Estimation qualitative de la production 2019 de blé et d'orge

ANNEXES

Exercice de prévision de récolte dans le réseau MED-Amin

List of annexes

Terms of reference (2018)

Qualitative estimation of the future wheat and barley production

1. Context and General Objective

The MED-Amin network is an initiative launched by the Ministers of agriculture of 13 countries and managed by the CIHEAM aiming at supporting decision-makers in the Mediterranean region regarding the efficient management of cereal market issues. The initiative seeks to foster cooperation and experience-sharing between information systems covering these markets and to provide enhanced monitoring of food security issues in the region. Such an approach could include possibly an early warning system[1] as well as an enhanced international coordination, in liaison with existing systems, such as those established at the international level: AMIS, GEOGLAM, FAO-GIEWS, MARS-JRC-EC, etc. To this end, and with the purpose of enabling stakeholders to position themselves in an active framework of anticipation, the network led, since its creation in 2014, a series of activities such as data collection, cereal balance-sheets production, training sessions, information and methodology-sharing.

During its fourth meeting held in Tunis in 2016, a working group was established to develop a **pilot experiment on a forecasting and early warning system**, in collaboration with AMIS and with the Joint Research Centre of the European Commission (monitoring of crop conditions and forecasting of harvests). The 2017 pilot experiment released a promising prototype of forecasts bulletin covering, as a first step, soft and durum wheat. Five countries took an active part on this collective work. The continuation of the activities of the working group was encouraged by all members in June 2017 (see appendices). The MED-Amin network meeting in Malta on 24 and 25 January 2018 decided to continue and extend this exercise in 2018 : *"Despite the obstacles encountered in 2017 (time and resources constraints, coordination of calendars, usefulness of the exercise to be demonstrated to the decision-makers), it was decided to continue the collaboration with the JRC/MARS to*

[1] The implementation of such a system is among the mid-term objectives referred to in the Conclusions of the Paris MED-Amin meeting held in Paris on January 22 and 23, 2014: «*Lay the foundations of a better monitoring of the food security in the Mediterranean region, possibly including a database, an early warning system and a better coordination among countries*».

qualitatively estimate the harvests and crop conditions of the year 2018 for the 5 cereals monitored in the 13 MED-Amin countries" (see Conclusions of the Meeting in Valletta).

2. Participants

The participants in the 2018 pilot exercise are the focal points (called FP) of the MED-Amin network (13 countries: Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Turkey), operating on a voluntary basis, in the context of virtual exchanges led by the MED-Amin Secretariat. The focal points will solicit their national experts to compare the estimated data with field surveys and analysis.

The Joint Research Centre (JRC) of the European Commission will be, as in 2017, a close partner in the exercise through its Food Security Unit (JRC-D5 Unit), i.e the former MARS (Monitoring Agricultural ResourceS) Unit (see How it works).[2]

The MED-Amin Secretariat (hereinafter referred to as CIHEAM) will ensure the sharing and facilitation of exchanges between the JRC-D5 Unit and the focal points.

3. Targeted commodities

Wheat (soft wheat and durum wheat) and barley will be monitored in the spring of 2018. Maize and rice may be added in a second step, as far as possible, and after evaluation of the first estimate for wheat and barley.

4. How it works: Operating principles

To remedy the difficulties encountered in 2017 (commitment of countries, difficulties to participate in videoconferences, time-costing of field information feedbacks, deadlines for publication of the Bulletin...), a faster and "agile" approach is proposed for this new pilot exercise (see following paragraph).

The monitoring of crop and harvest conditions and the formulation of a qualitative assessment of expected harvests for the targeted commodities in the participating countries are based on the comparison between indicators derived from Earth observation data and models provided by the JRC and information from field observations from each national authority's network.

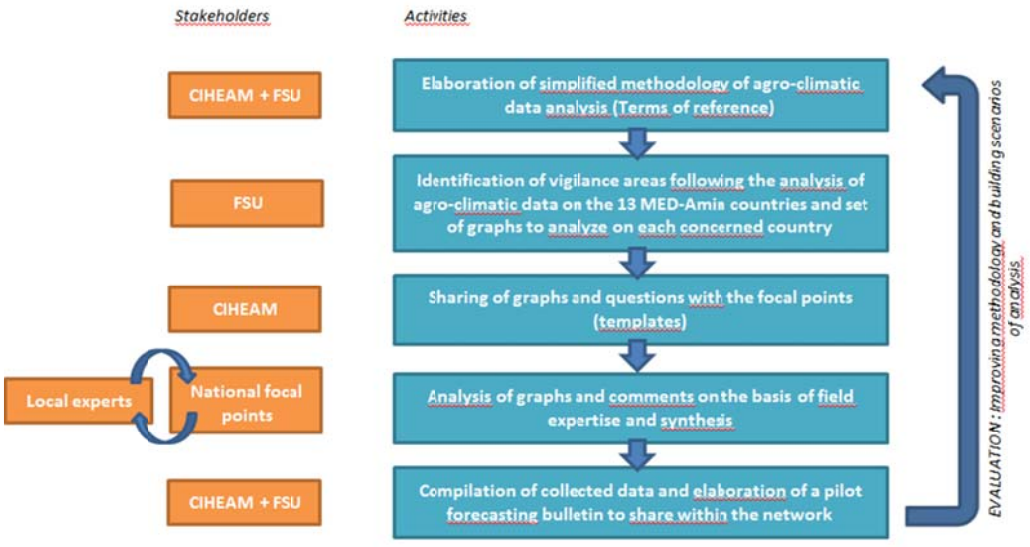
5. Provisional calendar and Methodology

The process will proceed as follows (see graph as a summary):

1. **Preparatory work**: The CIHEAM drafts and shares with JRC-D5 Unit the **Terms of Reference** (this same document, in FR / EN, describing the objectives, the content and the communication rules of the exercise) and the country response forms called **Analysis Document** on the basis of the documents prepared in 2017.

[2] For convenience, the acronym MARS can still be used in some diagrams or sentence to refer the data or the Crop monitoring system(s) used by the JRC.

2. **May 4th, 2018**: The CIHEAM informs the focal points of the start of the 2018 exercise and sends them the terms of reference.
3. **In parallel and before the end of May**, JRC-D5 Unit examines weather and other indicators derived from satellite and agro-climatic data (the same as in 2017: rainfall, temperatures, fAPAR biophysical index) for the 13 countries to identify areas with discrepancy (positive or negative) in these indicators compared to historical data and medium and long-term averages, denominated hereafter **Pre-screened Areas (PAs).**
4. **Before the end of May**, JRC-D5 Unit shares the result of this analysis with CIHEAM by providing (i) a map with the PAs of the 13 MED-Amin countries and (ii) for each PA:
    a. a set of graphs related to the indicators above-mentioned that would illustrate the unusual phenomenon identified (such as satellite derived indicator profile, cumulated precipitation histogram, temperature profile, etc.).
    b. questions and requested information for national focal points with the potential support of their local sources.
5. **As soon as possible**, the CIHEAM informs FP whose country has at least one PA by providing them with the corresponding Analysis Document including outputs of the JRC-D5 Unit analysis. Each FP will have to fill it with the contribution of field experts and return them, as soon as possible, to CIHEAM (with JRC-D5 Unit in copy).
6. **May-June**: Country-by-country exchanges between the CIHEAM-PF-JRC on the real situation in the PAs, their weight in the national production of wheat and barley, the support in the filling of the Analysis Document.
7. **July**: A prototype of crop forecast bulletin is written by the CIHEAM and JRC-D5 Unit with a regional synthesis and on the basis of the collected data, then disseminated at the end of July 2018 within the MED-Amin network. This document will remain internally to the network as it is still a pilot exercise.
8. **July-September**: Evaluation of the 2018 pilot exercise with all MED-Amin participants involved (CIHEAM, JRC and PF) with conclusions and prospects for the future. A report will be written by the CIHEAM and discussed with the participating FPs and JRC-D5 Unit.
9. **Fall 2018**: If considered to be interesting and feasible, the same exercise can be extended to maize and rice.
10. **Early 2019**: Restitution of the 2018 pilot exercise at the annual meeting of the MED-Amin network to be held in Morocco.



6. Confidentiality

All participants agree to respect the confidentiality of data exchanged during this exercise. Only the final product will be disseminated within the network after confirmation of all participants.

7. Contacts

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Annex

Categories and definitions used in the Analysis Document

The **fAPAR** is a biophysical indicator calculated form Remote Sensing data which provides information about the canopy conditions. Those indicators allow to evaluate the biomass accumulation as well as the status of the phenology of the crop cycle (delayed, advanced) by using time series.

Qualitative evaluation of crop conditions:

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.

Favorable: 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. Crops conditions are likely to be >= 10% below average and impact on production is very likely.

Crop failure: Crops have been strongly damaged. Crops conditions are likely to be >= 25% below average.

Main "Driver(s)" for the current crop conditions:

 **Wet**: Higher than average wetness

 **Dry**: Dryer than average

 **Hot**: Hotter than average

 **Cold**: Cooler than average

 **Extreme event**: Presence of extreme events such as: hurricane, typhoon, frost, hail, winterkill, wind damage, etc.

 **Delayed Onset**: Late start of the season

Collection of preliminary information (Baseline)

The qualitative evaluation exercise of wheat and barley production in 2019 was decided at the 6th meeting of the MED-Amin network in Meknes (22-23 January 2019) with the participation of all the countries of the network. This note aims to guide the MED-Amin Focal Points in collecting the preliminary information required for this exercise. Its general purpose is to build a reference base-line to weigh the results by the average production of each monitored crop (soft wheat, durum wheat and barley) by administrative unit of the country.

For the seven MED-Amin countries that participated in the collection in 2017 (Albania, Algeria, France, Italy, Greece, Italy, Lebanon, Tunisia), it will simply be a question of updating the data of five-year average production and of adding the data for barley.

The required data must be returned **no later than 29 March 2019**.

March 2019

STEP 1: Selection of Sub-national administrative units for the monitoring of crop conditions and agricultural statistics

The establishment of an effective monitoring of crop conditions requires the prior definition, ~~for each country,~~ of relatively homogeneous sub-national production zones in terms of agro-ecological dynamics, cereal cropping practices and calendars. In theory, such zones would not exactly fit to the administrative sub-divisions of countries. However, for practical reasons (simplicity of implementation and crossing between statistics and indicators), we choose to start from the existing administrative division. It is therefore necessary to choose the optimal level to carry out our monitoring on a Mediterranean scale.

Countries' focal points are invited to define the optimal administrative level for this forecasting exercise. All the sub-regions reported should cover all or at least 90% of the production for each of the three monitored crops (durum wheat, soft wheat and barley).

The selected level will have to delimit geographical units with the characteristics of:

- Availability of agricultural statistical data
- Homogeneity of agricultural production (agro-ecological dynamics, cereal development practices and timelines)
- Relevance for the assessment of crop conditions
- Size adapted to the detail level of the available Earth observation data sources
- Size adapted for a presentation at the regional MED-Amin level.

The administrative breakdown which is globally most frequently used is the GAUL1. It corresponds to the first set of regional delineations made by FAO at the sub-national level. It is often identified as a "reasonable compromise in the arbitration between the selection of units with homogeneous agro-ecological characteristics (ideally small) and the need to arrive at a synthesis of results in the context of forecast (ideally covering large areas)."[3]

However, depending on the country, other standards have been implemented[4] and administrative levels may be favored and used in the forecasting exercise, especially for reasons of presentation at the Mediterranean level (eg Lebanon, Albania, Malta ...).

→ The MED-Amin Secretariat first transmits to each country, with this note, a proposal of administrative division respecting the characteristics above-mentioned. If this proposal is not appropriate, the focal points will propose a more realistic alternative country division breakdown before the statistical data can be entered (step 2).

[3] See for instance, Technical Report of the JRC-European Commission, "The warning classification scheme of ASAP - Anomaly hot Spots of Agricultural Production", http://publications.jrc.ec.europa.eu/repository/bitstream/JRC104618/lb-na-28313-en-n%20.pdf. And FAO Gaul site http://www.fao.org/geonetwork/srv/en/metadata.show?id=12691

[4] In particular at the European level, with the NUTS system (Nomenclature of Territorial Units for Statistics) https://ec.europa.eu/eurostat/web/nuts/background

STEP 2: Collection of statistical data: production, yield and surface

→ Once the commonly-agreed definition of the level of administrative division appropriate for the exercise (step 1), the Secretariat sends a questionnaire (Excel table) for the collection of statistical data.

NB: For the seven MED-Amin countries which participated in this collection in 2017, the table will include the data acquired in 2017 that simply need to be updated and completed for barley.

The focal points fill in the table of the questionnaire (see example below) with values relating to Productions (in tonnes), Yields (in tonnes per hectare) and Surfaces (in hectare) corresponding to the different administrative units for the last five available years [5](if possible from 2014 to 2018). They relate distinctly to soft wheat, durum wheat and barley. The essential data concern the production and, as far as possible, the yield and area planted.

The focal points can either indicate the average production of common wheat, durum wheat and barley (in tonnes) over the last five-year data available [column MOY 5Y], or indicate the productions for each of the last five years (as far as possible over the 2014-2018 period), or both data.

NB: The collected data on the sub-regions **must cover all or at least 90% of the production for each of the three monitored crops** (durum wheat, common wheat and barley).

Example:

Soft Wheat								
Country	Administrative unit level (suggested)		2014	2015	2016	2017	2018	MOY 5Y
Country X	Region 1	Production (t)	40 138	71 154	81 434	62 166	53 694	61 717
		Yields (t/ha)	4,8	5,2	4,7	4,5	4,7	
		Area (ha)	8 405	13 615	17 380	13 905	11 495	
Country X	Region 2	Production (t)	129 298	131 601	152 915	167 155	122 488	140 691
		Yields (t/ha)	5,4	5,1	5,9	6,0	3,9	
		Area (ha)	24 050	26 000	26 100	28 050	31 220	
Country X	Region 3	Production (t)	48 531	44 221	32 868	42 065	58 287	45 194
		Yields (t/ha)	5,2	5,4	4,7	5,4	5,4	
		Area (ha)	9 260	8 255	6 980	7 787	10 730	

The collection must be finalized before 29 March 2019, before the next steps of the exercise scheduled to begin in early April 2019 (see Conclusions of Meknes).

[5] In case official statistics are not yet availalbe for 2018 or even 2017, please provide also 2013 (and 2012)

Document of analysis of pre-screened areas (PAs) and at national level by the focal points and their field experts on the basis of the 1st pre-screening by JRC and MED-Amin Secretariat

Country: X

Name of the respondent (indicate if Focal point or other referent):

Typology of the associated field expert(s) (officials from the Ministry of agriculture, local officials, researchers, private, others ...) :

Date of the completion of the document:

1. fAPAR map for the country: Pre-screened Areas (PAs) and corresponding Administrative units

The Map 1 represents the Pre-screened Areas (PAs, the circle) and the differences between the fraction of Absorbed Photosynthetically Active Radiation (fAPAR) cumulative from the 1st of March to the first decade of April 2019 and the medium-term average (1998-2017) for the same period. Positive anomalies (in green colour) reflect above-average canopy density or early crop development, while negative anomalies (from yellow to red colour) reflect below-average biomass accumulation or late crop development.

The JRC and the MED-Amin Secretariat have identified the following PAs that correspond to specific administrative units[6]:

- PA Y:

[6] The sub-national level used in this document has been previously identified by the Focal Points during the collection of the baseline data.

- PA Z:

…

2. PA 1

2.1. Agro-meteorological and remote sensing indicators observed up to the first decade of April 2019 by the JRC/MED-Amin Secretariat

XXX

2.2. Information requested from the Focal Point(s) and field experts about the crop conditions of the PA 1

Q1 Could you confirm the situation as described above with field observations/expertise?

Yes ☐ No ☐

Q2 Could you explain how the above analysis is coherent with the PA field situation or not? In particular, could you detail how the indications of the chapter 2.1 correspond or not to the field observations and to which extent?

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Q3a Did you observe exceptional crop conditions in the PA till the first decade of April (see Annex about the GEOGLAM categories)? Yes ☐ No ☐

Q3b Do you expect out of average yields in the PA? Yes ☐ No ☐

Q3c Can you estimate the next yields in the PA?

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Q4 Is there a difference between the crops (barley, durum wheat, soft wheat) and which one?

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Q5 Could you report additional information/events observed by local experts (other meteorological events, pests and diseases, etc.) even at the local scale that concern this PA? May these events impact the 2019's cereal yields?

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Q6 In which ways any recent changes in agricultural techniques (irrigation, fertilization, selected seeds, etc.) relevant in the PA could determine the 2019's cereal yields forecast in addition to agro-meteorological drivers?

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Q7 Could you assess in the table below the crop conditions observed in the PA and the corresponding proportions for each crop?

A qualitative assessment of the general crop conditions per administrative unit is requested from the focal points. The objective is to obtain a qualitative estimation or an overall feeling about the general perspective of production based on local observations and expertise but no official data, definitive by definition. Please indicate the general crop conditions (for soft wheat, durum wheat and barley). In the comment box hereafter, you could indicate elements of heterogeneity at the level of the administrative unit (eg. local meteorological events, zones with irrigation, zones with specific diagnosis on crop conditions…). NB: The distinction of every **crop conditions categories** are indicated below and correspond to the GEOGLAM international crop monitoring standard:

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. **Favorable**: 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. Crops conditions are likely to be >= 10% below average and impact on production is very

	PA Y		
	Region Z		
General crop conditions	**Soft wheat**	**Durum wheat**	**Barley**
Exceptional	☐	☐	☐
Favourable	☐	☐	☐
Watch	☐	☐	☐
Poor	☐	☐	☐
Crop failure	☐	☐	☐

likely. **Crop failure**: Crops have been strongly damaged. Crops conditions are likely to be >= 25% below average.

Comments:

Q8 Provide an assessment of the main "Driver(s)" determining the crop conditions when they are not favourable and additional comments in the box below.

NB: Each **category of driver** determined by the GEOGLAM international crop monitoring standard corresponds to: **Wet**: Higher than average wetness; **Dry**: Dryer than average; **Hot**: Hotter than average; **Cold**: Cooler than average; **Extreme event**: Presence of extreme events such as: hurricane, typhoon, frost, hail, winterkill, wind damage, etc.; **Delayed Onset**: Late start of the season:

☐ **Wet**

☐ **Dry**

☐ **Hot**

☐ **Cold**

☐ **Extreme event**

☐ **Delayed Onset**

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Clarify if different main driver(s) are observed in the PA:

Q9 What is the current phenological development stage for each crop in each administrative unit at the 15 April 2019 among the following: vegetative growth, flowering, filling, maturity?

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3. Other areas

Q10 In other administrative units than the ones analysed in this document, what are the general crop conditions and the main drivers (if out-of average conditions)?

For each additional administrative unit, please indicate the corresponding crop condition(s) and the qualitative evaluation of the impact of the yields directly in the table below or in the comment box. Please indicate also if there is a difference between the three crop monitored (soft wheat, durum wheat and barley) otherwise we assume that your data fit to all.

NB: If we don't get your crop conditions evaluation on other administrative units of your country, we will consider them as "favourable'.

Other administrative units in the country	General Crop condition (keep only one among the five categories)	Main driver(s) (multiple choice if several relevant drivers among the following	Comments
Region 1	Exceptional Favourable Watch Poor Crop failure	Wet, Dry, Hot, Cold, Extreme events, Delayed onset	
Region 2	Exceptional Favourable Watch Poor Crop failure	Wet, Dry, Hot, Cold, Extreme events, Delayed onset	

4. National synthesis[7]

Q11 Please provide a general summary **at the national level** of the main agro-meteorological events and crop conditions observed and confirmed, in about 300 words maximum? This summary

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may feed the final document of this 2019 forecast exercise.

Thank you very much for your contribution!

[7] This chapter in red colour will be requested only for the second pre-screening in early May 2019.

Crop conditions and yield outlooks on durum wheat and barley crops

(Figures 5, 6, 7 & 8)

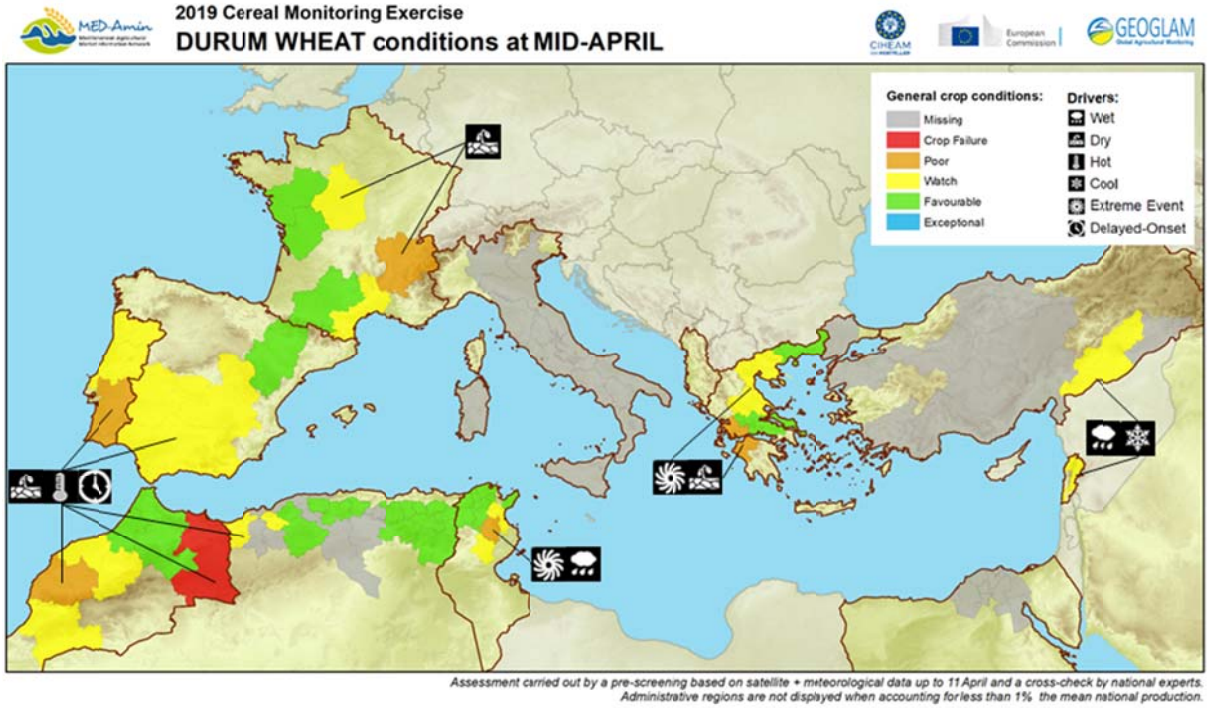

Figure 1: Crop conditions and yield outlook of durum wheat (Mid-April)

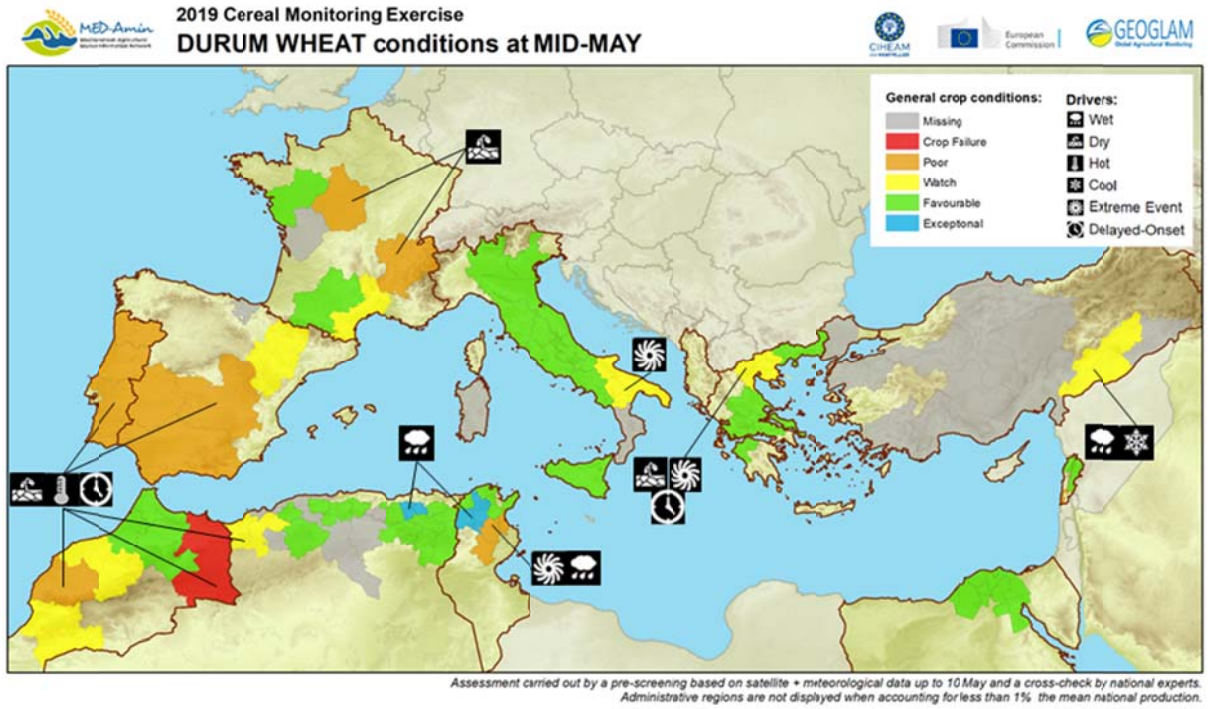

Figure 2: Crop conditions and yield outlook of durum wheat (Mid-May)

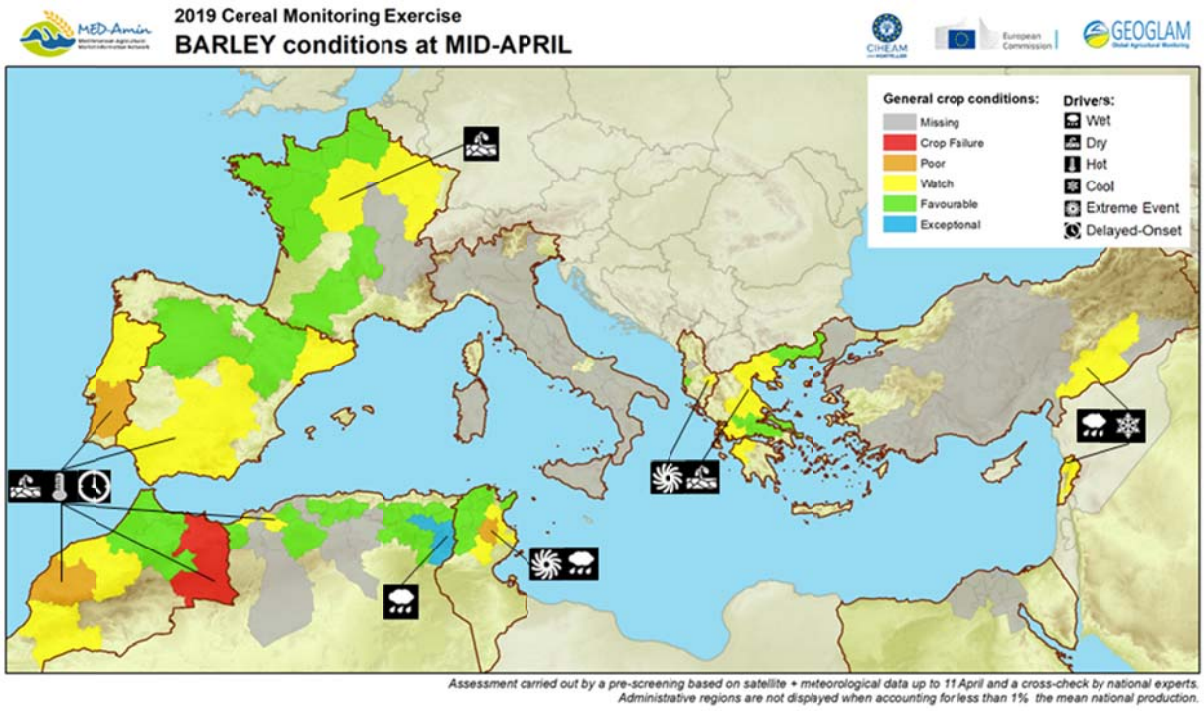

Figure 3: Crop conditions and yield outlook of barley (Mid-April)

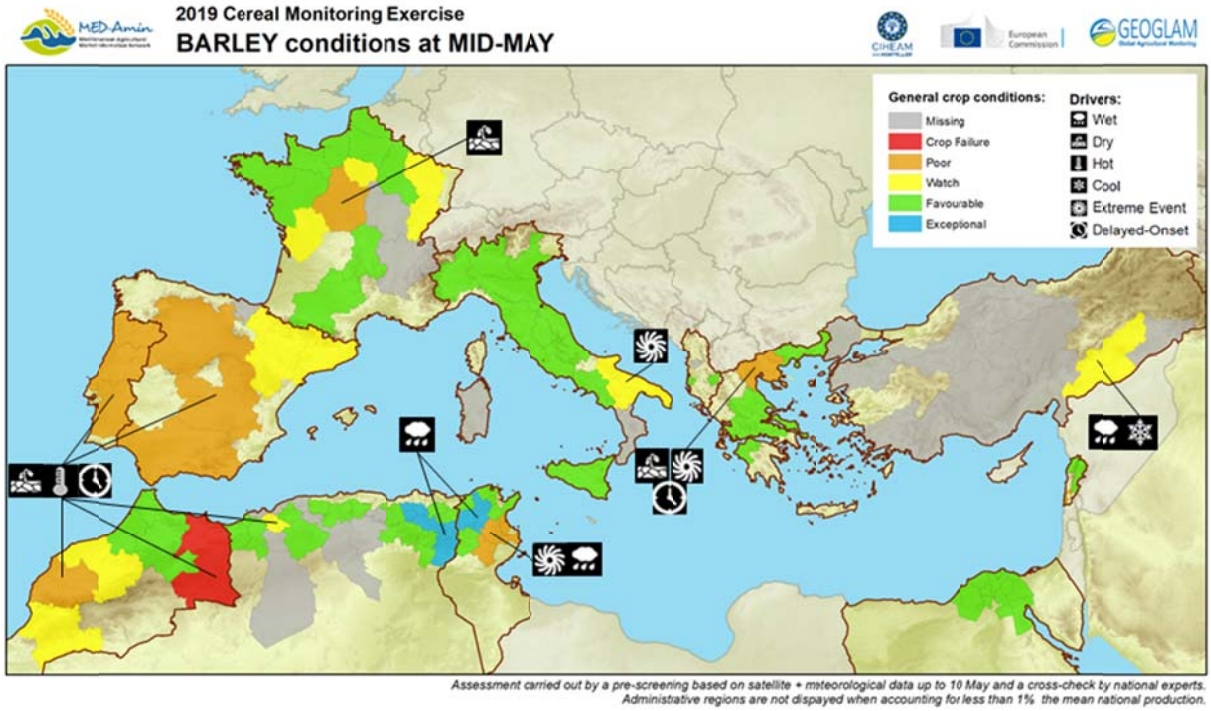

Figure 4: Crop conditions and yield outlook of barley (Mid-May)