



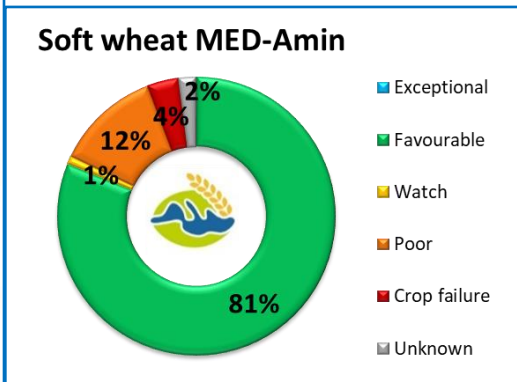
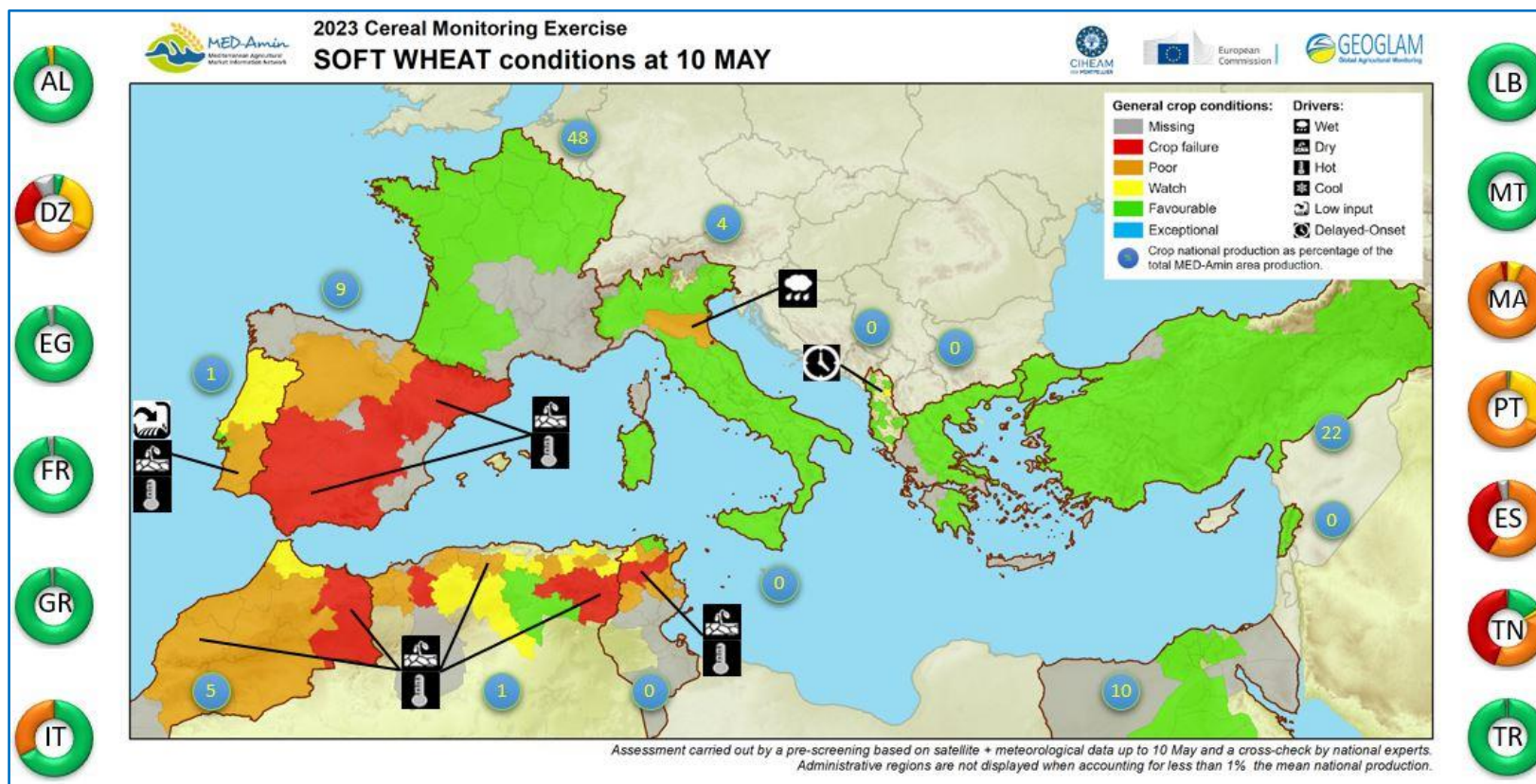
MED-Amin Bulletin 2023 N.2 | Crop conditions at 10 May 2023

« Polarized conditions for grains in the Mediterranean area »

The Maghreb and the Iberian Peninsula are facing one of the worst seasonal droughts in recent decades. In comparison with the previous outlook, this resulted in a downward revision to well-below average expectations for the final production particularly for barley. Drought became particularly intense in March, negatively affecting photosynthesis of winter cereals during flowering, and accelerating ripening in April at the expense of primary production. Crop failures are most likely to occur in several important grain-producing regions of Spain, Portugal, Morocco, Algeria and Tunisia. The weather observed during this review period was marked by contrasting drier or wetter than-usual conditions, which influenced crops in many areas. Positive crop growing conditions observed in the Balkans, Italy, France and Türkiye are expected to compensate the poor outlook of western Mediterranean countries.

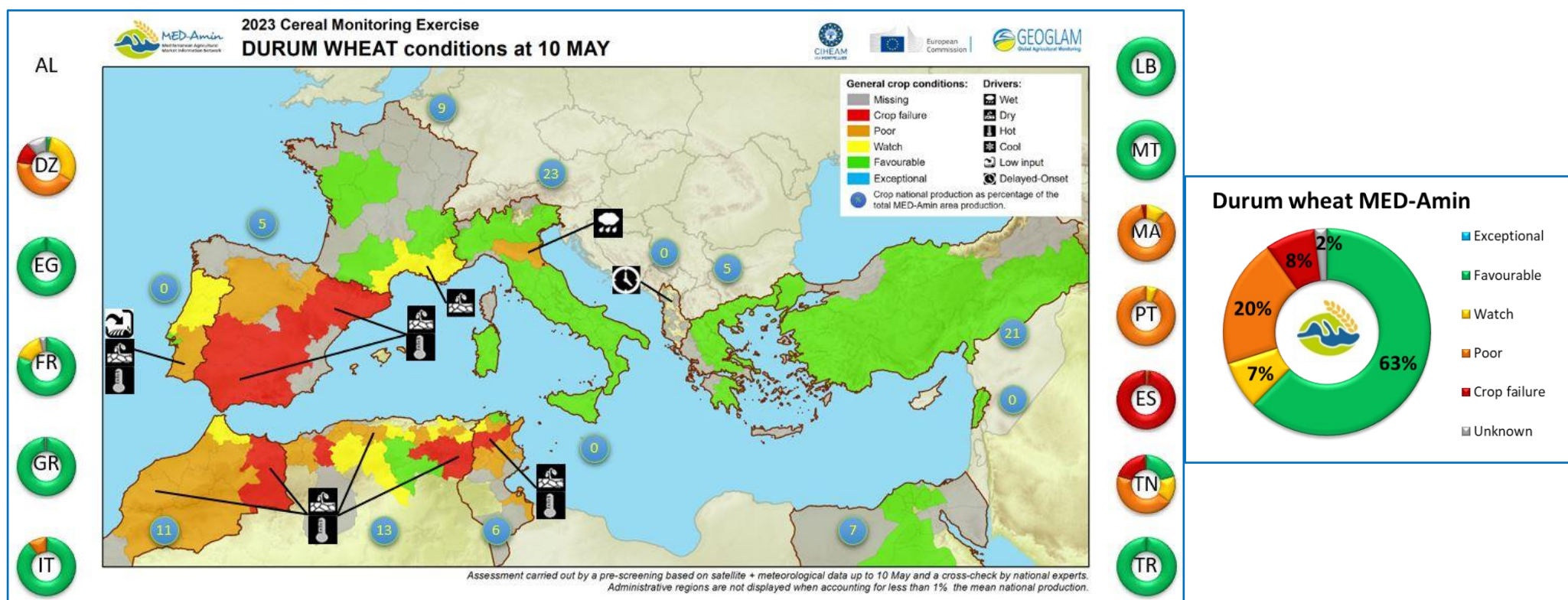
The regional outlook for **soft wheat** is positive **with crops developing under more favourable conditions** than durum wheat and barley, with a large majority of the MED-Amin planted area under 'favourable' conditions (81% of the monitored area, see pie chart below; above the 77% of last year at the same date). Soft wheat is growing well in **France (FR)** and **Türkiye (TR)**, the most productive countries of the region (accounting for 48% and 22% of MED-Amin production respectively). In **Morocco (5% of MED-Amin production)**, the outlook for soft wheat is negative with all national production areas concerned by different level of impacts due to a persistent drought. In **Italy (4% of Med-Amin production)**, 1/3 of national production is rated as 'poor' due to floods occurring in Emilia-Romagna region.

Please see the [National Highlights](#) section of this bulletin.



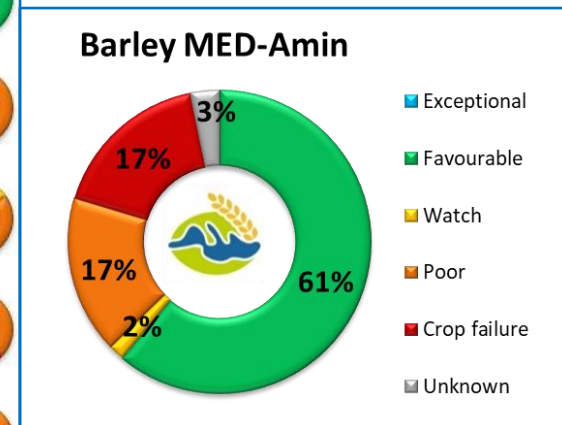
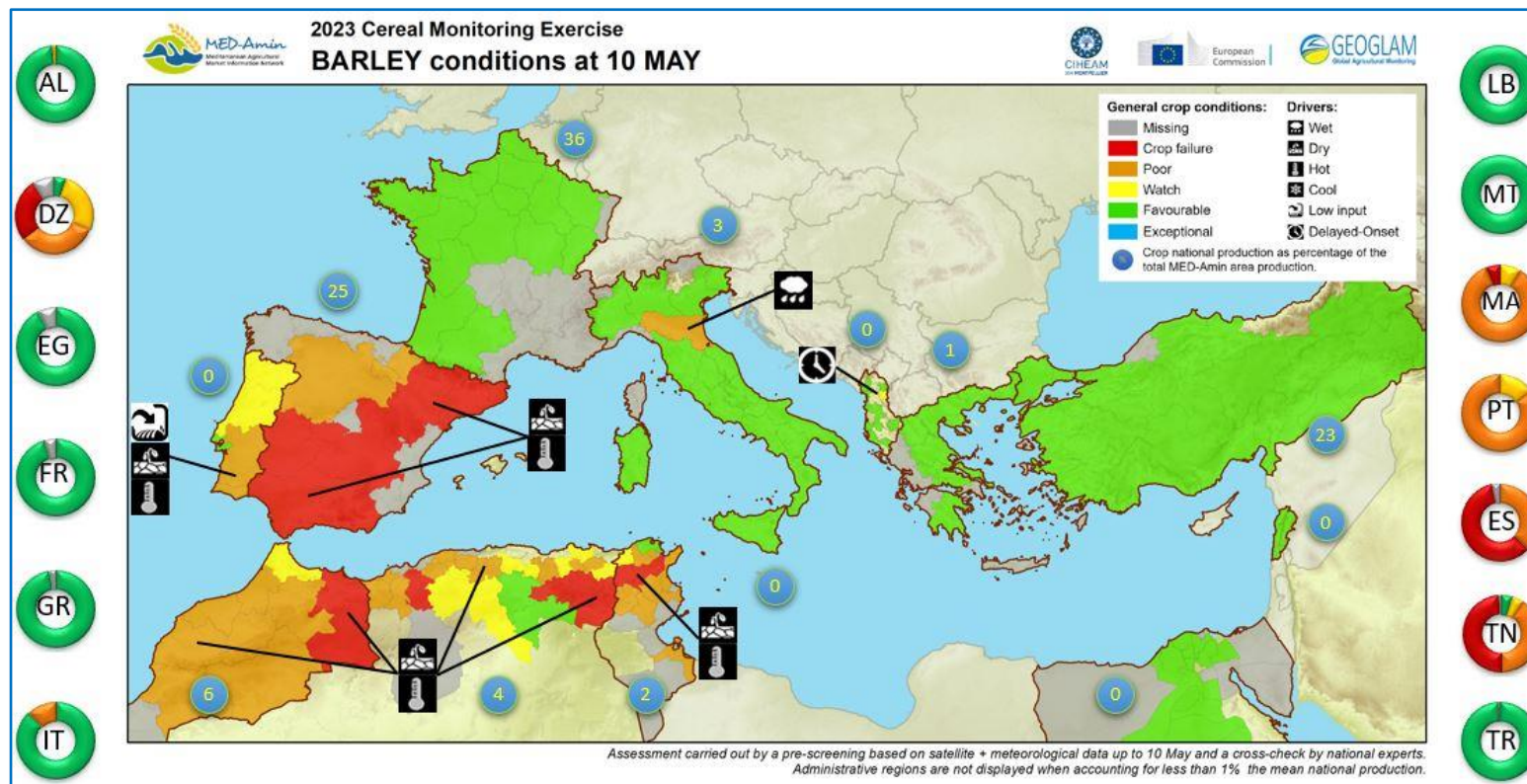
Durum wheat is a typical Mediterranean commodity and crop (47% of World production). **28% of the Durum wheat area planted in the MED-Amin region is developing under poor or failure conditions**, in particular in Maghreb and Iberian Peninsula countries, for instance in **Algeria (DZ)**, **Morocco (MA)** and **Spain (ES)**, which account respectively for 13%, 11% and 5% the MED-Amin area production. This share is higher than last year at the same date (20%). In particular, 20% of cropping areas are assessed in ‘poor’ condition and 8% in ‘crop failure’, against 18% and 2% respectively the previous year, see pie chart below.

Please refer to the **National Highlights** section of this bulletin.



Barley is the most affected winter crop in the region this season. More than 3/5 of the MED-Amin planted area is developing well, sometimes close to harvest (61% of the monitored area, see pie chart below). However, adverse conditions impacted significantly the production potential in almost 1/3 the Mediterranean monitored areas: 17% are considered in 'crop failure', and 17% in 'poor' conditions. In several countries, barley is the winter crop most affected by weather anomalies (dry, hot) of the campaign. For instance, in **Spain (ES)**, accounting for 25% of MED-Amin barley production (based on the last 5-Y average), crops are affected by drought, 2/3 of which are considered in 'crop failure'. **Tunisia (TN)**, accounting for 2% of MED-Amin area barley supply, faces a similar situation with half of the production considered in 'crop failure', and 35% in 'poor' status (see pie chart on the right side of the map below).

Please refer also to the [National Highlights](#) section.



National highlights



Albania: Favourable weather conditions provided adequate rainfall, temperature and humidity across the period under analysis. Soft wheat and barley, entering filling stages (except in *Korce*, *Diber* and *Berat* districts, which are at end of flowering), are faring well. The prolonged rainy period in May, beyond its positive effects, also favoured fungal diseases, as well as weeds, which could reduce yield locally, especially in sensitive cultivars (e.g. in *Diber* and *Durres*). Adequate fertilization at the recommended time and doses may offset punctual adverse situations and convert the general **positive outlook into average to above-average yields**. Taking into account a larger area sown in (2022) autumn, an increase in the **2023 final production of soft wheat and barley is expected** compared to previous years.



Algeria: The period under review was characterised by **severe drought conditions affecting the country in a large belt** from the northwest to the northeast, where almost all cereal production takes place. There has been no rain since the beginning of March, and, in most regions, rainfall cumulates during the review period set the lowest records since 1979. For example, the rain deficit was 62% in *Tiaret*, in the northwest of the country (36 mm against an LTA value of 87 mm); 87% in *Batna*, central Algeria (8 mm vs LTA value of 76 mm); and 85% in *Oum El Bouaghi* in the north-east of the country (8 mm vs LTA value of 75 mm). Temperature sums (Tbase 0°C) remained 10%-20% above the LTA throughout the country, with hotter daily temperatures than average. Exceptionally high temperatures were recorded in the last ten days of April in the western parts of the country (e.g. *Tlemcen*, *Sidi Bel Abbès*, *Saida* and *Tiaret*), with maximum daily temperatures reaching up to 37°C. The above-described weather conditions hampered cereal crops during the second part of their vegetative growth (which resulted stunted), during flowering (causing flower sterility), and during the grain filling and ripening phases (accelerating senescence). A significant possibility of complete crop failure is observed in the regions of *Mascara*, *Saida*, *Oum El Bouaghi*, *Khenchela* and *Tebessa* among other wilayas. **Yield forecasts for the country are far below the 5-year average** for both wheat and barley. ¹



Egypt: The **positive outlook for cereals is confirmed**. Satellite imagery shows average to above-average conditions for cereals, which indicates that there was sufficient water supply from irrigation to support adequate crop growth during the vegetative and reproductive stages of development. Harvest has started, on the way for a **fair increase in cereal production** associated with a moderate increase in the seasonal planted area.



¹ https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/crop-failures-due-drought-maghreb-2023-05-22_en

France: After a dry winter, precipitation returned in March and April, leading to significant recharges of groundwater and a full recovery of soil moisture. The groundwater **situation has thus improved in several regions of France**, but remains "unsatisfactory" according to BRGM (national geological survey), with 68% of the groundwater tables remaining below monthly average in May. A below-average cumulative global radiation was reported in Northern and Central regions in May, but is currently being overtaken. The areas under closer attention **are concentrated in the Mediterranean region** (*Languedoc-Roussillon, Provence-Alpes-Côte d'Azur*), where yields and quality of grains (in particular durum wheat) are likely to be impacted by a reduced water availability. The rest of the country and the overall national picture show a **positive outlook with favourable crop conditions and yield potential** (especially for spring barley). Compared to the previous MED-Amin outlook, the potential risk of plant disease is no longer a concern. Cereals are on average at flowering stage and could potentially reach above average yields if weather conditions remain stable in the upcoming weeks.



Greece: The 1 April - 10 May period was characterized by colder and wetter than usual agrometeorological conditions. Winter cereals (durum wheat, soft wheat and barley), at the flowering stage, are **farin g well in most of the regions**, (e.g. *Western Macedonia, Central Macedonia*). The winter drought has so far not adversely affected production of winter grains, according to producers, despite the availability of water falling to 60% compared to last year's record (water reduction by 40% according to official data). Overall, there is a **positive expectation** concerning the 2023 final production. The higher cost of production, which is the main issue reported by producers, does not seem to have impacted the production, as producers expect higher prices and therefore fertilize and carry out scheduled farm operations as usual. Small-scale biotic (e.g. *Zabrus tenebrionides* pressure increased compared to the previous season) and weather (e.g. hail) stresses have remained localized and are not expected to impact final production, except in *Western Macedonia* where large extent of weed and fungi infestation may lead to a concern.



Italy: The period from 1 April to 10 May was wetter than usual, with precipitation cumulates 80% to 100% above the LTA from north (i.e. *Veneto* and *Emilia-Romagna*) to south (*Puglia* and *Campania*). Only in the north-west of the country (*Piemonte*) cumulated rainfall remained 18% below average. In the most drought-concerned regions of northern Italy (i.e. *Piemonte* and *Lombardia*), rainfall resumed from 10 April onward, **replenishing soil moisture levels** that had been depleted since winter 2022. Water levels in the Po valley (great northern lakes and the Po River) recovered to a large extent. Extreme rain events occurred in *Emilia-Romagna* in early May, when 170-220 mm of rain was recorded in 48 hours. Many rivers burst their banks, damaging more than 1,200 ha of permanent crops². In the provinces of *Ravenna* and *Forli-Cesena*, an almost

² <https://emergency.copernicus.eu/mapping/list-of-components/EMSR659> . A second wave of flooding and landslides on May 13 added on this concern in the region *Emilia-Romagna*,

complete loss of production is likely to occur for wheat and barley. However, damages remain localized. Currently, winter crops are entering the ripening phase and despite a slight downward revision for soft wheat and barley, **expectations are overall slightly above the 5-year-average**, in particular for durum wheat.³



Lebanon: Seasonal temperatures mostly oscillating around the long-term reference prevailed during the analysis period. Rainfall cumulate was above-average from March to beginning of May and rain events were adequate and well distributed to sustain crop growth. The conditions of abiotic and biotic stressors are in line with the previous year. Wheat and barley are at the grain filling stage and the inferred **crop biomass accumulation is clearly above-average** (e.g. in *Bekaa*). Lebanon is also benefiting from an **increase in the area sown this season** (compared to 5-y average). Field experts early estimate 2023 production to 100,000 tons of durum wheat, 20,000 tons of soft wheat and 15,000 tons of barley, which overall represents **nearly three times the 2014-2020 average production** (source MED-Amin baseline, 2019).



Malta: **Average progress** of winter cereals despite scarce rainfall events since December to May.



Morocco: The review period (11 March - 10 May) presented scarce and unevenly distributed rain events until the beginning of March and almost no rain at all in the March-May period, thus worsening an already very poor agricultural campaign. Prospects for cereal productions at country level are below to well-below average, albeit above last year's levels. Total rainfall over the review period ranged from 30% in *Casablanca* and *Béni-Mellal* to 70-80% in *Rabat*, *Fez*, *Tangier* and *Oriental* region below the LTA. Temperatures remained consistently warmer than usual, with average daily temperature typically 2-3°C above the LTA (4-6 °C above in *Marrakech* and *Béni Mellal*). A heatwave occurred from 25 to 30 April, with maximum daily temperatures reaching > 35°C in the central and northern regions. Remote sensing analyses depicted a steep decrease of vegetation indicator values during crop senescence. This is usually coupled with **damage to crops due to hot and dry conditions during the flowering period**. Below-average crop biomass accumulation is observed in all of the main cereal-growing regions of the country. Conditions for crops are most critical in *Oriental* region, where a crop failure is most likely to occur this season. Winter cereals in Morocco are now in advanced ripening stages and the harvest is about to begin. The **overall yield and production prospects are poor** with well below the 5-year average for both wheat and barley, **but not as bad as the previous season**, which was one of the worst of the past 15 years.⁴

³ https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/strongly-contrasting-weather-conditions-europe-affect-crops-multiple-ways-2023-05-22_en

⁴ https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/crop-failures-due-drought-maghreb-2023-05-22_en



Portugal: The last Portuguese agricultural forecasts indicate another year marked by drought, which is particularly affecting 89,2% of the mainland, 34,7% of which is found in “severe or extreme” drought (exclusively south of the Tagus river) according to the Portuguese Institute of Meteorology, report of meteorological drought of April 30. Crops are heavily impacted in *Algarve* and *Alentejo*, the two main cereal producing regions, where no rainfall events occurred in April, when plants entered the filling stage. A general decrease in productivity is estimated in *Alentejo* (between 10% - 20%) and *Algarve* (between 10% - 15%). Overall in the country, the high temperatures, wind and a general lack of precipitation during March and April had a negative effect on cereal growth (common wheat, durum wheat, barley, triticale and oats) interfering also with crop development causing crop sterility and boosting spikelet formation. The **cereal campaign is compromised**, with crops showing stunted growth, short spikes, and incomplete grain filling. The negative outlook in production is moreover sustained by the reported decrease in plantings, mainly in reason of a rise in production costs with consequent decrease of the crop growing affordability. In irrigated land, cereals are also likely to experience productivity declines due to the increased costs of irrigation. The current cereal campaign should be **one of the worst in the last decade (especially for wheat), with a combined decrease in area and productivity.**



Spain: In the last two months, weather conditions and **winter crop outlook have deteriorated significantly**. Drought conditions have continued and intensified since March. Yield forecasts for all cereals (e.g. wheat and barley) have fallen below last year's level, when drought conditions also prevailed. In many cases, the viability of crops is compromised, leading to an **estimated harvest in 2023 well below last 5-year average**. Spain is facing a historical deficit of rainfall over a prolonged period which, together with the high temperatures recorded, is compromising the viability of crops and pastures in almost all of the country (except in Northern coastal regions). The accumulated rainfall in the hydrological year is well below long-term and medium-term averages, having worsened since March. Spain is also witnessing a situation of hydrological drought in large areas of its territory, with water levels well below averages in reservoirs (e.g. *Cataluña*, *Aragón*, *Andalucía*). **Cereal production will be reduced in almost all the regions**, in particular in *Andalucía*, *Aragón*, *Castilla la Mancha* and *Cataluña* showing significant crop cuts. In *Castilla y León*, the top productive region for soft wheat and barley, the phenology is about two weeks ahead of last year, and the forthcoming weather conditions will determine the evolution of the harvest in terms of yield and quality. In this region (like others), there is a high demand for fodder for animal feed triggered by the persistent drought. In *Andalucía* for instance, high temperatures have shortened and advanced crop development (at maturity stage as of 10 May), plots are mostly dry except in cooler or irrigated areas. Harvest has already begun in some parts of the region, but low yield perspectives are leading farmers to **use fields for fodder or for animal graze instead of collecting the final harvest.**



Tunisia: The warm and dry conditions that marked the beginning of the cereal season in the Maghreb area were **particularly pronounced in Tunisia**. Wheat and barley are negatively impacted by persistent drought conditions and a **compromised season is confirmed**. Rainfall during the analysis period occurred in sporadic and low-intensity events, mostly in early April. Late rains in May delayed the harvest and will probably have a negative impact on quality. Cumulative precipitation was the lowest of the 1979-2022 historical series in almost all central and northern regions of the country. A high probability of crop failure is faced in the regions of *Le Kef, Siliana, Zaghouan* and *Ben Arous* among other governorates, whereas a below to well-below biomass accumulation is observed in all the other regions, with the only exception of *Bizerte*.



Türkiye: Even though crop development shows a delay due to weather conditions (cold and below-average precipitation) in February, winter cereals recovered thanks to substantial rainfalls: above (long term) average in March, April and even early May (+56% and +51% in March and April respectively). Crop development is at the grain filling stage in most of Türkiye. In central regions, crop conditions and response vary very significantly depending on locations and varieties, but plant development is often delayed compared to average season due to late planting or late emergence (e.g. *Ankara, Konya*). In South-Eastern regions (e.g. *Mardin, Sanliurfa and Gaziantep*) and Black Sea region of Türkiye, especially around *Samsun*, yellow rust symptoms are observed. Thanks to early warning and early input application, crops may not be impacted. Private agricultural input warehouses were damaged in *Adana, Diyarbakır, Gaziantep, Kahramanmaraş* and *Hatay*, as well as irrigation systems belonging to public sectors (TİGEM) around the 7.7 and 7.6 magnitude earthquake strikes of February 6. Now, most of these infrastructures have been repaired and local production will not be impacted. So far, there is **a positive outlook, with yield forecasted slightly above average for wheat and barley**. Reliable yield estimation will still depend on the temperature in May and June 2023.

Bulletin 2023 N.2 : This bulletin gives an overview of the development of cereal crops in the Mediterranean from sowing to 10 May 2023, focusing on the period from 11 March to 10 May.

Flagship regional activity: This crop monitoring and early warning initiative was progressively developed **since 2016** by the MED-Amin network ⁵ in collaboration with the Joint Research Centre (JRC) of the European Commission, providing an early **qualitative assessment of crop condition and yield potential of three winter cereals** (soft wheat, durum wheat, barley) based on a GEOGLAM-like approach but with a two-steps methodology using remote sensing and feedback from national Focal Points which enabled to identify hot-spots of concerns at subnational level using nomenclature and pie-charts similar to GEOGLAM for AMIS (Agricultural Market Information System) (see below) and to disseminate corresponding warnings.

General methodology: The forecasting methodology is based on the monitoring of crop conditions using indicators derived from Earth observation (e.g. fAPAR or NDVI), carried out **jointly by the CIHEAM-IAMM and the Joint Research Centre of the European Commission (EC-JRC)**. Reflecting out-of-average biomass accumulation vs the medium-term average (2013-2022) allows us detecting areas of concern⁶. These pre-screened areas of concern are then analyzed, validated or completed by each National Focal-points of the MED-Amin network, taking into account feedbacks from field observation and local experts, then labelling accordingly areas at risk.

Crop conditions legend (GEOGLAM scale and nomenclature):

- **Exceptional:** Conditions are much better than average at the time of reporting. This label can only be used between the grain-filling stages to the harvest stage.
- **Favourable:** Conditions range from slightly below to slightly above average at the time of reporting.
- **Watch:** Conditions are not far from average but there is a potential risk to final production. However, at this time it is considered that crops might still recover if conditions improve.
- **Poor:** Conditions are well below average and are very likely to impact production with a harvest clearly below average.
- **Crop failure:** Crops have been strongly damaged, low yield and area reduction will strongly impact the production.

Crop conditions Drivers (adapted from GEOGLAM nomenclature):

- **Wet:** Above-average accumulated total precipitation;
- **Dry:** Little or no rainfall period;
- **Hot:** Unusually above-average temperatures;
- **Cold:** Unusually below-average temperatures;
- **Extreme events:** Occurrence of extreme weather events;
- **Delayed onset:** Delayed onset and operations of the crop year;
- **Biotic stress:** Crop impact caused by living organisms, specifically viruses, bacteria, fungi, nematodes, insects, and weeds;
- **Low Input:** limited use of inputs (fertilizers, pesticides, etc.) that could end in moving the outlook for the future harvest (yield, quality).

Disclaimer:

This report has been prepared for the MED-Amin network. The information and views expressed in it do not necessarily reflect an official position of CIHEAM or of the European Commission.

⁵ MED-Amin network, gathering 13 countries and coordinated by the CIHEAM (International Centre for Advanced Mediterranean Agronomic Studies), aims to reduce prices volatility in agricultural markets. It develops an early warning system strengthening food security in the region. For more info: <http://www.med-amin.org>, <http://ec.europa.eu/jrc/en/mars> and <http://cropmonitor.org>

⁶ The long-term average (LTA) used within this Bulletin as a reference is calculated on the basis of weather data from 1991-2022.

Follow the evolution of the harvest forecasting throughout the campaign:

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