How to guide
e-Gro Conditions Module

If you have any questions, please contact **egro.support@grodan.com**

Grodan®

Part of the ROCKWOOL Group

Introduction

What if you could see your rootzone conditions and climate conditions, alongside other relevant crop data, all in one place? What if that information were further enhanced by AI-driven insights, putting WC projections and irrigation advice at your fingertips? And what if you could use that real-time, accurate analysis to maximize your yield and crop performance while reducing your water consumption? Due to the ever-growing demand for this type of functionality, Grodan has developed the Conditions Module. This module gives you the power to optimize your irrigation and steering strategies to improve your crop quality, your production levels and your sustainability.
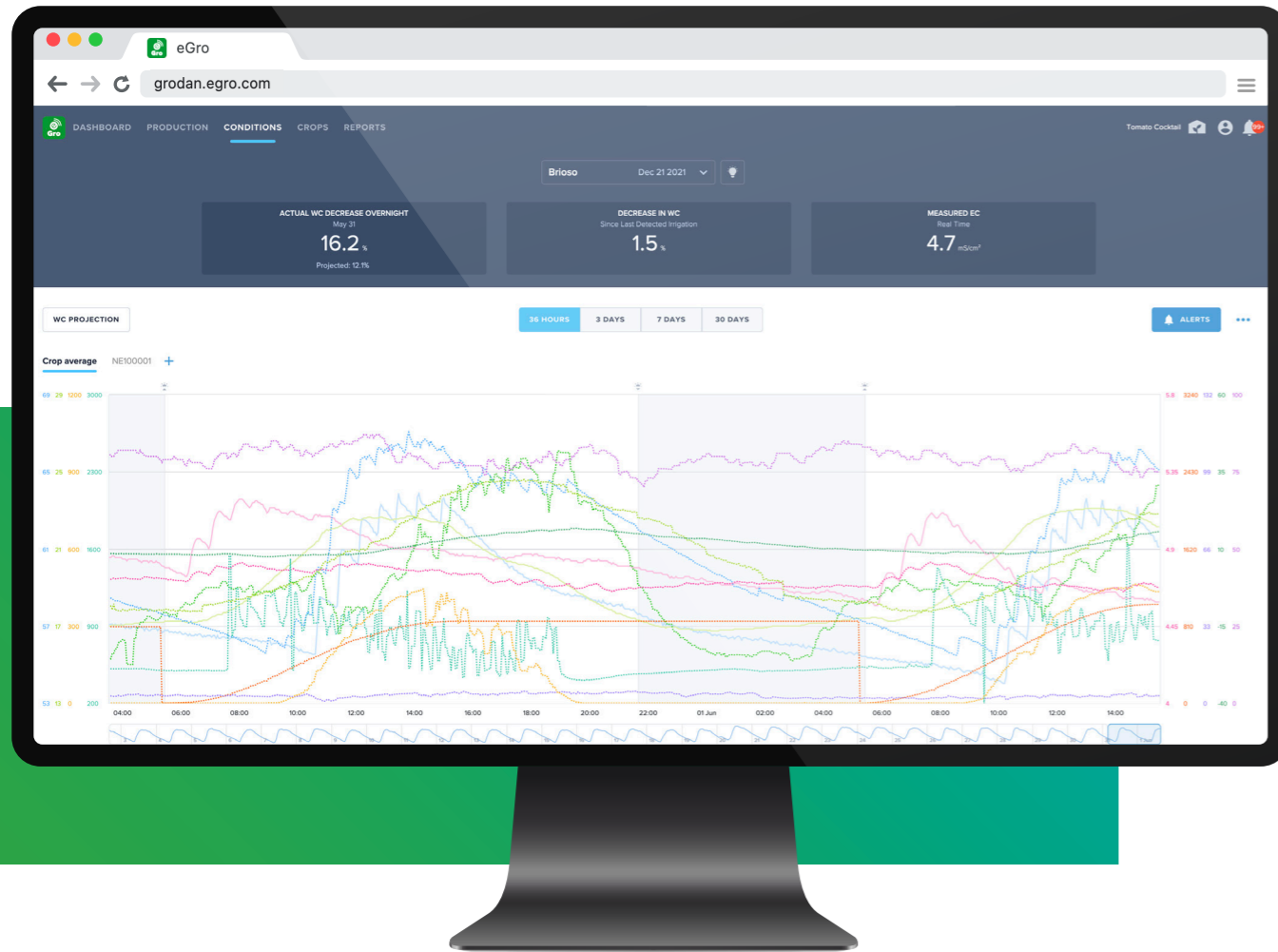
The Conditions Module

The Conditions Module is one of the most important modules in e-Gro. It puts essential data at your fingertips, displaying readings and trends from multiple sensors simultaneously in a simple and user-friendly way. As a result, you can make comparisons and fine-tune your irrigation and crop steering strategies.

In your high-tech greenhouse, the decisions you make today have a major impact on your results tomorrow. Every action you take – from the adjustment of day/night temperature, humidity and light intensity to the irrigation volume and frequency – must be carefully balanced with outside influences in order to steer the plant's physical and chemical growth response as desired.

Real-time sensor data

The Conditions Module presents the detailed rootzone conditions and climate conditions in different areas of your greenhouse alongside all other relevant crop data. It visualizes the data from your irrigation sensors and climate computer in real time. All the data is then analyzed by e-Gro's powerful AI-based algorithms to provide you with advice and recommendations to help you further optimize your irrigation strategy.

The power of data

This 'How to' guide shows you how to get the best out of all the information and graphs within the Conditions Module. The Conditions Module enables you to closely monitor your rootzone information in combination with the climate conditions and all other crop data. This gives you optimum control over your crop strategy and helps you to achieve stronger roots – and therefore healthier and more robust plants – in your high-tech greenhouse. The benefits include:

- **Time savings: :**
  The combination of highly detailed real-time insights into rootzone condition and climate conditions as well as other relevant crop data all in one place saves you valuable time, since you no longer need to look at multiple systems to find the information you need. The Conditions Module presents you with all you need to know at a glance.

- **More control:**
  Influencing the rootzone environment is important on a daily basis as well as on a seasonal basis. The insights in the Conditions Module help you to better analyze the impact of your chosen irrigation strategy on the rootzone environment of the plants so that you can optimally steer the crop growth and production. The graphs are customizable, so you can select precisely which data you want to see at a glance for comparison purposes based on seven different parameters and up to 10 different data sources. And for optimal monitoring, you can add alerts so that you are notified immediately if any of the conditions are deviating out of your preferred range. As a result, you are always fully in control of your irrigation strategy for the very best results.

- **Sustainability:**
  Thanks to AI-driven irrigation advice based on real-time rootzone conditions in combination with the climate, you know precisely when to start and stop watering. Besides being good for the plant, this also reduces your water consumption, which has a positive impact on your profit and is better for the planet too.

- **Single source of truth:**
  The Conditions Module brings together all the relevant data in one place. This means that not only you, but also external specialists and/or your colleagues – such as Sales & Marketing – are working with the same source of accurate data as the basis for decisions and business commitments. Moreover, the customizable preferences are saved per user. This allows different users and specialists within the same greenhouse facility to set different preferences, and their last set preferences are saved automatically. All this essential information is presented in a user-friendly way for an optimum user experience.

Scan QR code to view the Conditions Module video

How to work with the Conditions Module

The Conditions Module displays and analyzes real-time climate data and rootzone data from your climate computer, so e-Gro first needs to be integrated with your climate computer. Once the integration has been set up, the Conditions Module can be used for multiple crop types and multiple varieties. Before you start working with this module, you must add at least one crop using the crop selector at the top.

The Conditions Module offers the following functionalities:

■ **A - Crop Selector:**
The crop selector at the top enables you to switch between multiple crops to view the specific production details. The rootzone and climate details are tied to each individual crop.

■ **B - Lighting:**
The lightbulb icon next to the crop selector enables you to set and adjust your lighting schedule.

■ **C - KPIs:**
Based on data directly from the sensors to provide you with optimal control, including:
  ☐ Actual WC decrease overnight and projected decrease
  ☐ Decrease in WC since last detected irrigation
  ☐ Measured EC (in real time)

■ **D - WC Projection option:**
See below for more details.

■ **E - Alerts (bell icon):**
Use this feature to set customized alerts so that you receive immediate automatic notifications – anytime, anywhere and on any device – if the sensor readings fall out of a predefined range. Immediate alerts improve your crop quality by enabling you to take swift action to avoid potentially negative impacts of irrigation or climate issues. Alerts also support remote crop management, serving as a useful early warning system even if you are away from the greenhouse.

■ **F - Graph analysis:**
  ☐ Time period selection above the graph:
  Per climate zone and irrigation zone, you can choose to view the data over 4 time periods: 36 hours, 3 days, 7 days or 30 days. Simply click on the relevant button in the top-center of the screen.
  ☐ Selecting the data sources:
  Each graph shows the crop average. The names of the individual zones are shown above the graph if selected using the '+' icon.
    ☒ To see the data from a certain zone, simply click

on its name. The zone name will be underlined.
  ☒ You can view up to 10 data sources simultaneously. The '+' icon enables you to select and deselect zones.

☐ Parameter selection via color-coded parameters:
Beneath each graph, you will see a list of climate and rootzone parameters (if allocated to the zone). To view the parameters:
  ☒ You can highlight the parameters that matter most to you at that moment by clicking on the parameter name to turn it on (color) or off (gray).
  ☒ The graph shows the color-coded trends. Hover your mouse over the graph and move it from side to side to see the specific data over time.
  ☒ You can select and deselect parameters by clicking on the '+' icon to reveal a menu on the right-hand side of your screen. Simply click elsewhere on the screen to close the menu again. Your last-viewed data sources and parameters are saved automatically rather than being reset to a default setting.

☐ Historical information:
Click and drag the time slider below the graph to your chosen dates to view and analyze historical information.

■ **G - Extra options via the 3-dots:**
Click on the 3-dots icon for extra options such as:
☐ Graph management:
If you want to compare performance in different zones, simply add an extra graph by clicking on the 3-dots icon at the top-right of the screen. You can also adjust your graph preferences here, including for the WC Projection feature.
☐ Exporting data to a CSV file for use in Excel
☐ Viewing your sensor devices in the irrigation zones.
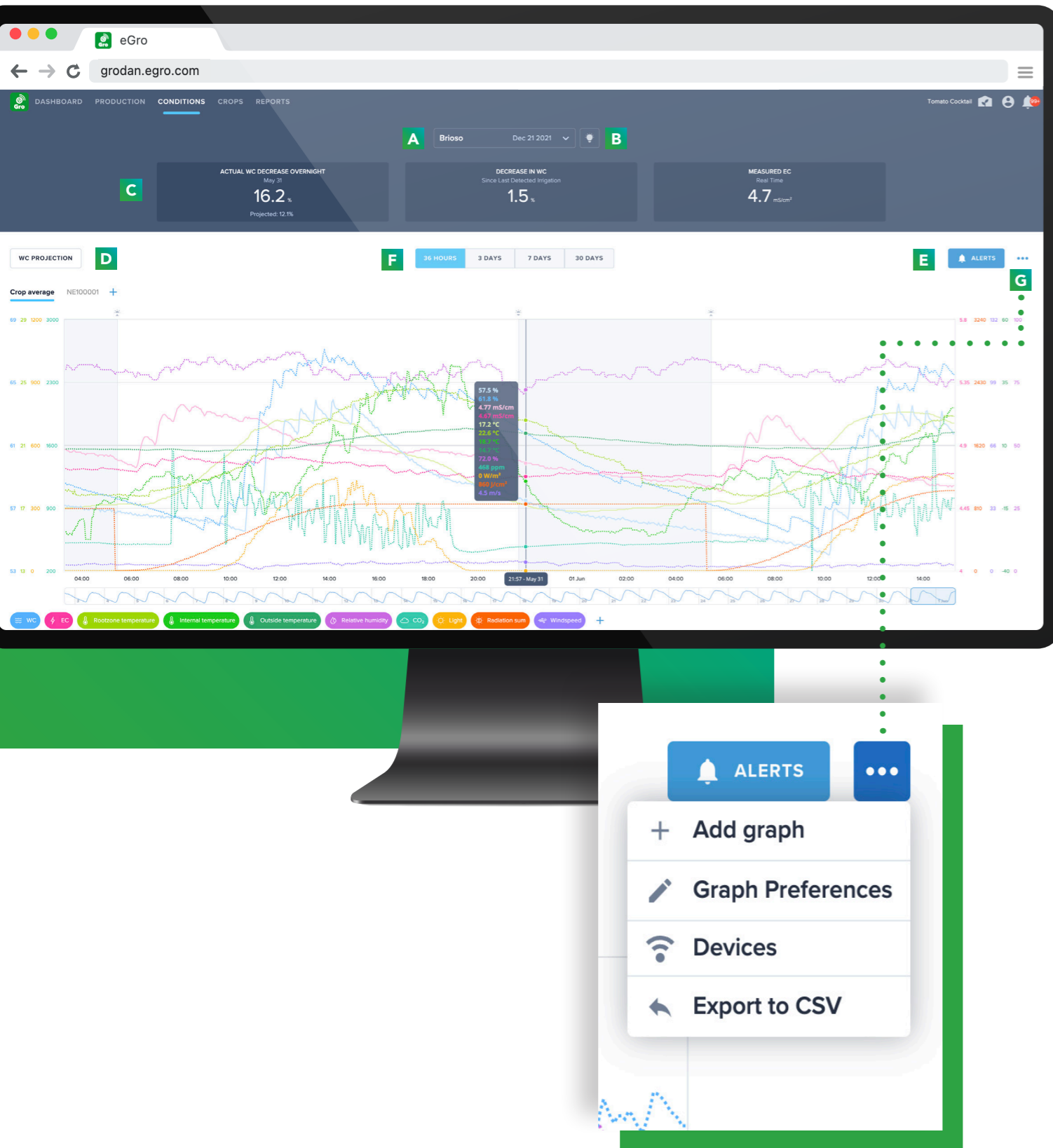
WC Projection feature

The WC Projection is one of the most unique and popular features in the Conditions Module. It helps you to predict when to stop watering your plants before sunset, allowing you to make more data-driven decisions on overnight irrigation actions and better control the outcome of your irrigation strategy. If used correctly, this feature supports more efficient water usage and a sustainable approach to crop production.
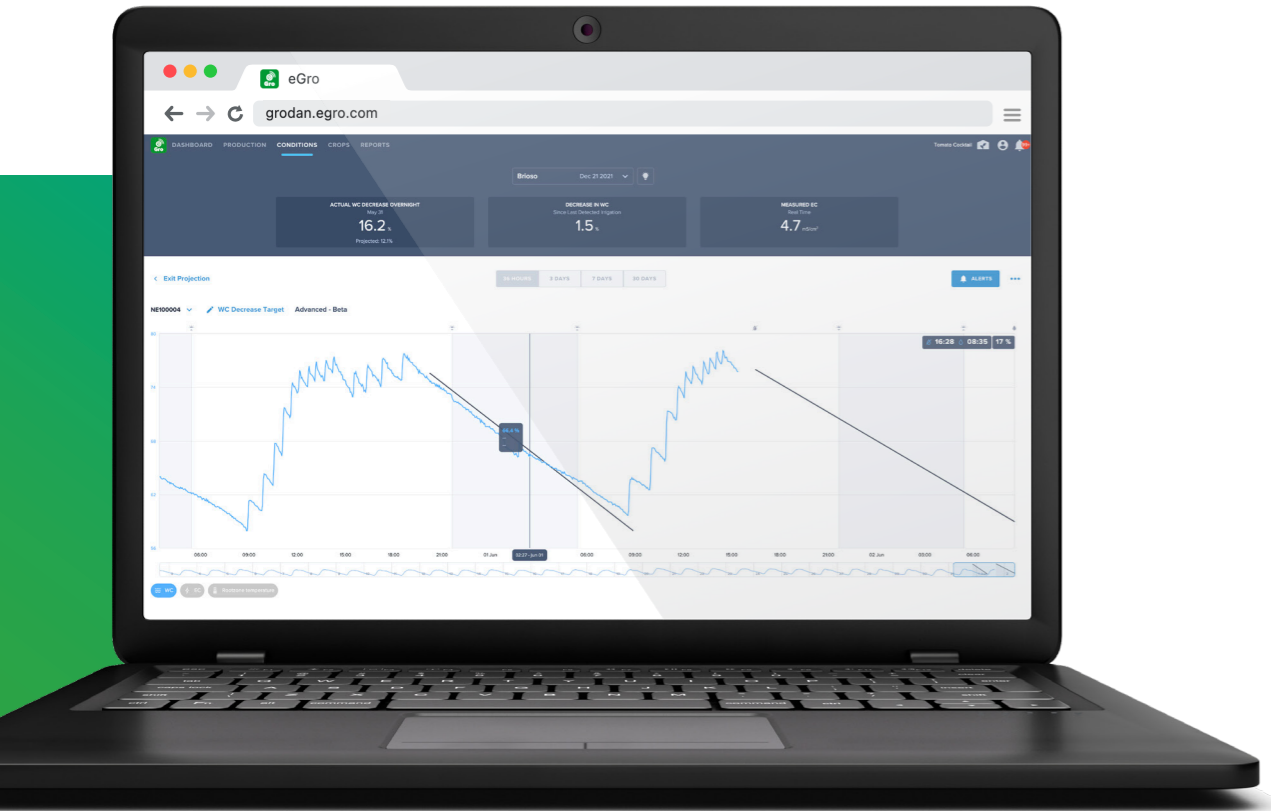
There are two model types to choose from:

1 **Classic**

This model calculates the WC decrease overnight using a mathematical model.

2 **Advanced-Beta**

This is a new model which predicts the WC decrease overnight using a machine learning algorithm. You can choose the default target for the WC decrease overnight or you can set your own customized target. This version is currently being user-tested as the basis for further development and optimization. Ultimately, by making use of both historical and forecast parameters, this model will give you more control over your irrigation strategy and more accurate advice based on insights for the potential water content level over specific periods of time. The beta version also shows you an advised start and stop time for your irrigation strategy. The times are based on the ideal set decrease. When you're using the beta version, you can set your ideal target via the Graph Preferences option (3-dots icon).

Getting started with the Conditions Module

The Conditions Module delivers data-driven insights into rootzone conditions and climate conditions in combination with other relevant crop data. The advanced algorithms generate AI-driven insights and WC projections, resulting in actionable advice that helps you to optimize your irrigation and crop steering strategies. Moreover, this module puts you and your whole team in full control by presenting real-time data at a glance as the basis for faster and more effective decision-making. And for optimal responsiveness, you simply set up alerts. All these insights are readily available for you 24/7, optimized for access via your smartphone, tablet and desktop. Our Grodan green experts are happy to discuss how you can start using the Conditions Module in your greenhouse or how to take your current crop steering strategy to the next level. Visit **www.grodan.com/e-Gro** for more information.

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