MED-Amin
2022 Pilot cereal monitoring

3rd pre-screening meeting

Situation at: 31 May 2022

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Lorenzo Panarello

2022-06-09

TECHNICAL NOTES:

- Revised period: **from 01 May to 31 May**, mainly accounting for winter crops flowering, grain filling and maturity (+/- *depending on the agronomic window of each country*).
- RS biomass indicators are derived from MODIS (Moderate Resolution Imaging Spectroradiometer) **NDVI (Normalized Difference Vegetation Index)**.
- RS graphs are centered to the entire growing window: from beginning of October to the end of June. Time series are compared to the MTA (2012-2021).
- **NEW!** → implementation of crop group-specific masks to the only EU-27 countries. This allow a better unmix of RS winter crops time signals.

NDVI relative anomalies for MED-Amin countries

Considered period:
01 May 2022 - 31 May 2022 / Medium Term Average (MTA / 2012-2021)

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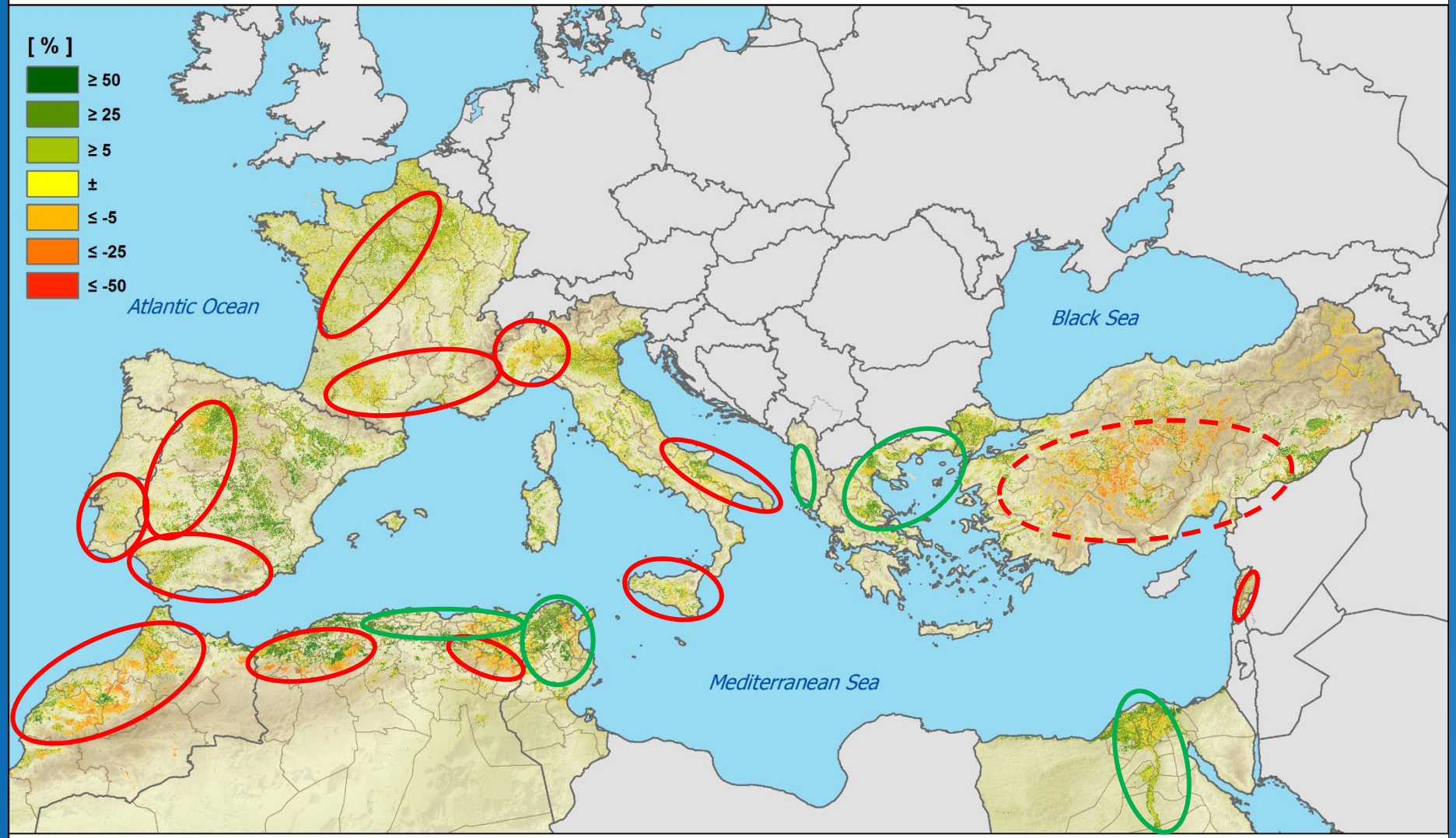


Data source: MARS remote sensing database / fAPAR - METOP product
Mask: arable land based on Globeland30, GeoNetwork (Pérez-Hoyos, et al. 2017)

The map displays - for arable land - the relative differences between the Normalized Difference Vegetation Index (NDVI) computed from remote sensing imagery between 1 May 2022 and 31 May 2022, and the medium-term average (MTA, 2012-2021) for the same period. Positive anomalies (in green) reflect above-average canopy density or early crop development while negative anomalies (in red) reflect below-average canopy density or late crop development.

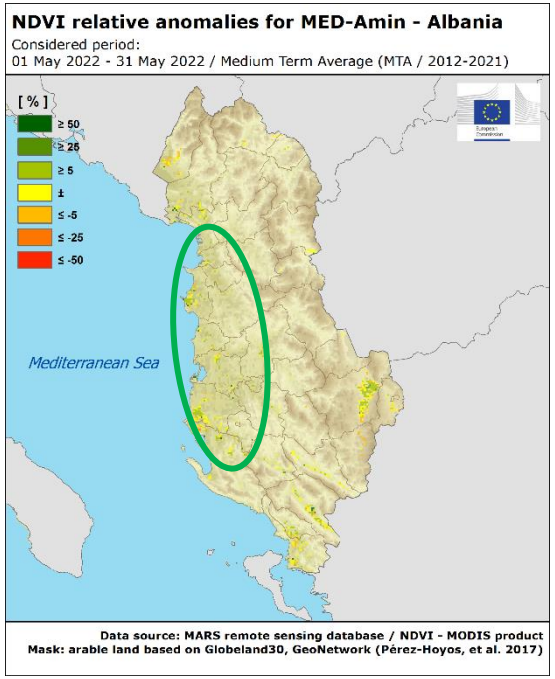
European Commission

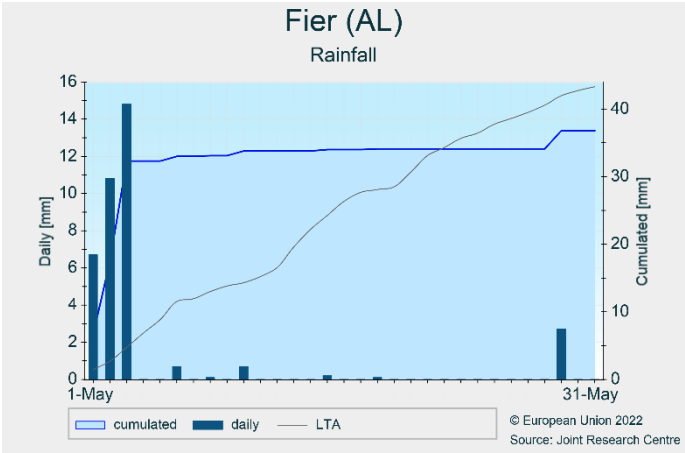
Albania

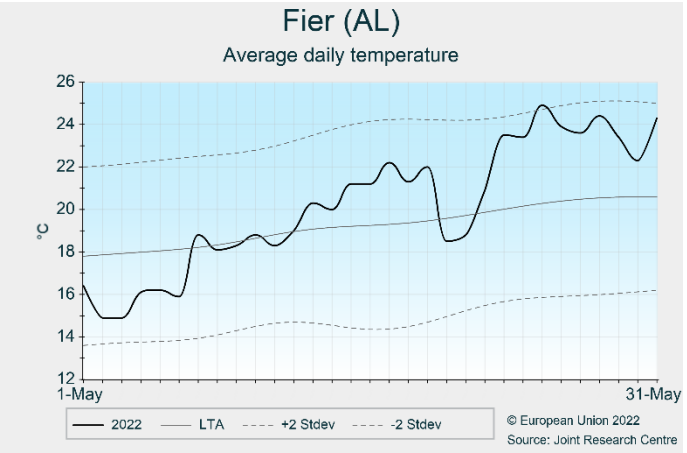
In May. rainfall cumulates were in line with the LTA and daily temperature gradually moved from in-line-with to above the average reference.

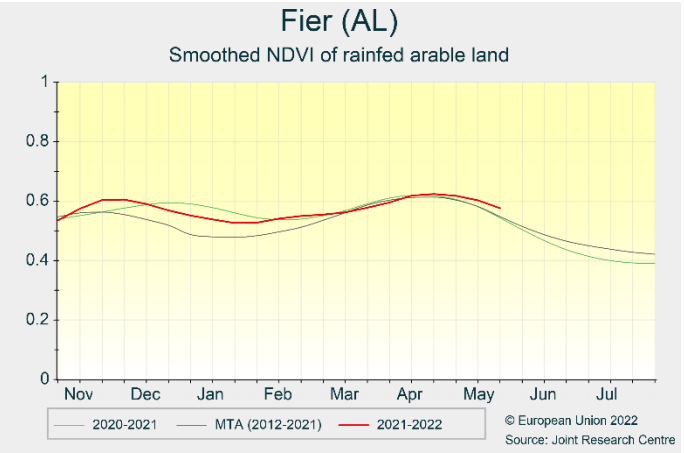
In *Korce, Fier, Berat* and *Elbasan* crops were well supported by the agro-meteorological condition and performed moderately above-average during all the flowering and grain filling period. At mid-June crops will likely enter the harvesting phase.

In **Tirane**, after a crop growth delay, crop biomass recovered in April and performed in line with an average season during May. To be confirmed in next weeks.



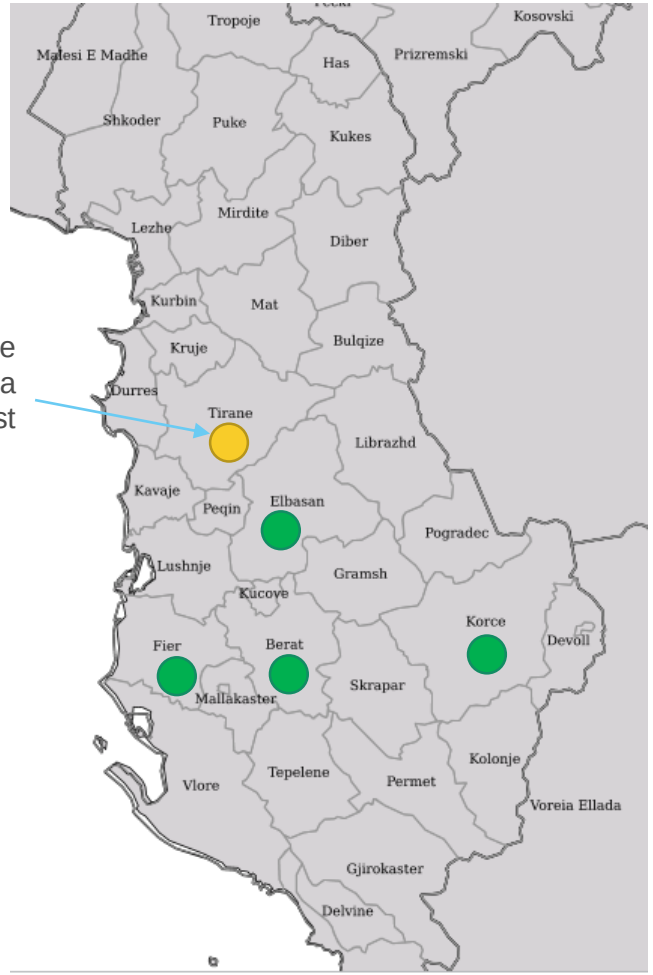






Albania → Proposed labels

In-line-with an average season, but after a crop delay of almost 20 days



- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

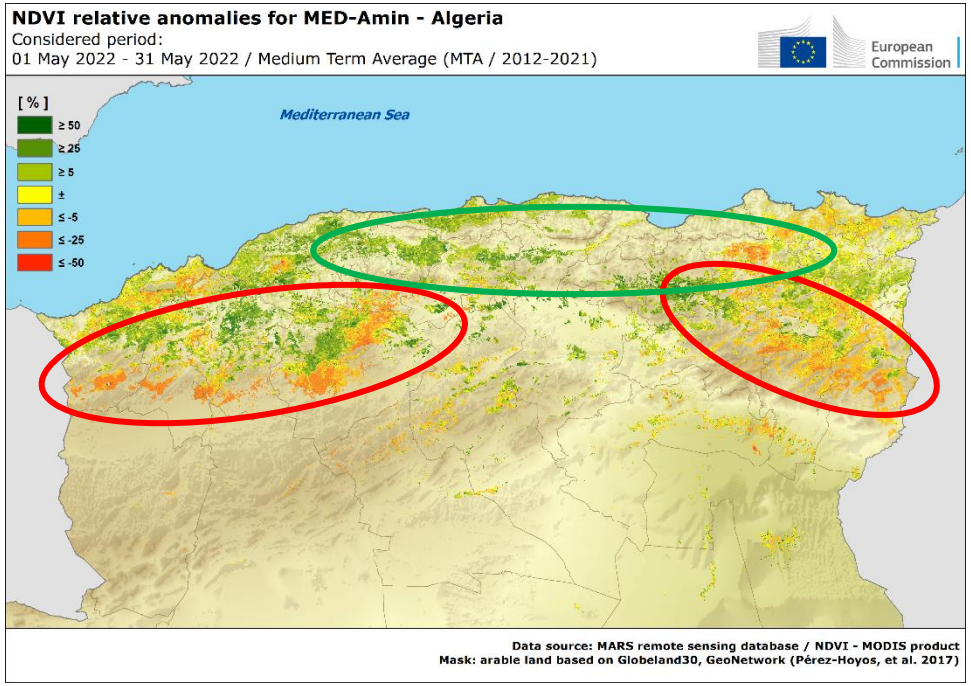
Algeria

The weather in May was characterized by scarce rainfall events, leading to below-average rain cumulates and by moderately above-average daily temperatures.

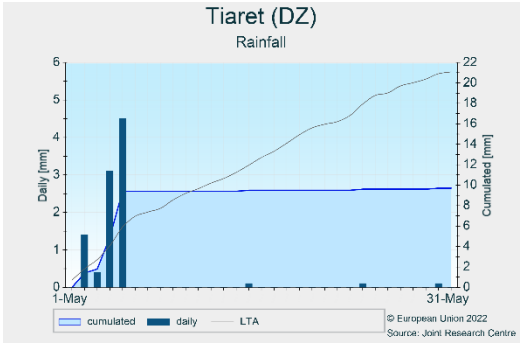
Winter crops in central and eastern Algeria had a sharp recover thanks to positive rainfalls in March and April, while remained hampered by the seasonal drought to the West.

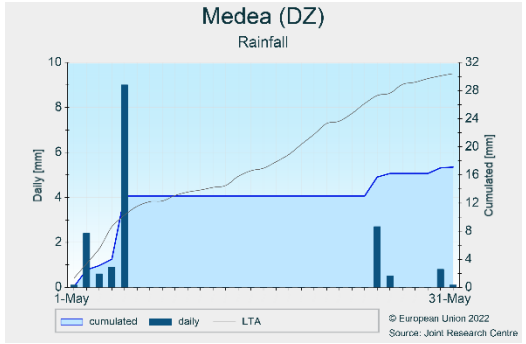
Analyses of remote sensing indicators confirmed a general delay in crop development and below-average crop biomass accumulation in most of the main western cereal-growing regions. Concerning phenological development, cereals in Algeria are now in advanced maturity stages; the harvesting period is about to begin.

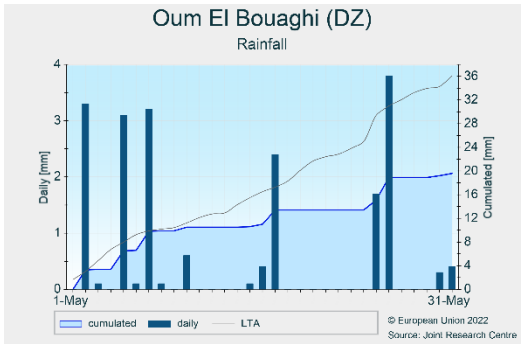
Expectations for the final production of winter cereals are lower than the last 5-year average. The outlook for soft wheat and barley is slightly worse than those for durum wheat, in reason of the higher share of soft wheat and barley cultivated to the western wilayas.

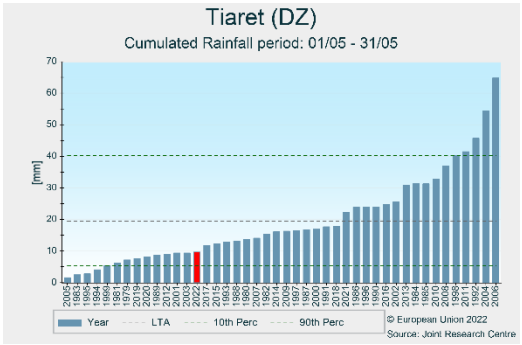


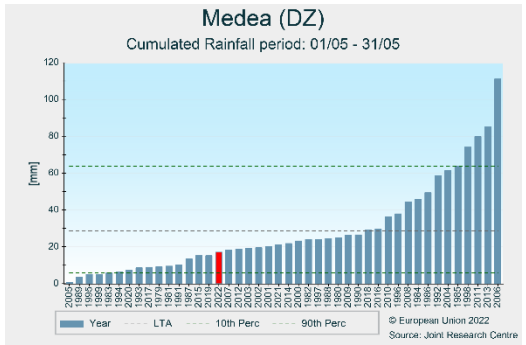
Algeria

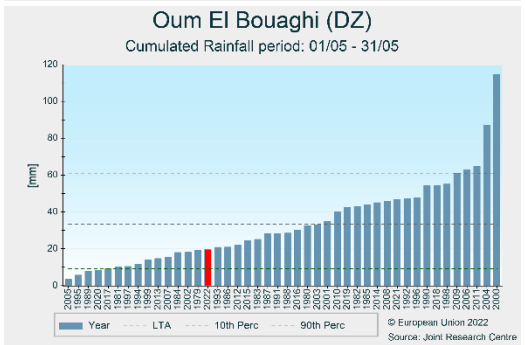


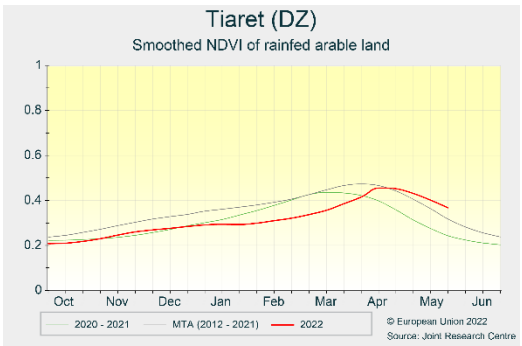


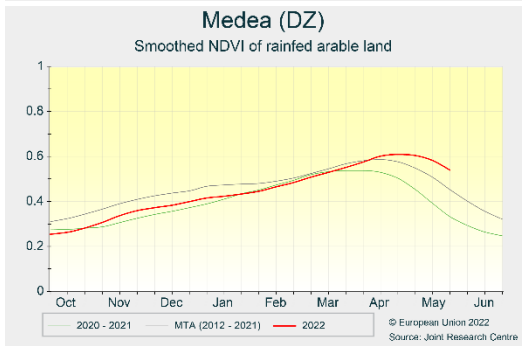


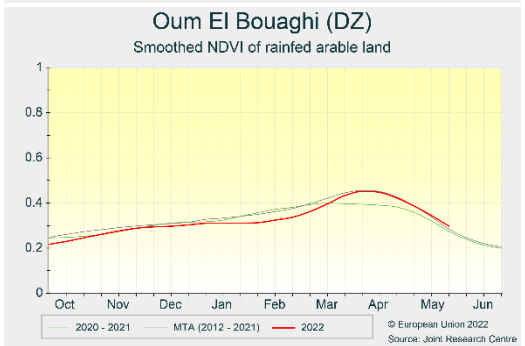






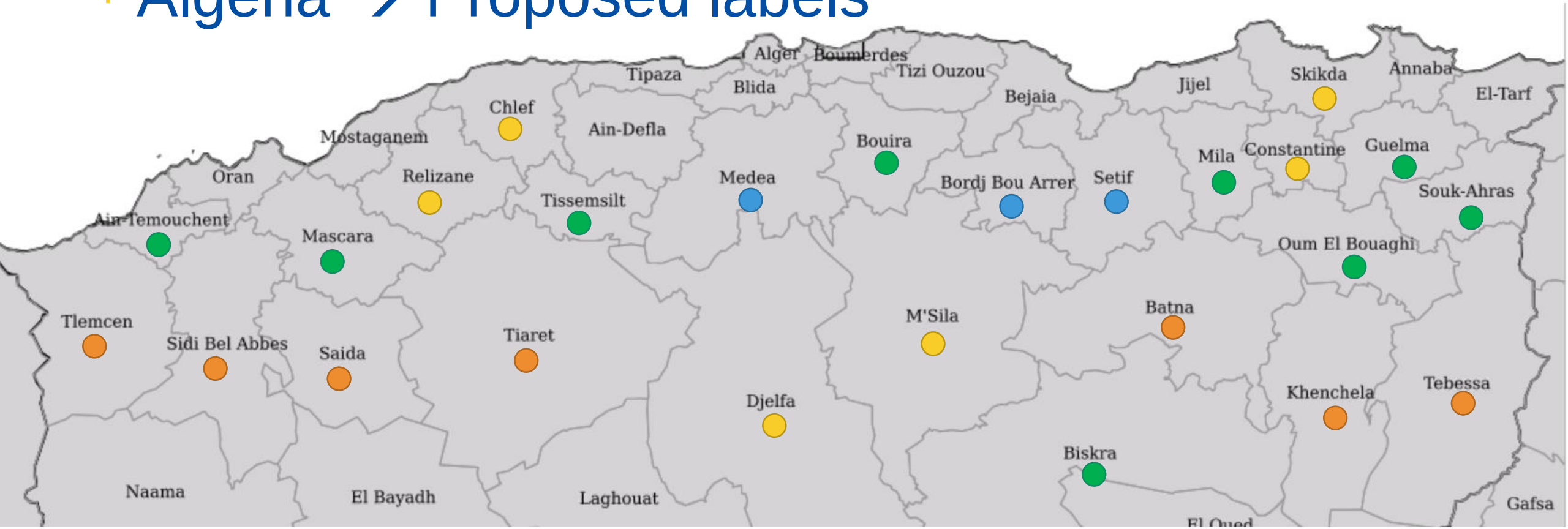






(West) ← → *(East)*

Algeria → Proposed labels



- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

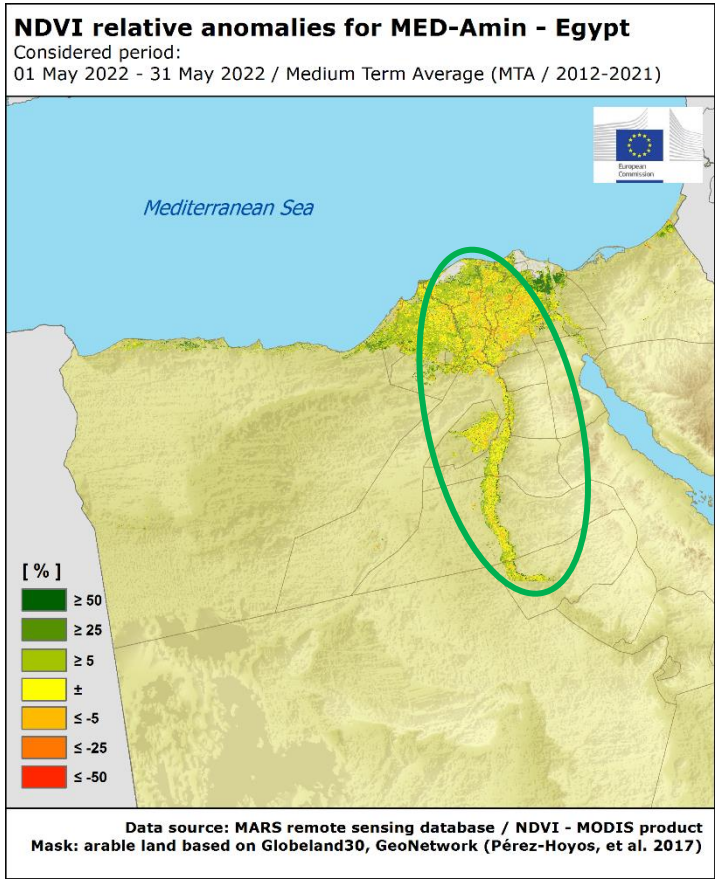
Egypt

Shrkia (SW), Menia (DW):

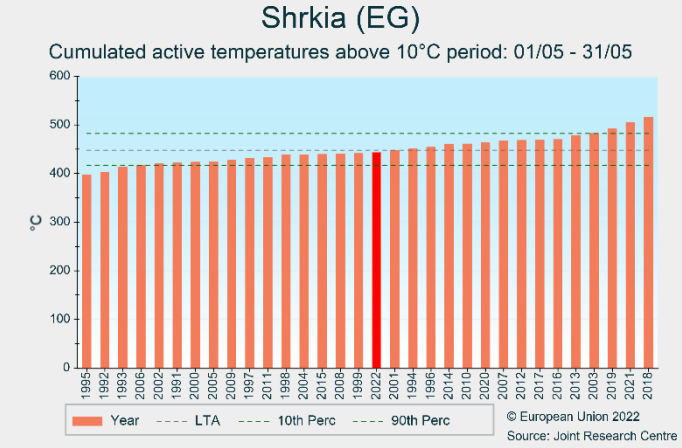
Overall, the situation has unchanged compared to the previous outlook.

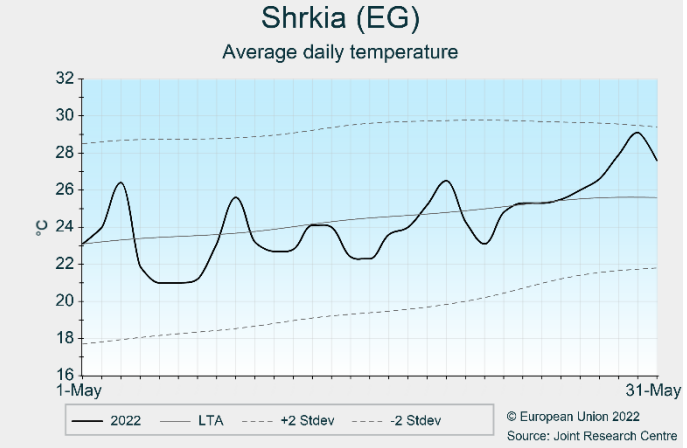
Daily temperature in May was around-average, as well as thermal sums (Tbase 0 °C).

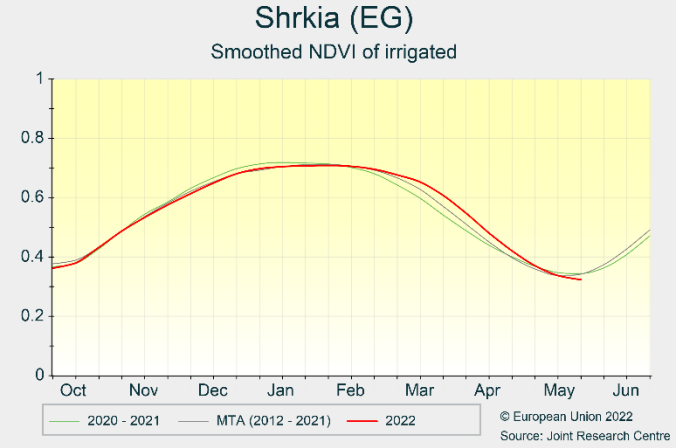
Satellite imagery shows moderately above-average conditions for cereals, which indicates that there was sufficient water supply from irrigation to support adequate crop growth during the grain filling stages.

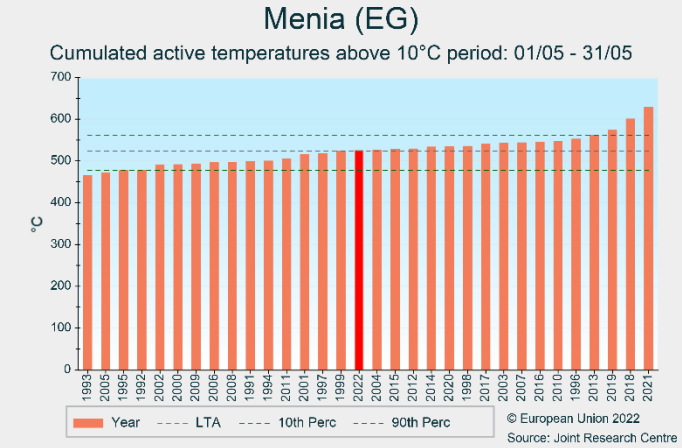


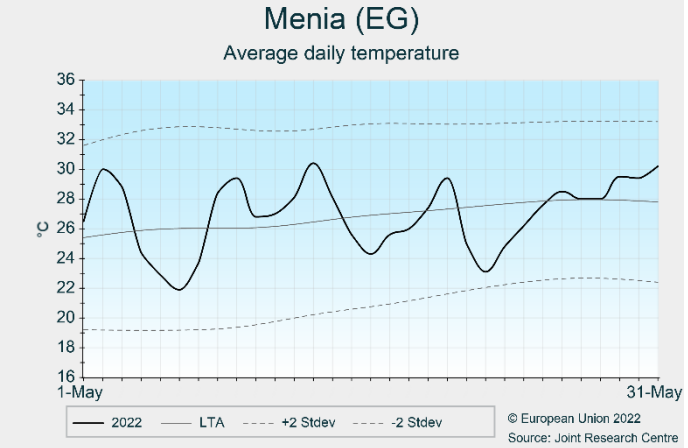
Egypt

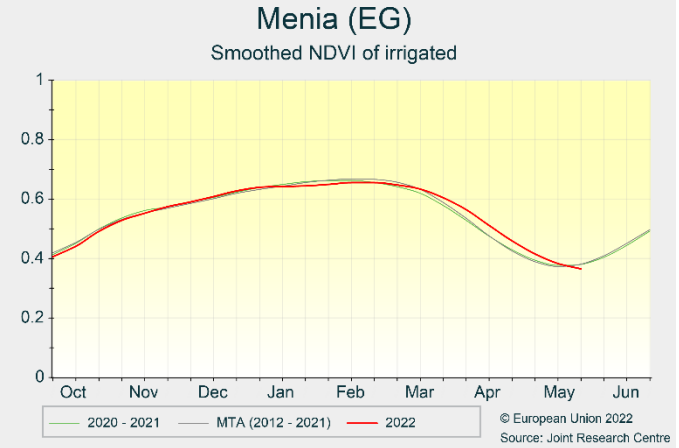












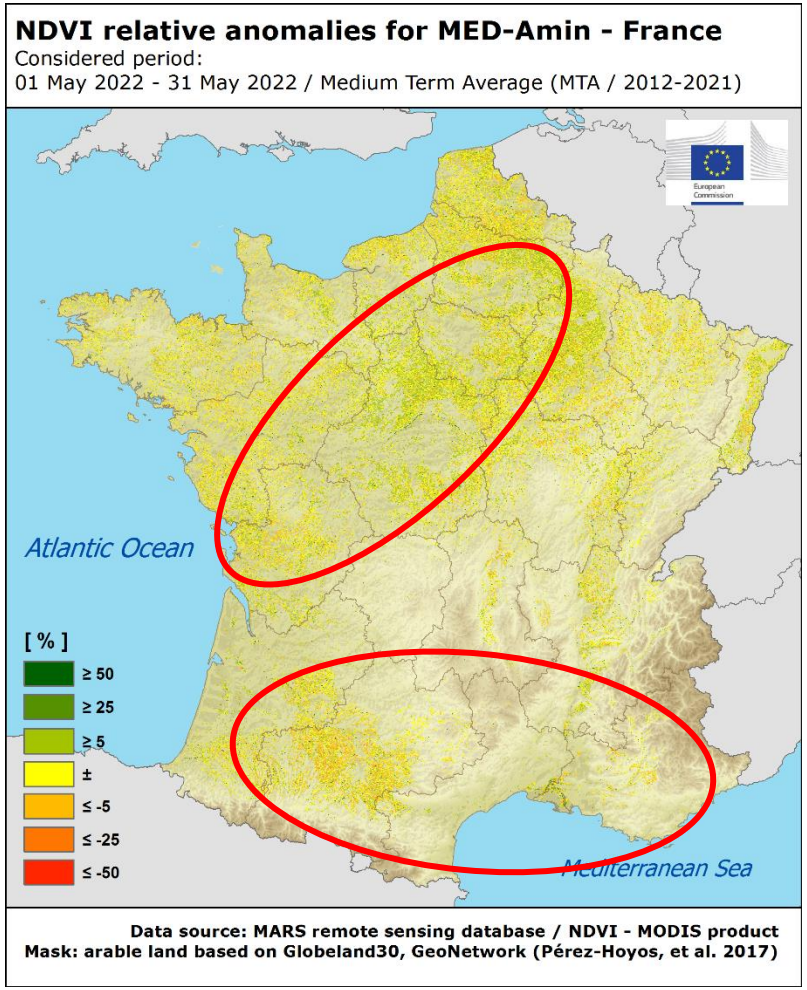
(Sharkia: 14% SW nat. prod. 9% BR nat. prod.) - (Menia: 43% DW nat. prod.)

France

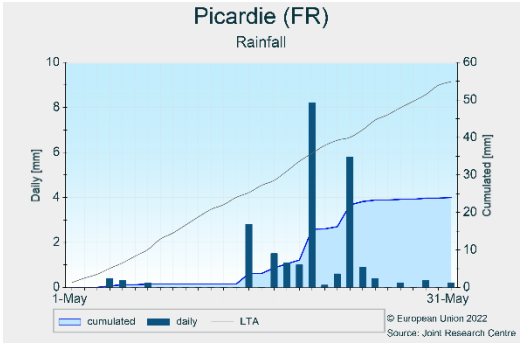
Dry and hot conditions decreased cereals' outlook

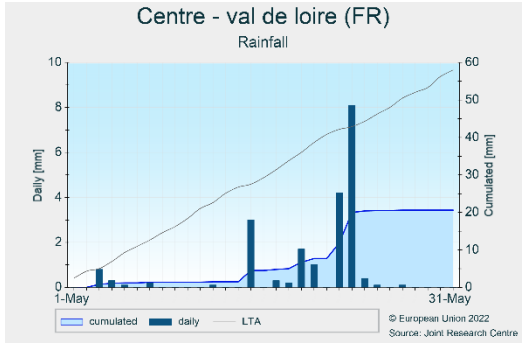
The review period was marked by dry conditions, which started to affect winter cereals during flowering stage. *Poitou-Charentes* and *Centre-Val-de-Loire* are among the most affected regions.

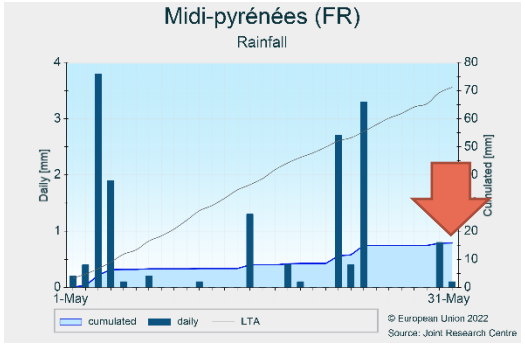
Above LTA-maximum temperatures were also recorded in May. In southern regions (e.g. *Midi-Pyrénées*) in mid-May a drop in average daily temperature occurred right after a heatwave period. Again, this occurred during the flowering period and most likely hampered crops.

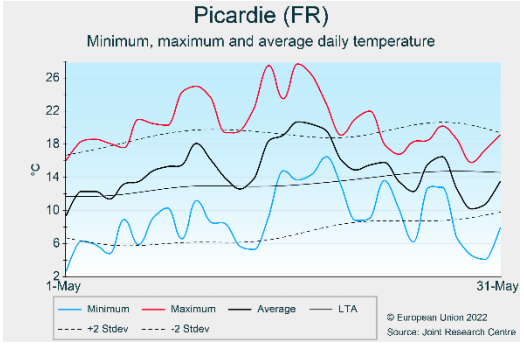


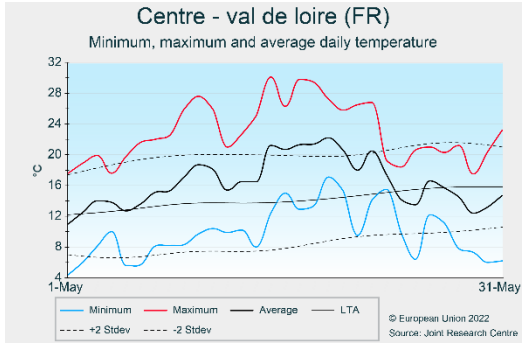
France

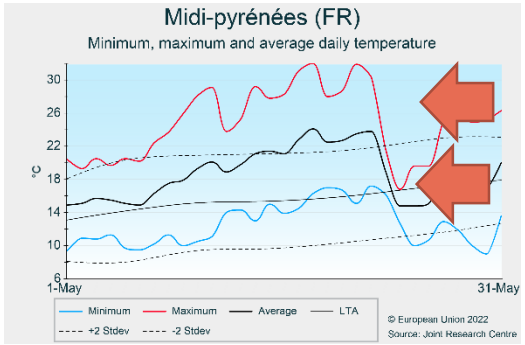

Picardie (FR)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre


Centre - val de loire (FR)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre


Midi-pyrénées (FR)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre


Picardie (FR)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Centre - val de loire (FR)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Midi-pyrénées (FR)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
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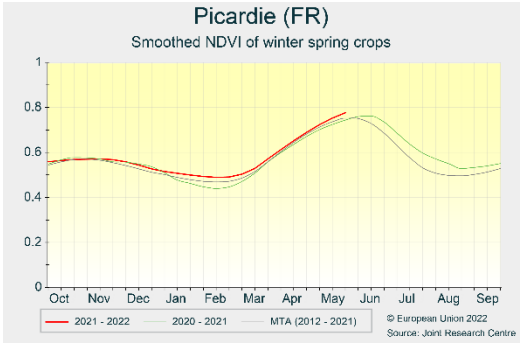
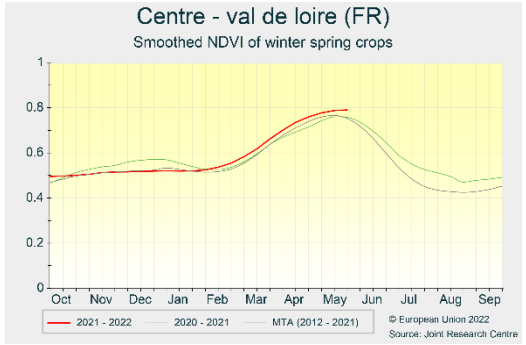
© European Union 2022
Source: Joint Research Centre


Picardie (FR)
Smoothed NDVI of winter spring crops
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
2021 - 2022
2020 - 2021
MTA (2012 - 2021)
© European Union 2022
Source: Joint Research Centre


Centre - val de loire (FR)
Smoothed NDVI of winter spring crops
Oct
Nov
Dec
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May
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Jul
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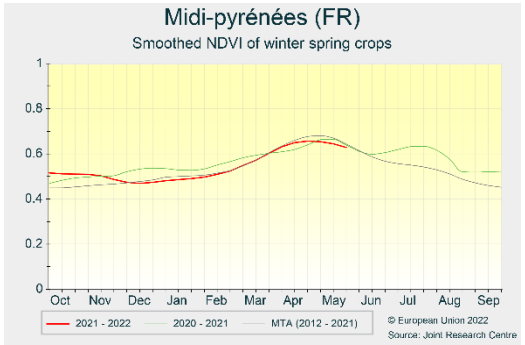
2021 - 2022
2020 - 2021
MTA (2012 - 2021)
© European Union 2022
Source: Joint Research Centre


Midi-pyrénées (FR)
Smoothed NDVI of winter spring crops
Oct
Nov
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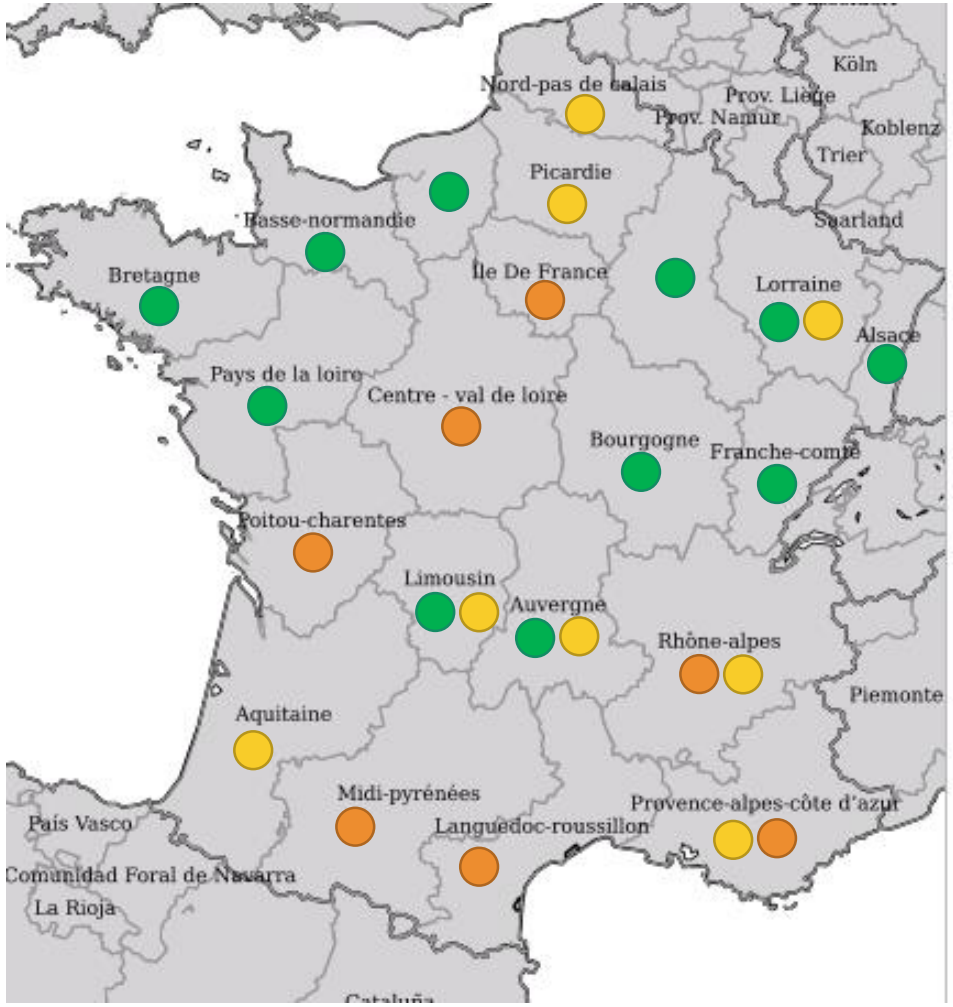
2021 - 2022
2020 - 2021
MTA (2012 - 2021)
© European Union 2022
Source: Joint Research Centre

France → Proposed labels

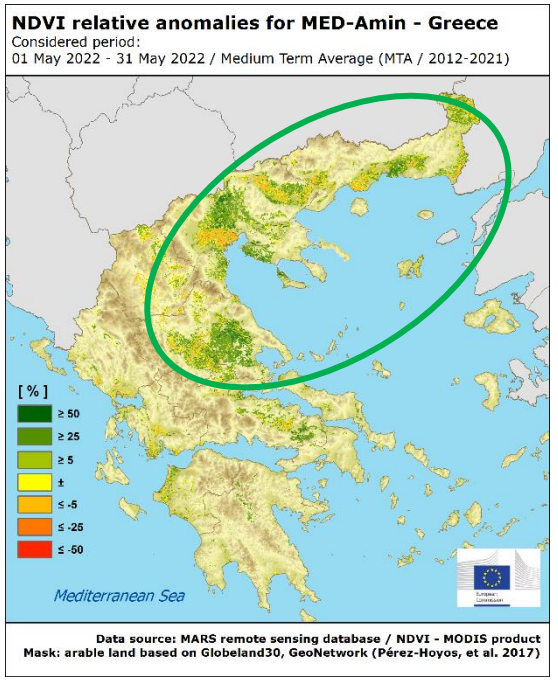


- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

<u>To david:</u> what about the last hailstorm event?

Greece

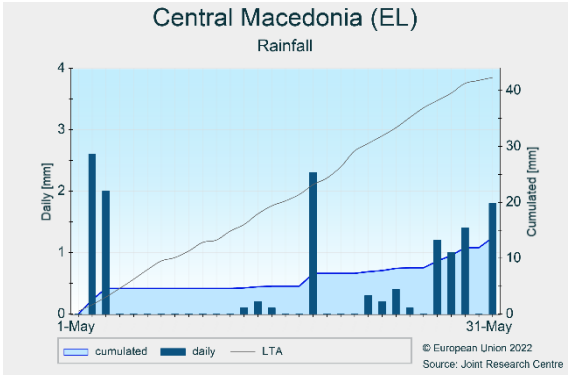
Central Macedonia, Eastern Macedonia and Thessaly

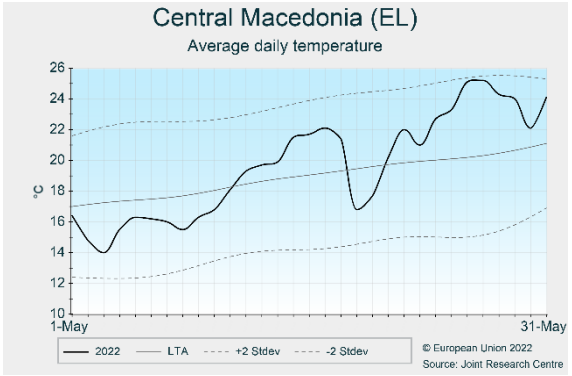


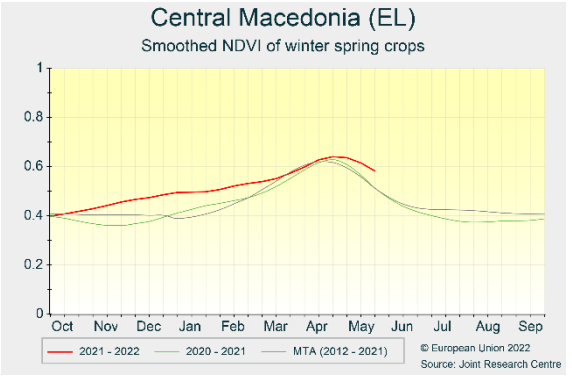
Dry and mild weather conditions took place during May. Daily temperatures gradually moved from below-average at beginning of May to above-average since May 10. Rainfall cumulates were from -14 mm (*Attica*) to -34 mm (*Western Macedonia*) below the LTA.

Despite below-average soil moisture conditions, winter crops in Greece benefitted from mild temperatures, together with prompt supplementary irrigations.

The analyses of remote sensing indicators suggest an overall above-average biomass formation together with localized spots of around-average biomass accumulation levels. Remote sensing profiles suggest also a delayed biomass formation, this is more pronounced in Western Macedonia (almost 20 days).





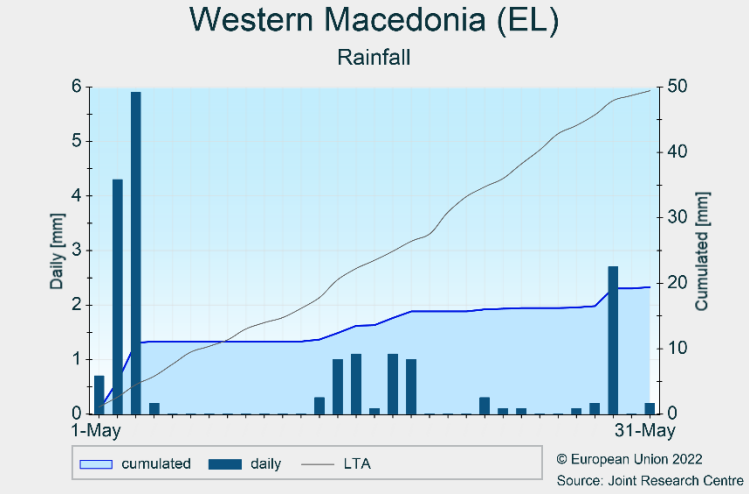


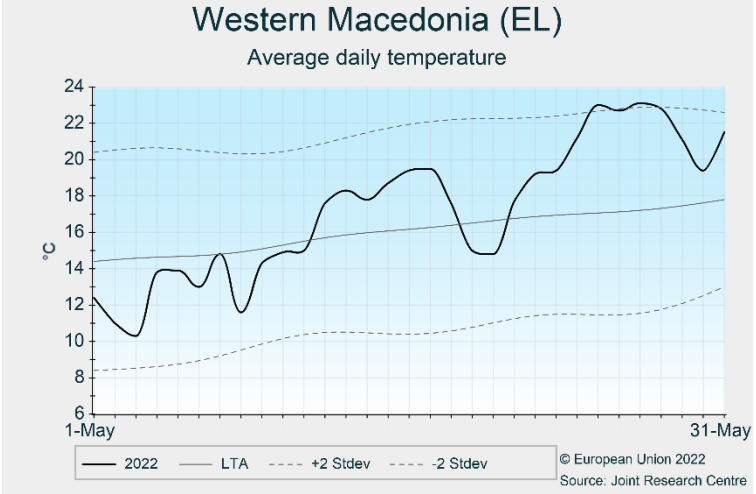
Greece

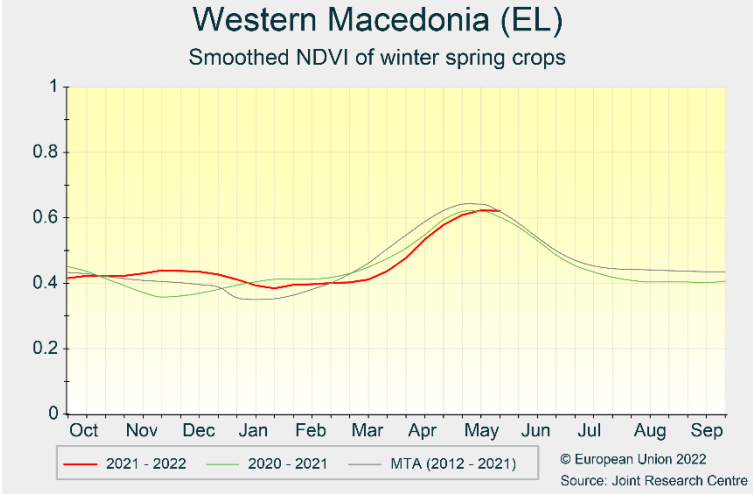
Western Macedonia

This is the region where crops are more in delay (nearly 20 days).

So far, crop biomass accumulation is from moderately-below the average.

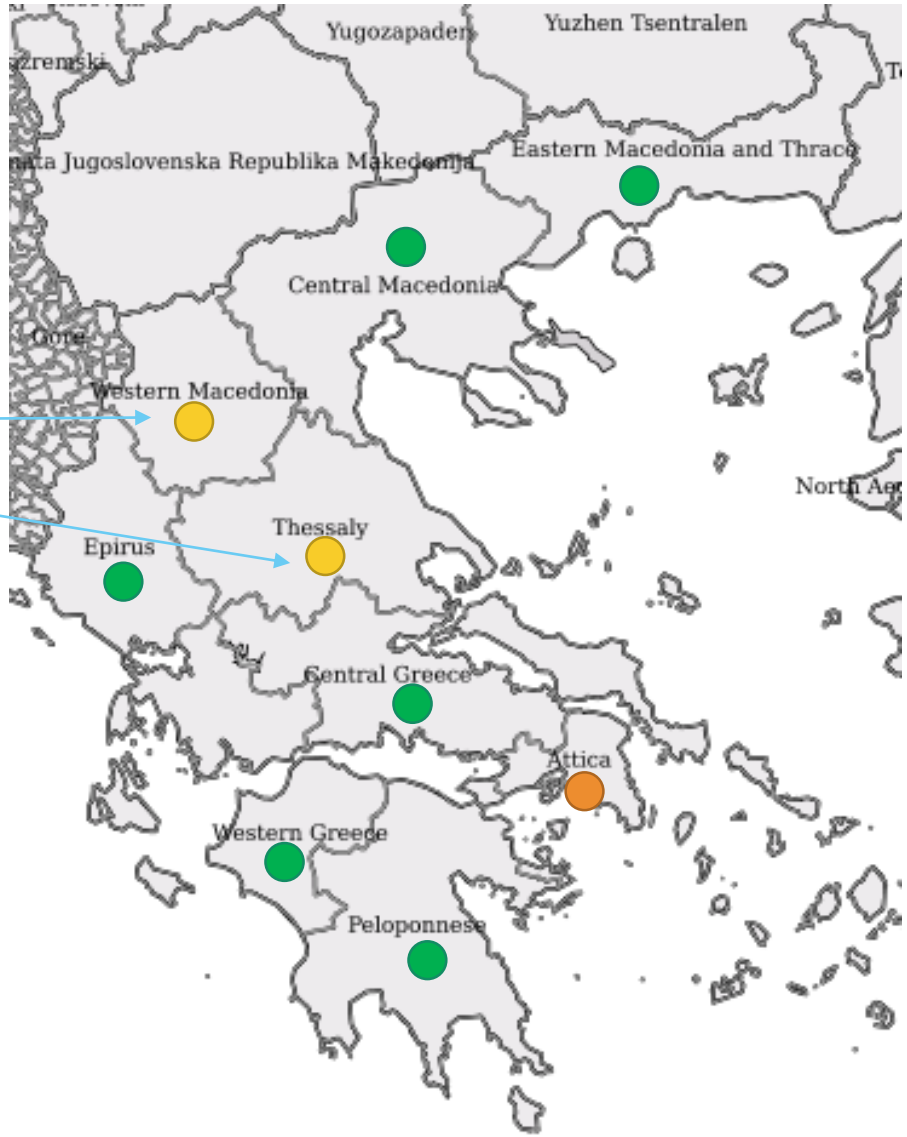






Greece → Proposed labels

I would say moderately-below average
'cause poor is not really appropiate here



- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

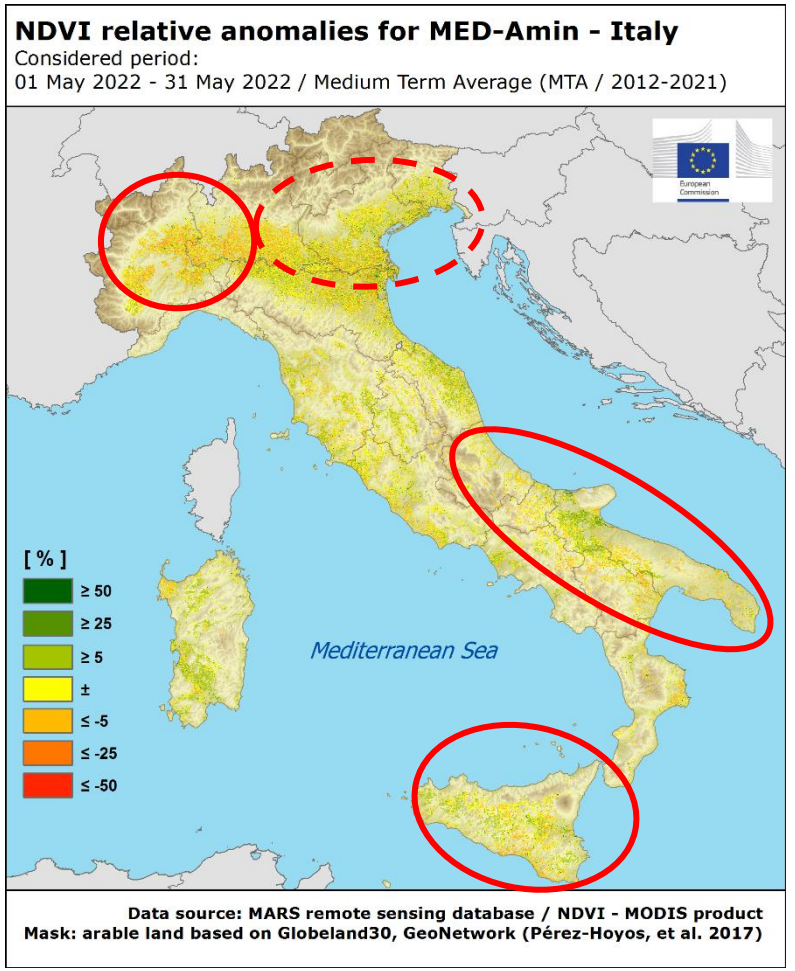
Italy

Northern and central Italian regions continued to suffer from drought conditions. Temperatures in March and April were predominantly cooler than usual.

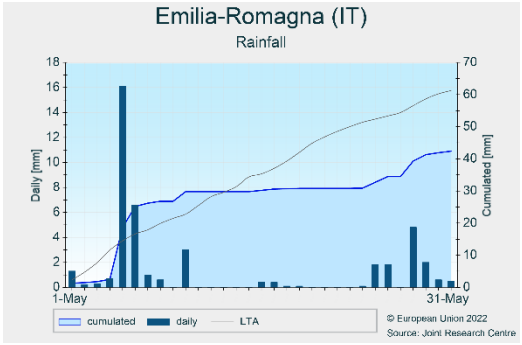
Northern Italy: winter crops worsened a bit in *Piemonte* and *Lombardia*, where precipitations were scarce. Some precipitation at the beginning of May arrived just before flowering and mitigated drought conditions in north-eastern Italy.

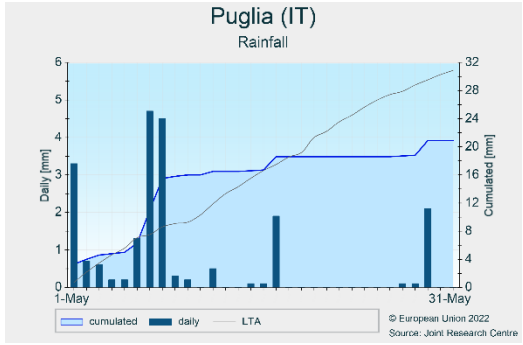
Central Italy: crop conditions improved in *Umbria, Emilia Romagna* and *Marche*

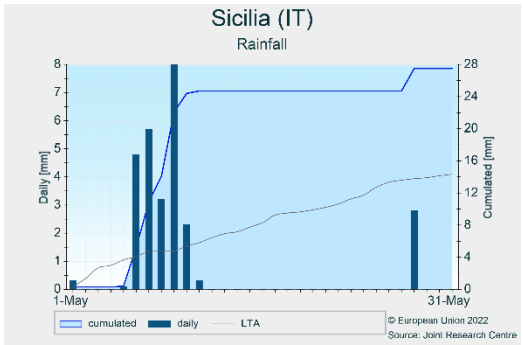
Southern Italy: below-average rainfalls accompanied winter crops during flowering. The rainfall deficit represents a moderate concern for crops in southern Italy (with the exception of *Sicilia*) since breeds are moderately tolerant to drought stress. However, crop biomass accumulation in May resulted below-average.

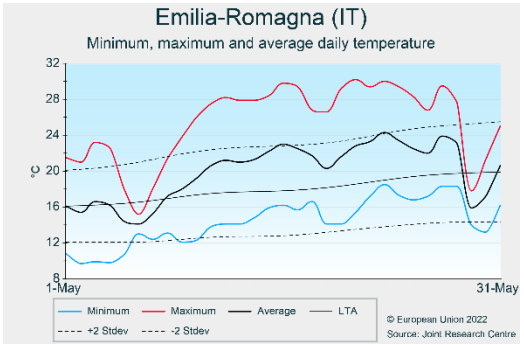


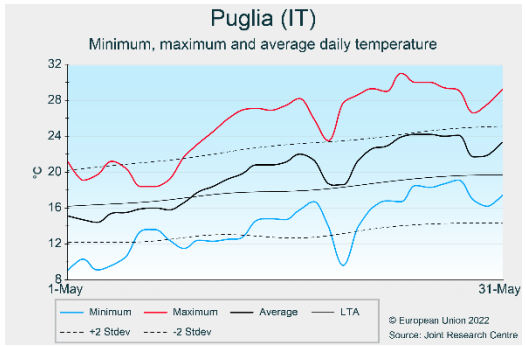
Italy

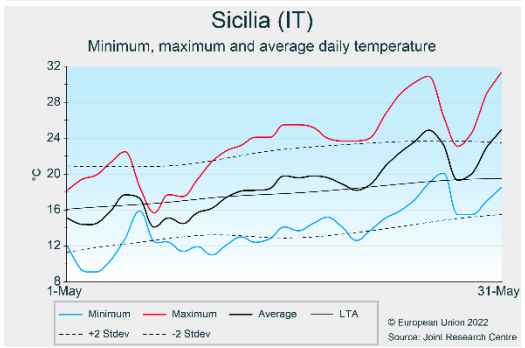

Emilia-Romagna (IT)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre

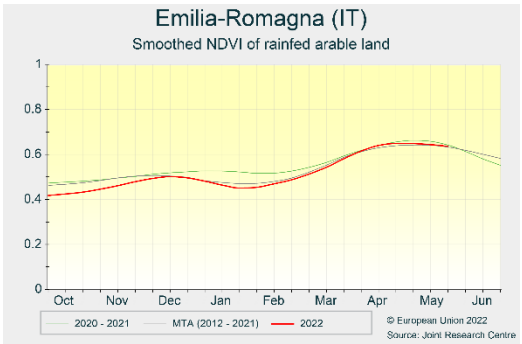

Puglia (IT)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre

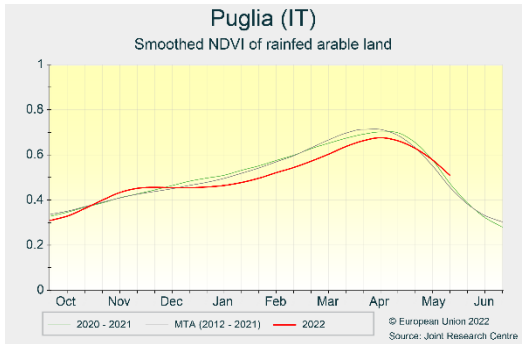

Sicilia (IT)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre

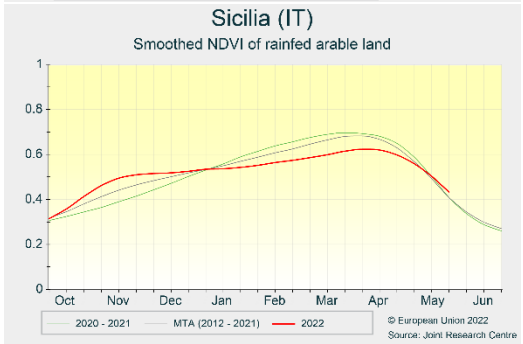

Emilia-Romagna (IT)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Puglia (IT)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre

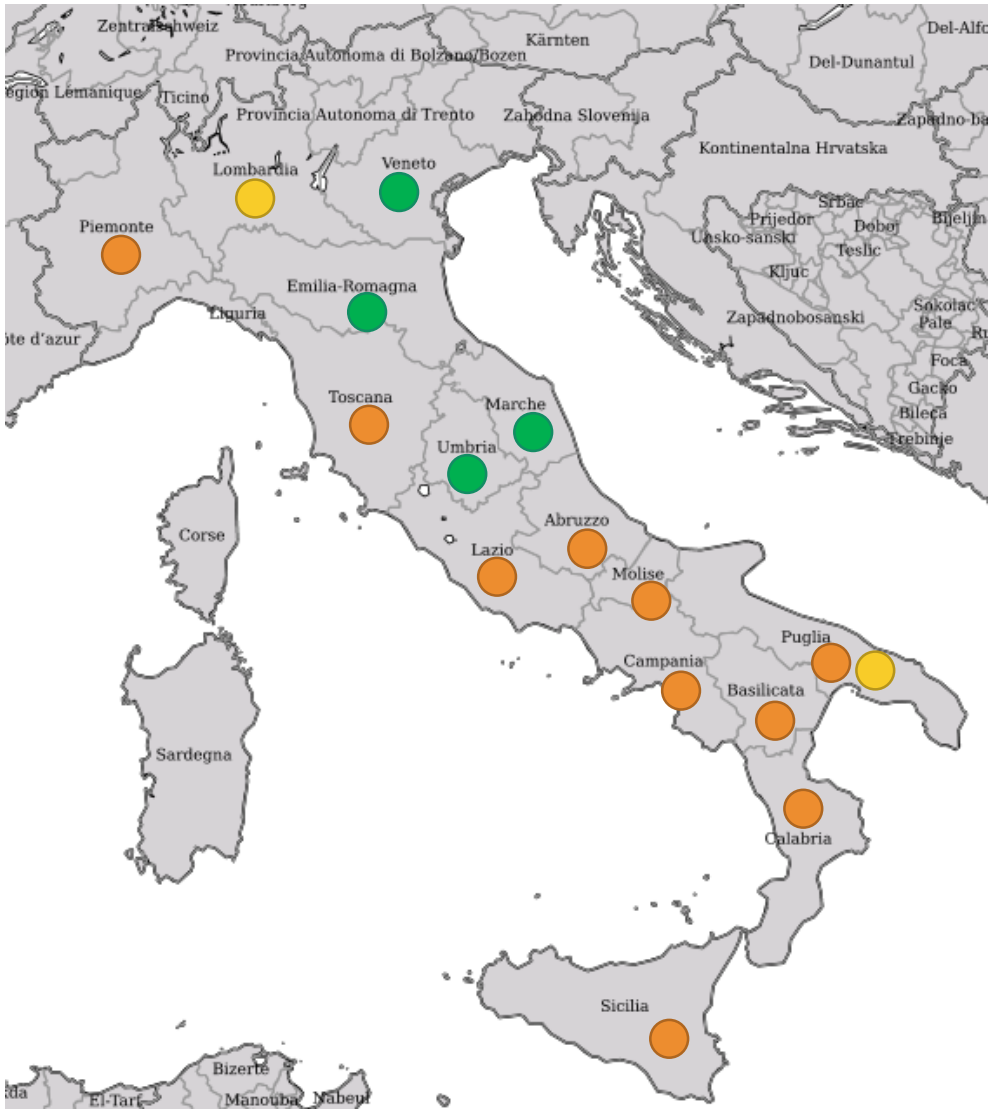

Sicilia (IT)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Emilia-Romagna (IT)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Puglia (IT)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Sicilia (IT)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre

Italy → Proposed labels



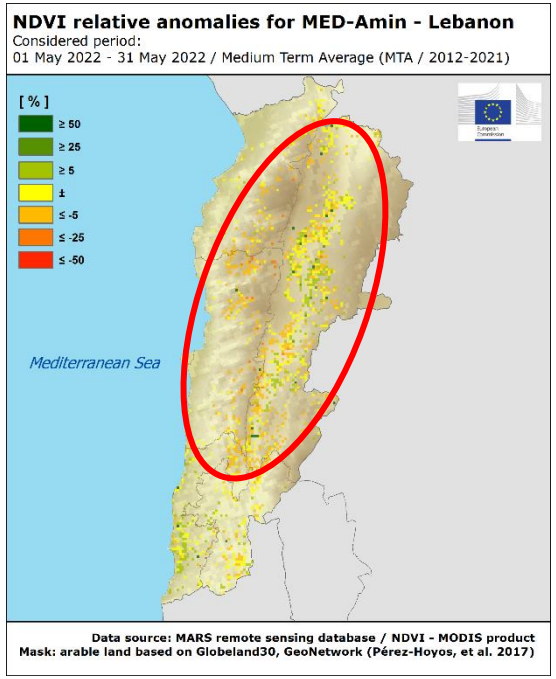
- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

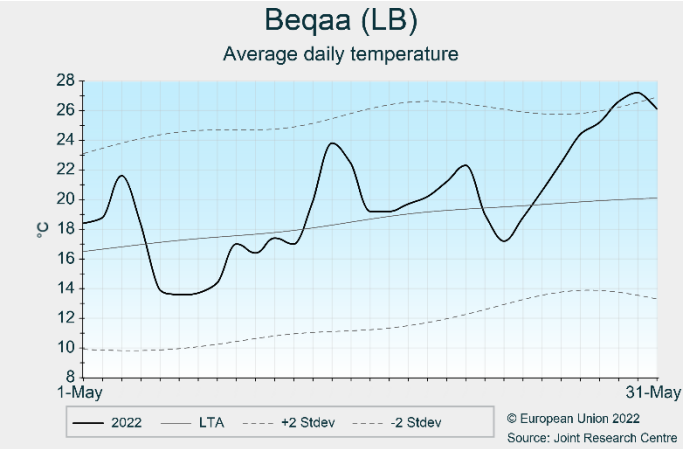
Lebanon

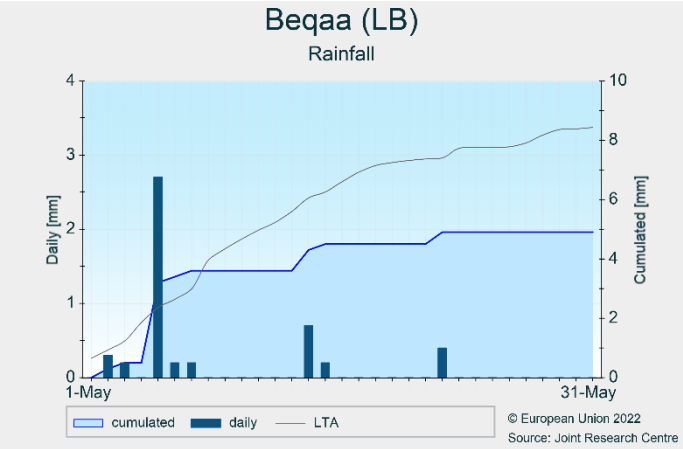
Daily temperature was around-average in May and rain cumulates were below-average, as usual during this part of the season.

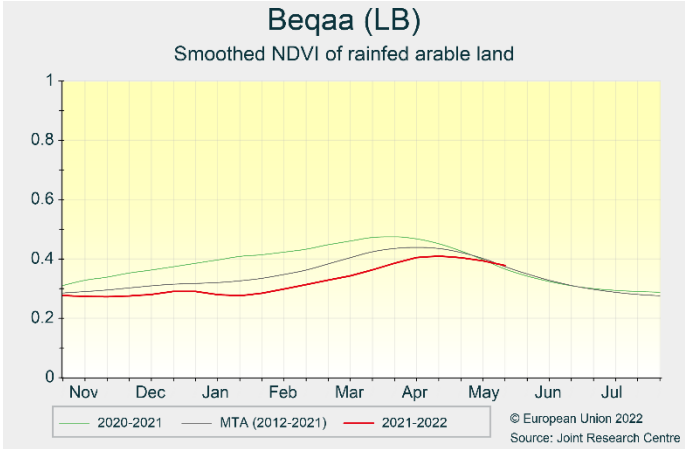
In *Beqaa*, *North Lebanon* and *Mont Liban* crop growth delayed since beginning-of-season. Flowering and grain filling took place under sub-optimal weather conditions and the resulting crop biomass accumulation was below-average.

In *South Lebanon* and *Nabatieh* the cereal campaign was in-line-with an average reason.



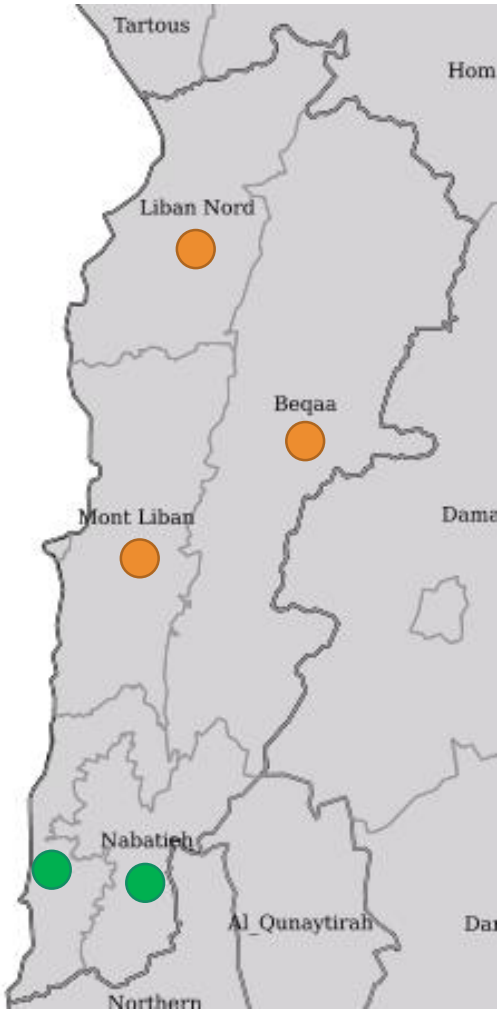






European Commission

Lebanon → Proposed labels

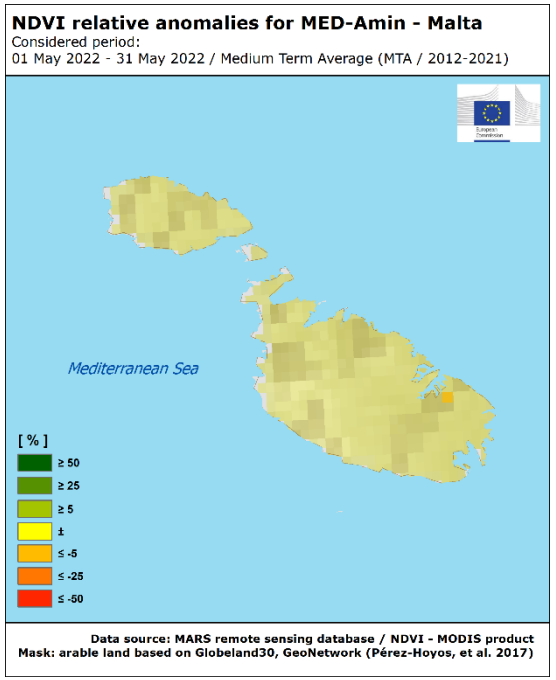


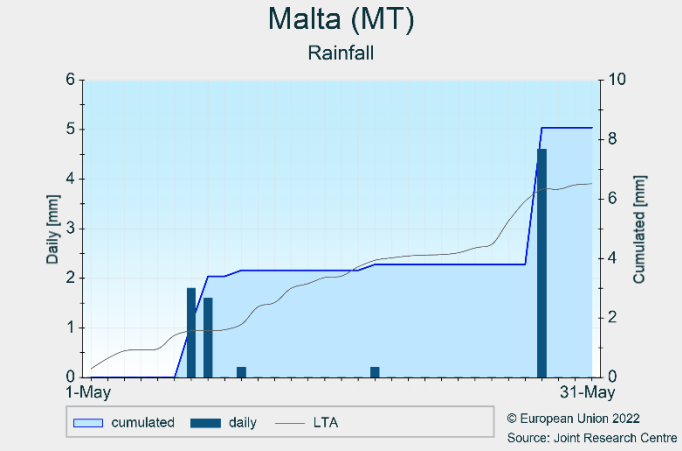
- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

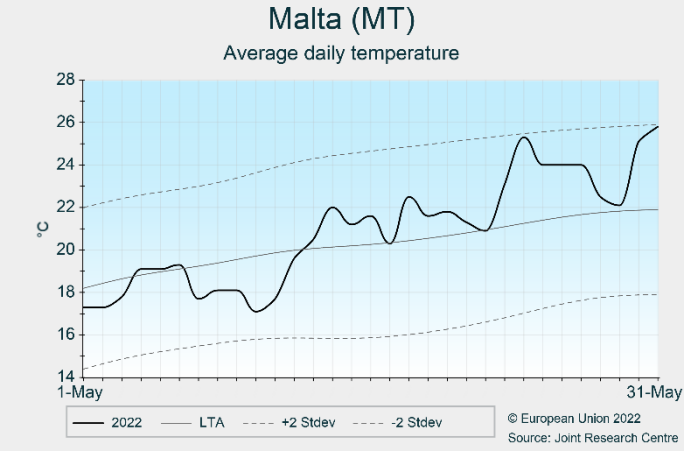
Malta

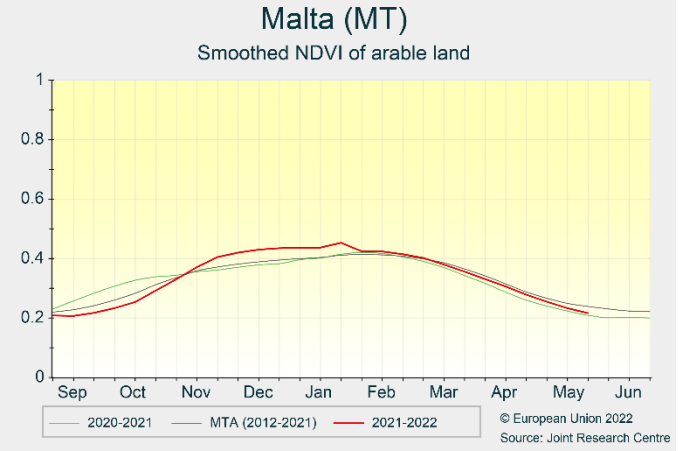
Malta:

Moderately below-average crop biomass accumulation registered despite seasonal agro-meteorological conditions.









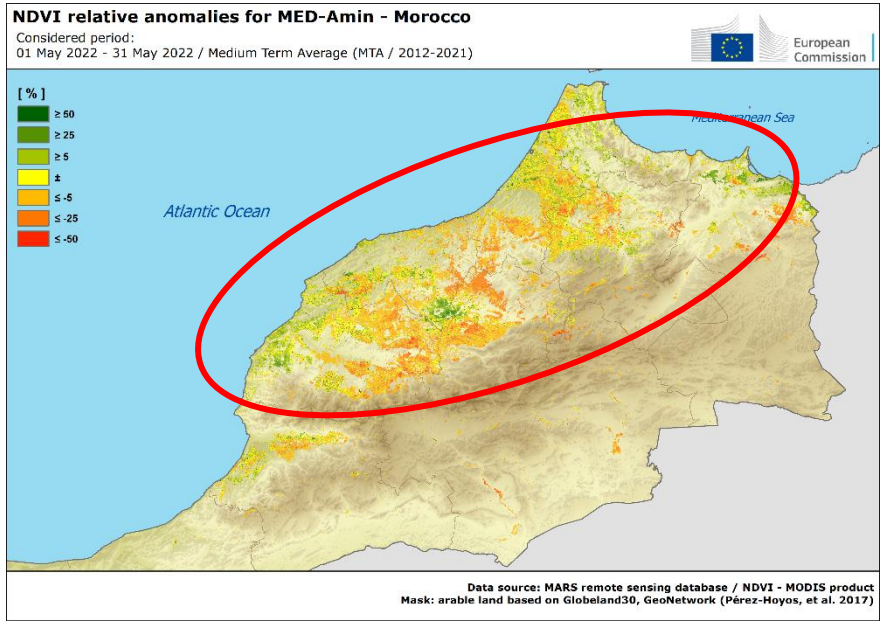
European Commission

Morocco

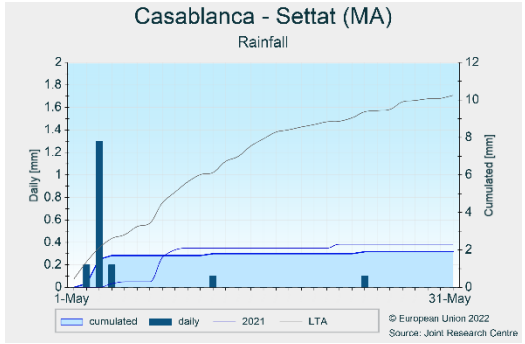
Rainy events in May were scarce and their cumulated values resulted below the long-term average and below the previous season. Daily temperature remained above-average all long the month.

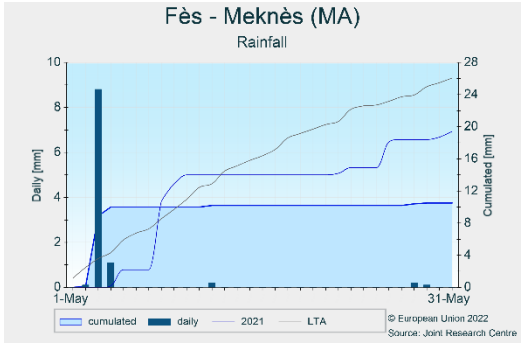
The interpretation of remote sensing data suggests that winter crops have completed the phenological cycle, confirming well below-average biomass accumulation levels across the country.

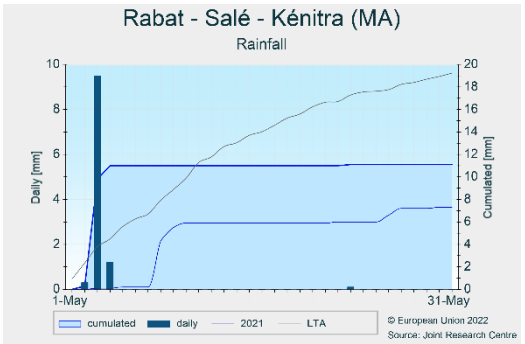
The most severe and widespread drought period lasted from 10 December to 15 February. During this period, accumulated rainfalls in the key-producing region of *Casablanca* were 25 mm against 98 mm of the LTA, in *Fès-Meknès* were only 52 mm against an LTA of 134 mm and in the region of *Rabat*, accounting nearly 25% the national production of soft wheat, were 58 mm compared to an LTA value of 156 mm.

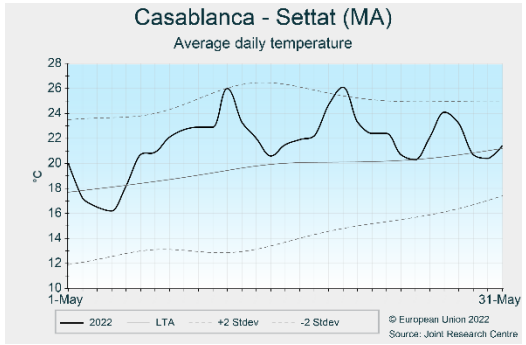


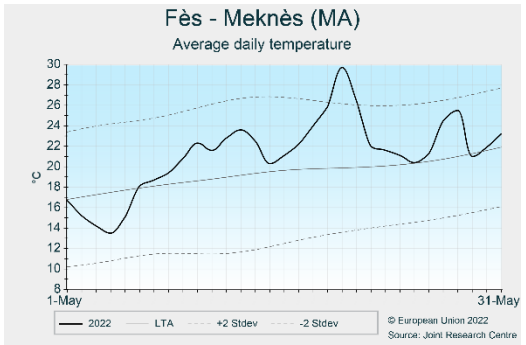
Morocco

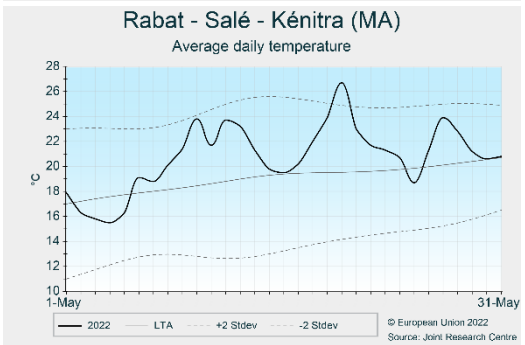

Casablanca - Settat (MA)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
2021
LTA
© European Union 2022
Source: Joint Research Centre

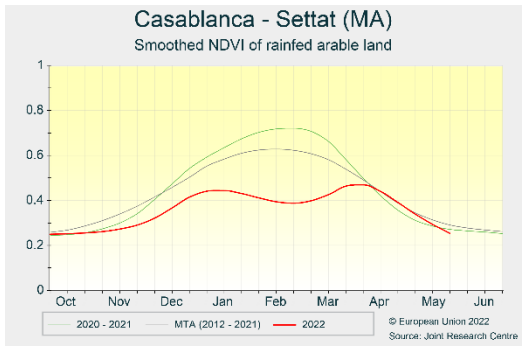

Fès - Meknès (MA)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
2021
LTA
© European Union 2022
Source: Joint Research Centre

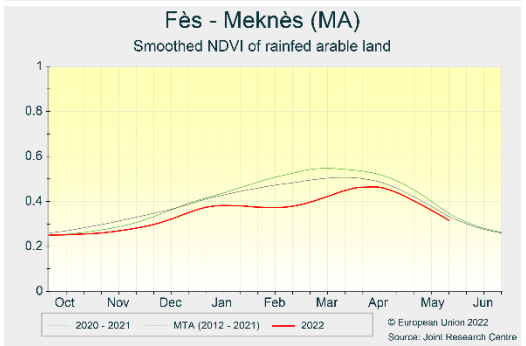

Rabat - Salé - Kénitra (MA)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
2021
LTA
© European Union 2022
Source: Joint Research Centre

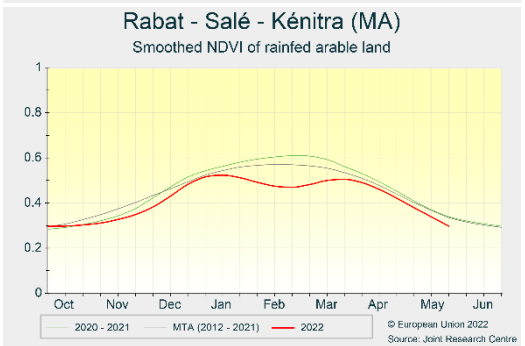

Casablanca - Settat (MA)
Average daily temperature
°C
1-May
31-May
2022
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Fès - Meknès (MA)
Average daily temperature
°C
1-May
31-May
2022
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre

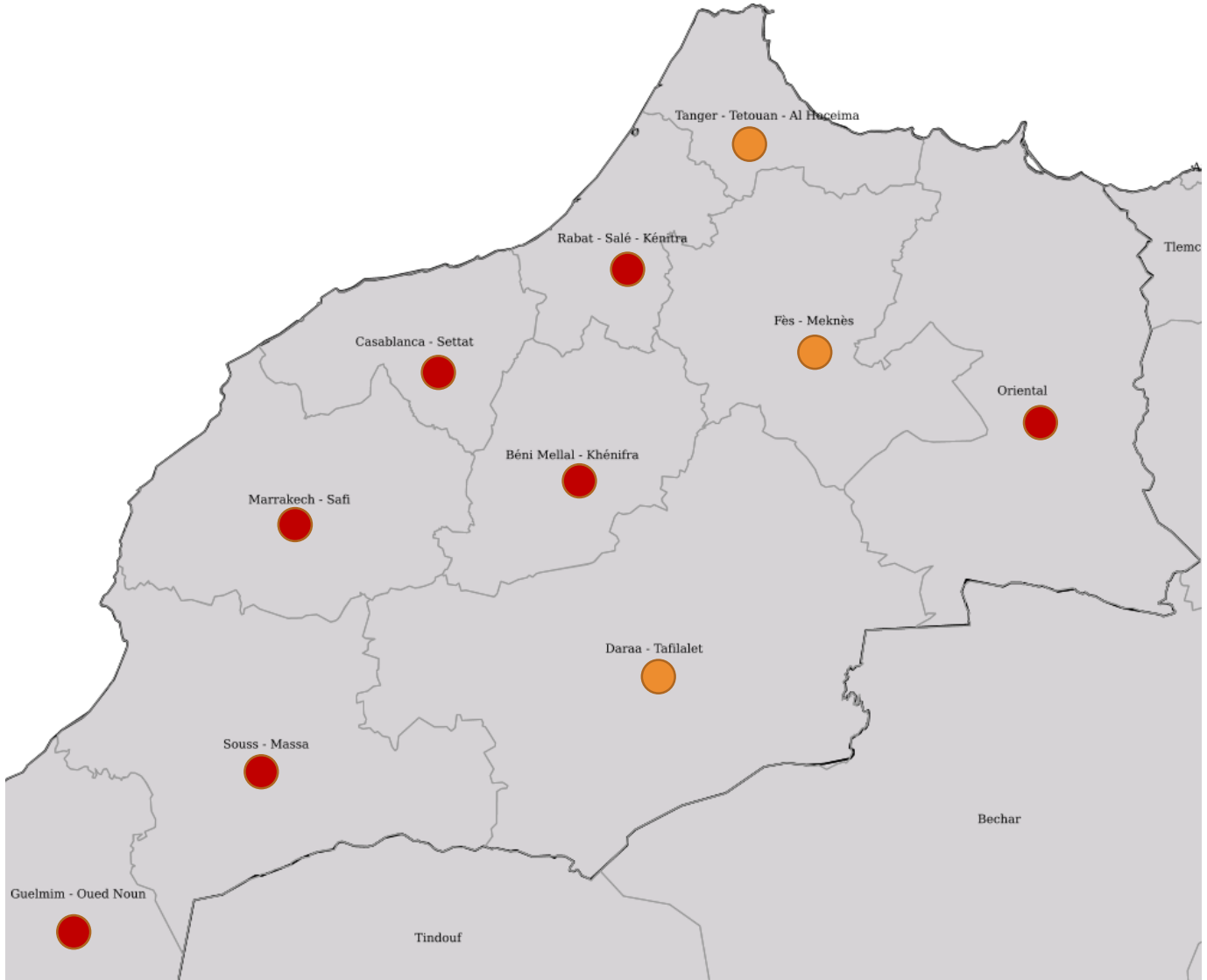

Rabat - Salé - Kénitra (MA)
Average daily temperature
°C
1-May
31-May
2022
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Casablanca - Settat (MA)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Fès - Meknès (MA)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Rabat - Salé - Kénitra (MA)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre

Morocco → Proposed labels



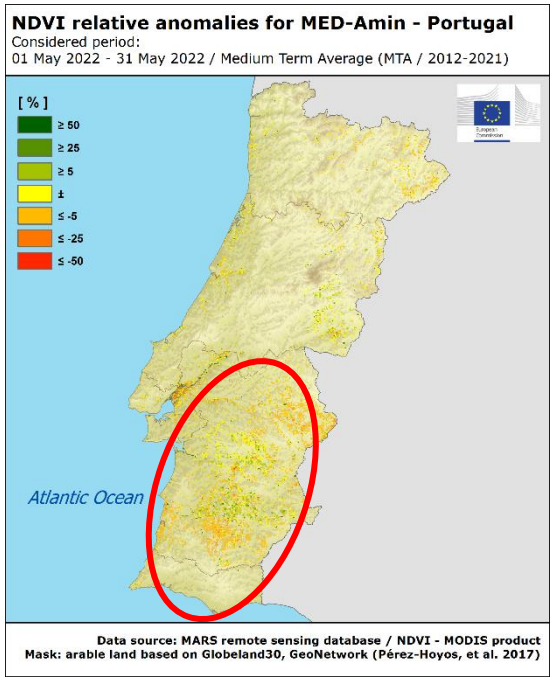
- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

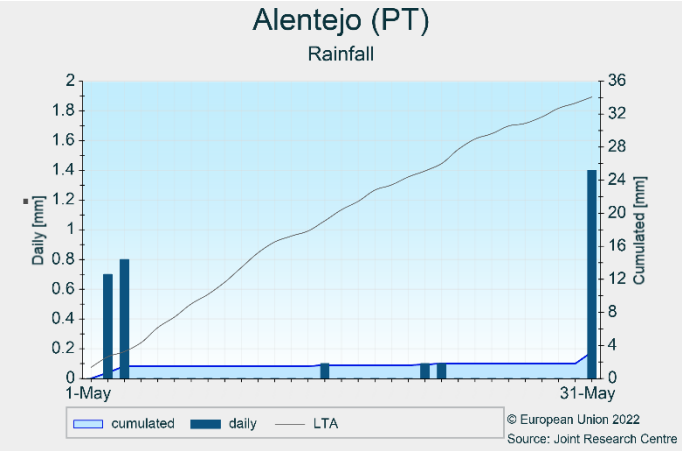
Portugal

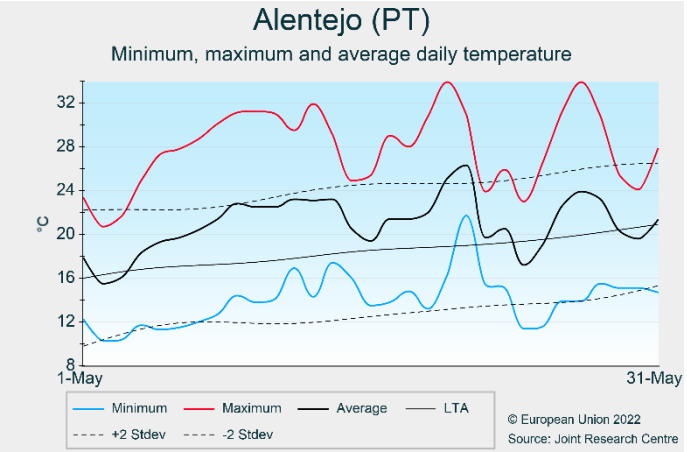
Alentejo and Algarve:

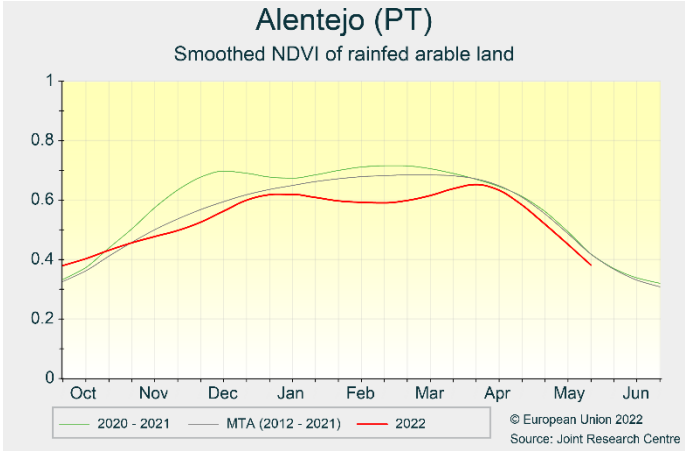
The previous outlook is confirmed: rain arrived too late to fully restore yield potentials in the Alentejo and Algarve and caused some physical damage to plants.

In Portugal, water levels in most reservoirs are above 50% of capacity.



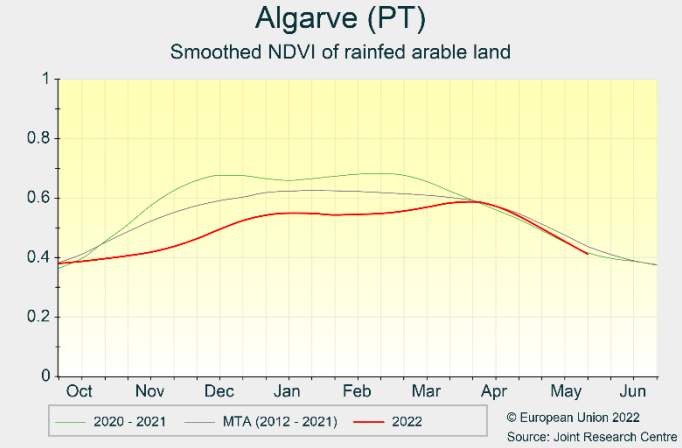


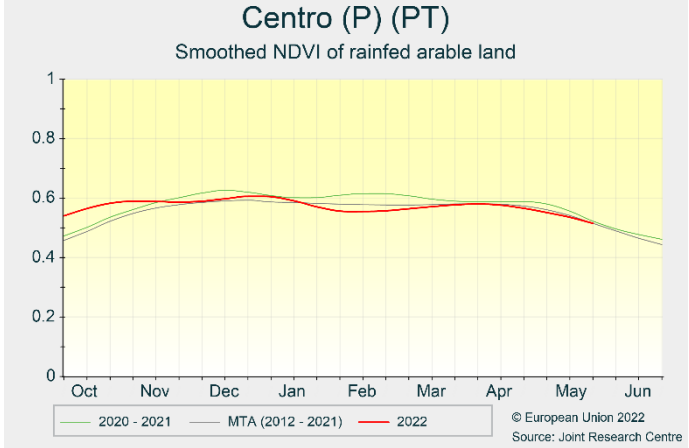


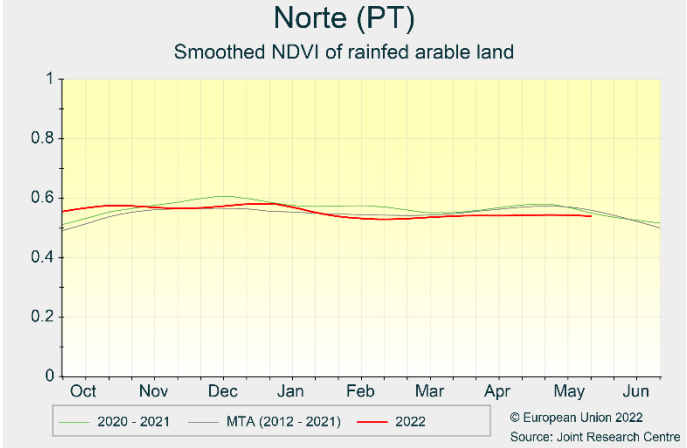


European Commission

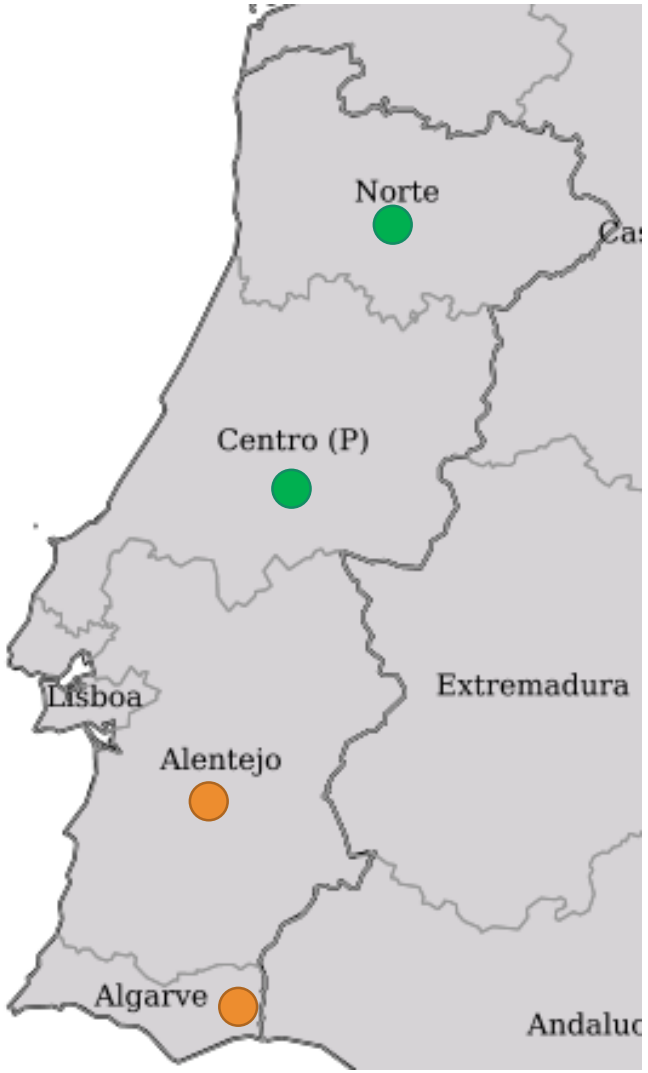
Portugal


Algarve (PT)
Smoothed NDVI of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Centro (P) (PT)
Smoothed NDVI of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Norte (PT)
Smoothed NDVI of rainfed arable land
1
0.8
0.6
0.4
0.2
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre

Portugal → Proposed labels



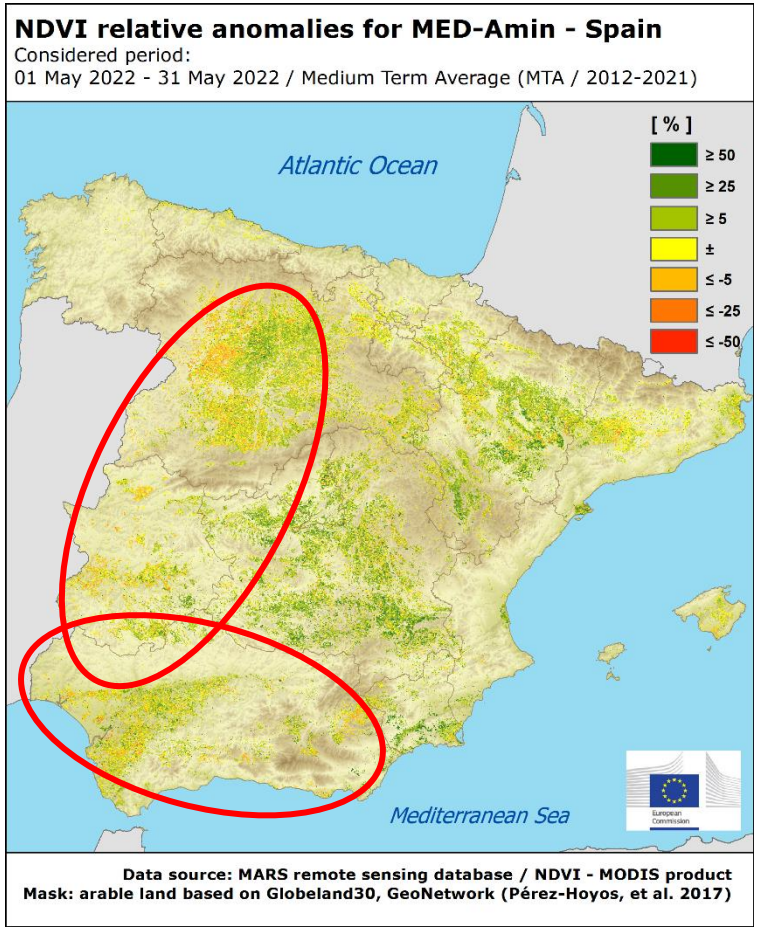
- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

Spain

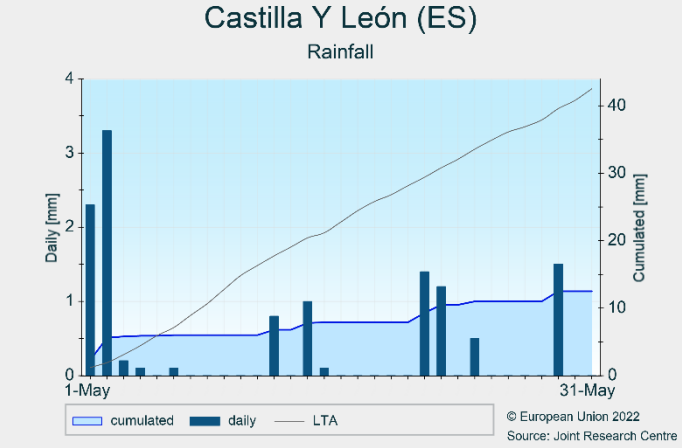
Perduring dry-and-hot conditions are keeping on hamper winter crops. Winter crops in Spain are suffering after an unusually dry autumn and winter.

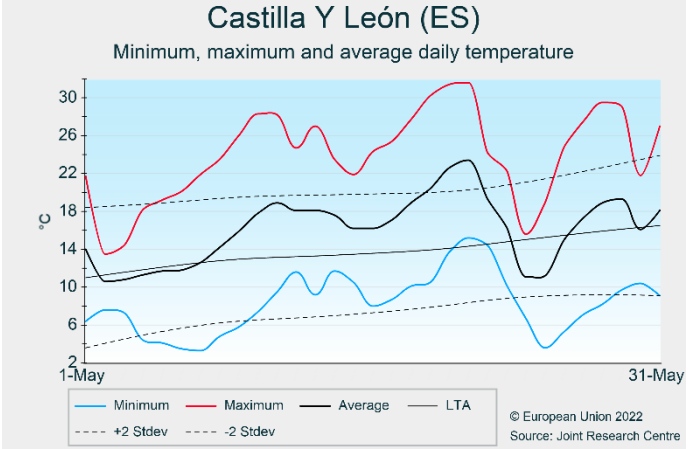
The amount of precipitation has been barely half of what is normal in key grain-producing regions.

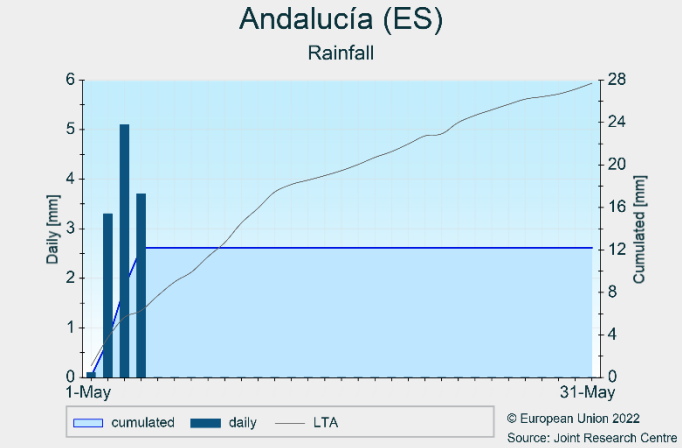
Image generated with data between April 6-21, 2012: download it in a larger size (4 MB, JPEG, 7200x3600)
Same as download in GeoTIFF file (21 MB, TIFF)

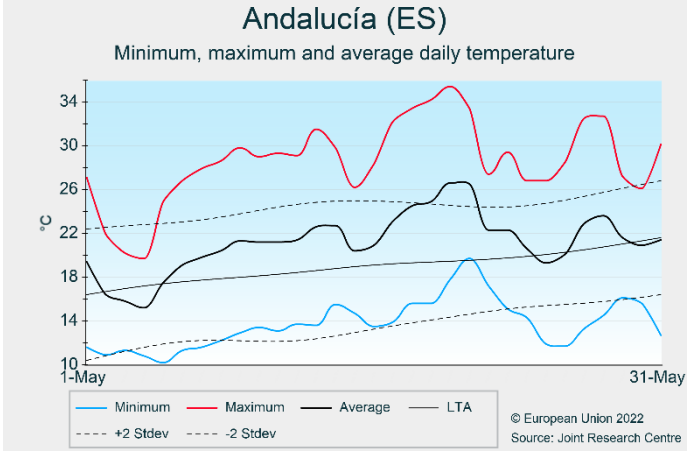


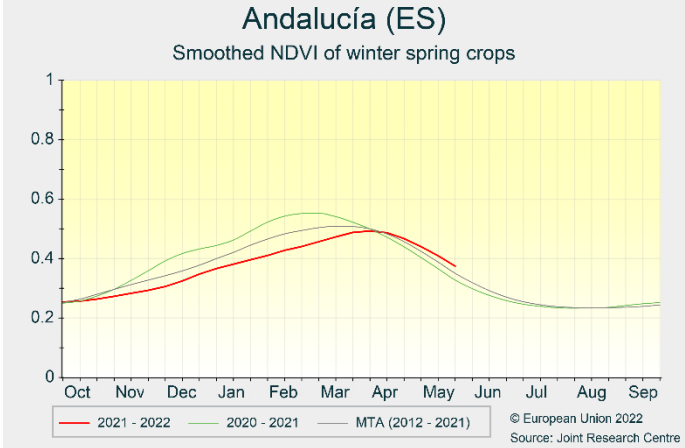
Spain


Castilla Y León (ES)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre

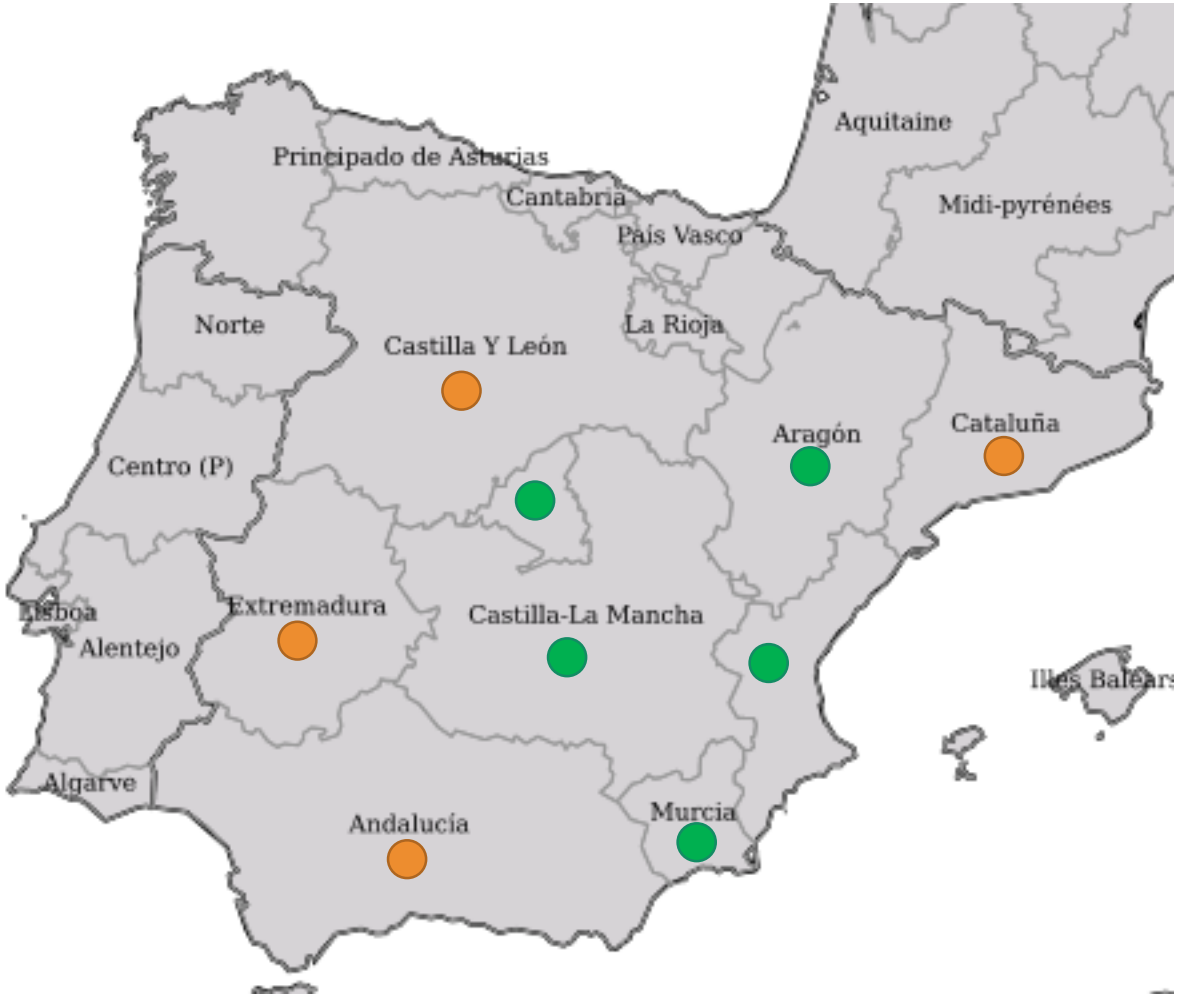

Castilla Y León (ES)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Andalucía (ES)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre


Andalucía (ES)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Andalucía (ES)
Smoothed NDVI of winter spring crops
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
2021 - 2022
2020 - 2021
MTA (2012 - 2021)
© European Union 2022
Source: Joint Research Centre

Spain → Proposed labels



- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

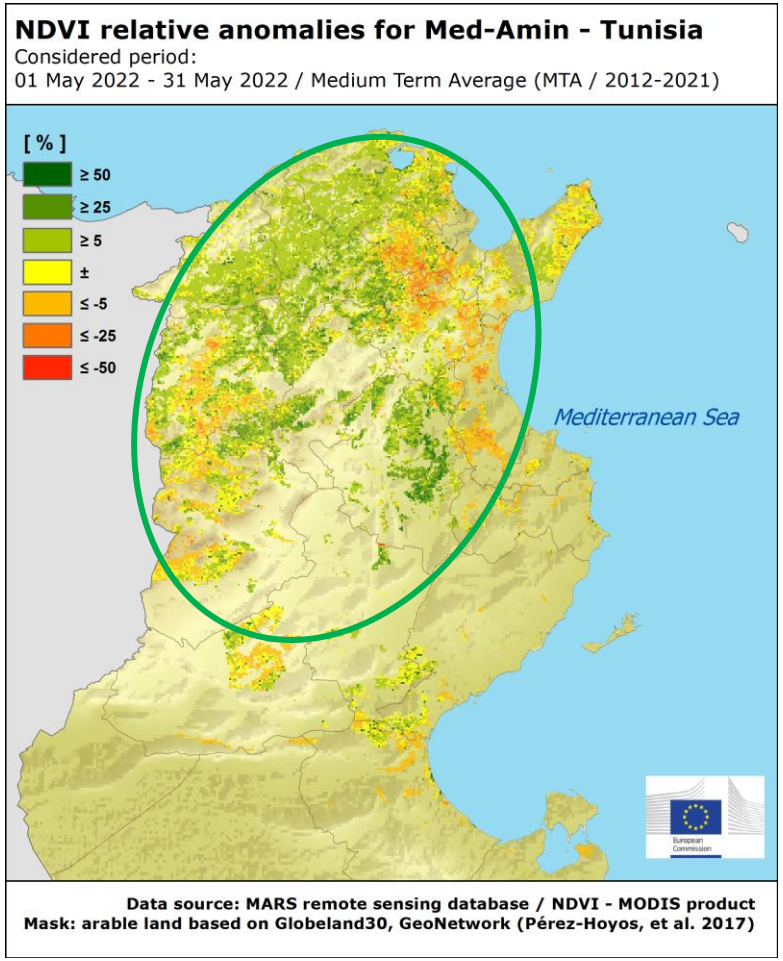
Tunisia

In May, daily temperature steadily became warmer-than-usual since beginning of June while rainfall was below-average.

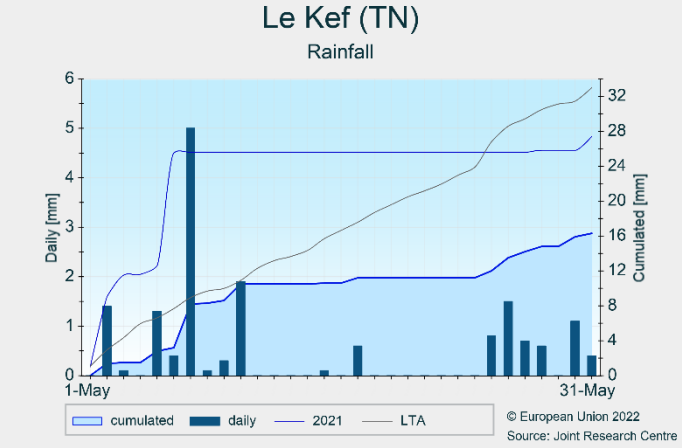
Observed above-average biomass accumulation levels in most of the (northern) littoral and central regions, with a crop delay of 10-20 days compared to the average season.

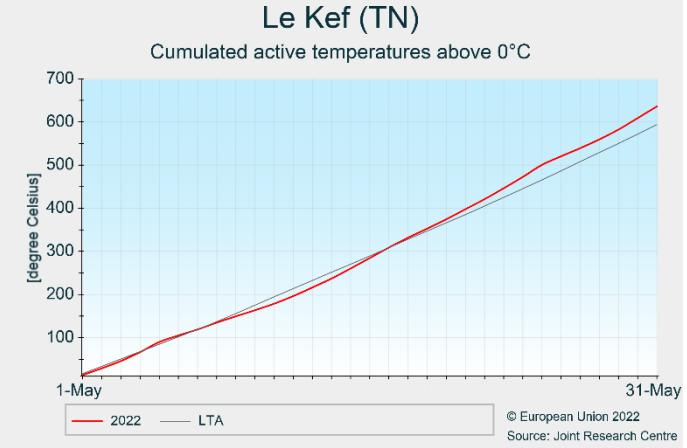
The harvesting phase it is supposed to begin in mid-May and in general cereals developed well from flowering to senescence. Despite some crop delays, expectations for the final production are positive and estimated to be from moderately-above (barley) to above (soft and durum wheat) the 5-year average.

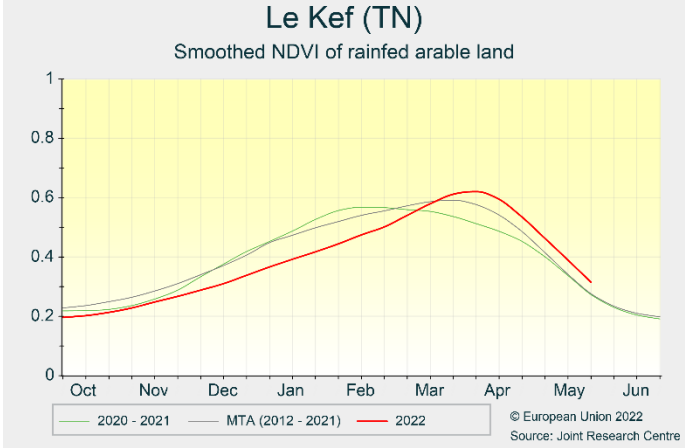
Crops conditions in the inland regions of Kasserine and Kairouan recovered up to average levels. The expected impact on seasonal barley production is now low.

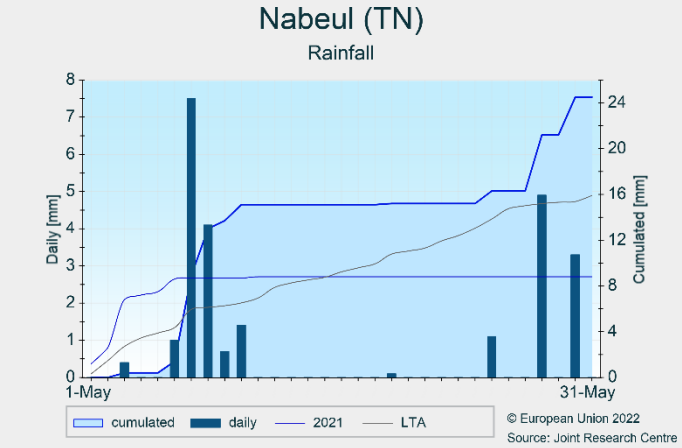


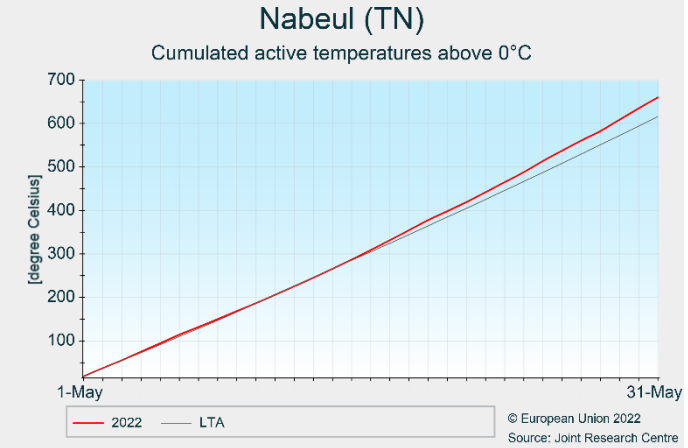
Tunisia

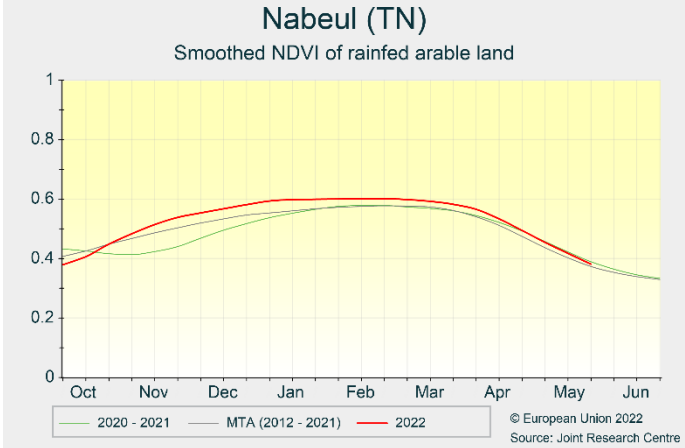

Le Kef (TN)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
2021
LTA
© European Union 2022
Source: Joint Research Centre


Le Kef (TN)
Cumulated active temperatures above 0°C
[degree Celsius]
1-May
31-May
2022
LTA
© European Union 2022
Source: Joint Research Centre

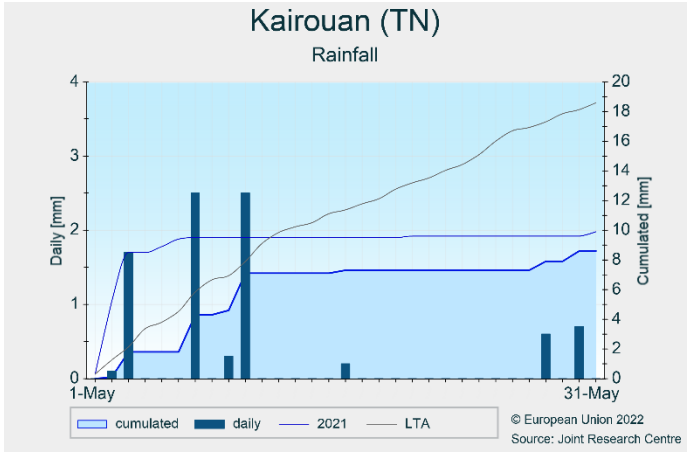

Le Kef (TN)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre

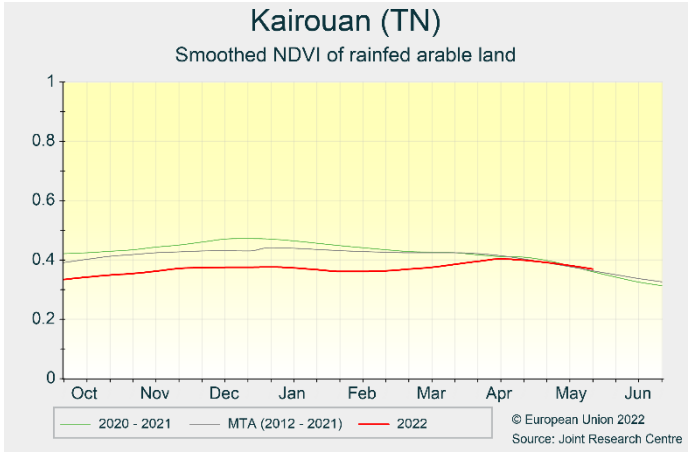

Nabeul (TN)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
2021
LTA
© European Union 2022
Source: Joint Research Centre

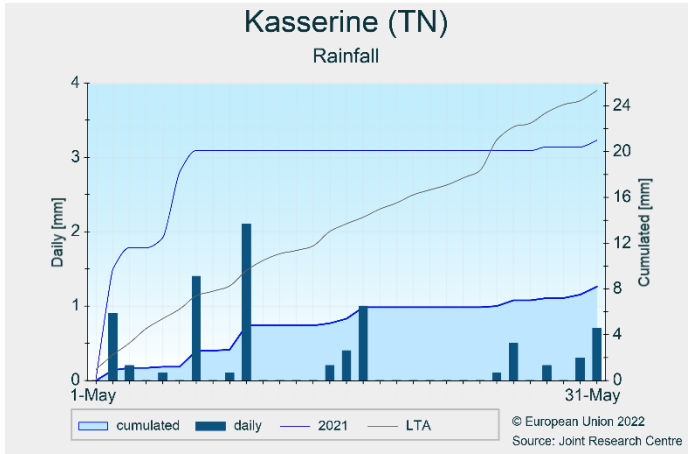

Nabeul (TN)
Cumulated active temperatures above 0°C
[degree Celsius]
1-May
31-May
2022
LTA
© European Union 2022
Source: Joint Research Centre

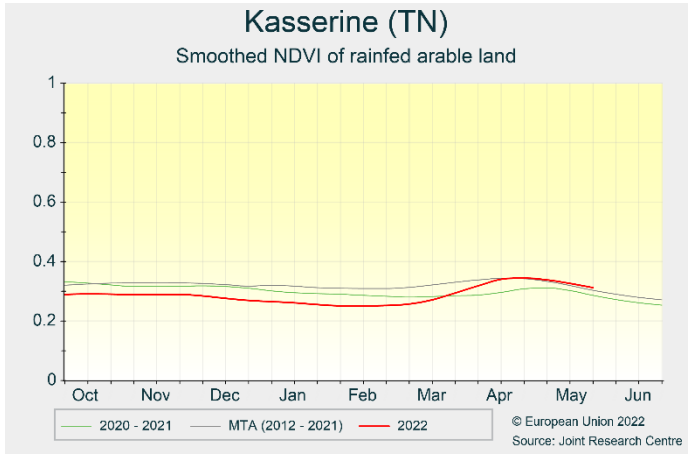

Nabeul (TN)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre

Tunisia

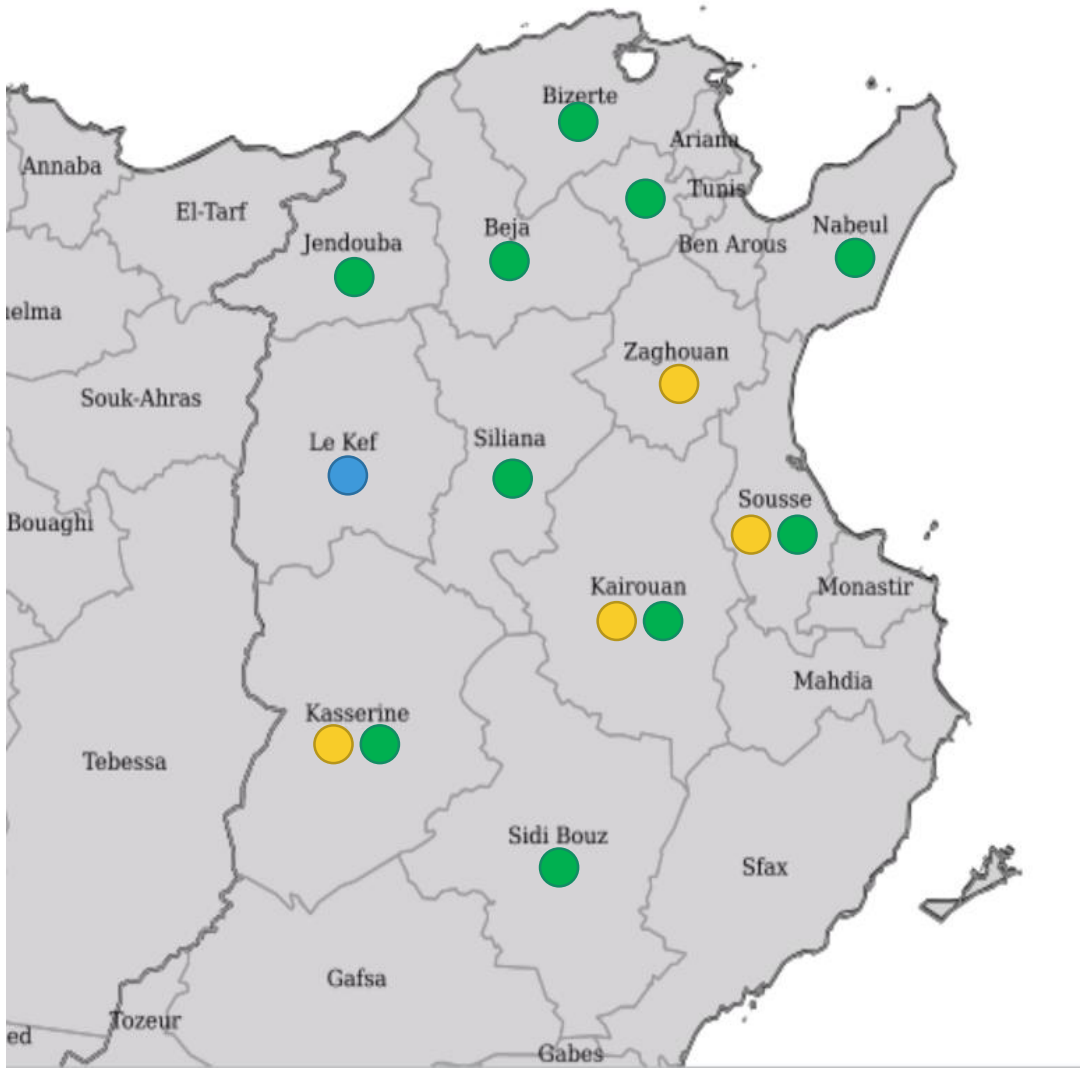

Kairouan (TN)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
2021
LTA
© European Union 2022
Source: Joint Research Centre


Kairouan (TN)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Kasserine (TN)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
2021
LTA
© European Union 2022
Source: Joint Research Centre


Kasserine (TN)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre

Tunisia → Proposed labels



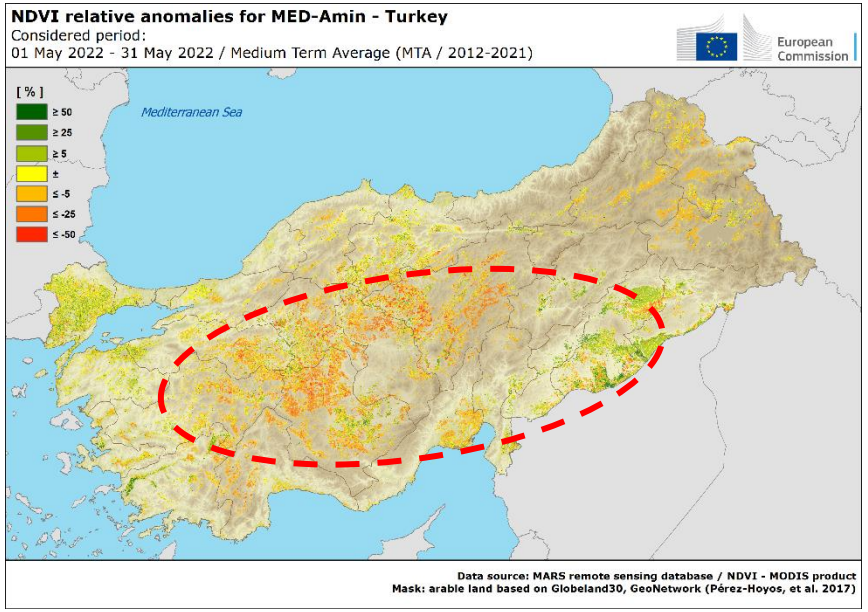
- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

Turkey

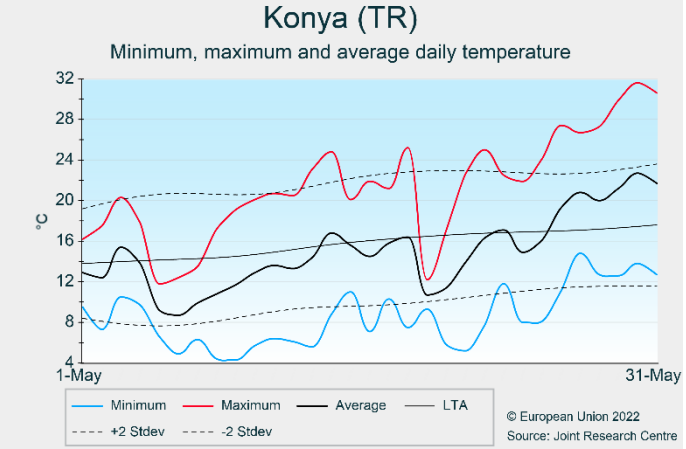
The winter crops season remains delayed in most of the country

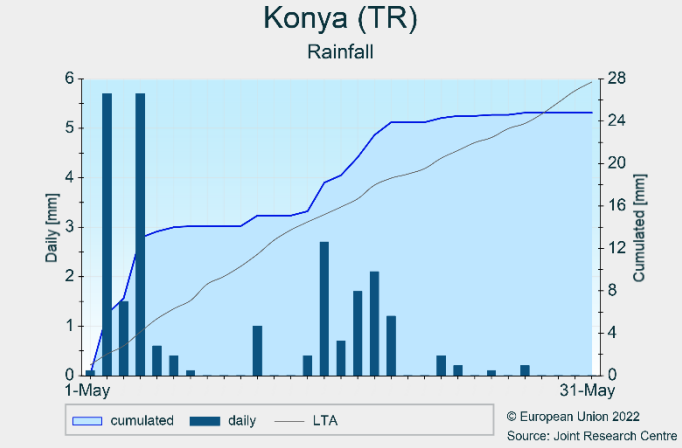
Unfavourable conditions for rainfed winter crops in most of the main cereal producing regions.

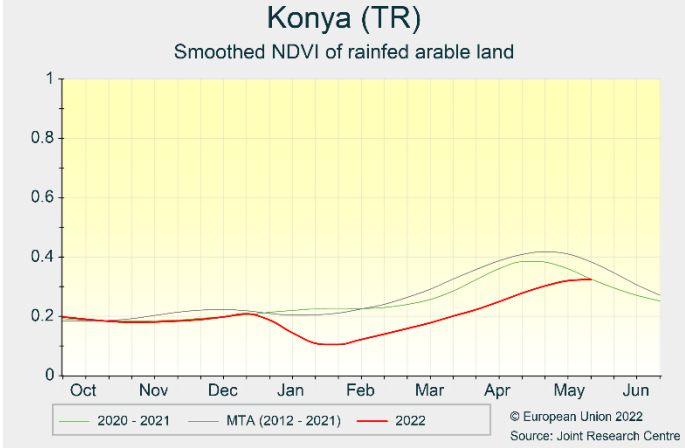
Below-average biomass accumulation due to the combined effect of the cold spring and dry conditions were found.

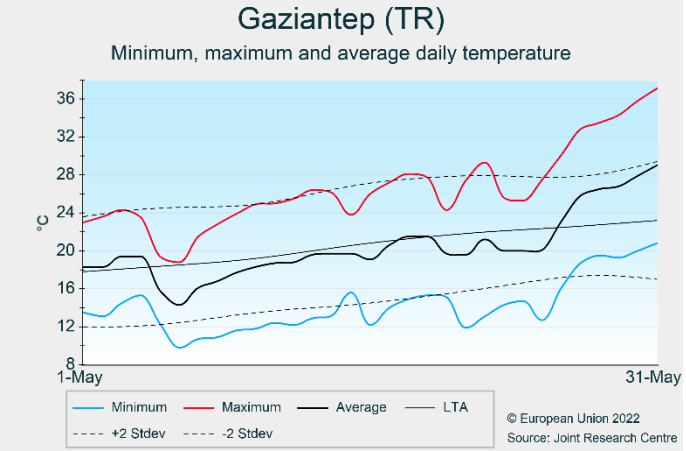


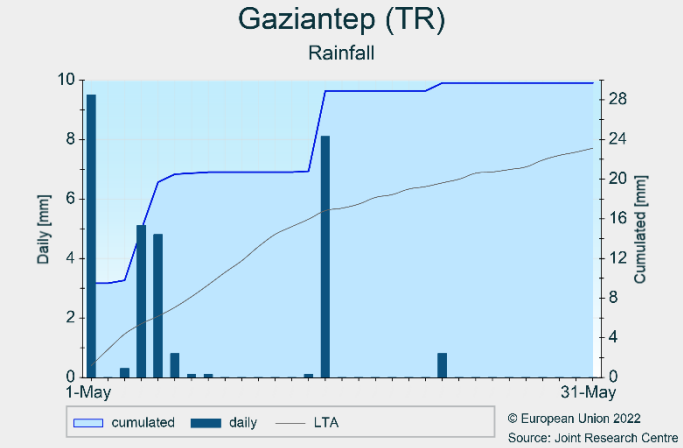
Turkey

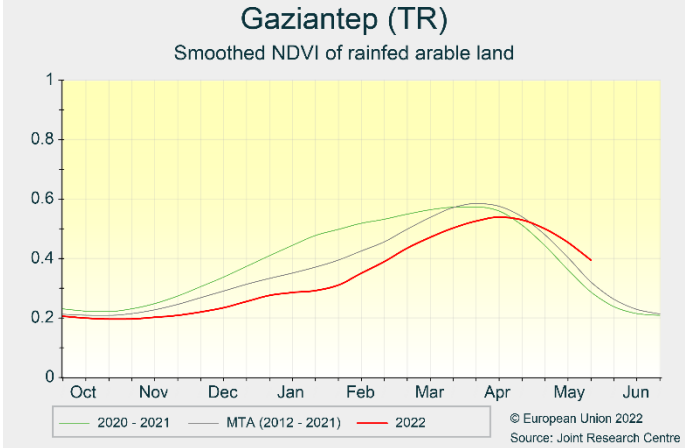

Konya (TR)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Konya (TR)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre

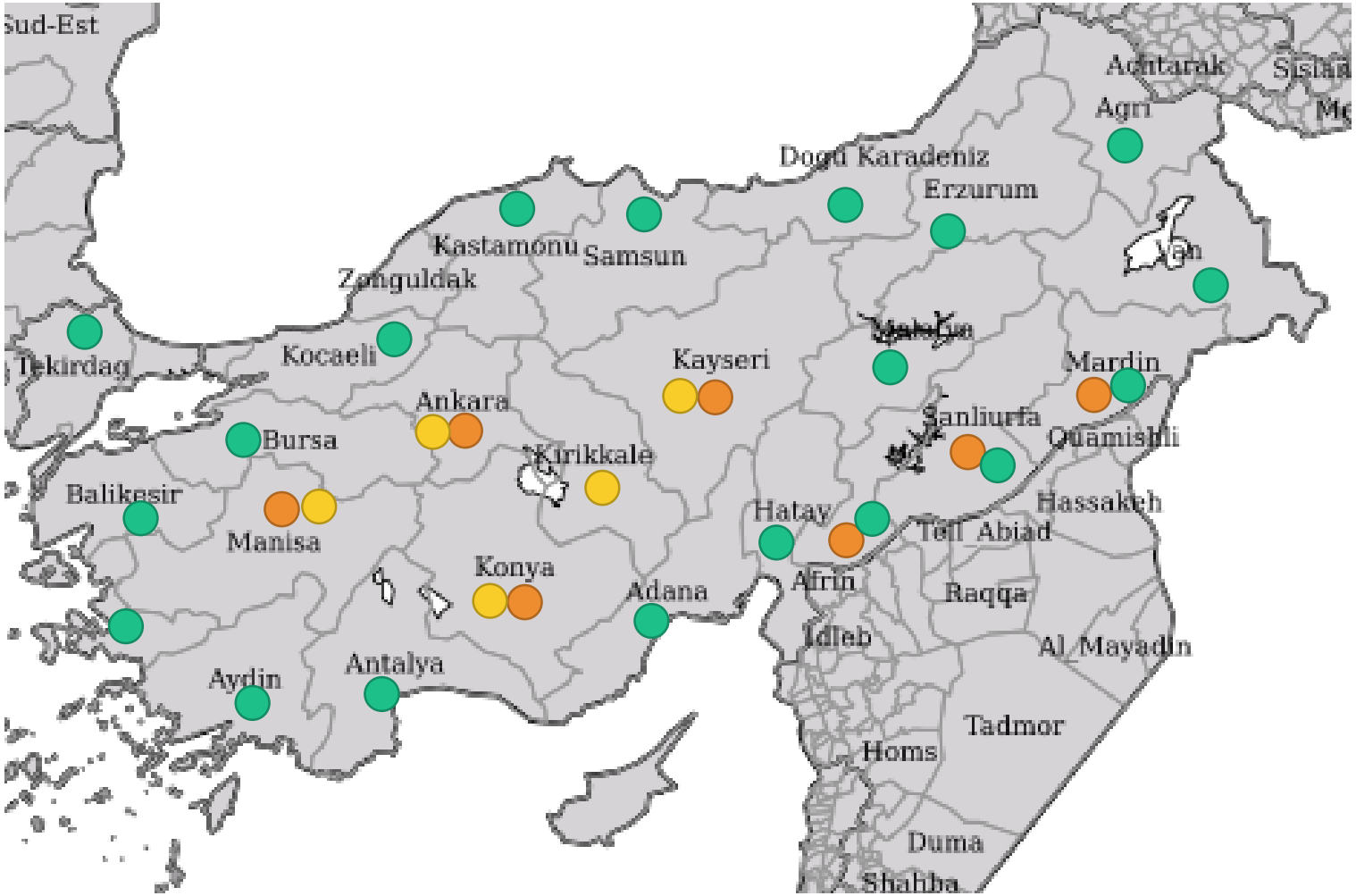

Konya (TR)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre


Gaziantep (TR)
Minimum, maximum and average daily temperature
°C
1-May
31-May
Minimum
Maximum
Average
LTA
+2 Stdev
-2 Stdev
© European Union 2022
Source: Joint Research Centre


Gaziantep (TR)
Rainfall
Daily [mm]
Cumulated [mm]
1-May
31-May
cumulated
daily
LTA
© European Union 2022
Source: Joint Research Centre


Gaziantep (TR)
Smoothed NDVI of rainfed arable land
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2020 - 2021
MTA (2012 - 2021)
2022
© European Union 2022
Source: Joint Research Centre

Turkey → Proposed labels



- Exceptional
- Favourable
- Watch
- Poor
- Crop failure

Thank you

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European Commission