



**WEED·IT**   
precision spraying

# PLANT DETECTION TECHNOLOGY

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Dear Prospective Buyer,

Thank you for taking the time to consider the WEEDit selective spraying system.

As this technology is very new to the world market and the method in which WEEDit operates is very unique, I encourage you to read the following which I hope will help you understand both the concept and the system.

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## THE HISTORY

The WEEDit product has actually been around for over 12 years. This technology was first invented and released into Holland in 2001. European environmental departments made a statement many years ago regarding concerns of blanket chemical usage over footpaths and street guttering. WEEDit was developed to address this issue and came up with the solution that now only sprays 10% of blanket rates across many local councils in Europe. The technology is most commonly fitted to quad bikes where operators scope footpaths, roadway and gutters for weeds. See the below photo of the original design.

In March 2009 Australia approached the WEEDit company in the interest to modify this system so that it could be used for summer spraying in Australian broadacre conditions.

After significant testing in the south of France with very pleasing results, November 2009 saw the first production system arrive in Australia.

Since then there have been many commercial systems sold to both spray contractors and growers. The results continue to bring testimony to the value of WEEDit.

# THE SYSTEM

WEEDit is the only one of its kind. It is unique in how it detects, measures and applies chemical to plant matter. There are some very important features that you need to be aware of when purchasing such technology.

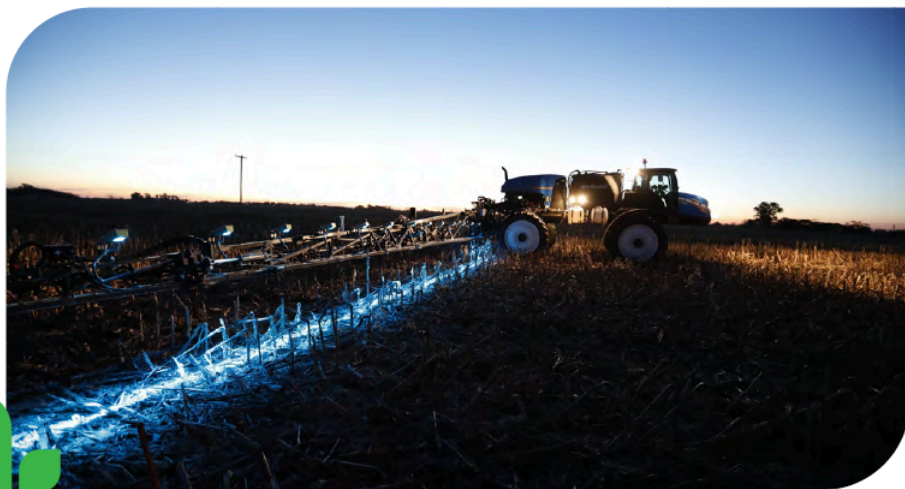
WEEDit runs on a standard 12 volt system. Power is connected directly to the battery and runs to an interface box. The interface box does many tasks, one of them is to invert 12 volts up to 30+ volts.

A low voltage system suffers high power loss over large distances, so to overcome this WEEDit inverts 12 volts to higher voltage levels so that power loss across large 120ft booms is minimized.

WEEDit uses 30 volt spool solenoids across all of its spray nozzles. This allows higher voltages to be used but most importantly allows the interface box to send a very high signal voltage to that specific solenoid for fast opening times. These solenoids are able to open in 1 millisecond and close in 5 milliseconds. At 15mph the 'delay distance' to open the solenoid is only 1/3"! The 'smarts' inside the interface box send a high 'opening voltage' so that the solenoid opens quickly, but then the voltage is lowered to a 'holding voltage' should the solenoid need to remain open for longer bursts.

One interface box has enough power to run a 120ft system without any additional components. Be aware that some competitor systems require additional boxes to be installed to act as "boosters" to handle large distances, and these come at an extra cost to you.

WEEDit can be purchased for widths up to 132ft.



# THE SENSORS

WEEDit sensors are also unique. One sensor controls 4 individual solenoids. Meaning that if a plant is detected only on the far right hand side of the sensor's view then only the far right hand side solenoid will be activated to spray. Should a plant be big enough to cover 2 or more sensor views then the corresponding solenoids will be activated.

Each time a sensor detects a plant a bright LED light is displayed on the front of the sensor so that you can see its activity from the cab.

Another important feature is the performance charts that are displayed on the console in cab. This gives you instant readings of sensor activation and records them. An important feature the WEEDit has over its competition.

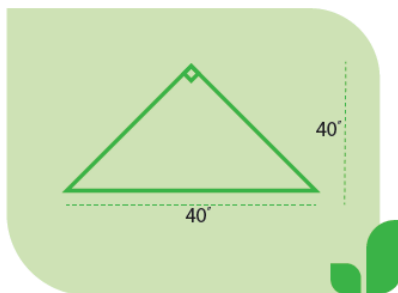
WEEDit sensors are mounted 40" off the ground and 40" apart. The sensor has a 90 degree view from its base. Therefore using mathematics, if the sensor is mounted 40" off the ground it has a viewing platform of 40" on the ground. Given the sensor is split into 4 equal sections each of those sections is 10" wide

.The spray nozzles on the back of the boom can be mounted at different heights and calibrated to suit that height. Commonly we are running nozzles 30" off the ground, however in more windy conditions we are seeing requests to mount the nozzles 20" off the ground to minimize wind drift.

At 25" off the ground "3003" stainless steel solid Teejet nozzles are provided. Due to the high ground speeds air induction nozzles cannot be used as they take too much time to form a spray fan. At 12mph a "3003" nozzle will spray at 12 gal/ac.

There is no flow regulator in the WEEDit system. It needs to be regarded as a massive spot sprayer and the only way to control flow rate is via ground speed, nozzle size and pressure.

A "3003" Nozzle will spray at 30 degrees. This in actual fact sprays wider than the 10" sensor view on ground. A 'wider' nozzle is used so that in a cross-wind event the chemical hits the plant rather than being blown off target.



## HOW DOES IT SEE PLANTS?

The science behind how WEEDit works is very clever.

Plants react to all forms of light but they react well to blue light. WEEDit sensors have an active blue light source that continually shines on the ground and is very prominent when spraying at night.

When blue light is passed over live plant matter the chlorophyll in that plant absorbs some of the blue light, converts it and emits it as Near Infra Red light (NIR). The WEEDit sensors are continually on the hunt for presence of NIR. So much so that each sensor looks at the ground 40,000 times per second checking for the presence of NIR.



## WEEDIT DOES NOT REQUIRE ANY MANUAL CALIBRATION



Natural NIR is everywhere in the environment and therefore WEEDit must run constant calibrations measuring the level of background NIR, this is all done automatically and without you knowing it.

Where there is an increased level of NIR above the background/environmental level, the WEEDit activates the solenoid on the target.

That all sounds very technical, most importantly all you need to do is turn the console on and drive!! That's it, no button pressing, no calibration.

## THE CONSOLE

The WEEDit console is classified as a 'smart terminal' as it not only sends setting commands to the boom, it also receives messages back from the boom on things like performance, pressure and diagnostics. A good example of this is the ability to read pressure that is taken at the spray line of the boom. Things like sensor performance, activation times, calibration figures and ground speed are all brought to the central console. Most of the console's power is hidden behind setup screens when first installation takes place. Simplicity is the key to the console and being able to turn the WEEDit on via one touch and then drive makes it friendly for any operator.





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**CONTACT**  
**TAB AG**

TAB AG Group, LLC  
Phoenix, AZ  
Tel: 480-586-3001

[info@tabaggroup.com](mailto:info@tabaggroup.com)

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**WEED-IT®**