



MED-Amin Bulletin 2022 – 1

Winter crops early outlook at 10 March 2022

Winter crops in most of the northern and eastern Mediterranean growing regions are faring well in this first half of 2021-2022 campaign. However, an intense and long-lasting drought is hampering winter crops' future harvest in Portugal, Morocco, western Algeria and can potentially hamper other producing regions in the Maghreb area, Italy and Spain if rains further delay in the coming weeks. These crop conditions are occurring in a global context of high prices and trade tensions, elements that can further compromise the food security across the monitored area, until mid-2023.

The present bulletin gives an outlook about the progress of cereal crops in the Mediterranean region. It provides **early qualitative forecasting** of the 2021-2022 campaign, with particular focus on soft wheat, durum wheat and barley. This first outlook reviews crop conditions from the sowing up to 10 March 2022 and will be followed by two other reports in May and June.

This crop monitoring and early warning initiative was progressively developed since 2016 by the MED-Amin network in collaboration with the Joint Research Center (JRC) of the European Commission, providing an **early qualitative** assessment of crop condition and yield potential of **3 winter cereals** (soft wheat, durum wheat, barley) based on a GEOGLAM like approach but with a **2-steps methodology** using remote sensing and feedback from national Focal Points which enabled to identify **hot-spot** of concerns at **subnational** level using nomenclature and pie-charts similar to GEOGLAM for AMIS (Agricultural Market Information System) and to disseminate corresponding **warnings**.

NEW FEATURES : In a context of rising already high prices on global market, boosted by the war in Ukraine, a featured box was added to give **insight on the possible impacts of soaring input prices (of which fertilizers) in the Mediterranean region** (see Box 1). Provided by FAO, it examines and gauges the possible impacts on current and future campaign for cereals production. Also, as changes are already reported on the field of the Mediterranean countries (and elsewhere), a new **driver 'low input'** was added in order to give a more realistic view of the future harvest perspectives beyond the traditional abiotic factors.

The MED-Amin network, gathering **13 Mediterranean countries** and coordinated by the CIHEAM (International Centre for Advanced Mediterranean Agronomic Studies), aims to reduce prices volatility in agricultural markets. This initiative lays the foundation for an **early warning system** strengthening food security in the region. ¹

Regional outlook summary

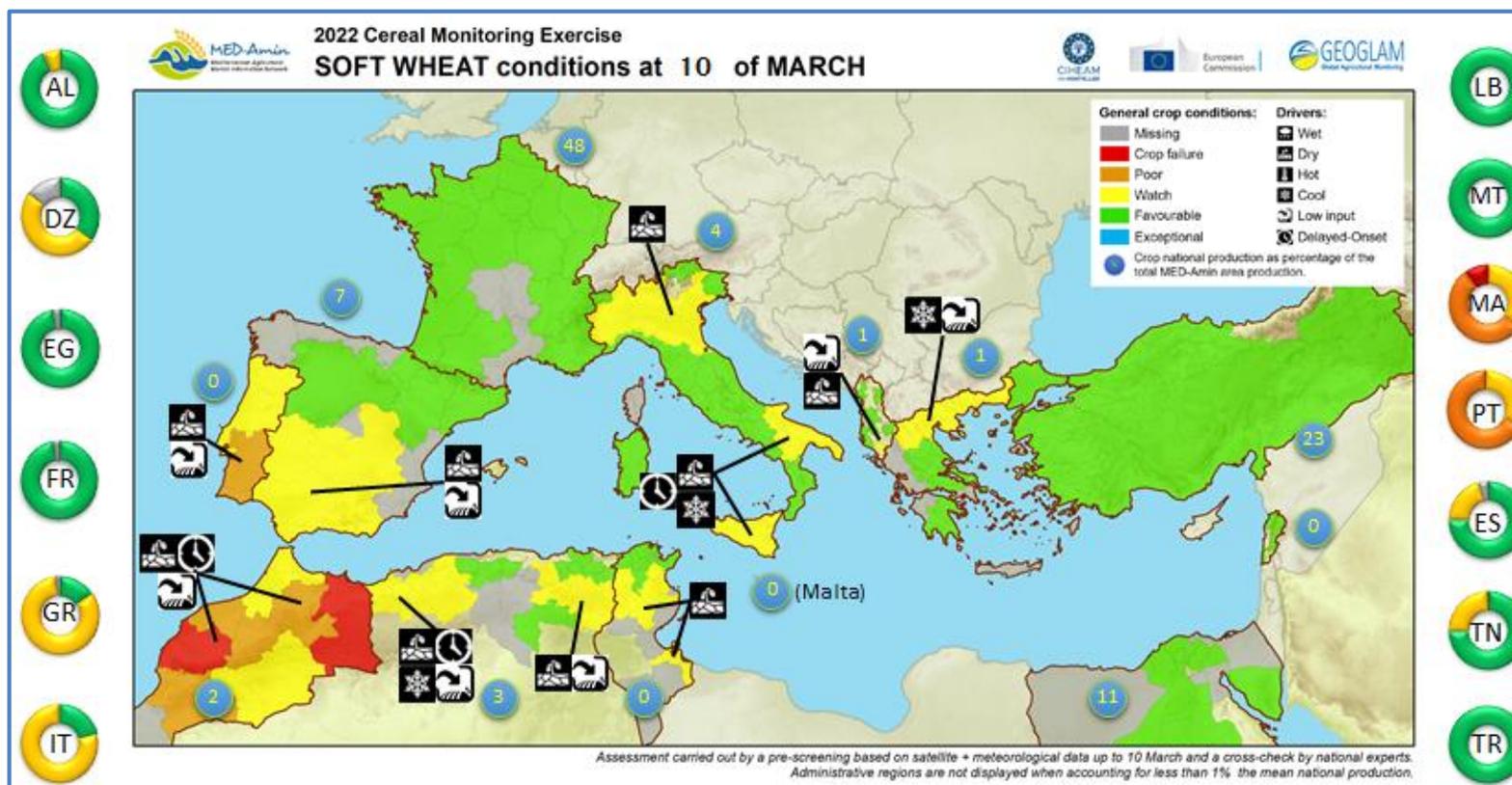
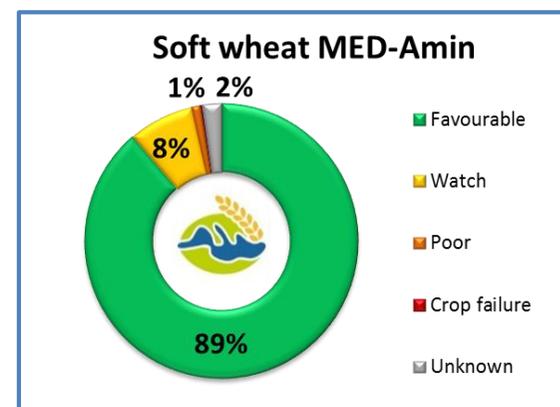
At 10 March 2022, the general outlook for winter **crops across the Mediterranean countries is rather positive despite mixed conditions illustrating differences between the regions**. The South-western regions of the Mediterranean basin are affected by a lasting drought since the beginning of the campaign, which already hampered the harvest in **Morocco** and in **Portugal**. Late rainfalls permitted to recover partly the situation in **Algeria** and **Tunisia**. Barley crops are particularly affected by water stress as the development cycle is shorter than wheat. Nevertheless, Durum wheat regional outlook is the less positive of the three monitored winter crops, as the current most affected countries are also relevant producers of this cereal at the Mediterranean level (e.g. **Morocco**).

In other Mediterranean regions, conditions are rather favourable (**Turkey, France, Egypt, Lebanon...**). However, some important regions are considered under watch condition in **Spain, Italy** and **Greece**, due to a more limited agrometeorological anomalies and most favourable crop condition during autumn.

¹ For more info: <http://www.med-amin.org>, <http://ec.europa.eu/jrc/en/mars> and <http://cropmonitor.org>

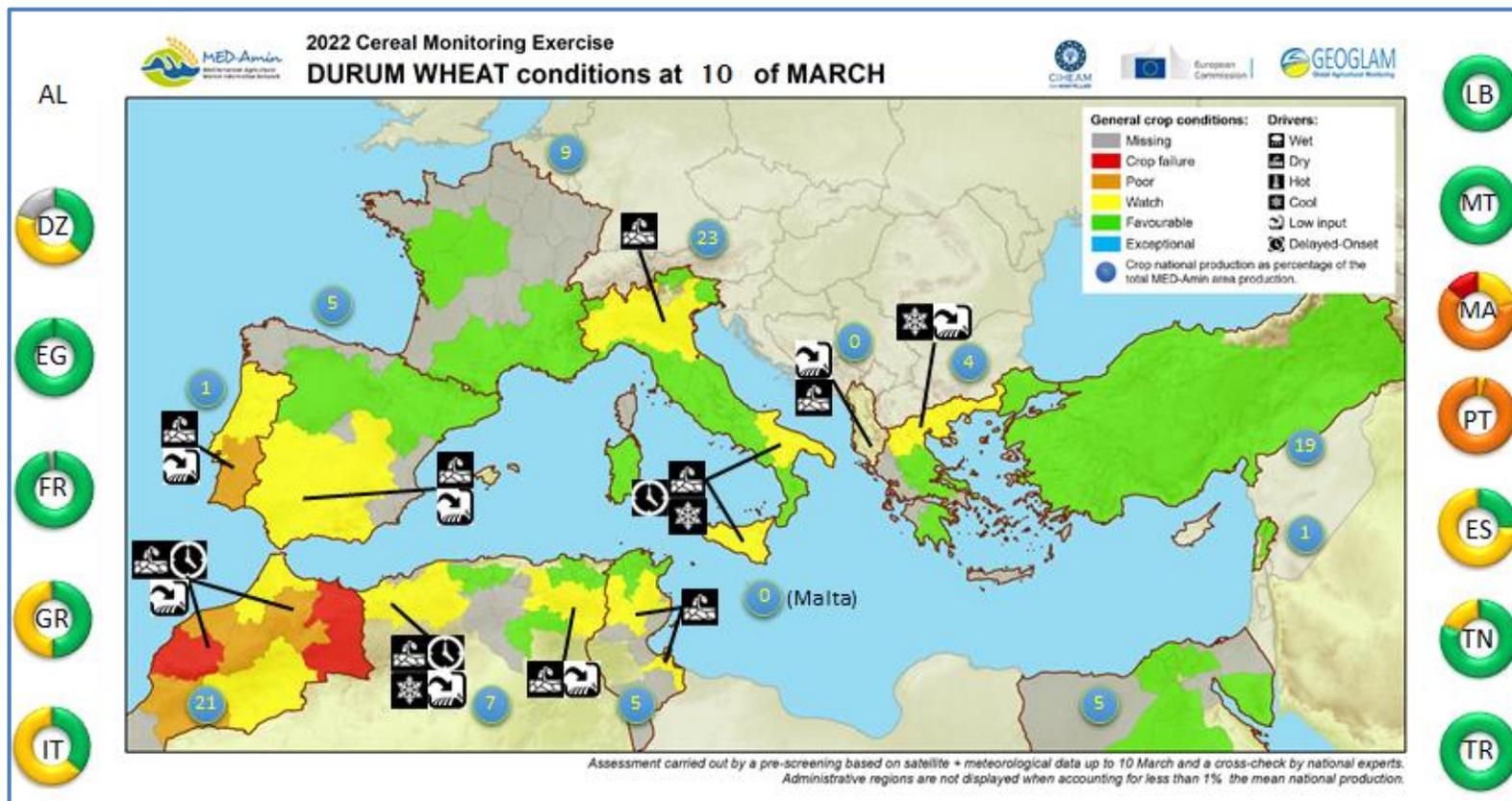
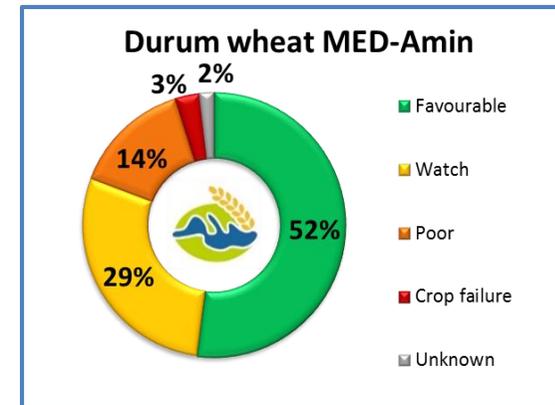
SOFT WHEAT crops developed under more favourable conditions since the beginning of the campaign than durum wheat and barley, with a large majority of the MED-Amin planted area under 'favourable' conditions (89% of the monitored area, see pie chart beside). The regional outlook is overall positive.

Soft wheat is growing well both in **France** (FR) and **Turkey** (TR), the most productive countries of the region (accounting for 48% of MED-Amin production and 23% respectively). In **Italy** (4% of MED-Amin production), the outlook for soft wheat is uncertain, with 79% of crops under 'watch' situation due to either dry or cold anomalies in Southern and Northern regions. Please see the National Highlights section of this bulletin.



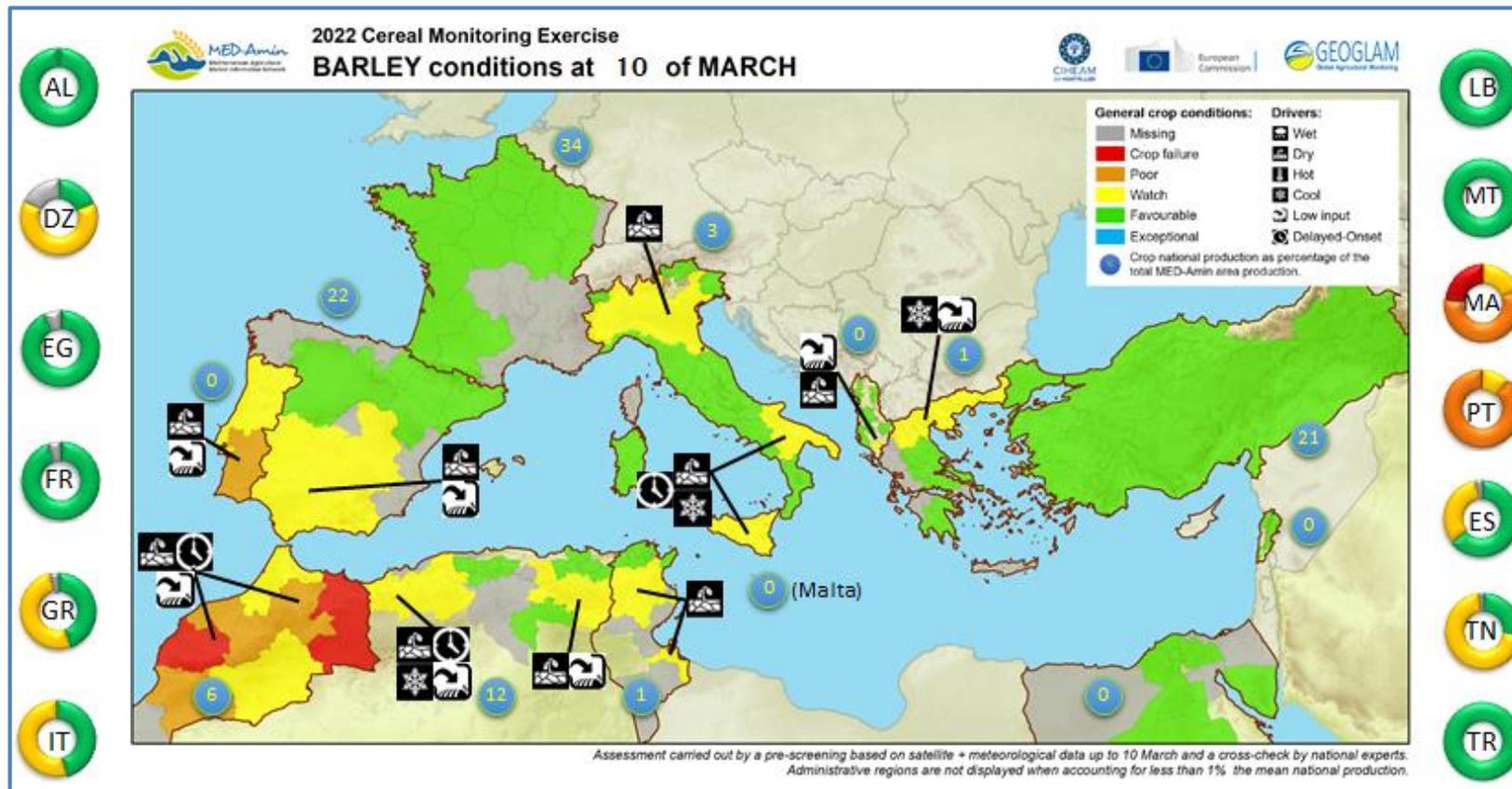
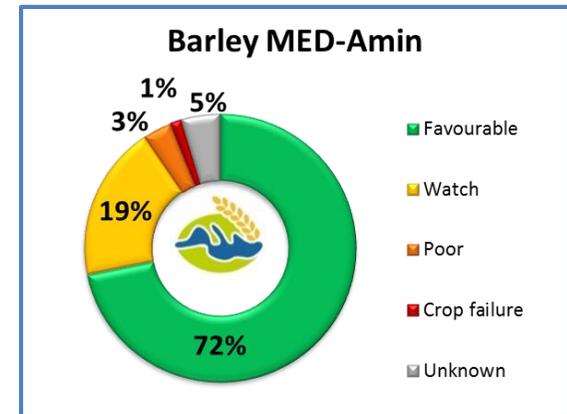
DURUM WHEAT is a typical Mediterranean production (47% of World production). Half of the Durum wheat planted area in the MED-Amin region developed under 'favourable' conditions (52% of the monitored areas), in particular in Turkey (TR) which accounts for 19% of the MED-Amin production. However, 17% of crops are developing under 'poor' conditions up to 'crop failure' (14% and 3% respectively, see pie chart beside on the right).

Morocco (MA) is accounting for 21% of the MED-Amin production. Severe crop growing conditions are registered since the beginning of the campaign for most of the regions of the Kingdom: regions in charge of almost 64% the national production are under 'poor' conditions and 15% are already considered in 'crop failure'. Please refer to the National Highlights section of this bulletin.



BARLEY is concerned by mixed to adverse abiotic conditions in several critical regions of the Mediterranean area (see pie-chart on the right). About a quarter (23% of the monitored areas) of MED-Amin planted area is highlighted as ‘watch’, ‘poor’, or ‘crop failure’. In several countries, barley is the winter crop most affected as latterly planted crops suffered more from drought.

For example, in **Algeria** (DZ) accounting for 12% of MED-Amin area barley supply (based on the last 5-Y average), many planted areas are under ‘watch’ conditions awaiting for needed rains, in particular in western and central wilayas (>60% of the Algerian production, see pie chart on the left side of the map below). Please refer also to the National Highlights section.



BOX 1: Soaring input and fertilizer prices in CIHEAM Countries: Measuring their extent and gauging possible impacts

(Josef Schmidhuber, Deputy Director, Trade and Markets Division, FAO)

The recent upsurge in agricultural input prices has triggered considerable alarm about rising costs of food production, which in a free-market economy will be typically passed onto consumers through higher food prices. This contribution to the present MED-Amin Bulletin examines the extent and the speed of rising input prices, offering a regional variant of FAO's newly constructed Global Input Price Index (GIPI); this regional input price index (CIHEAM-RIPI) combines prices for five major input categories (energy, fertilizers, feeds, seeds and pesticides) for 13 CIHEAM Member Countries into a single, trade-weighted regional aggregate. Figure 1 presents the evolution of the CIHEAM-RIPI and juxtaposes it to the development of the GIPI, its counterpart at the global level. Figure 2 shows the evolution of each category of the input price index.

A number of fundamental features of agricultural input price developments emerge from Figures 1 and 2. Firstly, Figure 1 suggests that the swings in input prices faced by producers in the CIHEAM region, have so far, evolved in **sync with those at the global level**. This holds for the ups and downs of the past 15 years as well as much of the steep rise in input prices seen over the past 15 months. Secondly, and moving to Figure 2, the **most notable input price increases have been registered for fertilizers**, with aggregate price levels approaching their all-time highs of 2008. At a more disaggregated level, prices for energy-intensive fertilizers such as urea or ammonium nitrate, have recently even exceeded their 2008 peaks, at least in nominal terms, i.e., without adjusting for inflation. Thirdly, input prices have risen even faster than output prices. This means that input affordability and particularly fertilizer affordability² has rapidly deteriorated and, as a result, farmers find it **increasingly onerous to pay for fertilizers**, high output prices notwithstanding (Figure 3). Fourthly, declining fertilizer affordability **could result in the reduced use of fertilizers in the current (it is already reported in this seasonal Bulletin) and the next crop season**, weighing on yields and product quality (e.g., compromising wheat protein content due to a limited application of N-fertilizers such as urea). Fifthly, and while the impacts on food markets are difficult to gauge at this early stage, lower food production could cause new upswings in food prices and result in **reduced food security, particularly for those population segments that spend a large share of their incomes on food and energy products**. Finally, given the fact that the root causes of the input price boom lie in the energy sector and hence outside the internal forces of agricultural supply and demand, the ability of food markets to self-correct could be seriously compromised. This could portend that high food and input prices will remain a defining feature of agricultural markets, at least until energy prices equilibrate at a lower price level.

² Affordability here is defined as the ratio of output over input prices. For more detailed information: https://www.fao.org/3/cb7491en/cb7491en_special_feature.pdf

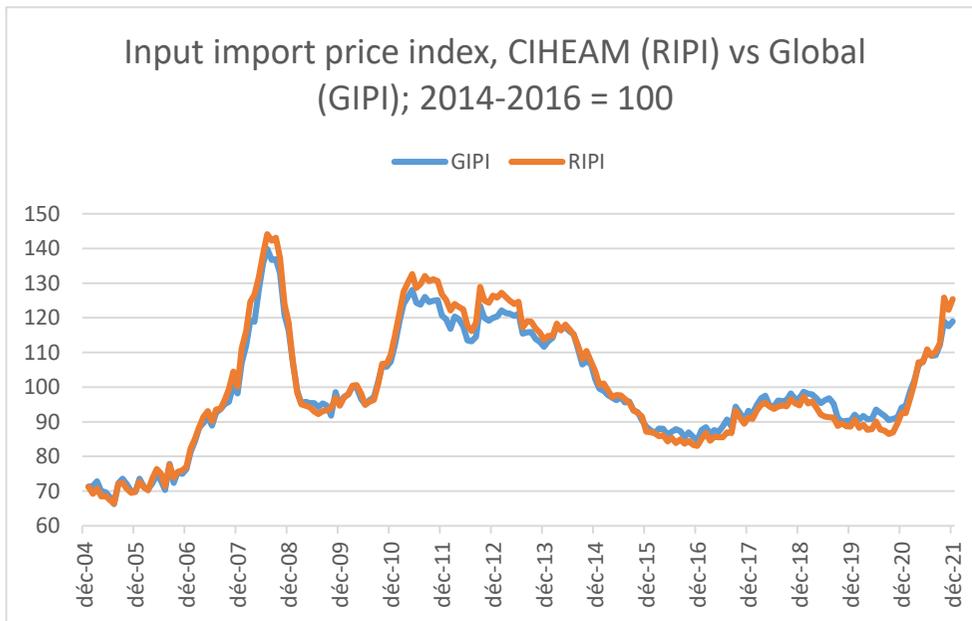


Figure 1: RIPI and GIPI, 2004-2021 (FAO)

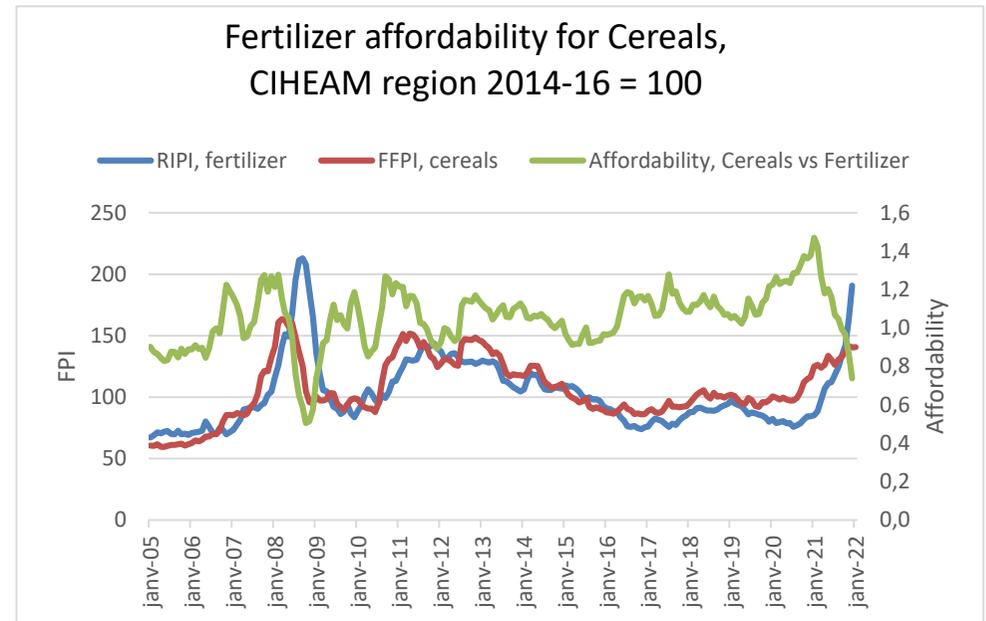


Figure 3: Fertilizer affordability for cereals in the CIHEAM Member Countries (FAO calculation)

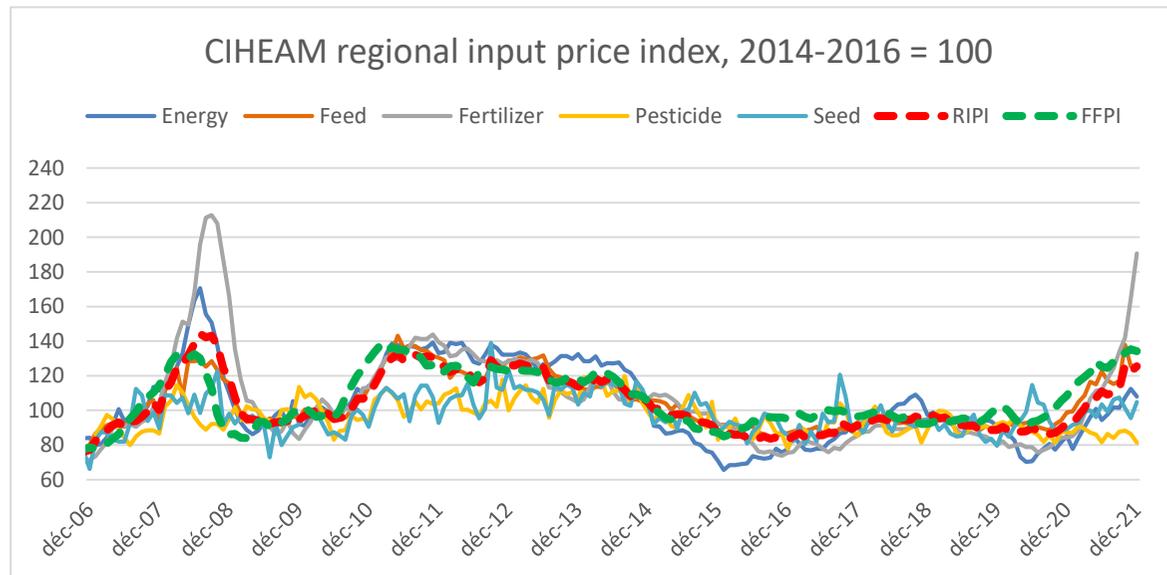


Figure 2: The main components of the CIHEAM-RIPI (FAO)

National highlights³



Albania: The 2021-2022 campaign brought favourable meteorological conditions for winter cereals in the country, leading to a normal progress in growth and development for crops during the sowing, germination and vegetative stages. Crop condition in almost 97.4% of the planted area are growing under favourable conditions ⁴ with the only exception of 2.6% which is instead considered under observation because of prolonged drought and cold anomalies. The sowing season was completed on time for most of the country (except for *Dibër* region due to low temperatures). In some regions (e.g. *Dibër, Durrës and Gjirokastër*), crop conditions during the sowing-germination phase were not favourable because of mixed adverse conditions (either cold, dry or wet anomalies), however, crops can recover if improved weather conditions occur in the next weeks. The increase in the price of fuel, as well as the overall increase in agricultural input prices (seeds, fertilizers and pesticides) has indirectly affected the reduction of the area treated with chemical fertilizers in some regions, which could lead to lower yields or non-optimal conditions for the development of crops but not to a reduced planted area.



Algeria: In general, the climatic conditions enabled a rather normal vegetative development for winter cereals crops (e.g. wilayas of the East). In the western wilayas, however, crops are under concern. The climatic conditions at the start to the current crop campaign were marked by a lack of rainfall during the months of September and October 2021, leading to a delay in the execution of soil preparation operations and also in the establishment of cereals (particularly in the western and central regions). A moderate improvement in climatic conditions was noted with the return of the rains in November, which gave cereal growers hope for the resumption of ploughing-sowing operations in good soil moisture conditions and the start of autumn plowing. As such, with the return to calm during the month of December 2021, farmers were able to carry out soil work and sowing in the different horizons. The month of January was characterized by scarce rainfall, particularly in the western and central wilayas, which had a negative impact for plants sown in December. In February, an almost-total absence of precipitations and cold temperatures took place, and the vegetative phases slowed down especially for the early sowings in the Western wilayas. In *Tiaret*, the most productive wilaya, and to a less extent in *Sidi Bel Abbès*, cereals are actually in poor conditions due to dry and cold anomalies. The return of the rains in March with milder temperatures allowed a partial recovery and a rapid biomass accumulation. NB: A lower fertilization rate than in previous campaigns following the increase in fertilizer prices may have a negative impact on yield.

³ Highlights relating to each country are detailed in a section using a coloured background depending on the overall assessment of the situation: green if favourable, blue if exceptional, yellow if mixed, orange if poor.

⁴ Crop monitoring realized at the district level then agglomerated at national level by the Ministry of Agriculture and Rural Development.



Egypt: No extreme events were monitored noted so far. **Average to above-average expectations for cereal production are expected.** Crops are faring well thanks to the predominately irrigated arable land.⁵



France: As of March 17, **winter cereals growing conditions are from in-line-with or moderately-above an average season.** Although some regions have lacked rainfall (e.g. *Languedoc-Roussillon*, *Picardie*) while others have suffered from rain excess (e.g. *Midi-Pyrénées*, *Ile-de-France*), wheat and barley crops have, at this stage of development, a higher proportion of areas in “good” and “very good” conditions compared to the last four years. In addition, the biotic stress observed in March in several regions (e.g. *Bourgogne* and *Franche-Comté*) did not have a significant impact for cereals final production.



Greece: So far, **crop conditions are mostly favourable during this campaign.** In *Central Makedonia*, grains are growing under favourable conditions with a positive outlook, of winter cereals start or end tillering depending on whether they were early or late plantings. Overall in the country, barley resulted fairly more negatively affected than wheat (as this is usually sown later) by the low temperatures taking place in February, this was particularly clear in *Serres*. In *Western Makedonia*, plantings were delayed due to rains in November 2021. After colder-than usual winter months, crop development is delayed and plants are waiting for milder temperatures to grow. A reduced fertilizer use was observed in rural areas due to rising fuel and fertilizer prices, which may affect next harvest. In other regions (*Thessaly*, *Eastern Makedonia*), crop conditions are favourable so far.



Italy: **Crop conditions are mixed, with concerns in the Northern and Southern regions.** In north-western and north-eastern regions (e.g. *Emilia-Romagna*, *Lombardia*), crops are facing drought conditions, with -80% to -50% of precipitation compared to the LTA. Rain is urgently needed to avoid reduction of winter crops yield potential and also to favor the efficiency of fertilizers. The seasonal lack of snow on the Alps will not contribute to replenish rivers and lakes (the *Po* river is at the lowest levels since 1972⁶). Restrictions to irrigation during late spring are likely to occur. In southern regions (critical for durum wheat crops), a sharp cooling of temperatures took place since 25 February, resulting suboptimal for cereals growth, lagging already behind average stages due to late sowings (more than 10 days of delays vs average). For instance, in *Sicily*, the combination with dry months since plantings could lead to poor harvest this year but harvest is still far away.



Lebanon: This **campaign is characterized by favourable conditions for cereals.** In *Beqaa*, by far the most productive region, cold temperatures in mid-January slowed down cereals growth and caused moderate crop delays. The above-average amount of cumulated rainfalls and their fair distribution during the campaign led to an overall positive outlook for crop productions, which are expected to recover the growth delay fast.

⁵ These information on crop conditions in Egypt was made available from the latest JRC MARS Bulletins for North Africa: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC127969/JRC127969_01.pdf

⁶ <https://www.adbpo.it/siccita-estrema-le-piogge-saranno-sufficienti-non-sembra-almeno-in-una-buona-parte-del-distretto-padano/>



Malta: No extreme events are noted so far. Crop conditions resulted in-line-with the average season.



Morocco: The 2021/2022 agricultural campaign got off to a difficult start following the rainfall deficit in most regions, which prompted cereal farmers to sow late. For instance, the national average cumulative rainfall at the end of February was only 86 mm, - 66% versus the last 5-year average, and the average filling rate of dams for agricultural use is around only 31%. Subsequently, unfavourable weather conditions hampered crop development, causing a considerable loss in the cereals planted areas. While the dominant phenological stage is between bolting/early heading and flowering, **the impact of the drought is already affecting most regions to varying degrees and hampering the future production**. This has been noticed in the three major cereal crops, **particularly for soft and durum wheat**. In the *Marrakech-Safi* and *Oriental* regions, the situation is irreversible on the majority of the sown area. In other regions, the last rains may still improve crop conditions ⁷. The estimated rate of agricultural lost area is around 30%. In addition, the increase in the price of agricultural inputs, particularly nitrogen fertilizers, has led to a reduction in their use, which could contribute also to lower yields this campaign. NB: Direct seeding, promoted by the MAPMDREF, brings improvement in cereal yields in particular in drought like this year by preserving soil moisture, which is more performed in the regions of *Casablanca-Settat*, *Rabat-Salé-Kénitra* and *Fez-Meknes* (accounting for more than 80% of the direct seeding areas in Morocco).



Portugal: The current campaign moves towards **significant potential losses for future cereals harvest** or even total loss in some provinces. On the background, it is found a general reduced arable crops planted area compared to the previous year, in reason of the increased price of crop inputs (e.g. electricity, gasoline and fertilizers). The December - January period showed very hot and very dry anomalies compared to the long term references, and February followed by worsening the dryness. The percentage of water in the soil is much lower than normal, and in the *Alentejo* and *Algarve* regions these values are generally lower than 20%. In many places the point of permanent wilting has already been reached. In the *Alentejo*, the top productive region, a lack of rain should have already compromised the future production, especially those that were sown in thinner soils with less capacity to retain moisture. In *Algarve*, the poor development of the plants, as a result of the lack of water, drives likely to a small production of cereals this year. There, all production that may occur will be weak and of poor quality. It will most likely be used directly for animal feed. Dry conditions prevail also in the other agrarian regions (*Entre-Douro e Minho*, *Trás-os-Montes*, *Centre*). A slowdown in the development of plants since the planting period as observed and the absence of rainfall prevented from the application of fertilizers. In *Lisbon e Vale do Tejo*, the sowing of cereals is practically stopped. In rainfed regime, the areas sown at November - December, although poorly developed, presented a reasonable vegetative aspect.



Spain: The initial part of the 2021-2022 crop campaign was characterized by a lack of rainfalls (since the beginning of January), which caused concerns especially in the Southern half of the Peninsula, particularly for the late sowings (e.g. *Andalucia*). In those regions experiencing critical dry conditions, there would be a

⁷ After the monitored period (up to 10 of March), well distributed rains were registered in March, which could help recover partially the situation in some agrarian regions such as *Tétouan* and *Fès-Meknès*, <https://lematin.ma/express/2022/dernieres-pluies-ont-impact-immediat-cultures-sadiki/373914.html>.

tiny margin for improvement if no rain will occur during March (*Andalucia, Extremadura, Castilla la Mancha*). However, at national level, it is still too early to pronounce on the future harvest impact. The **unfavourable dry conditions can still be reversed by favourable weather (rains) in the upcoming key months**. Another issue concerns nitrogen use. Its application has been limited due to high prices of fertilizer, while waiting for rainfalls. The limitation or delay in nitrogen fertilization is a drawback element this season and could impact yields and quality because of the need for N during vegetative growth.



Tunisia: After a good start to the crop campaign, a rainfall deficit occurred in February, particularly in central and central-western regions. In the north-western and central-eastern regions, crop conditions must be monitored closely while in the north-east and Cap Bon regions conditions are favourable. From March, the onset of precipitation improved the situation in all regions of the country. Planted late, **wheat production in line or above average is doable. Barley, which is planted earlier, will be more affected by this dry start** to the season. A watch status remains in place in the central and central-western regions (e.g. *Kasserine, Kairouan, Le Kef*) where the rainfall deficit remains.



Turkey: Cereals (wheat and barley) crops development has been delayed due to relatively cold temperature in March in some areas (e.g. South-eastern regions) without significant impact on future production. Phenological stages are from tillering to the stem extension, according to the regions. In general, the total amount of precipitation was sufficient and there were no drought events all long the first half of the campaign. So far, **no significant problems were monitored and yield expectations are close to the average**. Final yields will notably depend on the precipitation and temperature in May, especially in the most productive regions (e.g. *Central Anatolia*). Despite high inputs costs, there is no decrease in planted areas nor monitored impact on the future production.

General methodology: The forecasting methodology is based on the monitoring of crop conditions using indicators derived from Earth observation, carried out jointly by the CIHEAM-IAMM and the Joint Research Centre of the European Commission (JRC). This allows detecting areas of concern, deviating from normal conditions, which are characterized using the GEOGLAM scale and nomenclature (see below). These pre-screened areas of concern, defined at a sub-national level, are then analyzed, validated or completed by each National Focal-points of the MED-Amin network, taking into account feed backs from field observation and local experts.

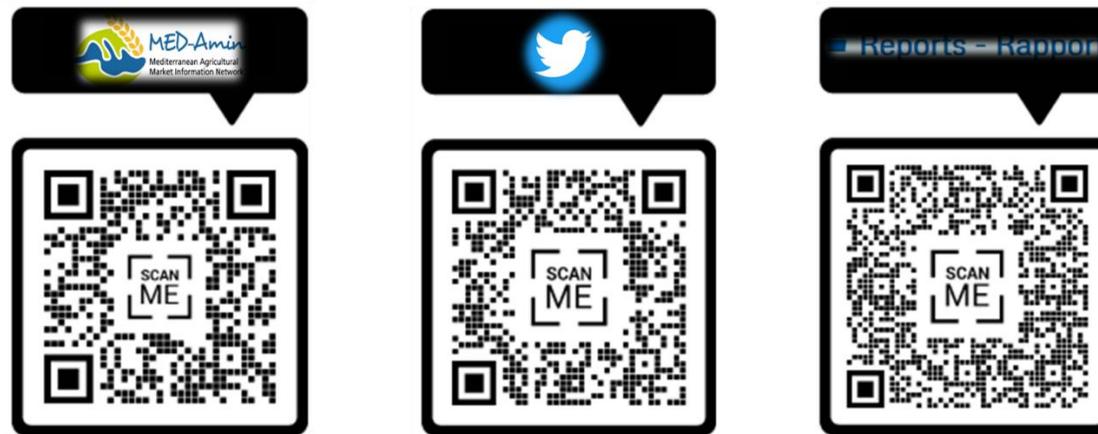
Crop conditions legend (GEOGLAM scale and nomenclature):

- **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. This label may only be used between planting/early-vegetative stage and vegetative/reproductive stages.
- **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 humidity; **Dry:** Above average drought; **Hot:** Above average temperatures; **Cold:** Below average temperatures; **Extreme events:** Presence of extreme events; **Delayed onset:** Delayed onset and operations of the crop year; **Biotic stress;** **Low Input:** limited use of inputs (fertilizers, pesticides, etc.) that could end in moving the outlook for the future harvest (yield, quality).

Follow the evolution of the harvest forecasting throughout the campaign:



<https://www.med-amin.org/fr/> et https://twitter.com/MEDAmin_network.

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