
BE	—	—	—	—	—	—
BG	2.57	2.58	**2.50**	– 3	– 3	+ 0
CY	—	—	—	—	—	—
CZ	3.25	3.45	**3.08**	– 5	– 11	+ 0
DE	3.62	3.58	**3.48**	– 4	– 3	– 1
DK	4.14	3.90	**4.07**	– 2	+ 5	+ 0
EE	2.51	1.80	**2.42**	– 4	+ 34	– 9
EL	—	—	—	—	—	—
ES	2.13	1.62	**2.47**	+ 16	+ 53	+ 0
FI	1.30	1.31	**1.32**	+ 1	+ 1	+ 0
FR	3.26	3.17	**2.94**	– 10	– 7	+ 0
HR	2.70	2.82	**2.80**	+ 4	– 1	+ 0
HU	2.89	3.27	**2.72**	– 6	– 17	+ 0
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	**2.81**	– 2	+ 5	– 4
LU	—	—	—	—	—	—
LV	2.68	2.35	**2.74**	+ 2	+ 16	– 2
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	3.20	3.39	**3.28**	+ 3	– 3	– 0
PT	—	—	—	—	—	—
RO	2.58	2.63	**2.53**	– 2	– 4	+ 0
SE	3.21	2.51	**3.24**	+ 1	+ 29	+ 0
SI	—	—	—	—	—	—
SK	3.14	3.62	**3.28**	+ 4	– 10	+ 0



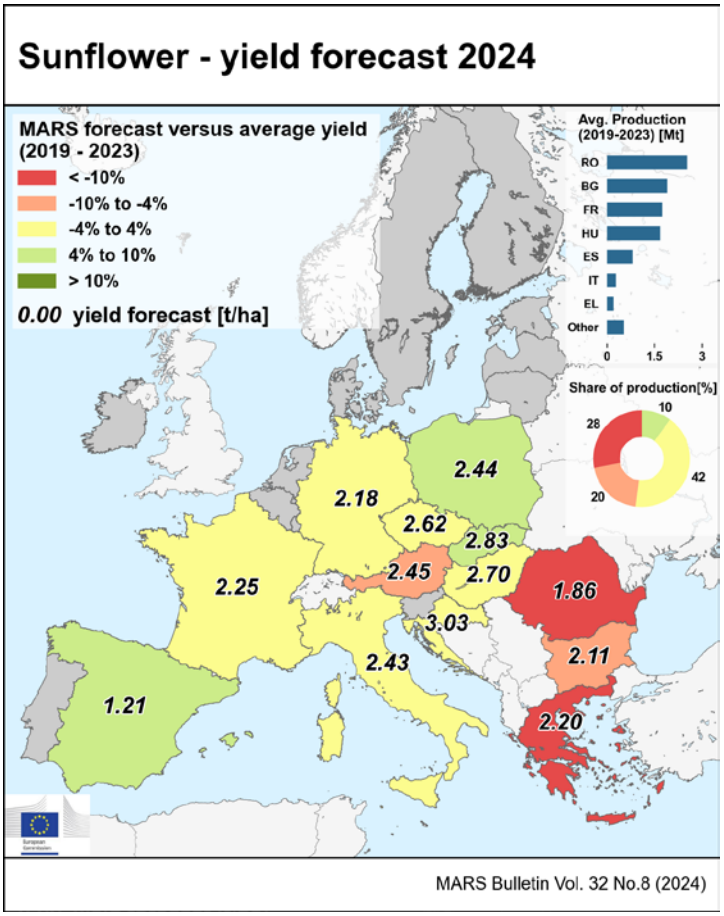
Country	Sugar beet (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	73.1	N/A	**73.4**	+ 0	N/A	+ 0
AT	77.1	75.0	**77.8**	+ 1	+ 4	+ 0
BE	86.2	87.0	**83.5**	– 3	– 4	+ 0
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	65.2	65.2	**66.6**	+ 2	+ 2	+ 0
DE	75.9	79.7	**74.5**	– 2	– 7	+ 0
DK	76.4	74.8	**76.4**	– 0	+ 2	+ 0
EE	—	—	—	—	—	—
EL	—	—	—	—	—	—
ES	85.3	81.5	**85.5**	+ 0	+ 5	– 2
FI	40.5	38.5	**40.8**	+ 1	+ 6	+ 0
FR	78.8	83.4	**80.5**	+ 2	– 4	+ 0
HR	66.6	62.4	**65.9**	– 1	+ 6	– 5
HU	56.8	58.0	**57.2**	+ 1	– 1	– 5
IE	—	—	—	—	—	—
IT	58.2	N/A	**62.6**	+ 8	N/A	– 1
LT	66.5	72.2	**67.6**	+ 2	– 6	+ 0
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	84.3	85.3	**84.0**	– 0	– 2	+ 0
PL	60.8	61.3	**63.0**	+ 4	+ 3	+ 0
PT	—	—	—	—	—	—
RO	36.6	33.1	**34.4**	– 6	+ 4	+ 7
SE	67.7	60.4	**69.2**	+ 2	+ 15	+ 0
SI	—	—	—	—	—	—
SK	60.2	63.6	**61.5**	+ 2	– 3	+ 0



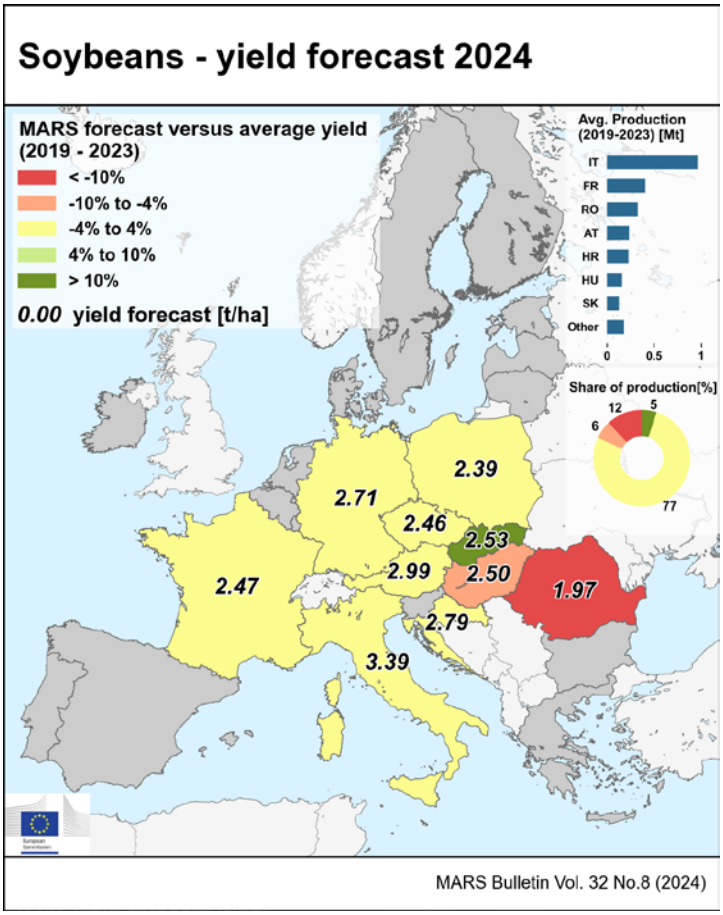
Country	Potatoes (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	35.4	36.8	**35.1**	– 1	– 5	– 0
AT	32.7	28.8	**32.3**	– 1	+ 12	+ 0
BE	41.4	43.5	**38.8**	– 6	– 11	+ 0
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	28.7	27.4	**29.6**	+ 3	+ 8	+ 0
DE	41.9	43.9	**41.1**	– 2	– 6	+ 0
DK	43.7	45.1	**44.0**	+ 1	– 2	+ 0
EE	—	—	—	—	—	—
EL	28.6	27.7	**25.7**	– 10	– 7	– 5
ES	32.3	32.0	**31.9**	– 1	– 0	– 0
FI	28.9	30.2	**28.8**	– 1	– 5	+ 0
FR	41.0	42.2	**39.4**	– 4	– 7	+ 0
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	—	—	—	—	—	—
IT	29.0	27.8	**30.5**	+ 5	+ 10	+ 0
LT	16.1	18.1	**16.0**	– 1	– 12	+ 0
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	42.2	41.8	**39.5**	– 6	– 6	+ 0
PL	28.8	29.6	**29.1**	+ 1	– 2	+ 1
PT	23.6	24.2	**23.8**	+ 1	– 2	– 1
RO	15.6	14.1	**14.8**	– 5	+ 5	– 4
SE	35.8	35.6	**35.8**	– 0	+ 1	– 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—



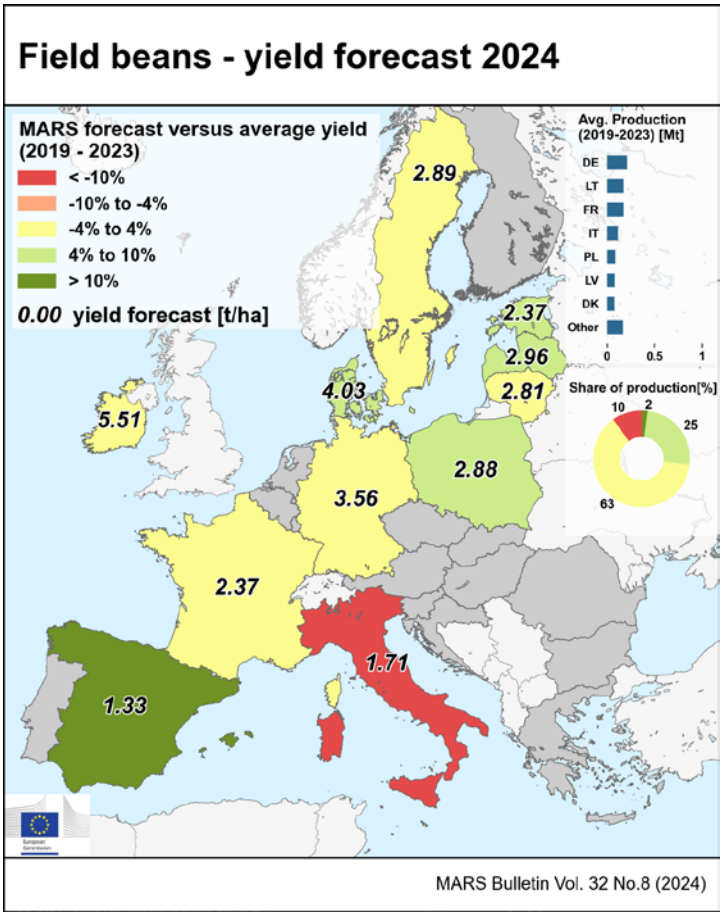
Country	Sunflower (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	2.15	2.10	**2.04**	– 5	– 3	– 2
AT	2.68	2.69	**2.45**	– 9	– 9	– 10
BE	—	—	—	—	—	—
BG	2.24	2.03	**2.11**	– 6	+ 4	– 3
CY	—	—	—	—	—	—
CZ	2.63	2.49	**2.62**	– 0	+ 5	+ 0
DE	2.20	2.47	**2.18**	– 1	– 12	+ 2
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	2.52	2.42	**2.20**	– 13	– 9	– 15
ES	1.13	1.12	**1.21**	+ 7	+ 8	+ 0
FI	—	—	—	—	—	—
FR	2.30	2.50	**2.25**	– 2	– 10	– 1
HR	2.93	2.64	**3.03**	+ 3	+ 15	– 1
HU	2.64	2.90	**2.70**	+ 2	– 7	– 1
IE	—	—	—	—	—	—
IT	2.44	2.49	**2.43**	– 0	– 2	– 0
LT	—	—	—	—	—	—
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.35	2.36	**2.44**	+ 4	+ 3	+ 4
PT	—	—	—	—	—	—
RO	2.21	1.86	**1.86**	– 16	– 0	– 5
SE	—	—	—	—	—	—
SI	—	—	—	—	—	—
SK	2.58	2.78	**2.83**	+ 10	+ 2	+ 0



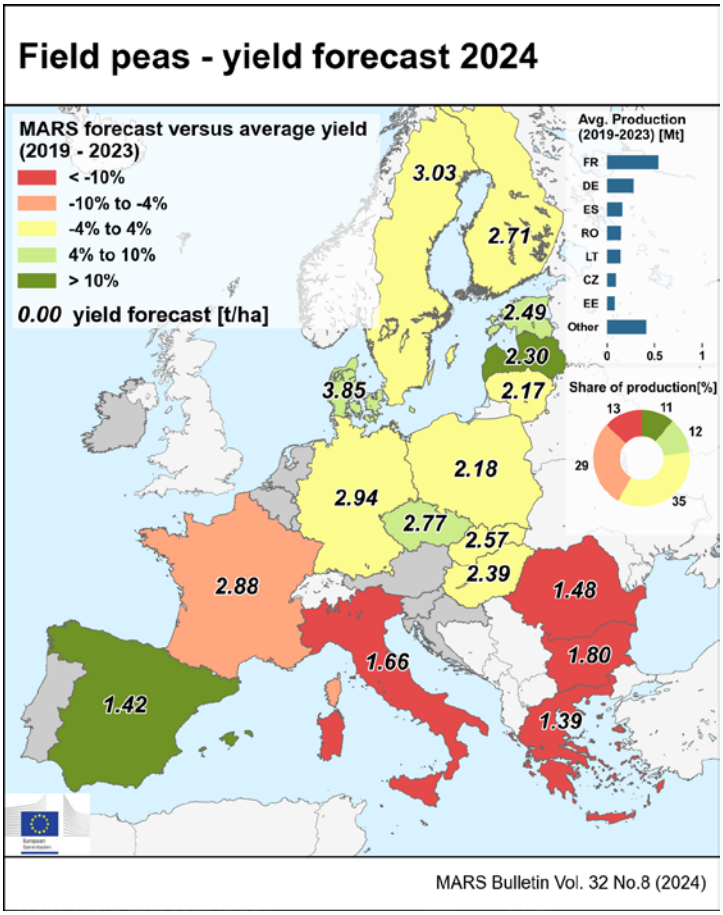
Country	Soybeans (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	2.73	2.85	**2.75**	+ 1	– 3	– 4
AT	2.95	3.06	**2.99**	+ 1	– 2	+ 0
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	2.38	2.39	**2.46**	+ 3	+ 3	+ 0
DE	2.75	2.88	**2.71**	– 1	– 6	+ 1
DK	—	—	—	—	—	—
EE	—	—	—	—	—	—
EL	—	—	—	—	—	—
ES	—	—	—	—	—	—
FI	—	—	—	—	—	—
FR	2.41	2.44	**2.47**	+ 3	+ 1	+ 0
HR	2.76	2.86	**2.79**	+ 1	– 2	– 5
HU	2.65	3.04	**2.50**	– 6	– 18	– 5
IE	—	—	—	—	—	—
IT	3.28	3.39	**3.39**	+ 3	– 0	– 6
LT	—	—	—	—	—	—
LU	—	—	—	—	—	—
LV	—	—	—	—	—	—
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.31	2.58	**2.39**	+ 3	– 7	+ 1
PT	—	—	—	—	—	—
RO	2.19	2.14	**1.97**	– 10	– 8	+ 0
SE	—	—	—	—	—	—
SI	—	—	—	—	—	—
SK	2.27	2.59	**2.53**	+ 11	– 2	+ 0



Country	Field beans (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	2.72	2.53	**2.81**	+ 4	+ 11	– 0
AT	—	—	—	—	—	—
BE	—	—	—	—	—	—
BG	—	—	—	—	—	—
CY	—	—	—	—	—	—
CZ	—	—	—	—	—	—
DE	3.55	2.88	**3.56**	+ 0	+ 24	– 3
DK	3.83	3.27	**4.03**	+ 5	+ 23	+ 0
EE	2.25	2.32	**2.37**	+ 5	+ 2	+ 0
EL	—	—	—	—	—	—
ES	1.12	1.00	**1.33**	+ 19	+ 34	+ 0
FI	—	—	—	—	—	—
FR	2.41	2.66	**2.37**	– 2	– 11	+ 0
HR	—	—	—	—	—	—
HU	—	—	—	—	—	—
IE	5.33	5.00	**5.51**	+ 3	+ 10	+ 0
IT	1.93	1.98	**1.71**	– 11	– 14	+ 0
LT	2.72	2.37	**2.81**	+ 3	+ 18	+ 0
LU	—	—	—	—	—	—
LV	2.83	2.30	**2.96**	+ 5	+ 29	+ 0
MT	—	—	—	—	—	—
NL	—	—	—	—	—	—
PL	2.74	2.61	**2.88**	+ 5	+ 10	+ 1
PT	—	—	—	—	—	—
RO	—	—	—	—	—	—
SE	2.94	2.42	**2.89**	– 2	+ 19	+ 0
SI	—	—	—	—	—	—
SK	—	—	—	—	—	—



Country	Field peas (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
EU	2.34	2.00	**2.24**	– 4	+ 12	– 3
AT	—	—	—	—	—	—
BE	—	—	—	—	—	—
BG	2.09	2.25	**1.80**	– 14	– 20	– 4
CY	—	—	—	—	—	—
CZ	2.55	2.25	**2.77**	+ 9	+ 23	+ 0
DE	2.95	2.25	**2.94**	– 0	+ 31	– 1
DK	3.67	2.88	**3.85**	+ 5	+ 34	+ 0
EE	2.28	2.20	**2.49**	+ 9	+ 13	+ 0
EL	1.55	1.60	**1.39**	– 10	– 13	– 11
ES	1.18	0.67	**1.42**	+ 20	+ 111	+ 0
FI	2.64	2.54	**2.71**	+ 3	+ 7	+ 0
FR	3.16	3.21	**2.88**	– 9	– 10	– 4
HR	—	—	—	—	—	—
HU	2.38	2.34	**2.39**	+ 1	+ 2	+ 0
IE	—	—	—	—	—	—
IT	2.82	2.65	**1.66**	– 41	– 38	+ 0
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	+ 0
PT	—	—	—	—	—	—
RO	1.73	1.67	**1.48**	– 15	– 11	+ 0
SE	2.95	2.06	**3.03**	+ 3	+ 47	+ 0
SI	—	—	—	—	—	—
SK	2.47	2.08	**2.57**	+ 4	+ 23	+ 0



Country	Wheat (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
BY	3.54	3.38	**3.80**	+ 7	+ 12	+ 0
TR	2.93	3.22	**2.97**	+ 2	– 8	+ 0
UA	4.20	4.53	**4.11**	– 2	– 9	+ 1
UK	8.17	8.10	**7.70**	– 6	– 5	+ 0

Country	Barley (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
BY	2.88	2.75	**3.00**	+ 4	+ 9	+ 0
TR	2.52	2.78	**3.00**	+ 19	+ 8	+ 0
UA	3.46	3.64	**3.57**	+ 3	– 2	+ 3
UK	6.31	6.10	**6.19**	– 2	+ 2	+ 0

Country	Grain maize (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
BY	5.43	5.56	**5.63**	+ 4	+ 1	+ 0
TR	9.29	9.40	**8.56**	– 8	– 9	– 13
UA	6.90	7.73	**6.65**	– 4	– 14	– 3
UK	—	—	—	—	—	—

Country	Soybean (t/ha)					
	Avg 5yrs	2023	MARS 2024 forecasts	%24/5yrs	%24/23	% Diff August/July
BY	—	—	—	—	—	—
TR	4.22	4.21	**4.54**	+ 8	+ 8	+ 2
UA	2.38	2.61	**2.43**	+ 2	– 7	+ 0
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 July 2024, received on 12.08.2024), Eurostat Eurobase (last update: 08.08.2024), 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: 08.08.2024), 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 20.08.2024).

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.

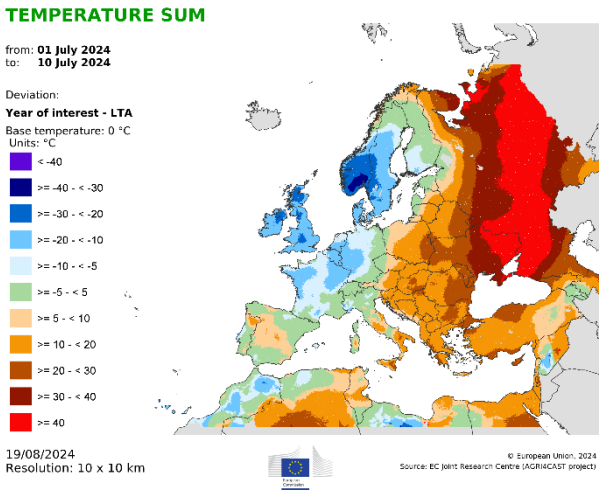
* The EU figures do not include green maize forecasts for Sweden since recent data on yields were not consistent.

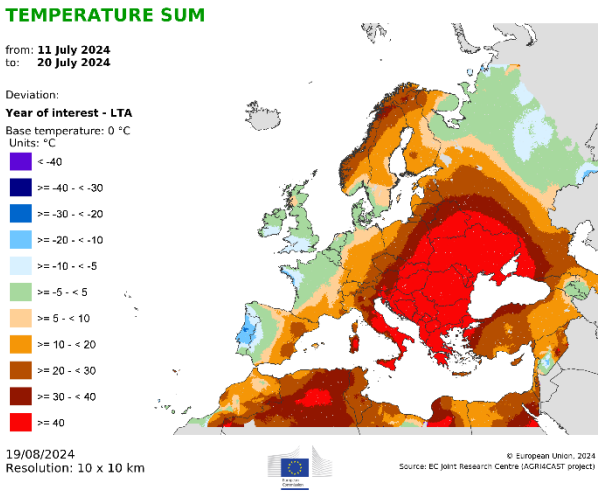
Cop name	Eurostat Crop name	Eurostat Crop Code	Official Eurostat Crop definition*
Total wheat	Wheat and spelt	C1100	Common wheat (*Triticum aestivum* L. emend. Fiori et Paol.), spelt (*Triticum spelta* L.), einkorn wheat (*Triticum monococcum* L.) and durum wheat (*Triticum durum* Desf.).
Total barley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

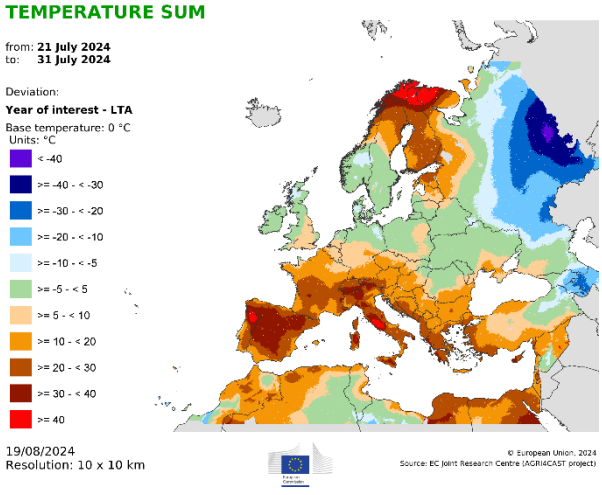
** Source:* Eurostat - Annual crop statistics (Handbook 2020 Edition)

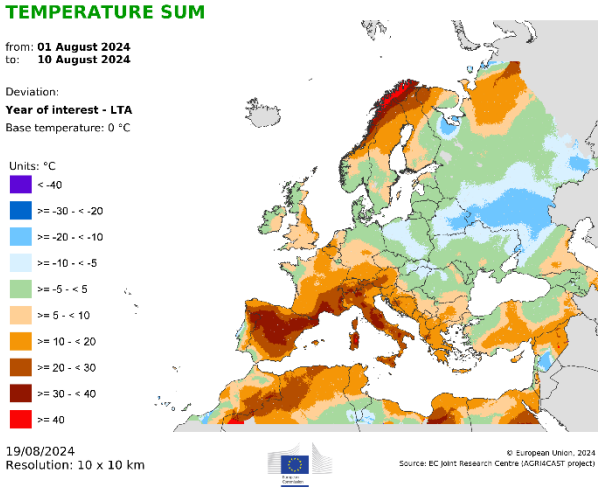
6. Atlas

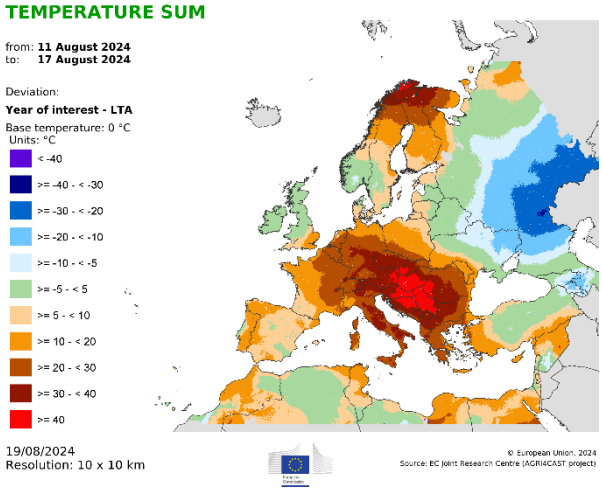
Temperature regime



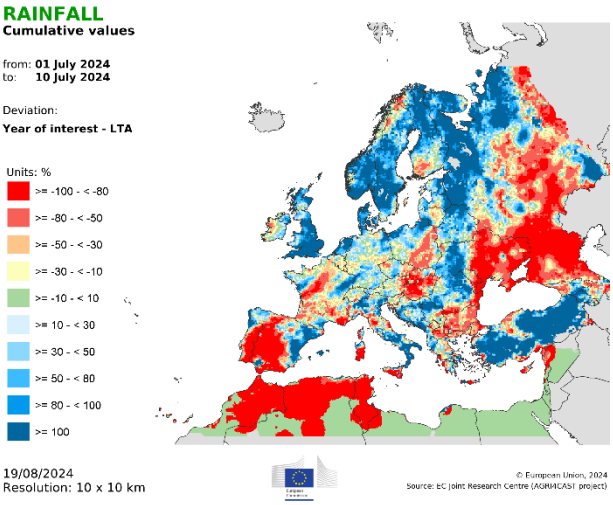


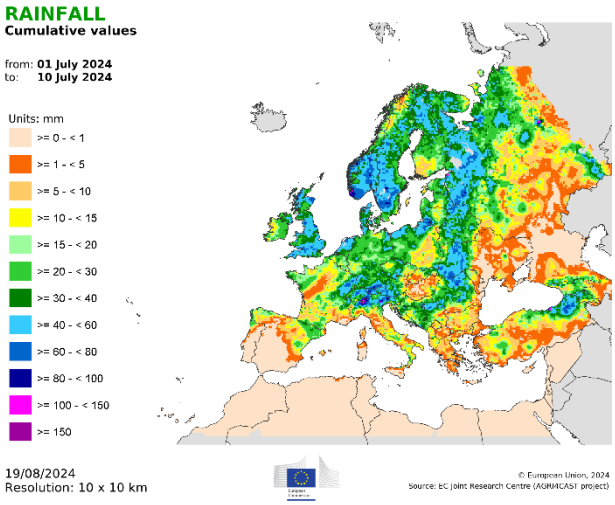


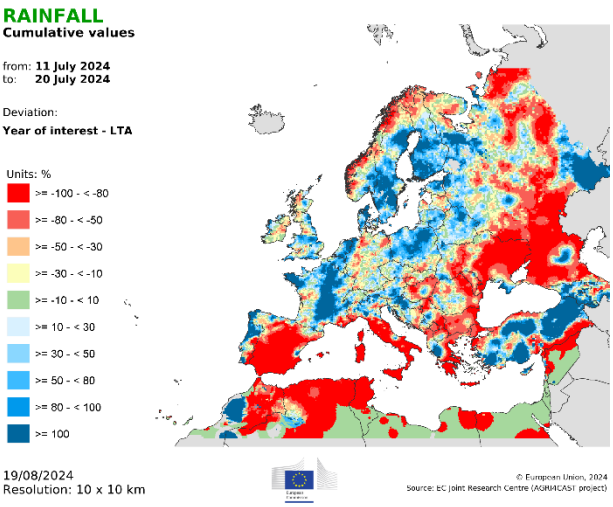


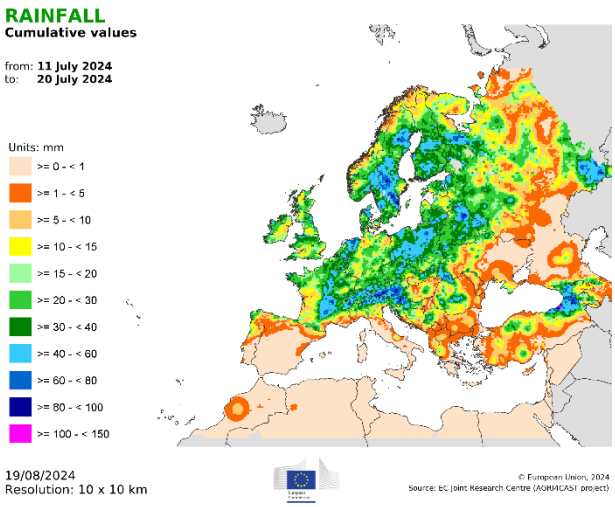


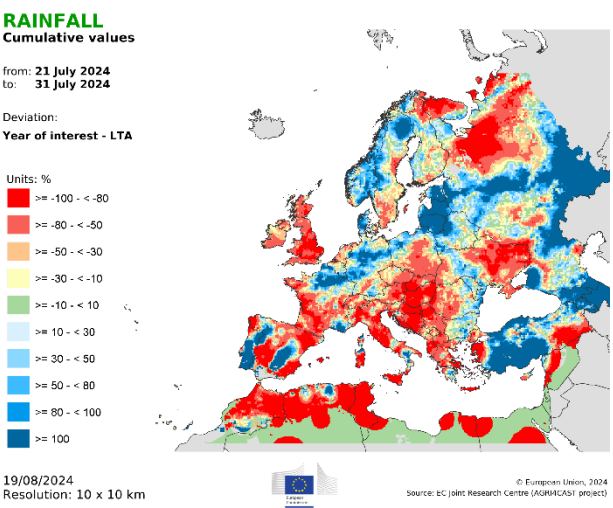
Precipitation

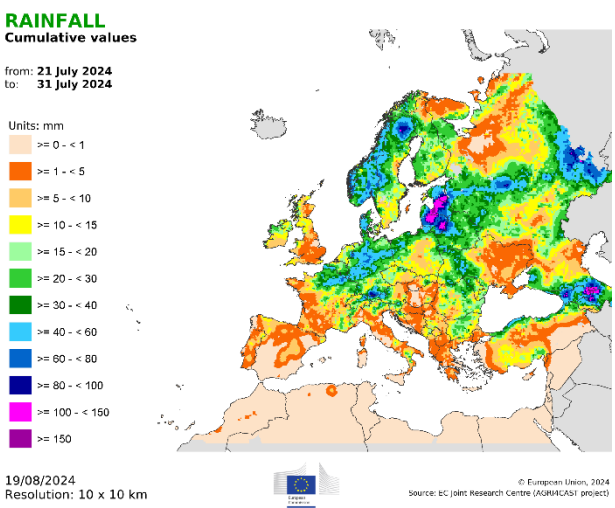


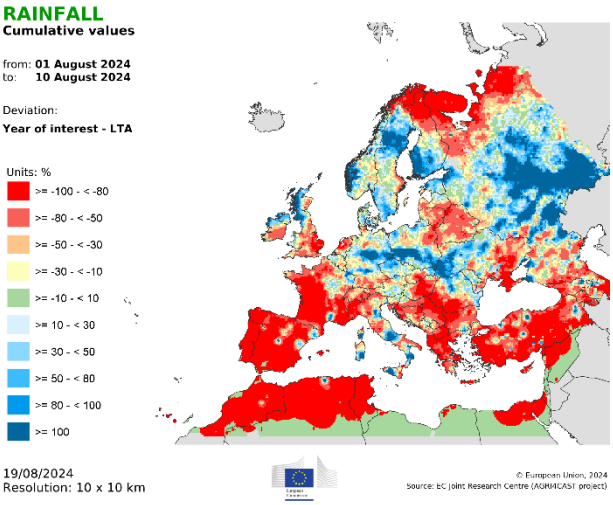


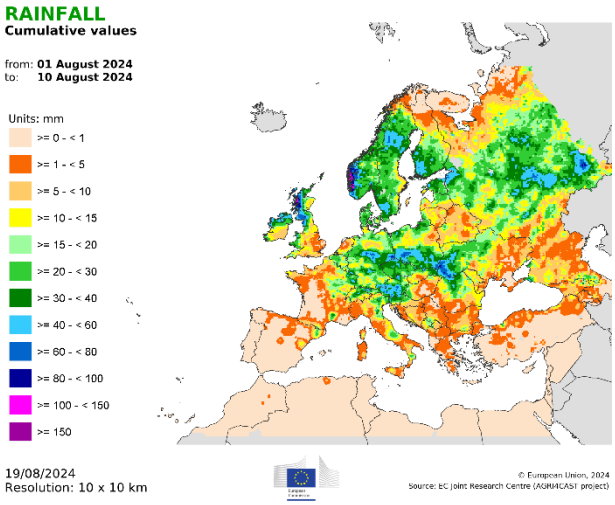


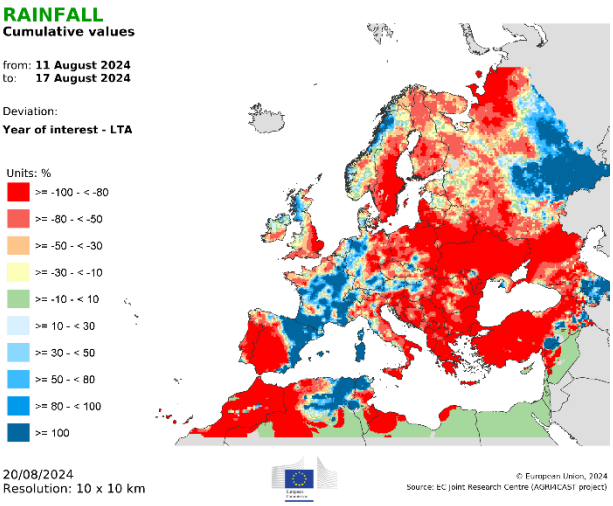


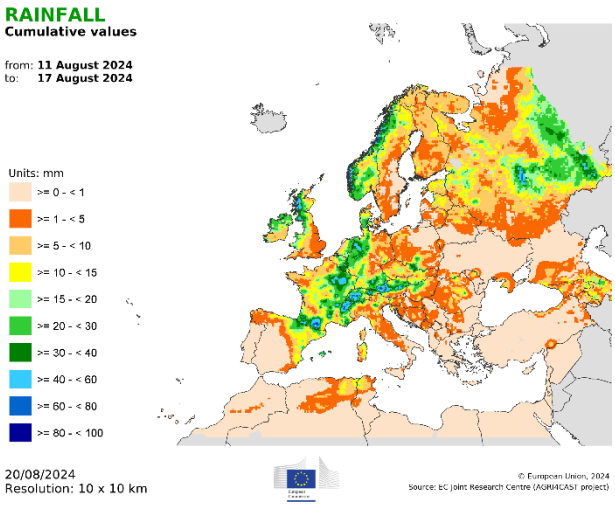




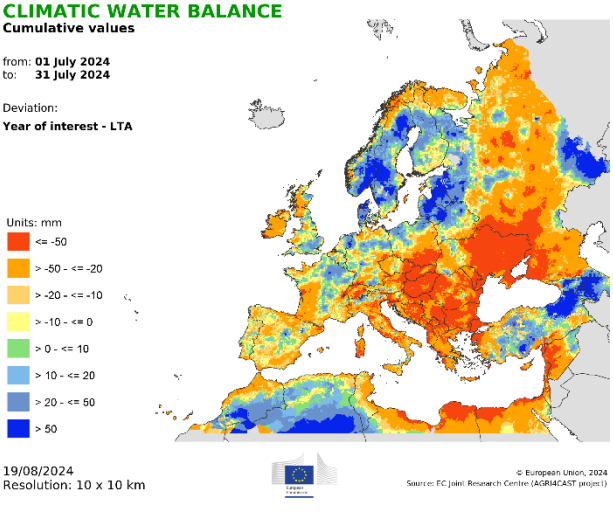


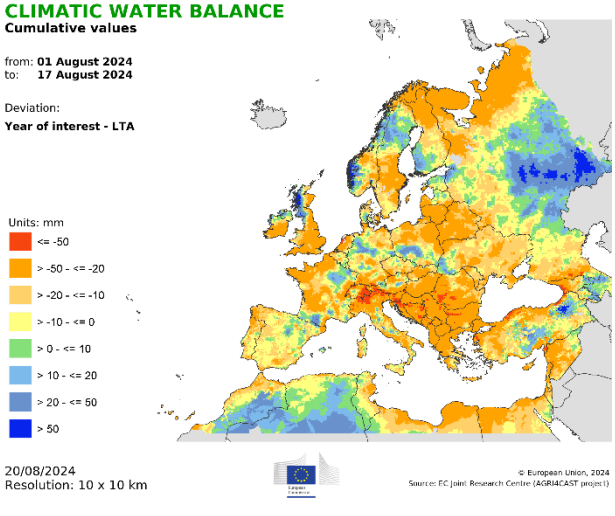






Climatic water balance

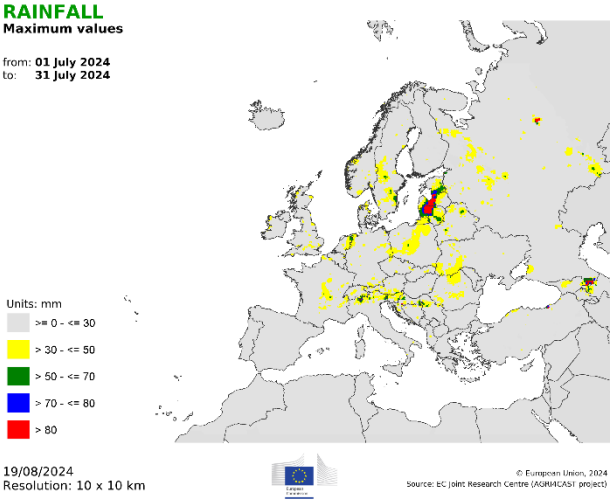




Weather events

RAINFALL
Maximum values

from: **01 July 2024**
to: **31 July 2024**

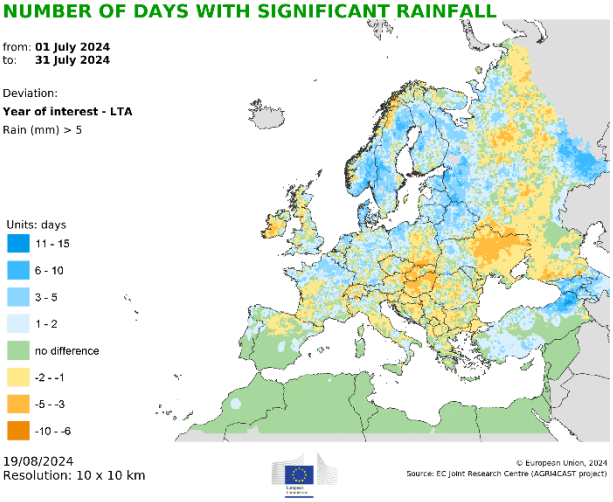


19/08/2024
Resolution: 10 x 10 km

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from: **01 July 2024**
to: **31 July 2024**

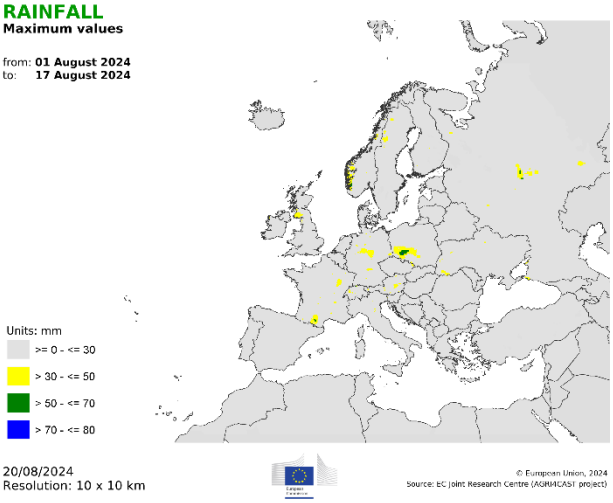
Deviation:
Year of interest - LTA
Rain (mm) > 5



19/08/2024
Resolution: 10 x 10 km

RAINFALL
Maximum values

from: **01 August 2024**
to: **17 August 2024**

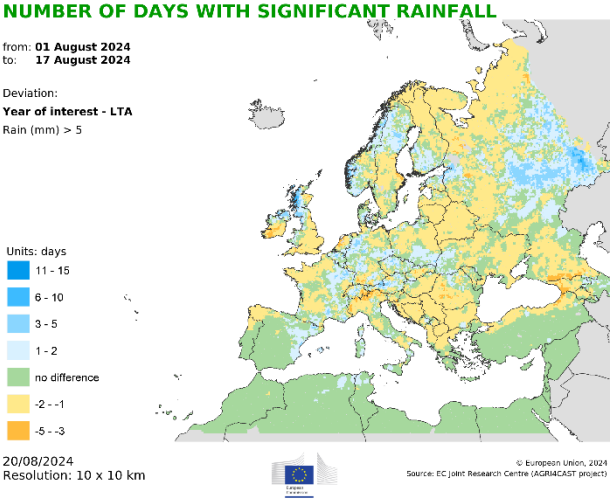


20/08/2024
Resolution: 10 x 10 km

NUMBER OF DAYS WITH SIGNIFICANT RAINFALL

from: **01 August 2024**
to: **17 August 2024**

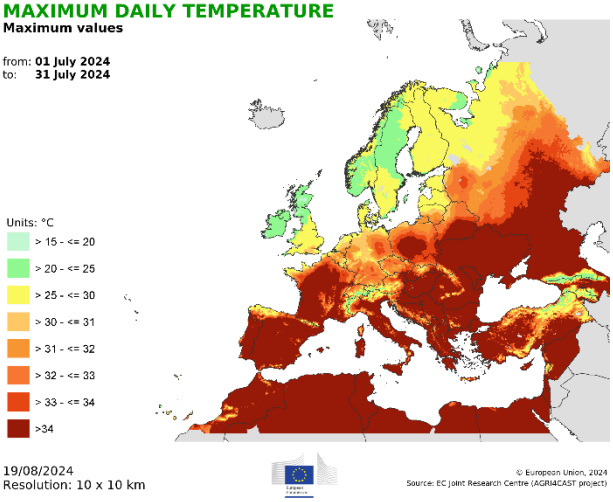
Deviation:
Year of interest - LTA
Rain (mm) > 5



20/08/2024
Resolution: 10 x 10 km

MAXIMUM DAILY TEMPERATURE
Maximum values

from: **01 July 2024**
to: **31 July 2024**

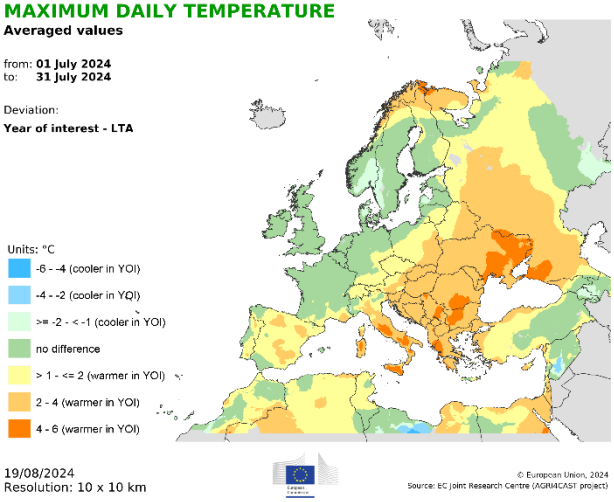


19/08/2024
Resolution: 10 x 10 km

MAXIMUM DAILY TEMPERATURE
Averaged values

from: **01 July 2024**
to: **31 July 2024**

Deviation:
Year of interest - LTA

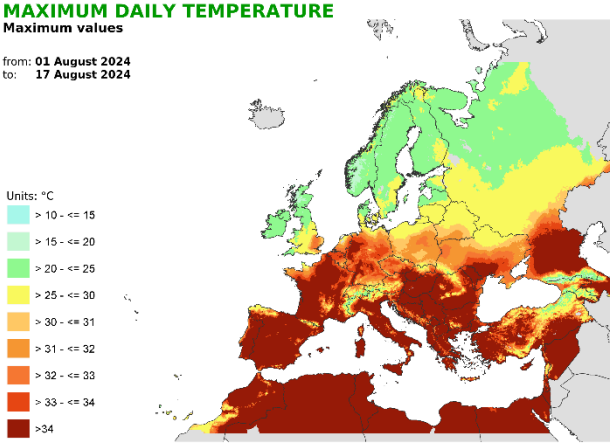


19/08/2024
Resolution: 10 x 10 km

MAXIMUM DAILY TEMPERATURE

Maximum values

from: **01 August 2024**
to: **17 August 2024**



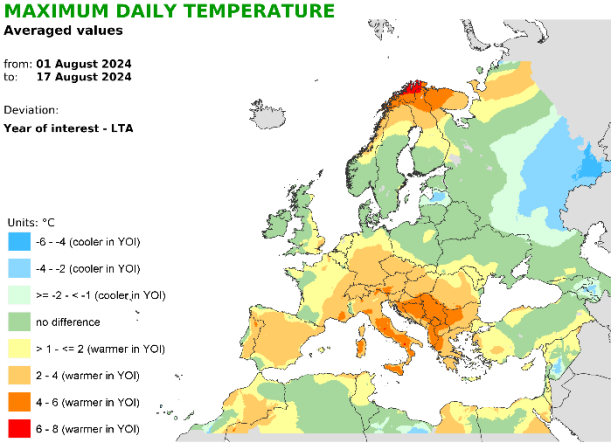
19/08/2024
Resolution: 10 x 10 km

MAXIMUM DAILY TEMPERATURE

Averaged values

from: **01 August 2024**
to: **17 August 2024**

Deviation:
Year of interest - LTA

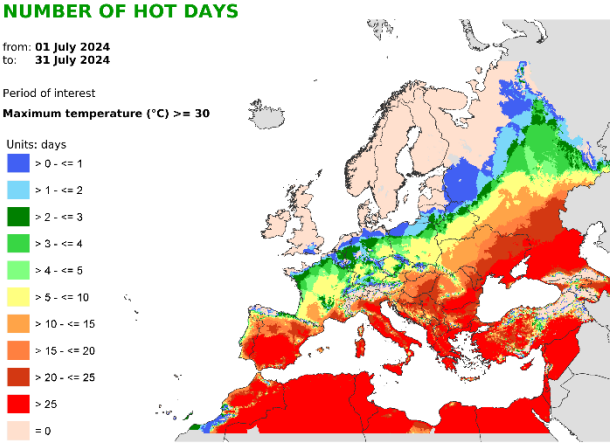


19/08/2024
Resolution: 10 x 10 km

NUMBER OF HOT DAYS

from: **01 July 2024**
to: **31 July 2024**

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

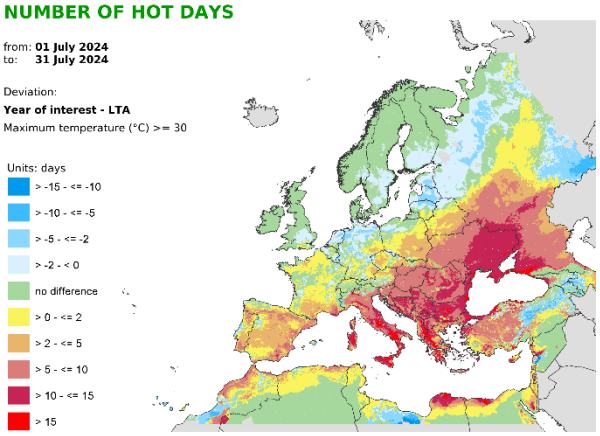


19/08/2024
Resolution: 10 x 10 km

NUMBER OF HOT DAYS

from: **01 July 2024**
to: **31 July 2024**

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

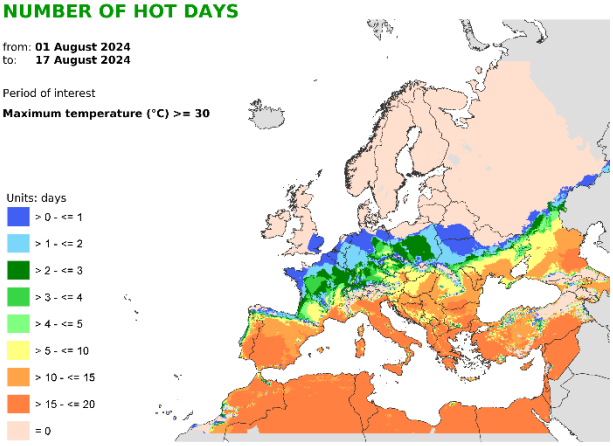


19/08/2024
Resolution: 10 x 10 km

NUMBER OF HOT DAYS

from: **01 August 2024**
to: **17 August 2024**

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

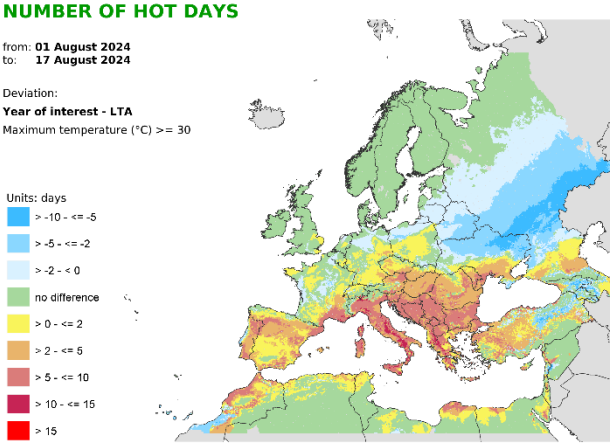


19/08/2024
Resolution: 10 x 10 km

NUMBER OF HOT DAYS

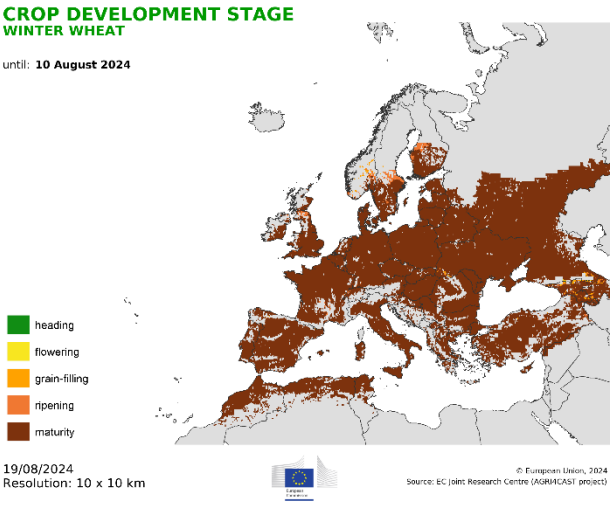
from: **01 August 2024**
to: **17 August 2024**

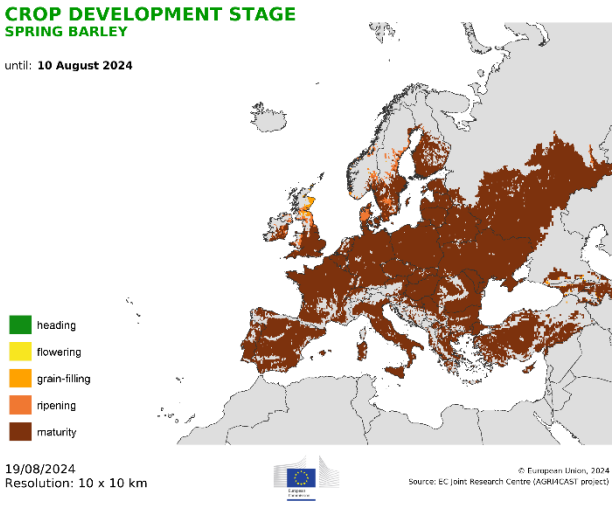
Deviation:
Year of interest - LTA
Maximum temperature (°C) >= 30

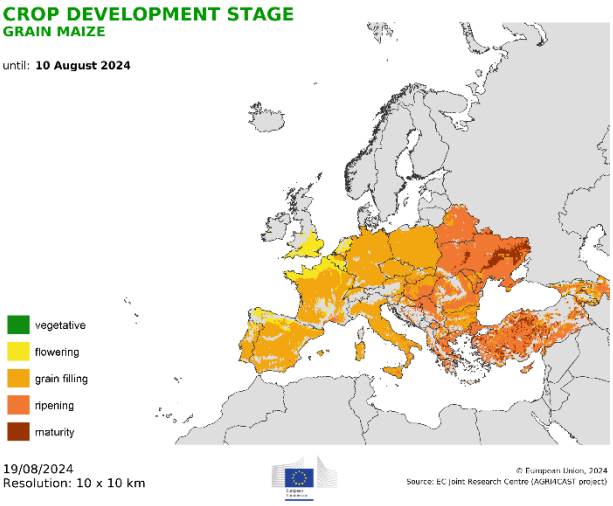


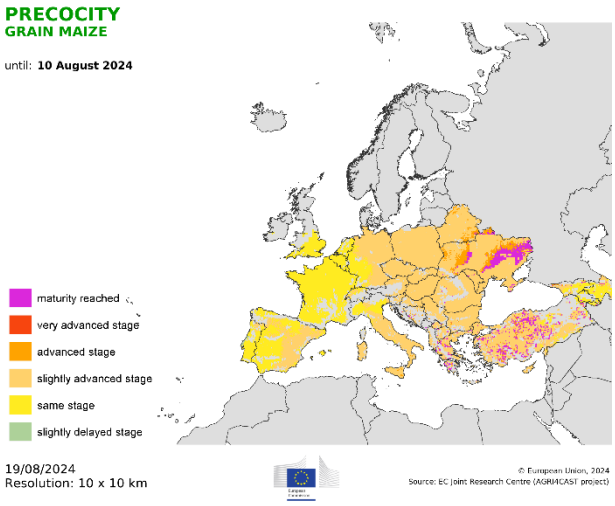
19/08/2024
Resolution: 10 x 10 km

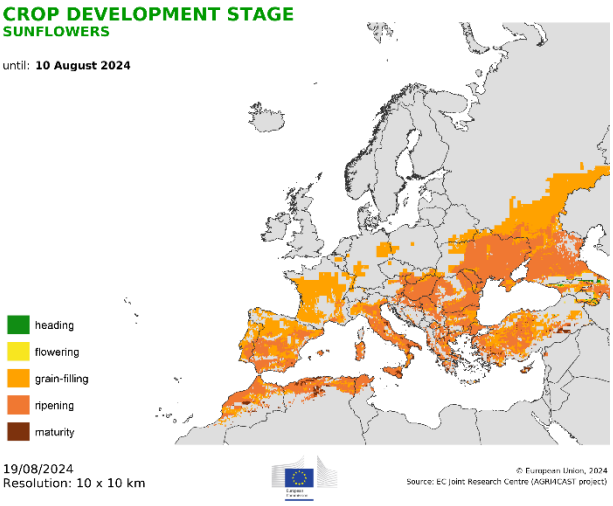
Crop development stages and precocity

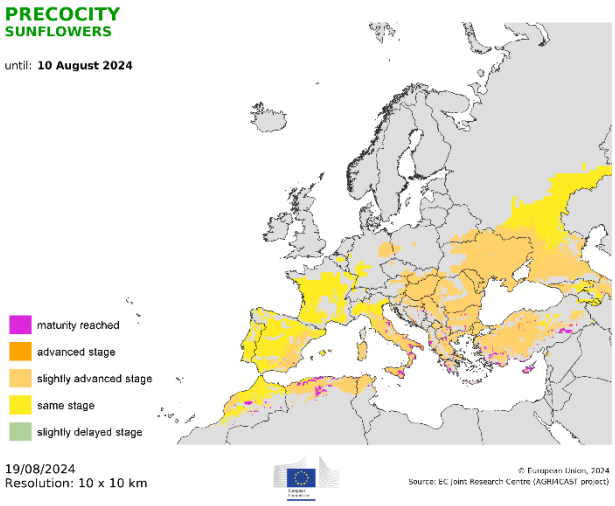




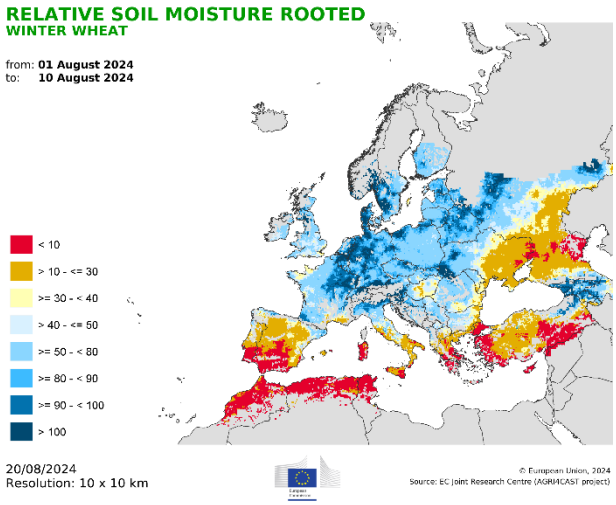


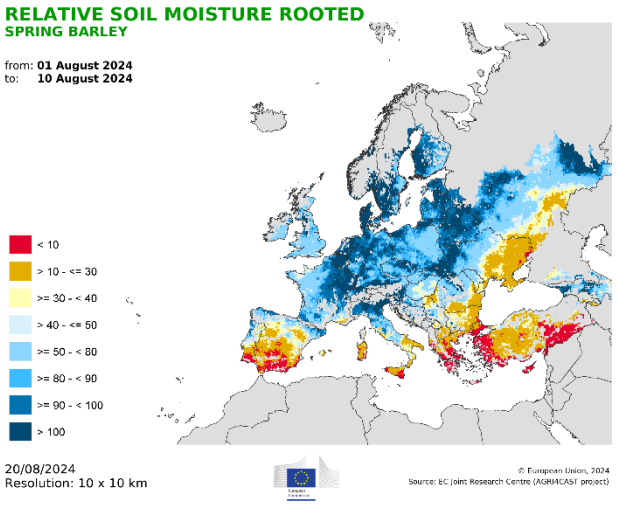


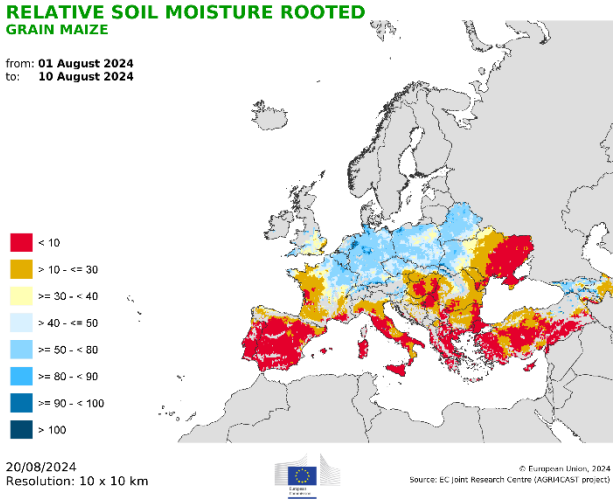


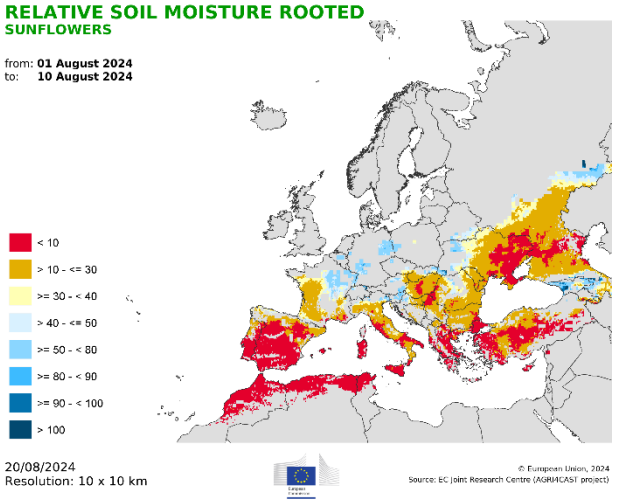


Relative soil moisture

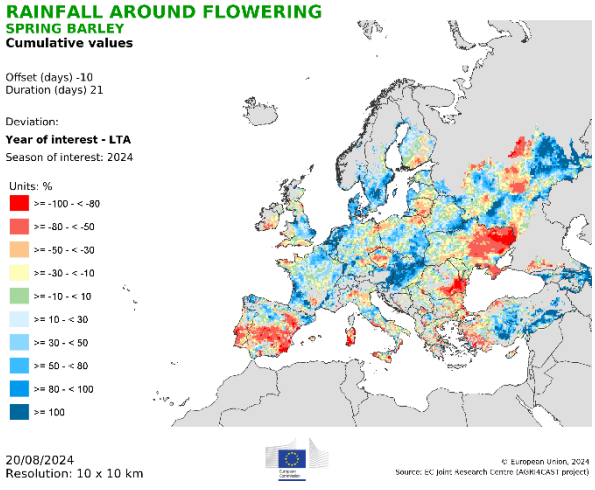


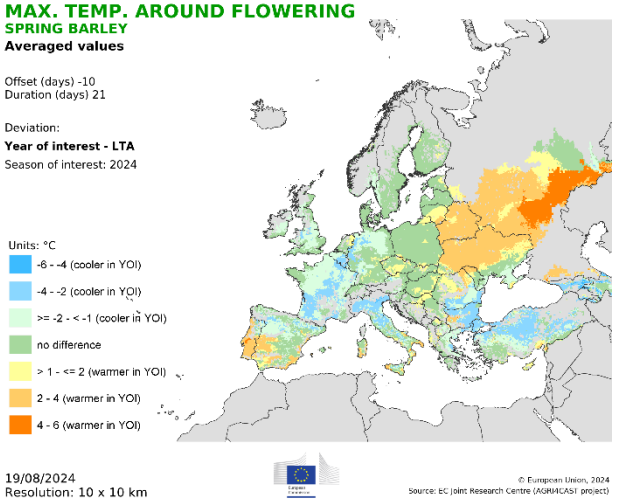






Precipitation and temperature anomalies around flowering and ripening



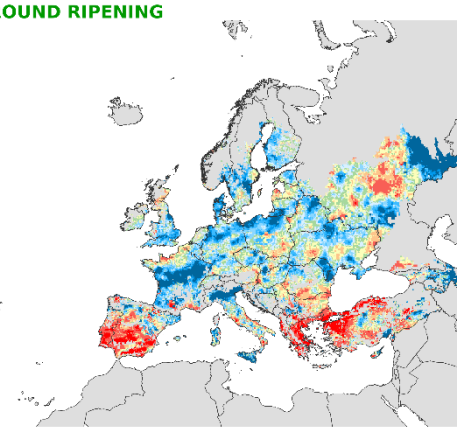


RAINFALL AROUND RIPENING
SPRING BARLEY
Cumulative values

Offset (days) -10
Duration (days) 21

Deviation:
Year of interest - LTA
Season of interest: 2024

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



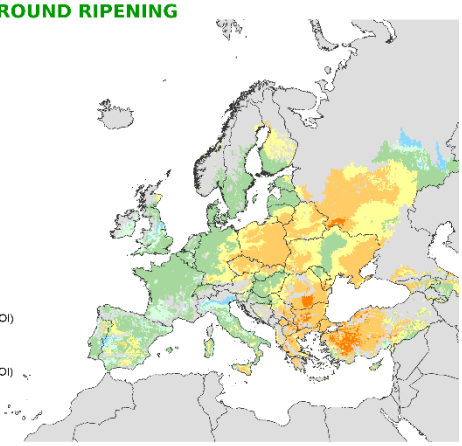
20/08/2024
Resolution: 10 x 10 km

MAX. TEMP. AROUND RIPENING
SPRING BARLEY
Averaged values

Offset (days) -10
Duration (days) 21

Deviation:
Year of interest - LTA
Season of interest: 2024

Units: °C
- -4 - -2 (cooler in YOI)
- >= -2 - < -1 (cooler in YOI)
- no difference
- > 1 - <= 2 (warmer in YOI)
- 2 - 4 (warmer in YOI)
- 4 - 6 (warmer in YOI)



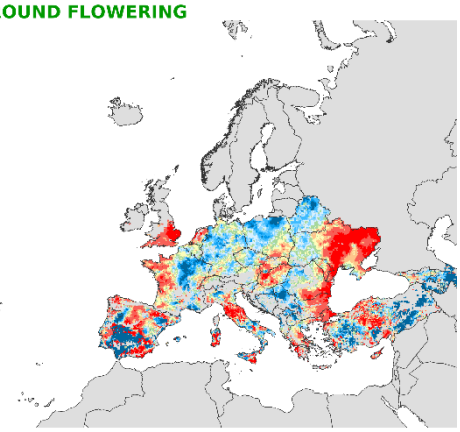
19/08/2024
Resolution: 10 x 10 km

RAINFALL AROUND FLOWERING
GRAIN MAIZE
Cumulative values

Offset (days) -10
Duration (days) 21

Deviation:
Year of interest - LTA
Season of interest: 2024

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



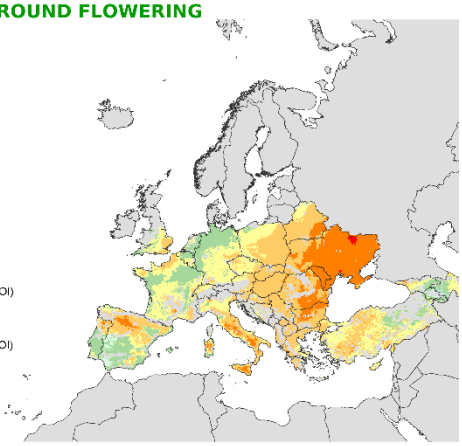
20/08/2024
Resolution: 10 x 10 km

MAX. TEMP. AROUND FLOWERING
GRAIN MAIZE
Averaged values

Offset (days) -10
Duration (days) 21

Deviation:
Year of interest - LTA
Season of interest: 2024

Units: °C
- -4 - -2 (cooler in YOI)
- >= -2 - < -1 (cooler in YOI)
- no difference
- > 1 - <= 2 (warmer in YOI)
- 2 - 4 (warmer in YOI)
- 4 - 6 (warmer in YOI)
- 6 - 8 (warmer in YOI)



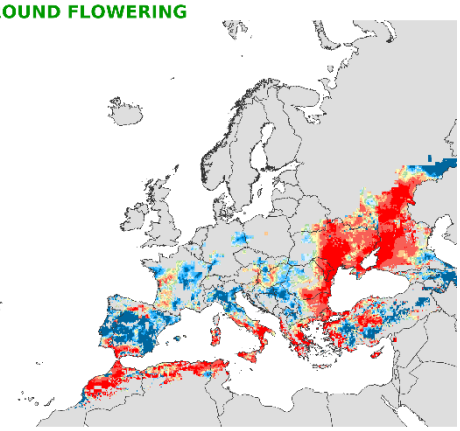
19/08/2024
Resolution: 10 x 10 km

RAINFALL AROUND FLOWERING
SUNFLOWERS
Cumulative values

Offset (days) -10
Duration (days) 21

Deviation:
Year of interest - LTA
Season of interest: 2024

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



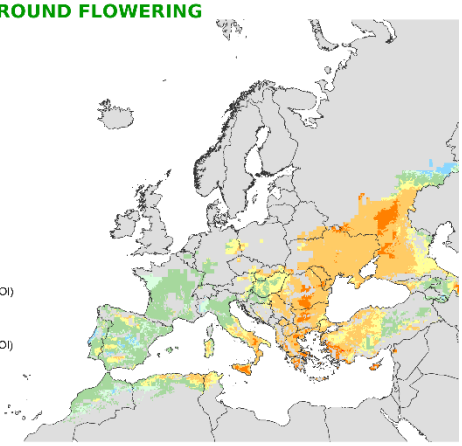
20/08/2024
Resolution: 10 x 10 km

MAX. TEMP. AROUND FLOWERING
SUNFLOWERS
Averaged values

Offset (days) -10
Duration (days) 21

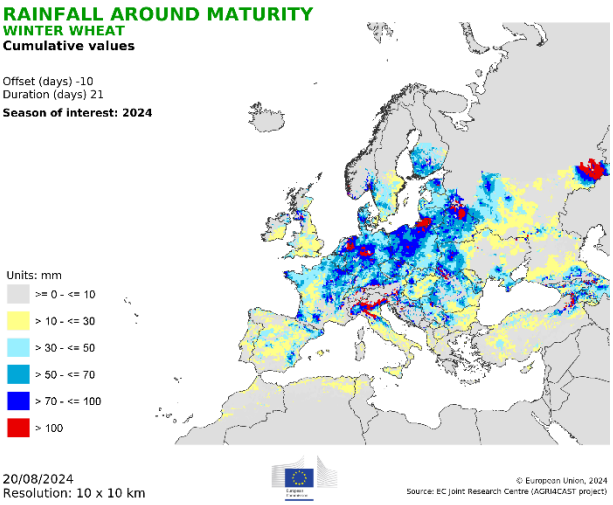
Deviation:
Year of interest - LTA
Season of interest: 2024

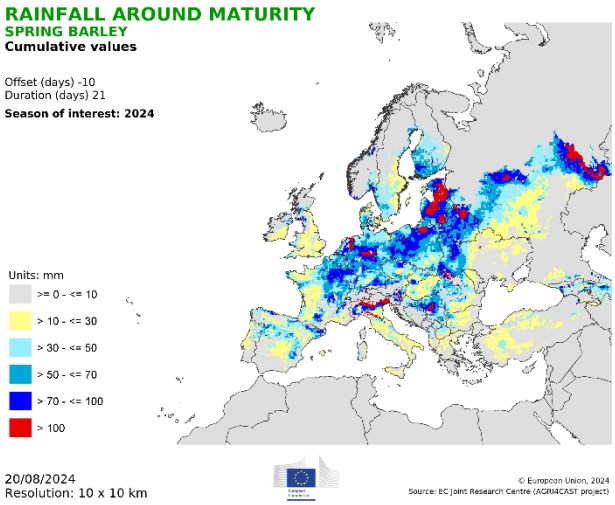
Units: °C
- -4 - -2 (cooler in YOI)
- >= -2 - < -1 (cooler in YOI)
- no difference
- > 1 - <= 2 (warmer in YOI)
- 2 - 4 (warmer in YOI)
- 4 - 6 (warmer in YOI)
- 6 - 8 (warmer in YOI)

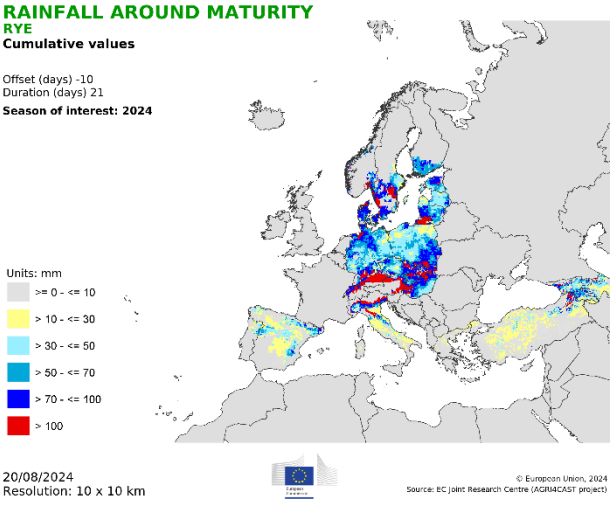


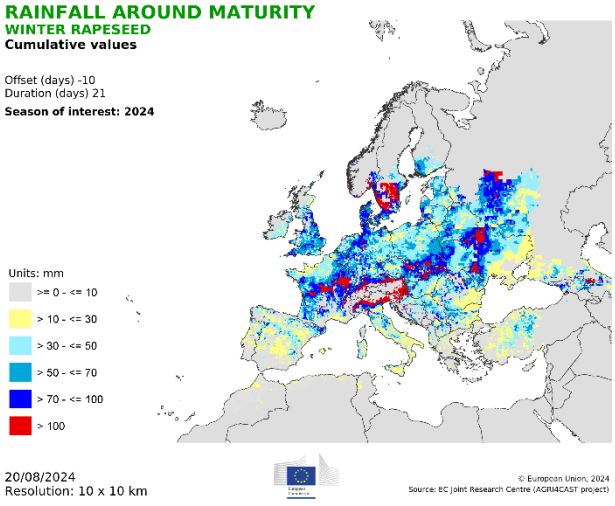
19/08/2024
Resolution: 10 x 10 km

Precipitation around harvesting









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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