

GRANODURO.NET PLATFORM

for durum wheat sector users

WHEAT SECTOR & CLIMATE CHANGE

Durum wheat and pasta production are highly affected by weather and climate conditions. Climate change is increasing the incidence of extreme weather events, such as heatwaves and droughts. As the climate continues to change in the future, anticipating such events is key for the adaptation of the durum wheat sector.

Climate variability and climate change pose diverse challenges in the decision-making processes of durum wheat producers, such as in agro-management (e.g. planning of fertilisation and crop protection), stock management and strategic decisions in the long term (e.g. selection of new varieties and cultivation areas). Climate services, particularly predictions of climate variables and bioclimatic indices, can support critical decisions along the durum wheat food chain.

Read more on [Climate Services for the Durum Wheat and Pasta Sector](#) in the MED-GOLD infosheet.

GRANODURO.NET PLATFORM FOR THE DURUM WHEAT SECTOR

Granoduro.net is a commercial Decision Support System for the sustainable management of the durum wheat crop, which is used by farmers, technicians and agronomists in the Barilla supply chain. It provides advice for crop management based on observed weather data and future predictions.

In the framework of the MED-GOLD project, a new prototype functionality using seasonal forecasts was added to the system. This functionality is presented in this guide.

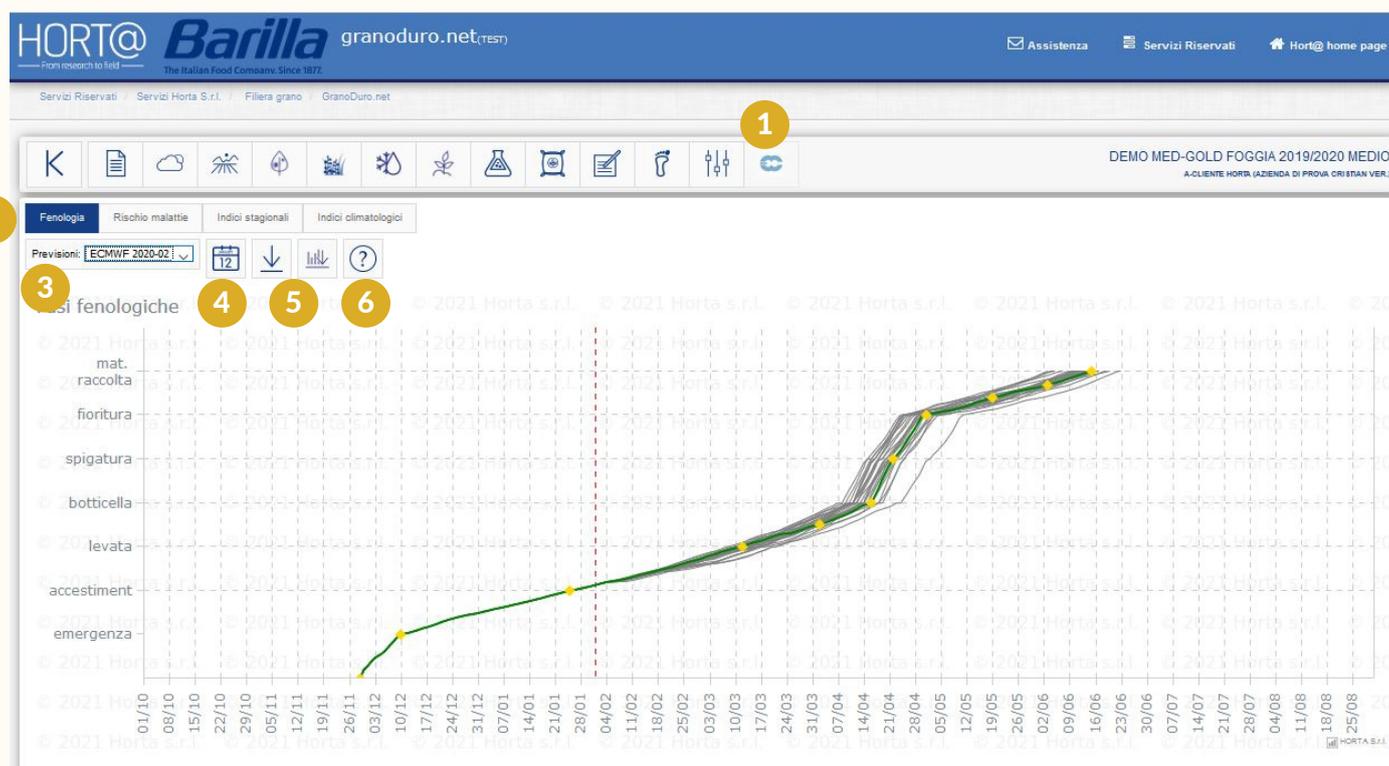
Registered users can access the tool by visiting: www.horta-srl.com

ABOUT MED-GOLD

MED-GOLD is a 4-year European project on "Turning climate-related information into added value for traditional MEDiterranean Grape, OLive and Durum wheat food systems". MED-GOLD aims to make European agriculture and food systems more resilient, sustainable and efficient in the face of climate change by using climate services to minimize climate-driven risks and costs.

HOW TO USE THE SEASONAL FORECAST FUNCTIONALITY IN GRANODURO.NET

- 1 Select the "Seasonal Forecast" functionality
- 2 Select the service you are interested in
 - **Crop phenology:** prediction of the main crop stages
 - **Risk of disease:** prediction of risk for the main wheat diseases
 - **Climatic indicators:** prediction of hydrological balance, and cold and heat stress
 - **Historical values:** past data on climatic indicators



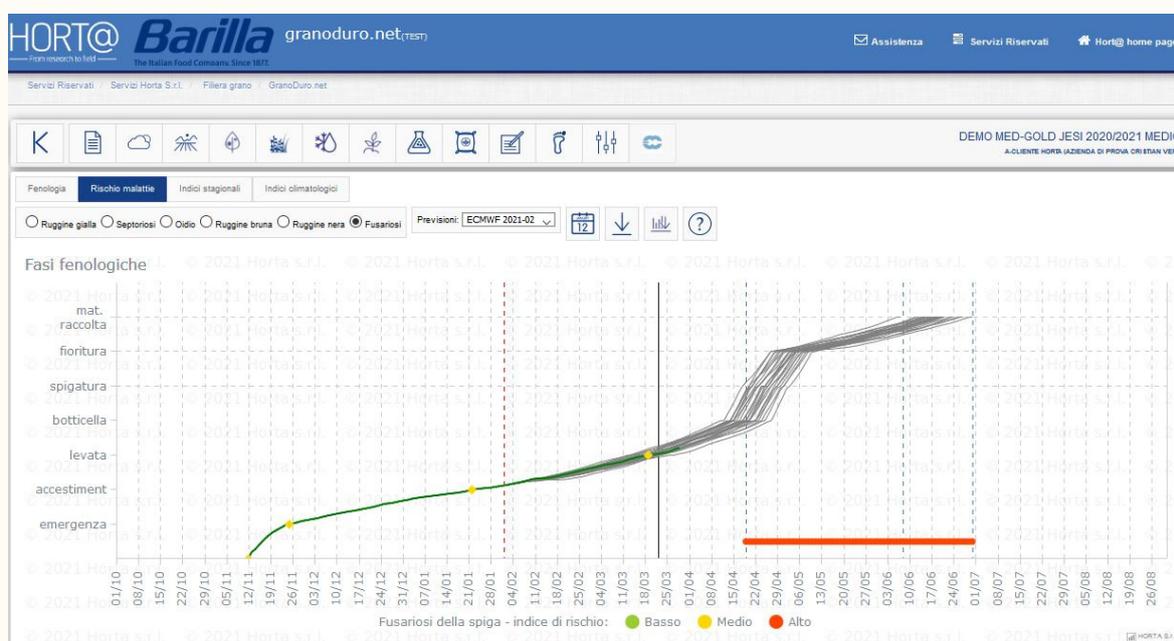
- 3 Select the date in which the forecast is issued
- 4 Data displayed in a table
- 5 Download data
- 6 Help section (displays additional information about the tool)

USE CASE 1

You are a technician working for a durum wheat producers' organisation. It's February, and you want to advise your associate farms about their acquisition of plant protection products. Many of them were affected by *Fusarium Head Blight* last year, and this year you want to help farmers plan their treatments well in advance.

Is there going to be a high risk of diseases during the crop growing season?

1. First, choose a particular crop unit in your region of interest.
2. Select the Seasonal Forecast functionality.
3. Then, check the panel on Risk of Disease.
4. Choose the disease you are interested in (e.g. *Fusarium Head Blight*).
5. Specify the month in which the forecast is issued, relevant to your case (e.g. *February*).



This will generate a graph where a green line indicates the observed crop stages, yellow dots indicate the time when these stages will be reached, and the grey lines show the evolution of crop phenology based on seasonal forecasts.

The prediction suggests a high risk of *Fusarium Head Blight* in April and May, during the heading and flowering stages of the durum wheat crop. The risk of diseases remains high until soft dough maturity is reached.

You can then repeat the query for various farms in the region you are interested in to obtain more information.

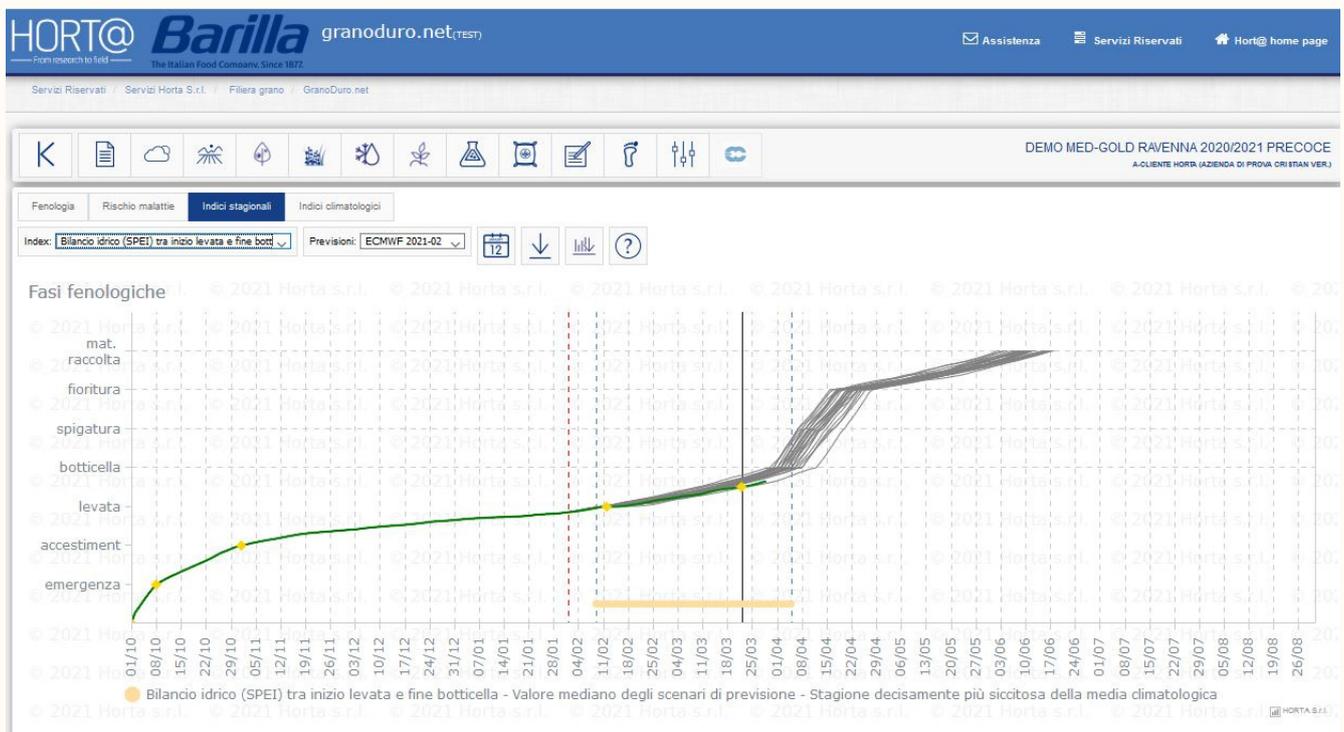
Based on the seasonal forecast, you consider providing an early-season warning in the next periodic bulletin sent to your associate farms to warn them of the increased risk probability in advance. This can help them plan the purchase of plant protection products.

USE CASE 2

You are a farmer growing durum wheat in different fields close to the Italian city of Ravenna. You are currently at the beginning of the crop season, and you want to make sure that you apply the correct amount and type of nitrogen fertiliser when the crop has the highest nutrient demand. You know that fertiliser application has a direct impact on grain yield and quality, so you need to know the climate conditions to plan accordingly.

Is it going to be specially wet or dry during fertilizers' application?

1. Choose one of your crop units.
2. Next, select the Seasonal Forecast functionality.
3. Select the Climatic Indicators panel.
4. Choose the indicator showing the hydrological balance between the beginning of stem elongation and the end of booting (SPEI), which is a period with a high nutrient demand.
5. Finally, specify the month in which the forecast is issued (e.g. *February*).



The prediction indicates that the fertilization period is expected to be drier than normal. Therefore, you will likely not have any problems entering the field at stem elongation to distribute fertilisers and avoid potential nutrient deficits.