# Detect Weeds.
# Harvest Precision.

✓ Ease of use 10” touchscreen ✓ 25x25 cm grids ✓ Mapping layers ✓ Data accessibility
✓ Predictive maintenance ✓ Connectivity and support

## WEED-IT DASH.



WEED-IT.COM/DASH

WEED·IT
precision spraying

17:09
4.5
km/h
0
l/ha
3.1
bar
1.0
ha spray
83%
PWM
67%
saved
Menu
0.0
30.0
40
5
WEED·IT

# WEED-IT DASH

With WEED-IT DASH, we go beyond accurate – making the proven 95% herbicide savings of the WEED-IT system not just achievable, but visible. WEED-IT DASH is an advanced system that extends the functionality of all WEED-IT products.

Compatible with both WEED-IT QUADRO detection sensors and WEED-IT AQRATE PWM control modules WEED-IT DASH consists of three core components: a high-tech 10" touchscreen, the advanced controller and an online portal for farmers and dealers.

DASH focuses on data and connectivity, allowing users to increase productivity and gain better insight into their weed management.

WEED-IT DASH offers you real-time field and machine data to optimize your crop protection. The new user interface allows full customization of the WEED-IT detection and spraying system and provides direct feedback of your on-field performance.

DASH can make your spray operations easier, faster and more efficient.

### DASH touchscreen
The new state-of-the-art DASH touchscreen DQ10 allows you to fully monitor and control your WEED-IT QUADRO detection and spraying system providing you direct feedback of your on-field performance.

### Mapping as visited and as applied
Check every corner of the field you have visited with the highest precision grid of 25x25 centimeters.

### Prescription maps
A prescription map can be created to vary the application rates in the field based on a predefined map. A prescription map can be generated on the DASH portal and linked to a spray job for execution.

### DASH portal
WEED-IT DASH comes with portal software in which all your field and spray data can be synced, stored and analysed. Anytime, on any device.

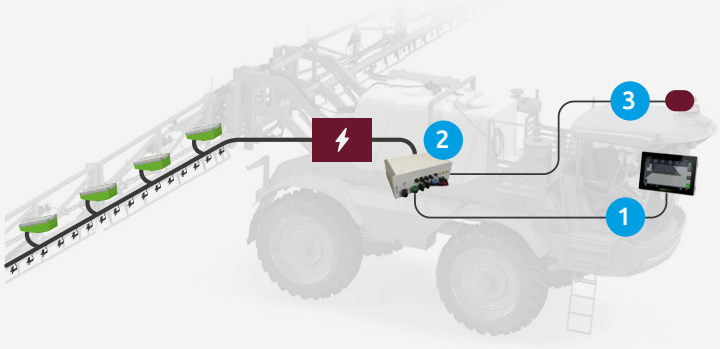
### Section control per nozzle
Individual nozzle control enables you to reduce the amount of spray overlap on the field.

### Crop Density Data mapping
Gain deeper insights about weed density in your fallow fields, and monitor the growth and development of your crops.

### Updates over the air
Update your system via Wi-Fi or LTE with a simple push of a button to get the latest software for all your WEED-IT components.

## Easily installed onto every sprayer

WEED-IT DASH can be added to your existing WEED-IT QUADRO and WEED-IT AQRATE, or can be integrated to a wide variety of sprayer brands and types. Please contact your local dealer to learn about the benefits for your particular situation.




### WEED-IT DASH:
1. DQ10 touchscreen
2. Advanced controller
3. Cellular/Wi-Fi/GNSS puck antenna

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precision spraying

# WEED-IT DASH DQ10 touchscreen

To enhance the user experience Rometron designed the WEED-IT DASH DQ10. A modern touchscreen with ultra high contrast and brightness and premium look. This screen offers 3D views of the sprayer with WEED-IT technology, giving users real-time insight into the system's operation, allowing them to view the recorded data directly on the map.

## SPECIFICATIONS DASH DQ10

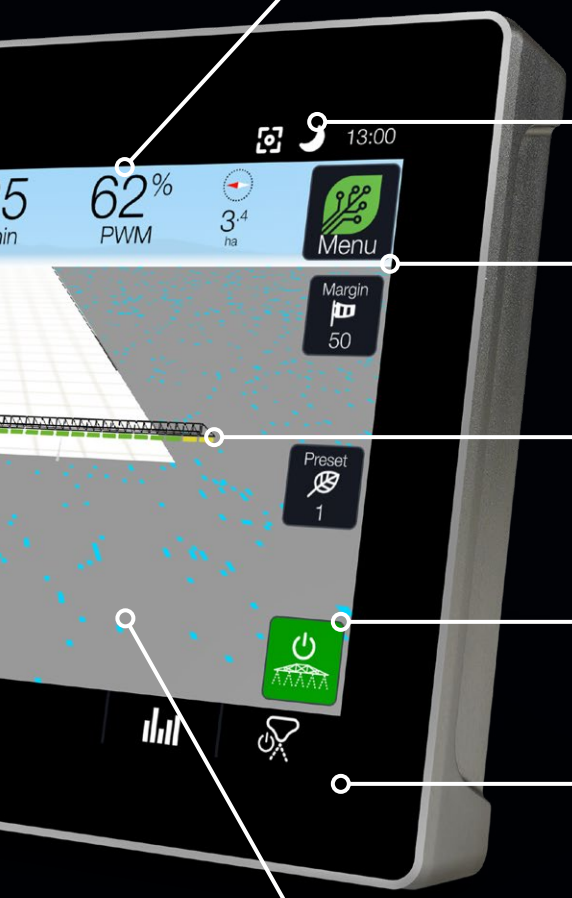
| | |
|---|---|
| Dimensions (WxHxD) | 257 x 179 x 73 mm |
| Screen diagonal | 10.1 inch |
| Resolution | 1280 x 800 pixels |
| Screen brightness | 1000 Nits |
| Weight | 1.730 gram |
| Pressure equalization | Breather plug, High Airflow |
| Mounting point | RAM ball mount (size C) |
| Connectors + interfaces | • 8 pins Souriau pin contacts - advanced controller<br>• 10 pins Souriau bus contacts - GPIO, CAN, RS232, Ignition switch<br>• USB-A interface |

# WEED-IT DASH advanced controller

The advanced controller is a vital DASH component and connects the touchscreen with the existing WEED-IT system. All machine data is stored on the advanced controller.

It is designed for advanced data processing and connectivity and features an LTE connection, WiFi and a GNSS receiver. Because the advanced controller is linked to the power converter, the rest of the system can remain unchanged.

WEED-IT DASH is available both as an add-on to new WEED-IT systems and as a retrofit option to existing WEED-IT systems.




*Clearly listed live system data and alerts*

*Switch to daylight mode or night mode*

*Big accessable buttons for easy operation while driving*

*Sensor status indicators*

*Master switch to immediately stop or restart spraying*

*High contrast screen for perfect view during operation*

*Mapping spray jobs in a high resolution grid*

# Touchscreen functionality highlights

## Plug and play

After start-up the home screen is used to monitor all spraying activities. Behind the vehicle the full spray boom is displayed. On screen all sensors divided in 4 nozzle sections and other operating data is shown. When spraying, the screen shows the accurate spray pattern WEED-IT is famous about. The driver has full section control and is constantly updated on the status of all sensors and nozzles.

## DASH layout

The menu button gives access to the start up screen, spray jobs, alerts, sensor and nozzle information, machine status and settings. On the main screen, system functions, cellular, GNSS, Wi-Fi, screenshots and light/dark mode are accessible.

## Manual control

Control the spray margin, change the detection sensitivity and with the master switch the spraying system ceases operations immediately.

## Switching views

A mini map is shown top left, to switch from main view to top view and back. The camera button provides views on all sides of the vehicle.
A variety of nozzle cleaning and cloggage checking cycle options can be selected by the operator.
The name, date and spray mode of the spray job is presented at the bottom centre. The spray job menu is accesable through the spray job button on the bottom left.

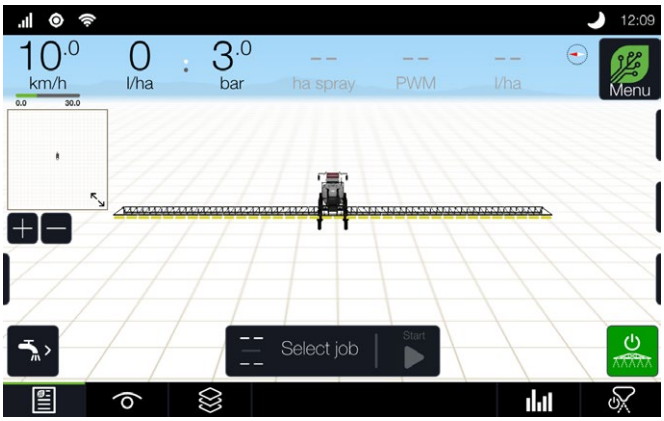
## Short cuts

At the bottom of the screen various quick-select buttons can be found for entering your spray jobs, setting camera angles, changing the map visibility, viewing additional statistics and section control.

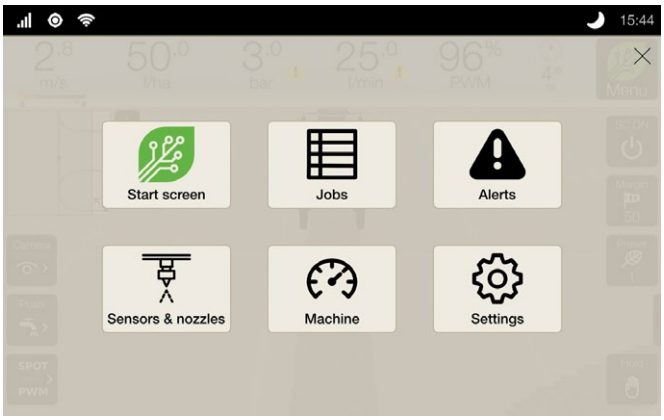
## Spray jobs

To start spraying it is needed to select a spray job. This can be achieved in two different ways. Sync a created spray job from the DASH portal or create one on the touchscreen itself. After selecting a spray job, it activates by pressing the Start button. WEED-IT is now ready to spray.

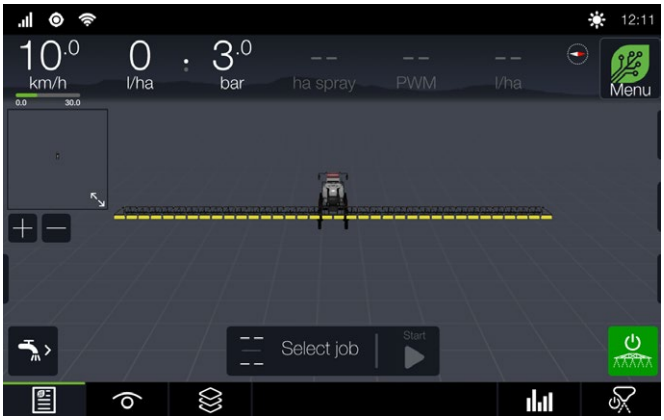
*Start up screen and user profiles*




*Main screen with view of full configuration*

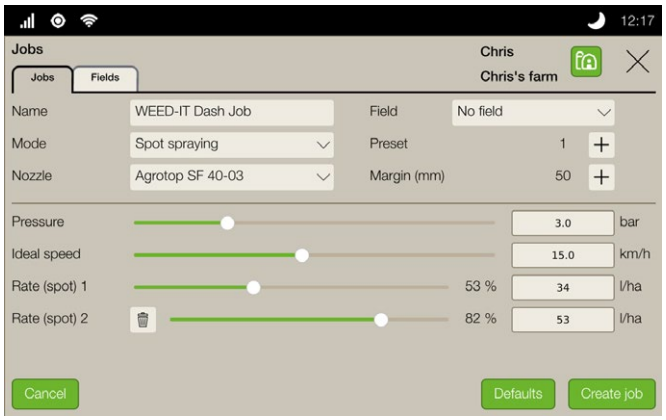



*Main settings menu*

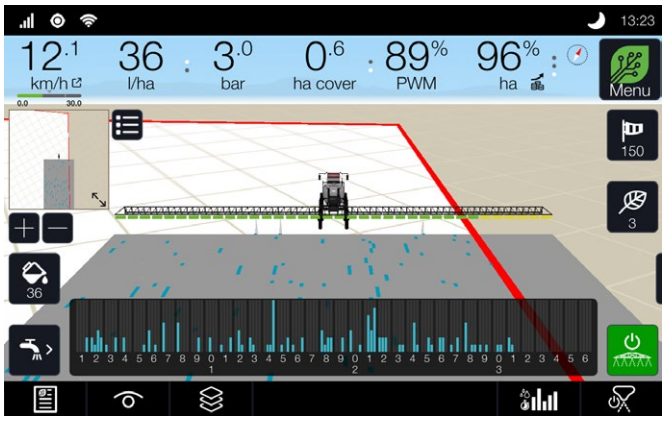



*Switch screen to dark mode*

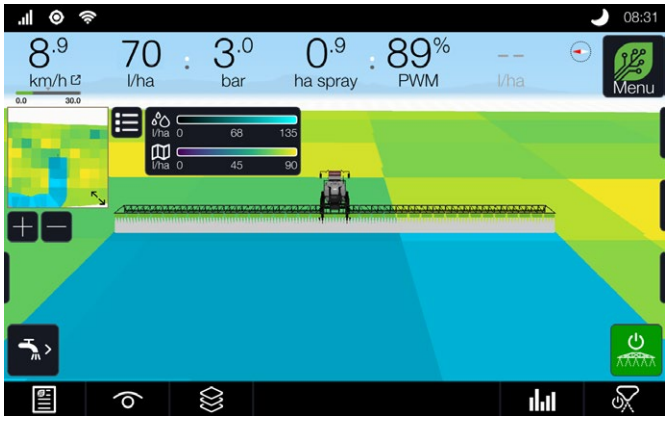
*Switch map to top view*




*Creating a spray job*




*Status of all sensors and nozzles*




*Prescription map in action*

## Alerts

Alerts are a way of the DASH system to report anomalies to the user. Alerts are displayed at the top of the screen bar. Serious warnings or errors will appear in a pop up. All alerts can later be reviewed on the DASH portal.

## Master switch

The master switch is located at the bottom right of the main screen. When green, all spraying activities are enabled. This button turns red by pressing it, immediately disabling all spraying activities.

## Sensors & nozzles

The sensors and nozzles menu in the touchscreen contains various information about the system's dimensions and status. The sensor status menu shows the current status of all sensors on the spray boom. If an error occurs, the particular sensor on the 3D view is highlighted. When pressing this sensor, you can access the sensor status directly.

## Prescription maps

Prescription maps are used to vary the application rate in the field based on a predefined map. DASH uses shape files consisting polygons that represent a part of a field. Each polygon can have a distinct application rate. WEED-IT DASH uses PWM to achieve the desired application rate on every part of the field with high accuracy and precision. A prescription map can be generated on the DASH portal and linked to a spray job for execution.

When a prescription map is used, only the full coverage spray mode can be used. Using the spray job synchronization feature on the touchscreen, the spray job with prescription map can be downloaded to the DASH system. When executing the spray job, WEED-IT DASH will spray according to the prescription map. The WEED-IT portal fully checks the executability of the prescription map prior to coupling it to a spray job. So once sent away to the DASH system, it is 'Select & Go!' This means no trial and errors with USB sticks while running from the office to the sprayer and back.

## Getting remote access

The remote access section contains all information and options to allow a remote service engineer to connect to the machine. The service engineer can take over control on the screen to look at the problem and help solve it remotely. The operator needs to enable remote support and give permission for the service tech to access.

## Syncing to DASH portal

Interchanging spray jobs, clients, farms, and fields between the touchscreen and the DASH portal can be achieved using the sync button on the touchscreen.

# WEED-IT DASH portal: create spray jobs and analyse your data

Another important component of WEED-IT DASH is the DASH portal, an online platform that increases connectivity and efficiency within the WEED-IT system. This portal offers three main functions:

## 1 Create and manage spray jobs

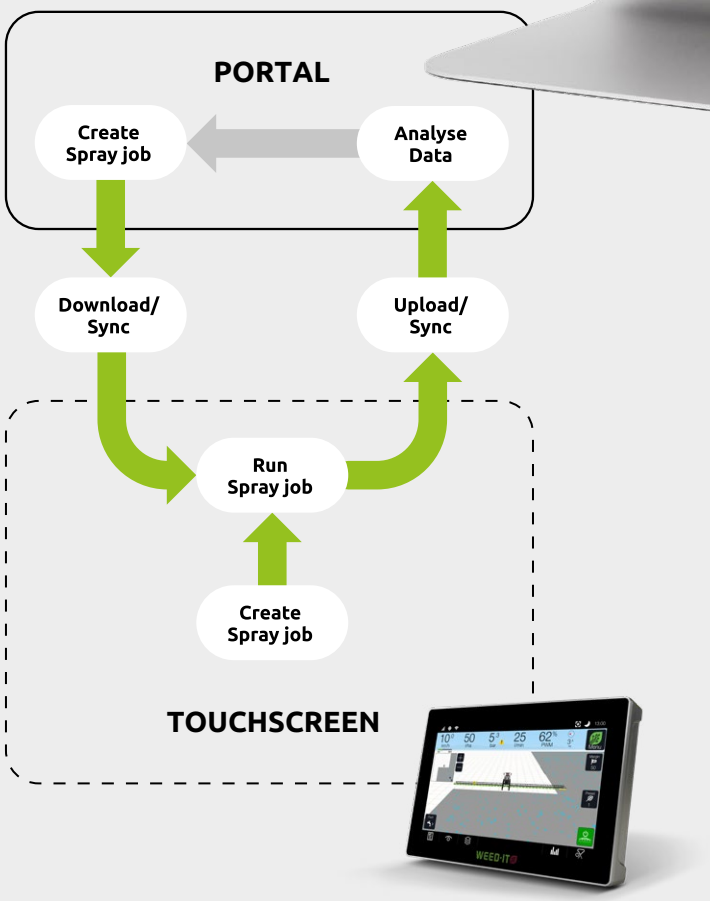
The portal is designed for end users, such as farm managers and contractors, who want to schedule spraying tasks efficiently. Although tasks can also be created directly on the touchscreen, the portal is especially beneficial for larger companies and contractors. From the planning, they can assign tasks to specific customers, farms and fields. As soon as a driver syncs on the touchscreen, the available tasks are retrieved via LTE or WiFi. If a field boundary is set, this prevents accidental spraying outside the field. Completed spray jobs will be uploaded to the portal.

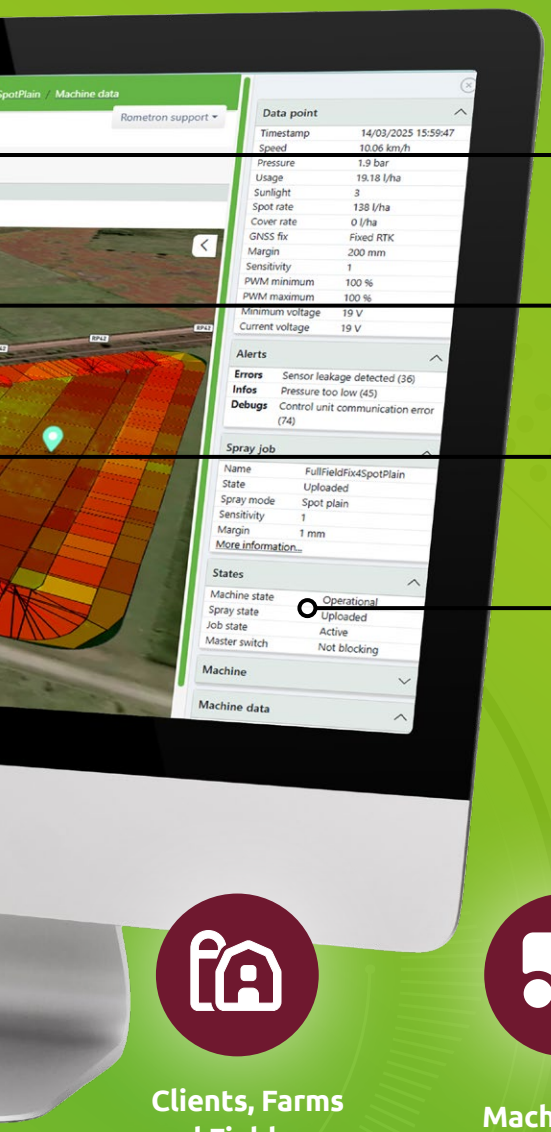
## 2 Importing prescription maps

Within the DASH portal users can upload prescription maps. Prescription maps are usually created in external farm management systems WEED-IT DASH offers a tool for processing these maps, but does not provide agronomic advice. These maps can also be generated from previous spray jobs. For instance when a users wants to use a double knock spraying strategy. By placing a shape file in the correct subfolder, it can easily be uploaded and linked to a specific task within the WEED-IT system. This process takes place via the portal due to the WEED-IT file formats that are used.

## 3 Clear structure and user-friendliness

The DASH portal is logically structured according to a customer – farm – field structure. This makes the system suitable for both smaller family businesses with one farm and multiple fields and for larger companies with multiple farms. Contractors can also easily manage multiple customers, including their associated farms and fields. When synchronizing on the touchscreen, the user only sees the tasks that are relevant to the selected customer and farm, which ensures a clear and efficient working method.



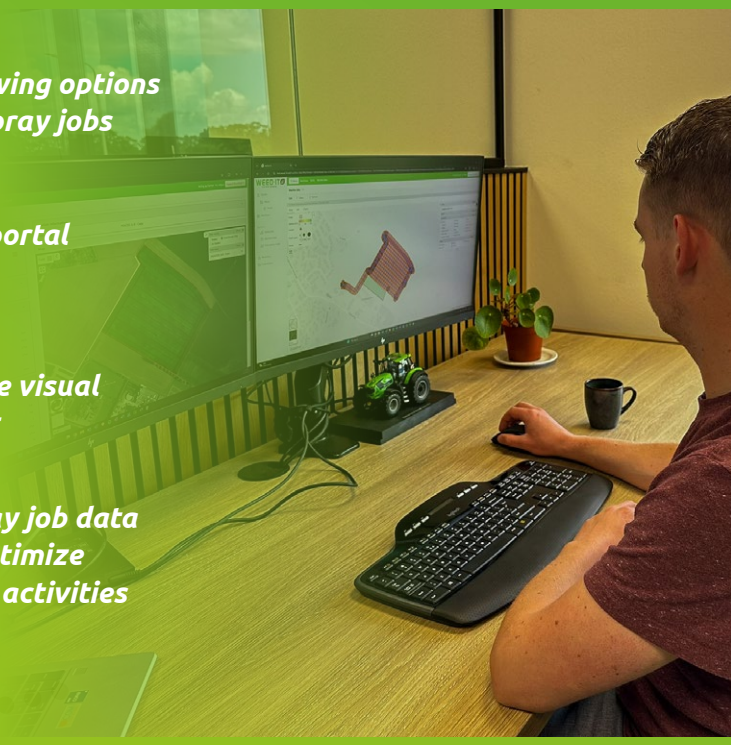



***Multiple viewing options to analyse spray jobs***

***Sidebar for portal navigation***

***Multipe mode visual map element***

***View all spray job data needed to optimize future spray activities***



## Clients, Farms and Fields

Most users will only have a single client and farm. For these users, only the field section is important. The use of multiple clients is often used only by contractors. The term ‘client’ refers to the grower and/or user associated with a specific farm. A ‘farm’ is a set of fields, spray jobs and prescription maps associated with a client. A ‘field’ can be used with section control in order to only spray within the defined area. Fields can be uploaded to the portal from existing FMS that are used on the farm through shape files and/or can be created in the portal from a first spraying round using the ‘as applied’ map.

## Machines

A machine describes a complete configuration of a DASH system. This includes the advanced controller and the touchscreen. Within DASH, this is referred to as a machine. A spray job is sent to the DASH system installed on the machine. Along with that, all spray data and other live information collected while driving is linked to and logged on the machine.

## Spray jobs

A spray job is a set of instructions that are sent from the DASH portal to the touchscreen. When the touchscreen receives this job, the operator on the machine can use it. The WEED-IT settings from the spray job are then used for spraying activities. While the operator is performing the job with the predefined settings, the farm manager can track the job and monitor it remotely on the DASH portal. After completing a job the grid size mapping layers are sent to the portal. All relevant spray information, like mapping and statistics are linked to the spray job. With this information spray reports can be generated.

## Telematics and prescription maps

The machine data page is an overview of parameters of a machine or job. The machine will send this live at a constant stream if there is sufficient cellular coverage. In case there is no cellular coverage, data is saved and sent afterwards over LTE or when syncing the spray job information after completing a spray job. Prescription maps are pre-configured spraying patterns on a field.

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# User benefits

WEED-IT DASH offers significant benefits for end users, including detailed logging, accurate application of crop protection products and improved data analysis. Thanks to the advanced technologies within DASH, users gain insight into their spraying activities and can use this data strategically for better weed management.

## Precision and data-driven decisions

DASH records all spraying activities with an accuracy of 25x25 cm in the 'as applied' layer, which provides insight into the exact sprayed areas where spraying has taken place. In addition, a 'visited' layer is stored, which records where the master switch was active, thus spraying was allowed. This data is sent directly to the DASH portal, where the user – possibly in collaboration with an agronomist – can analyze and optimize the data.

For example, if a certain corner of a field consistently shows a high 'as applied' value, this means that there are structurally more weeds. This could indicate a soil structure with a higher moisture content or a soil structure problem (e.g. weeds with deep root structures tend to occur in places with dense soil layers) which allows further adjustments in the crop planning. The user can then decide to apply a higher sowing density in that specific area or to use residual herbicides more locally or specifically.

## More efficient use of crop protection products

By using prescription maps, herbicides can be used in a targeted and efficient manner. This means that:

- Stronger or specific herbicides are only applied to problem areas, which saves and reduces impact on the crop on the rest of the field.
- Residual herbicides can be dosed accurately, for example by using a full dose in the problem areas and only 70% in the rest of the field.
- Multiple data sources, such as satellite images, soil analyses and WEED-IT QUADRO detection data, can be combined to form a total picture of the field.

DASH also helps to monitor herbicide resistance. If a certain weed keeps returning despite repeated spraying, this may indicate resistance. In that case, the user can choose to spray with one herbicide the first time and than apply a herbicide with a different group mode of action on the problem areas the next spray round.

## User-friendly and advanced operation

The DASH User Interface, further referred to as touchscreen, offers an intuitive display of all essential system data. The interface supports:

- Individual nozzle switching (nozzle-by-nozzle section control)
- Field boundary recognition with adjustable overlap
- Live machine data such as driving speed, spray pressure and applied volume

## Connectivity

WEED-IT DASH remote access to WEED-IT systems makes WEED-IT even more efficient in the field. It's not only an upgrade of your hardware, but above all a solution for connectivity, support and ease of use.

While driving, all machine data is sent directly via LTE. In addition to the 'visited' and 'as applied' layers, DASH also offers an 'as applied' layer, which registers where weeds have been observed. In addition, the amount of product applied is calculated per pixel (25x25 cm), instead of per hectare. A unique addition is the chlorophyll (CCD) measurement. All collected data will be available online after the spray job is completed, synchronised and stored in the DASH portal. Users can now easily analyse and combine it with other data sources.

With this data-driven approach, DASH enables end users to control weeds more efficiently and effectively, resulting in lower costs and less environmental impact.

# DASH portal for dealers and distributors

In addition to the portal for end users, there is also a DASH portal specifically for dealers and distributors, focused on service provision and support. This portal offers two important functionalities:

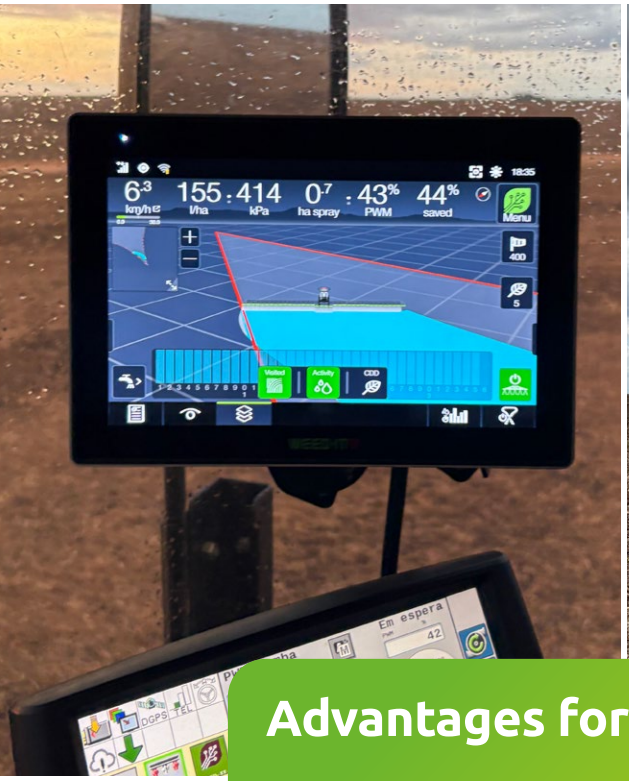
### Remote software updates

With the portal, distributors can easily perform 'over-the-air' software updates. They can prepare updates and decide for themselves whether they are made available to an individual customer or to their entire customer base. End users can then select the option 'Check Updates' via the touchscreen and install the update. This can be done via Wi-Fi and LTE, provided that updates over LTE option is enabled.

### Remote Support and documentation

The portal also offers a Remote Support function, which allows dealers and distributors to remotely view the touchscreen. When a user encounters a problem Remote Support can be activated via the touchscreen. This allows the dealer to remotely view, diagnose and resolve any problem.

In addition, the DASH portal contains an extensive library of manuals and documentation, which can be consulted directly or downloaded as a digital help function.



## Advantages for the distributor

WEED-IT DASH offers various advantages for distributors, including predictive maintenance. Suppose a customer has a defective sensor that needs to get replaced. Save time and costs on long-distance service by solving issues remotely or conducting a proper diagnosis via the portal – so you bring the right spare parts on your visit.

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## DASH COMPATIBILITY

# WEED-IT QUADRO: Experience the Power of Fluorescence

WEED-IT QUADRO has become the global benchmark in brand independent precision spraying systems. With the four (quadro) detection zones of each individual WEED-IT sensor, no weed remains unseen at travelling speeds up to 25 km/h (15 mph). And thanks to its incorporated Pulse Width Modulation (PWM) spraying technology no detected weed is left behind.

These features are the core of the unmatched general hit rates of 95 percent and above, the system is able to achieve. This means that practically every weed or plant is treated with the optimal application rate of crop protection product(s) whilst saving up to 95 percent on crop protection costs.

All this make it possible that the WEED-IT sensors are capable of detecting weeds as small as 1 $cm^2$ at a speed of up to 25 km/h.

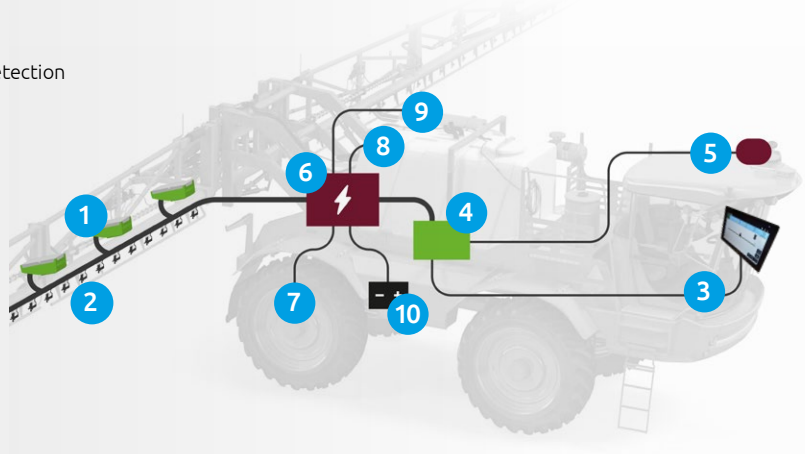
# WEED-IT AQRATE: Efficient PWM spraying by using field data

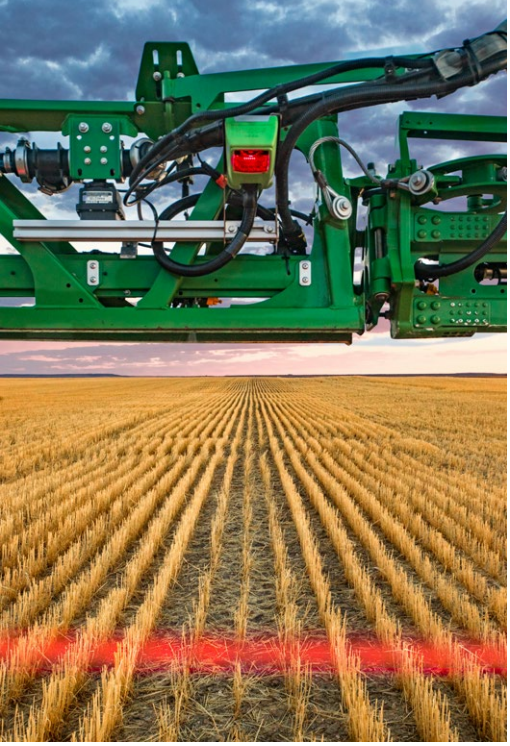
Innovation in precision agriculture takes on a new dimension. Rometron introduces the WEED-IT AQRATE PWM controle module as a complement to the successful WEED-IT QUADRO detection sensors. QUADRO and AQRATE deliver the correct application rates during speed changes and curves. The machine maintains constant pressure while adjusting the application rate, resulting in more consistent droplet size, improving drift control and spray effectiveness.

Over 20 years of experience in PWM, WEED-IT has developed a simple, fast-switching PWM solenoid valve. WEED-IT uses a variable frequency range of 20–50 Hz for optimal coverage, depending on speed and rate. Thanks to a wide duty cycle range, each nozzle can handle a broad flow spectrum. For example, an 04 nozzle can cover the range of a 015 to 04 nozzle using PWM. Electronic control of the PWM solenoids is managed centrally by AQRATE PWM control modules, simplifying maintenance and spare parts management.

## THE FULL WEED-IT SYSTEM:

1. QUADRO detection sensors, each with 4 detection channels and/or AQRATE PWM module
2. 4 solenoid valves per sensor
3. DASH DQ10 touchscreen + mount
4. DASH advanced controller
5. Cellular/Wi-Fi/GNSS puck antenna
6. Power converter (PSU)
7. Speed sensor
8. Pressure sensor
9. Flow sensor
10. Battery





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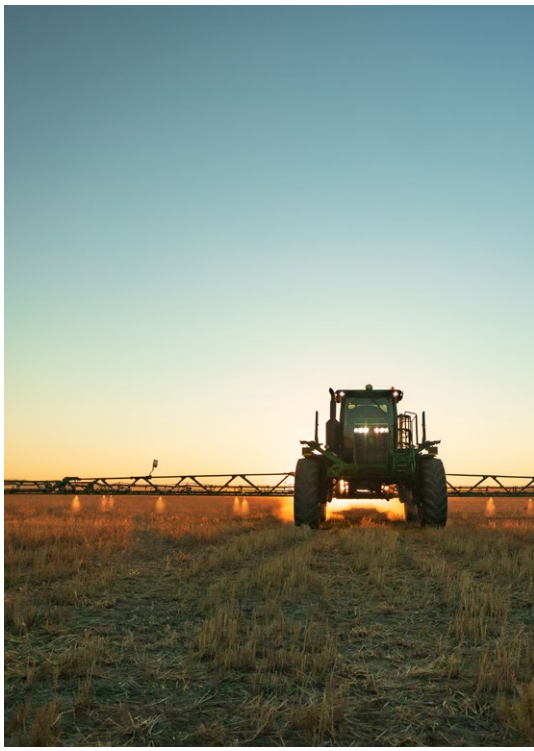
WEED-IT



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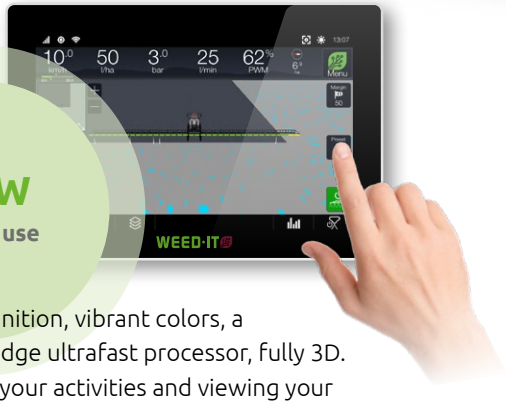
# Configurations and benefits

| | WEED-IT DASH + QUADRO | WEED-IT DASH + AQRATE |
|---|---|---|
| Touchscreen + advanced controller | ✓ | ✓ |
| Sensor technology | ✓ | |
| Record CDD | ✓ | |
| Full control over your spraying activities | ✓ | |
| Ultimate control with PWM | ✓ | ✓ |
| Multiple spraying modes | ✓ | ✓ |
| Executing tasks ‘as applied’ | ✓ | ✓ |
| Scan in 25x25 cm resolution | ✓ | |
| Spray in 25x25 cm resolution | ✓ | ✓ |
| Prescription map execution | ✓ | ✓ |
| Variable rate application | ✓ | ✓ |
| Effortless maintenance | ✓ | ✓ |
| Nozzle spacing: 25/50 cm or 10/20 ” | ✓ | ✓ |
| Save up to 95% on chemicals | ✓ | ✓ |

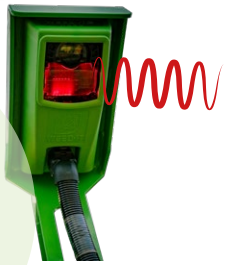
**WEED-IT DASH IS ALSO AVAILABLE IN COMBINATION WITH QUADRO + AQRATE**

# Spraying beyond accurate with WEED-IT DASH




## VIEW
**Ease of use**

High definition, vibrant colors, a cutting-edge ultrafast processor, fully 3D. Tracking your activities and viewing your data in real time has never been so enjoyable as with the DQ10 touchscreen.



## PERFORM
**Ultimate results**

Farming beyond accurate is here. With 25x25 cm grids and individual nozzle control, variable rate application and crop scouting, you get the most out of your system and your weed management.

## RECORD
**Full control**

Your daily operations are streamlined with tools that support various tasks, such as mapping layers like ‘as visited’, ‘as applied’ and crop density data. This gives you full control over your crop protection.

## REMOTE SUPPORT
**Data accessibility**

Data is easily transferred over the air by a super fast LTE connection and instantly available in the new DASH portal. Maximum uptime of your spraying technology and weed control is fully assured.

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## See it in action.

**Discover how farmers worldwide are going Beyond Accurate with WEED-IT DASH.**

**Explore real user cases at weed-it.com/dash**

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Rometron B.V.
Hoge Wesselink 8
7221 CJ Steenderen
+31 (0)575 - 45 11 11
www.weed-it.com

**YOUR WEED-IT DISTRIBUTOR:**

**ROMETRON B.V.**
Hoge Wesselink 8
7221 CJ Steenderen
The Netherlands
info@rometron.nl
+31 (0)575 - 45 11 11

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