BUYERS’ GUIDE
EFFECTIVE AUGUST 2017

THE ULTIMATE WEAPON AGAINST HERBICIDE RESISTANCE

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CROPLANDS

BUILT AUSSIE TOUGH

WEEDit
SPOT-ON SPRAYING

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SPOT-ON SPRAYING
THE STORY OF WEEDIT

In 2011 Croplands partnered with Hawkeye Precision to develop a machine for WEEDIT’s near infrared sensors. The technology was developed by a Dutch university and at the time was used on a much smaller scale to spray weeds in urban areas, such as footpaths and railway tracks.

The challenge for Croplands was to increase the scale of the system to suit the tough conditions of Australian Broadacre farming. The first two years saw major developments in the suspension system to minimise fatigue and more importantly, allow the sensors to float both during compression and rebound over a harsh Australian summer fallow paddock. WEEDIT Series 2 featured a contour following boom, dual line and twin tank. Upon this, Croplands invested in further research and development to improve the chassis and suspension in the Series 3 model we have today. As part of the Croplands service philosophy, they offered all Series 2 owners the opportunity to have their machines retrofitted to the new suspension package.

In 2016 Croplands launched a brand new 7000 litre WEEDIT. The WEEDIT Toolbar is another recent adaption of the technology, suitable for smaller broadacre and irrigation properties.

In 2017 Croplands launched the new autonomous, add-on platform for the 12 metre WEEDIT Toolbar Kit, known as the WEEDIT PhantomDrive.

WEEDIT technology has proven to assist Australian broadacre farmers achieve substantial chemical savings, improve water retention, delay the onset of herbicide resistance and lower their weed seed bank. Croplands and Nufarm are committed to the long term development of this product through working with growers, understanding the problems they face and creating sustainable solutions for their future.

Dear Customer,

Cropplands’ WEEDIT continues to develop as a product range with many new and exciting enhancements since the original model’s release in 2009. The demand and return on investment for this brilliant technology has been overwhelming!

The WEEDIT 7000 encompasses many added features with operator safety and ease of use in mind. This 2016 release has given many WEEDIT owners the opportunity to upgrade to a larger and more versatile model, given this machine’s capabilities with dual tank and dual line.

Our most innovative and exciting release by far has been the WEEDIT PhantomDrive – the autonomous, add-on platform making the tractor and WEEDIT completely driverless. We are holding demonstrations of the system around the country over the coming months – contact your local Area Sales Manager for dates and locations.

The WEEDIT Spot Spray Technology continues to light up paddocks across Australia and we are continuously looking at ways this technology can be applied to different applications. Stay tuned, there is no doubt more exciting WEEDIT revelations to unfold in 2017/18!

Sean Mulvaney
General Manager
Croplands
Take control using WEEDit technology in fallow paddocks.

- Operates using near infrared sensors to detect chlorophyll in the leaves of weeds in fallow paddocks.
- These sensors activate solenoids, controlling the release of chemical from the nozzles to the target.
- Sensor units are spaced 1 metre apart, reducing weight on the boom and improving effective operation driving speeds.
- WEEDit will become an increasingly important application solution for the management of resistant weeds requiring specialised chemistry.

SUPERIOR MODE OF DETECTION

WEEDit’s near infrared technology only detects the chlorophyll present in living plants sending a quick response to the nozzles which release the spray onto the weed. This superior mode of detection allows for faster travel speeds and the ability to target even smaller weeds. WEEDit improves at night because there is no interference from sunlight and weeds are often less stressed meaning the reaction to active chlorophyll is greater. The WEEDit system utilises two speed sensors to increase or decrease the reaction time of the nozzles during cornering, resulting in a more accurate and efficient job across the paddock.

SENSOR AND NOZZLE PLACEMENT

WEEDit sensors are placed every 1 metre across the boom and control 5 nozzles (individually) on 20cm spacings. Benefits from this design are less weight due to less sensors being required, and a smaller spray footprint when a weed is sprayed. This set-up provides great savings on chemical. The nozzle spacing of 20cm also allows for better penetration in stubble with less shading of small grasses.

BACKGROUND CALIBRATION

Changes in background conditions such as soil type and stubble are not a problem for WEEDit’s auto-calibration system. The WEEDit is not affected by changes in background conditions because it is only measuring active chlorophyll. For the operator this means even better targeting of small grasses.

ENHANCED ELECTRICAL SYSTEM

Weed detection systems place large demands on electrical supplies. The WEEDit overcomes this issue by running at 48 volts. This not only gives superior solenoid operation but current draw is 4 times less than other weed detection equipment using 12 volt systems. Faster solenoid operation also means quicker spraying speeds in the paddock.

RESISTANT WEED STRATEGY

WEEDit only sprays on average 10% of the paddock, enabling the use of chemicals from other family groups that are normally considered to be too expensive for a blanket application. This also allows the agronomist to develop long term herbicide resistance strategies.

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**WEEDit OPTICAL SPOT SPRAY TECHNOLOGY**

**CROPLANDS CONTOUR FOLLOWING BOOM**

Heavy duty hydraulic fold 24 metre and 36 metre trailing contour following booms, designed to handle Australia’s challenging broadacre farming conditions. Some models may have road transport speed limitations.

The hydraulically steered inner boom wheels control the folding and unfolding of the boom, this is also a pivot point for the boom to contour follow. In total there are five different plains that the boom and sensors can operate at to mirror the contours as accurately as possible. The sensors will achieve the lowest possible spray rate per hectare and effectively target small grasses when the boom height is maintained, with only small variations in height.

**BETTER BOOM HEIGHT CONTROL = BETTER DETECTION + BETTER KILL**

New responsive gas air ride suspension on all boom wheels is custom engineered for Croplands WEEDit. This helps to maximise sensor effectiveness by controlling compression and rebound to allow the sensor a smooth ride for superior detection. The responsive gas air ride suspension also absorbs vibration to reduce metal fatigue and improve longevity.

**SENSOR SPACING AND ROW CROP SPRAYING**

Traditionally WEEDit sensors are positioned at 1 metre spacings along the length of the boom. This spacing can be adapted to 40” to meet the needs of row cropping or matching tillage equipment based on imperial measurements. Regardless of sensor spacing, there are five nozzles per sensor positioned at 20cm spacings. Close nozzle spacings are a major advantage in penetrating heavy stubbles such as sorghum and also minimising shading.

**IN-CAB HYDRAULIC FOLDING BOOM**

The boom is hydraulically controlled from the cab, to allow for quick and effortless folding and unfolding of the boom, from transport position to field operation.
NOZZLE SELECTION
The standard 40 degree flat even fan nozzle provides a course droplet spectrum and provides great coverage for broad leaf weeds in a warm summer weed spraying environment.

Full cone nozzles can be used for larger targets where non systemic chemicals are used in a strategy to avoid the over use of glyphosate. The full cone nozzle provides the advantage of spraying forwards and rearwards at an angle enhancing penetration. Full cone spray patterns aim for complete plant coverage. Coverage is king with contact chemicals.

IN CAB MONITOR AND CONTROLLER
The easy to use intelligent display provides constant monitoring of solenoid and sensor operation, with malfunctions or errors reported on screen – including warnings for low pressure, sensor faults and voltage. The smart design allows for easy fault identification and greatly increases productivity as the requirement to visually check and monitor the machine is dramatically reduced.

The display allows for sensitivity adjustments from the easy to use menu. The controller monitors increased boom speeds on corners and automatically adjusts response times to ensure the nozzle hits the target. This monitor also keeps record of nozzle activation, chemical use and sensor history.

TURN COMPENSATION
The WEEDit operating system utilises two speed sensors to automatically calculate and adjust the nozzle timing to ensure the chemical hits the target accurately every time regardless of boom tip speed.
WEEDit 7000

1. **ACCESS PLATFORM**
   The up and over platform allows safe and easy access from both sides of the sprayer tank lids. Fold down steps provide greater crop clearance and safer access.

2. **SELF FILL FUNCTION**
   In 2 or 3 inch versions, makes filling fast and efficient.

3. **ELECTRONIC TANK LEVEL INDICATOR**
   In cab display monitors main tank only.

8. **BIG PUMP CAPACITY**
   Standard pumping system uses two HYPRO 9306 hydraulically driven centrifugal pumps. Flow capacities exceeding 900 L/min creates excellent responsiveness to the demands of optical spot spraying.

9. **1500 LITRE HOT TANK**
   Used to hold high concentration chemicals used for spot spraying.

10. **MANUAL JACK STAND**
    Optional hydraulic jack.

11. **STANDARD AIR RIDE DRAWBAR SYSTEM**
    The heavy drawbar features an integrated Hendrickson airbag which is an integral part of the suspension package and improves the ride. Also features a heavy duty adjustable hitch and swivelling eye drawbar.

12. **DRUM RACK**
    Side mounted drum rack can hold 20 litre drums or mount toolboxes.

13. **FRONT TANK CHEMICAL INDUCTION HOPPER**
    The smaller, 30 litre hopper transfers chemicals directly to the 1500 litre Hot Tank.

14. **DEEPER SUMP CAPACITY**
    Designed for optical spot spraying – spraying only 10% of the paddock allows 100 litres to cover a lot more country.

15. **CENTRAL CONTROL PANEL**
    Makes filling, flushing, chemical mixing and induction a simple and efficient process from one central point. All functions are at hand and tanks can be filled from a single source using a simple rotary valve for tank selection.
7000 LITRE MAIN TANK
Spot spraying sensors or optional blanket line can be run from the main tank. The tank contours trap foam and the tank high rise returns and controls over flow.

800 LITRE FLUSHING TANK
Used to regularly flush the boom system and main tanks. This large capacity may provide enough fresh water to finish the last few hectares in a paddock.

FULLY INTEGRATED CHEMICAL INDUCTION HOPPER
The standard 60 litre Chem-e-flush hopper is fully integrated to the sprayer’s control system. Options include a chemical suction probe to induct chemical from smaller drums. Optional 12 volt chemical transfer pump system complete with micromatic drum fittings available.

AIRBAG AXLE SUSPENSION
Hendrickson airbags ensure a smoother ride and longer boom life.

STANDARD MUD GUARDS AND MUD FLAPS

STANDARD REAR MOUNTED ROAD LIGHTS
Stop, tail and indicator lights only. Oversize sign is mounted at the rear boom tips.

OFF-CENTRE JETS
Used for fenceline spraying and fitted to the left and right sides of both the spot spraying line and the blanket lines. They are manually activated with in-cab, electric controls.
WEEDit 7000
THE FIRST FULLY INTEGRATED TWIN TANK SPRAYER WITH INTERLOCKING TANKS.

FEATURES

7000 LITRE MAIN TANK
Spot spraying sensors or optional blanket line can be run from the main tank, utilising the dual pumps simultaneously. As an example, a pre-emergent herbicide could be applied through the blanket line, while the spot spray line may apply a knockdown herbicide to existing weeds.

1500 LITRE HOT TANK
Spot spraying sensors are run from the Hot Tank. A common strategy used to delay the onset of herbicide resistance is to use a more concentrated combination of chemicals for spot spraying. This is often referred to as the ‘hot mix’ that becomes affordable when only spraying 10% of the paddock with the WEEDit system.

AIR RIDE BOOM SUSPENSION
Featuring airbags to control ride-height. The system utilises coil springs to provide fast and responsive ride for the sensors. The enhanced ride assists with detection of weeds on both suspension compression and rebound, minimising metal fatigue across the machine.

CHEMICAL HANDLING
» 30 litre chemical hopper delivers chemical to the 1500 litre tank and the 60 litre chemical hopper delivers chemical to the 7000 litre tank
» Integrated suction probe is fitted standard
» Optional – 12 volt chemical transfer pump system, comes complete with micromatic couplings

FLUSHING AND SAFETY
» 800 litre flush tank
» Hand wash facilities are located in the front working area near the chemical hopper
» An extra handwash tank is provided at the rear of the centre boom and can also be used for nozzle and filter cleaning

CHASSIS AND AXLE
The chassis encompasses a simple robust design with safe platforms and handrails for ease of operation. It features a 3 metre air suspension axle with an automatic ride height valve.

HYDRAULIC DRIVE
The advantage of the large centrifugal pumps for spot spraying applications is that it can respond and deliver from zero to very high volumes almost instantly as required. The self filling pump can also be used with 2 inch or optional 3 inch fast fill camlock.

CONTROL PANEL
The centre for all main sprayer functions. It is laid out logically, with the rear tank controls to the rear of the panel and the front tank controls to the front of the panel.
FEATURES

6000 OR 4000 LITRE MAIN TANK
Spot spraying sensors or optional blanket line can be run from the main tank, utilising the dual pumps simultaneously. As an example, a pre-emergent herbicide could be applied through the blanket line, while the spot spray line may apply a knockdown herbicide to existing weeds.

1100 LITRE HOT TANK
Spot spraying sensors are run from the Hot Tank. A common strategy used to delay the onset of herbicide resistance is to use a more concentrated combination of chemicals for spot spraying. This is often referred to as the ‘hot mix’ that becomes affordable when only spraying 10% of the paddock with the WEEDit system.

CHASSIS AND AXLE
The chassis encompasses a simple robust design with a 3 metre air suspension axle and an automatic ride height valve.

TWIN HYDRAULIC DRIVE CENTRIFUGAL PUMPS
The advantages of the 500 L/min centrifugal pump for spot spraying and blanket applications is that it can respond and deliver from zero to very high volumes almost instantly as required.

CENTRAL CONTROL PANEL
From a central point, the operator can take charge of all the filling, mixing and flushing.
When the operator camlocks a 2” filling hose to the non-return valve on the sprayer, they can select to fill the spot spray tank, flush tank or main tank.
The electronic flow metre measures part tank filling.
The secondary rotary valve allows selection of the chemical suction probe, 60 litre Chem-e-flush hopper or return to spray position.
The control panel also allows selection of spot spray tank rinse, main tank rinse, agitator and chemical suction probe rinse through a series of valves.
Optional Visio display for in-cab tank level reading.

CHEMICAL HANDLING
» 60 litre Chem-e-flush
» Integrated suction probe transports chemical directly into the tank without putting neat chemical through the pump
» 12 volt chemical transfer pump system comes complete with micromatic couplings

FLUSHING AND SAFETY
» 470 litre flush tank
» 30 litre fresh water tank fitted for operator safety

ADDITIONAL STANDARD FEATURES
» Off-centre jets for fenceline spraying, left and right
» Mudguards and mudflaps
» Rear tail lights and flashing beacon
THE TOOLBAR KIT IS DESIGNED FOR FARMERS TO FIT TO EXISTING TOOLBARS FOR OPTICAL SPOT SPRaying

BASE KIT

WEEDIT CONTROLLER AND MOUNT BRACKET
For easy installation in the tractor cab.

GPS SPEED SENSOR
The Astro 5 GPS Speed Sensor continues to provide speed input when turning on headlands, for consistent application and accurate speed readings.

BOOM RECIRCULATION
Recirculation plumbing keeps boom lines active with improved flow response.

POWER BOX
Mounted to the toolbar with either a 4 inch or 7 inch U-bolt provides power to all sensors and solenoids.

PRESSURE FILTERS
Traps particles before reaching the solenoid valves and nozzles.

CAMERA NOZZLE KIT
» 1 inch stainless steel tubes to deliver the chemical across the toolbar connecting with Quick Connectors
» Camera brackets secured to the toolbar with either 4 inch or 7 inch U-bolts
» Nozzles mounted on the same bracket for ease of fitting

12 METRE | 18 METRE | 24 METRE
Designed for Croplands 12 metre WEEDit Toolbar Kit, this autonomous platform kit can be added on to current model tractors with continuous variable transmission to save you time, labour costs and maximise field efficiency.

**FEATURES**

**PATH PLANNING SOFTWARE**
The path planning software displays the following farm/field zones and points via a Google Maps style interface:
- Field boundary zones
- A–B lines
- Speed zones
- Fixed obstacles, eg trees, water tanks, stone heaps etc
- Run lines and turning circles

**REMOTE MONITORING**
- Remotely monitor the tractor operation from any device with Google Chrome
- Remote monitoring requires internet connection
- View the current tractor location in the field via Google Maps style interface
- Activate and stop the tractor as required

**ERRORS AND WARNINGS**
- Autonomous system, eg GPS, collision avoidance
- Where provided by tractor manufacturer, tractor stop and warning alerts
- WEEDit spray system, eg loss of hydraulic pressure, nozzle failure
- Weather station monitoring, eg temperature, wind speed
- Tyre pressure and temperature
- Severe errors cause the tractor to stop and shut down operations
- Recoverable errors and warnings cause the tractor to stop temporarily until the issue has rectified itself (may require manual intervention)
- Minor warnings will not cause the tractor to stop and operation continues
- All errors and warnings will trigger an SMS alert

**COLLISION AVOIDANCE SYSTEM**
- For the detection of unexpected movable obstacles such as humans, animals and vehicles
- Detects solid objects of minimum approximately 400mm width
- Single horizontal plane detection zone from sensor up to 20 metres in front of tractor
- Factory set detection zone width of up to 20 metres as specified on order
- Tractor stops if obstacles are detected 5 metres or less in front of set detection width

**WEATHER STATION**
- Integrated weather station to detect wind speed and direction, humidity, temperature and barometric pressure
- Flexible weather parameter thresholds set by farmer
- Autonomous system temporarily stops operation if weather parameters outside thresholds, and resumes automatically once parameters are back within tolerance

**WHY CROPLANDS AUTONOMOUS?**
The successful integration of a tractor implement gives an autonomous operating system real purpose. The WEEDit technology is the perfect tool for autonomous spraying.

**FATIGUE MANAGEMENT**
Allowing farmers to do more, at a higher level of accuracy, within a limited time frame.

**MONETARY SAVINGS**
Save money on labour costs, as well as the cost benefits associated with owning a WEEDit sprayer.

**VERSATILITY**
When you are not spot spraying, the tractor can still be driven manually to carry out other on farm tasks.

**EFFICIENCY**
Weather conditions permitting Croplands WEEDit PhantomDrive can work 24 hours a day, with the option to travel slower and improve chemical application technique and maximising your ha/day.
NSW

Corowa  O'Connors  02 6033 1666
Forbes  Forbes Machinery Centre  02 6852 3211
Griffith  Guidolin Agrimac Australia Pty Ltd  02 6964 3400
Gunnedah  NFS-Ag  02 6742 7771
Moree  Black Truck & Ag  02 6752 2277
Parkes  McPherson’s Parts & Service  02 6862 3886
Temora  Temora Truck & Tractor Service  02 6877 1098
Tottenham  Western Farm Machinery  02 6892 4078
Walgett  Walgett Tyre & Machinery Service  02 6828 1500
Warren  Western Farm Machinery  02 6847 3422

QUEENSLAND

Dalby  Black Truck & Ag  07 4669 8988
Dalby  Dalby Rural Supplies  07 4662 6122
Emerald  Springsure Tractor & Header Service  07 4984 1258
Goondiwindi  Black Truck & Ag  07 4677 8113
Goondiwindi  Agtronics  07 4671 4715
St George  St George Machinery Centre  07 4625 3633
Roma  Black Truck & Ag  07 4624 4800

SOUTH AUSTRALIA

Bordertown  O’Connors  08 8752 1311
Cleve  Pringles Crouch  08 8628 2150
Crystal Brook  Pringles Crouch  08 8636 2257
Cummins  Pringles Crouch  08 8676 2105
Kimba  Pringles Crouch  08 8827 2071
Loxton  Ronco Motors  08 8584 5575
Pinnaroo  Ronco Motors  08 8577 8129
Wudinna  Pringles Crouch  08 8680 2236

TASMANIA

Statewide  Spray Shop Tasmania  03 6343 1666

VICTORIA

Bendigo  Precision Control Australia  03 5448 8484
Birchip  O’Connors  03 5492 2311
Horsham  O’Connors  03 5382 1727
Mildura  Sunrise Ag  03 5023 0284
Ouyen  Sunrise Ag  03 5092 1031
Shepparton  O’Connors  03 5621 4555
Swan Hill  Sunrise Ag  03 5032 0099
Warracknabeal  O’Connors  03 5398 1877

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Steve Ross  0417 832 784
South VIC
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OUR RANGE OF BUYERS’ GUIDES

OPTIMA Horticultural Self Propelled WEEDIT Optical Spot Spraying Broadacre Trailed