## Getting the best from your new.....

# weedswiper™

**3 POINT LINKAGE MOUNTED ELECTRONICALLY CONTROLLED HERBICIDE WIPER**

***DOING THE JOB THE WAY IT SHOULD BE DONE***

**J B Edlington & Co Ltd**

AGTRONIX™
Down to earth electronics

**U.K. Edition**

**When all else fails.....read the instructions!**

**March 2006**

## Congratulations!

You have joined a growing number of discerning farmers who are concerned about conserving their farmland, increasing their productivity, and reducing their running costs.

The Weedswiper which you have purchased was invented by a farmer and spraying contracter who were always looking for a better or cheaper way of doing things.

All the people who have been involved in the development and production of this idea, in the years since it was first conceived, share his view.

Our Weedswiper is unlike any other farm implement you have ever owned. Its principle of wiping the optimum amount of herbicide onto the target plants offers you great potential economy. Reading this booklet is your first step in realising that potential.

## Development

| | |
|---|---|
| **Inventor:** | Peter Muir Wilson. |
| **Development:** | Tony Cotton, John Maddock, Graeme Vertigan, Warren Wright, Brian Hyde-Wyatt, Richard King and Ralf Stegelmeier plus a host of people who have helped build numerous protypes. |
| **UK Development:** | WeedSwiper frame developed and manufactured by J B Edlington & Co Ltd. |

## We need your help!

The Weedswiper is a developing technology a good design is seldom achieved instantly. If you have a suggestion about how we can improve it by building it better or cheaper, or make it more versatile please let us know.

Contact your local dealer:

J B Edlington & Co Ltd - 01427 612030 - **Email:** paul@edlington.com

or John Maddock at Agtronix, phone +61 362 296 365, fax +613 622 976 29

or wnte to Agtronix, P.O. Box 101, Kingston, Tasmania, Australia 7051. **Email:** agtronixjv@southcom.com.au

## A caution.....

The Weedswiper uses chemicals which can be harmful.

**DO NOT HANDLE THE PADS WITH BARE HANDS. PARTLY DRY PADS WILL CONTAIN CONCENTRATED HERBICIDE.**

**And a plea.....**

**Please,** read the labels on chemical containers, and observe handling recommendations made by the relevant chemical manufacturers.

**Please,** dispose of all containers thoughtfully.

**Please,** use the pad covers provided, to prevent people or animals coming in contact with herbicide in pads.

**Remember,** the halcyon days of using chemicals when and how you wanted are over. The people who buy our produce, the nation, indeed the world, requires us to take care of the environment.

## Some more words of caution

Despite the excellent qualities of the machine you now have, it is not magic. There are any number of ways for Murphy's Laws (there are more than one -many more!) to come in to play so that the job you are doing may not turn out as well as you expect.

## And some words of hope

There are, however, a number of things you can do to improve your chances:

**1.** Read this book. Even if you can't abide reading it all through at one sitting, at least read the next few pages.

**2.** Understand the limitations of this new technology.

**3.** Give yourself the best chance of success against your target weeds by getting right as many of the important factors as possible.

## The secrets of success

**1.** Get the timing right.

**a)** If you are using glyphosate, the targets must be actively growing. Wiping in dry or cold conditions will not give a good result.

**b)** Seasonal conditions are important for some weeds e.g. bracken ferns become dormant in cold or dry conditions.

**c)** Stage of growth can be important, e.g. ragwort should be as tall as possible and in the first stages of flowering. Similarly, thistles should be wiped before the white (pappus) stage.

**2.** Get the herbicide right. Only Roundup™ is registered for use through wipers, how ever there is indisputable anecdotal information to show that other herbicides used in ways contrary to the label, give better results on weeds such as thistles and rag wort.

**3.** Get the herbicide concentration right. Because its Hydrostat control system is so accurate, the Weedswiper applies less herbicide mix than other wipers and only a tiny percentage of the amount applied by sprays. As a consequence, concentrations need to be much higher.

Under perfect conditions, you may get satisfactory results from using a lower concentration, but the risk is that the job may have to be done again. Which is the highest cost? Herbicide or time?

## CHECK LIST FOR EFFECTIVE WIPING

**1.** If you are wiping weeds in pasture, graze the pasture before wiping, with the aim of removing as much pasture as possible without trampling or other damage to the target weeds.

If you are wiping weeds in a crop, ensure the weeds are at least 150mm (and preferrably more) above the general crop height. This will minimise the risk of accidently wiping desired species.

**2.** Choose the time of wiping bearing in mind that different weeds have different limitations e.g. time of flowering (thistles, ragwort) or soil moisture (bracken ferns) or weather conditions.

**3.** Choose:

**a)** the herbicide

**b)** the mix of herbicides

**c)** the concentration of herbicide required to suit the target weeds

**4.** Mix the herbicide before pouring it into the Weedswiper tank. Mix only enough for immediate use. Until you are familiar with the machine mix a half tank or less, since it will probably use less than you expect.

**5.** If starting with a dry pad, wet it either with some of the wiping mix or clean water, using a hand sprayer to spray the pad. (If clean water is used, re-wipe the first few passes because the fluid in the pad will not be at full strength).

**6.** Set the Hydrostat to a high setting until the pad drips then progressively reduce the setting until the pump stops. Further reduce the setting about half a number to ensure the pad stays just below the drip threshold. This will be your working setting.

**7.** If you are working with an unfamiliar mix or concentration of herbicide, progressively adjust the control setting upward as you work until you have the highest setting possible without the pad dripping. This will ensure the pad is saturated for good herbicide transfer.

**!**

**It is normal for the Hydrostat to <u>not</u> switch the pump on for some minutes up to 15 or 20 minutes, if targets are sparse and scattered.**

**Do not be tempted to manually over-ride the system. Doing so will simply waste herbicide.**

**As a simple check, take a stick or broad plant leaf and wipe it down over the bottom edge of the pad. If there is a good smear of liquid on the stick or leaf, the pad is wet enough.**

8. Travel at a speed which is comfortable, but consistent with application of the herbicide. Too high a speed could result in the targets flicking away from the boom and not being wiped along their full length.

   The Hydrostat will automatically compensate for speed changes.

9. When wiping rushes, wipe in two directions at 90 degrees.

10. After work, re-fit the boom covers.

11. When you are working down the rows, and are coming to the headland to turn around; do no lift the wings up vertically. Only lift the machine up by the lower lift arms. The reason for this is that when the wings are put up vertically, the herbicide will travel down the pad to the bottom of the wing and drip out.

**!**

**Trap for new players!**

**Always flush the system with a small amount of clean water at the end of the day to minimise the risk of the microjets blocking as moisture evaporates.**

## Normal operation

Understanding the principle on which the controller operates will help you avoid some traps which may lead you to think it is not operating correctly. Under normal conditions, the following events occur:

1. When the Hydrostat is switched on to a minimum setting, it does a self diagnosis check, and switches on the pump and solenoid for about three seconds.

   The buzzer sounds and the pump LED is on continuously for that three seconds. If the knob remains set to a reference point which is "drier" than the pad , the pump will then be switched **off,** the buzzer will stop but the pump LED will continue to flash.

2. As the knob is rotated clockwise, new references will be generated, and at some point the reference signal will exceed the signal supplied by the sensors, and after a short delay, the pump will be switched on.

3. If a conductive fluid i.e. herbicide, is pumped into the section of pad between the sensors, a new signal is supplied to the Hydrostat indicating that the pad is becoming wetter.

4. The Hydrostat has been programmed to balance out the new signal against the reference gradually, so that it does not overshoot and cause the pad to become too wet for the chosen setting.

!

**A trap for new players!**

**When the knob setting is adjusted to a higher or lower point, always allow a few minutes for the new balance to be achieved.**

5. The Hydrostat may switch on and off several times until the correct balance has been obtained.

6. As herbicide is consumed by being wiped onto vegetation, the Hydrostat maintains a balance of pad wetness signal against the knob setpoint signal by pumping more herbicide.

7. If the knob is set to the number "10" position, the pump will run continuously, no matter what the state of the pad. This "constant pumping" feature is useful for saturating a pad quickly (providing it has been pre-wetted) and for flushing the system at the completion of work.

## Getting started

Choose a convenient position on the tractor for the Hydrostat and fix the mounting bracket supplied.

Connect the power terminals to the battery or suitable power cables e.g. the starter motor terminals.

Connecting the Hydrostat plug to the socket on the Weedswiper frame connects both the sensor cables and the power and earth cables to, the pump and solenoid. The pump is polarised and will not operate if the polarity is reversed. Neither the solenoid valve nor the sensors are polarised and will operate if connected either polarity.

!

**A trap for new players:**

**If the pads are dry, saturate them thoroughly with clean water. Herbicide may run off a dry pad, wasting money and polluting the soil.**

!

**A trap for new players:**

**If the pads have begun to dry out as a result of a temporary halt to work (particularly on a warm dry day), It may be necessary to re-wet the pads before work recommences.**

This action is necessary because the herbicide in the pads between the sensors may have become more concentrated because of the evaporation of moisture, and as a result the signal may fall outside the range of the Hydrostat.

Setting the Hydrostat to **CONSTANT PUMPING** for a short time may be all that is required, however if the pad is very dry it may be necessary to wet it with clean water.

Always ensure that the tap on the tank outlet is off before filling the tank. Herbicide can be mixed in the tank, but there is the risk of incomplete mixing.

## How the system works

The heart of the Weedswiper system is the Hydrostat, the electronic controller which monitors and controls the supply of herbicide to the pads.

The Hydrostat is designed for connection to a 12 volt battery, and is protected from damage as a result of accidental reverse polarity connection.

Connection to a 24 volt system may damage it beyond repair.

A 5amp 3 AG type fuse is fitted in the power supply line for protection against accidental short circuits.

Solid state light emitting diodes (LED) on the Hydrostat panel indicate when **(a)** power is switched on and **(b)** when the pump is operating.

The LED changes colour from clear to red when energised, and can be easily seen in bright sunlight.

The pump LED flashes when the circuitry is powered but the pump is not energised, and is on continuously when the pump is energised. A buzzer is connected in parallel with the pump and solenoid to give audible indication that they are energised.

The control knob is used to switch on the Hydrostat and to control the concentration of herbicide in the pads.

This is achieved by the operator setting up an electrical balance between the signal coming from the pad sensors and a signal generated proportional to the position of the Hydrostat knob.

If this balance is upset by, for example, the pad becoming drier than the Hydrostat setting as a result of herbicide being removed from the pad, the Hydrostat activates the solenoid valve and pump to supply more chemical so as to restore the signal balance.

As the wetness increases and gets close to the setpoint, the pump is switched off, but may be switched on again momentarily as theHydrostat computes the wetness required by the knob setting. This prevents overshooting and consequent waste of herbicide through pad being too wet and dripping.

**!**

**The optimum setting is the point at which the pad is saturated, but not dripping. The balance point for different concentrations and mixes of herbicides will vary, but the aim always is to have the pad just below the drip threshold.**

## The sensors

Two stainless steel sensor plates bolted to the pads are connected to the Hydrostat by a two wire cable and are the means by which it monitors the herbicide concentration in the pads. If the cable from the sensors is disconnected or broken, the Hydrostat will operate the pump continuously.

## Hydrostat settings

The numbers around the Hydrostat knob are a setting guide only, and do not relate to application rates.

When different chemicals or different concentrations of chemicals are used, the knob will need to be adjusted to a different setting.

As an example, a standard wiping mix of glyphosate of 1:2 glyphosate: water (33%) would have a setpoint of about #8.5.

Experimentation with other mixes of herbicides will be necessary to determine approxi mate settings. The more conductive the mix, the higher the setting number to obtain a bal ance in the Hydrostat.

## Solenoid valve

The solenoid valve is fitted in the delivery line to prevent gravity feed of chemical when the pump is not energised. A 100 mesh filter is fitted inside the valve body on the inlet side and can be slipped out with a small screwdriver for cleaning.

## Pads

The pads are made of tough synthetic felt and should give long wearing life. A central core of woven mesh has synthetic fabric tufted through it, giving very good moisture holding capacity with resistance to tearing.

The pads should always be stored in dark conditions because exposure to direct sunlight will cause the synthetic fibres to break down.

Always wet a dry pad with either some of the wiping mix sprayed onto the pad or clean water before switching on the pump because dry pad fibres can be very slow to wet. As a consequence herbicide pumped onto a dry pad can run off, wasting chemical and causing pollution. If clean water is used, re-wipe the first few runs because the first herbicide pumped into the pad will be diluted.

The solenoid valve is fitted in the delivery line to prevent gravity feed of chemical when the pump is not energised. A 100 mesh filter is fitted inside the valve body on the inlet side and can be slipped out with a small screwdriver for cleaning.

!

## A trap for new players

**Always saturate a dry pad before starting the pump.**

You should remove the pads from the booms and store them in the boom covers to minimise the risk of rust during the off season.

Replacement pads are obtainable from your dealer or Agtronix. If the Weedswiper is used in valuable crops, you should use a different set of pads for each different chemical or chemical mix.

This eliminates the risk of damage to a susceptible crop and also eliminates the problem of cleaning pads, with the consequent risk of environmental pollution, if it is essential to eliminate any chance of damage to a crop by accidental wiping with the incorrect chemical.

### Pad clips

The clips which hold the pads in place are designed to be easily removed so that the pads can be reversed or replaced.

### Outrigger springs

The rubber rings used as springs in the outrigger hinges are concrete storm water pipe rings. Two springs can be used to give greater resistance in dense vegetation. Replacements can be obtained from most plumbers or your dealer.

### Solenoid valve

The solenoid valve is a standard valve used in garden irrigation systems. Although it may be marked as 24 volt a.c., it will operate on a 12 volt d.c. supply satisfactorily. Replacement valves can be obtained from your supplier. A 100 mesh filter is fitted in the inlet side of the valve and can be removed with a small screwdriver for cleaning.

!

## A trap for young players

**Do not allow the Hydrostat to energise the pump and valve for more than a few minutes at a time, unless there is a sufficient flow of liquid to keep the solenoid windings cool.**

The solenoid is non-polarised and will operate with terminals connected to either polarity.

### Pump

The pump is a diaphragm type with solid state control circuitry. All wetted parts are of non-corrosive plastic. The pump should operate satisfactorily for many years provided it is not mis-treated - for example operating it with the inlet blocked.

**Testing:** First test the control circuitry as described in later sections. If that is working normally, check for 12 v supply to the pump using a multimeter or connect the pump direct to a battery. Note that the pump must be connected correct polarity. Replacement pumps can be obtained from your dealer.

## Microjets

The microjets used to distribute the herbicide are made of 300mm lengths of irrigation dripper tubing of 25 thousands of an inch bore diameter. Replacement tubing can be obtained from irrigation suppliers or your dealer.

## Cable connectors

The cable connectors which connect the pump/solenoid and sensor cables to the Hydrostat are standard 7 pin flat automotive trailer connectors. Spares can be obtained from your dealer. The connector for the sensor cable is a two pin "Brylite" B-62A obtainable from your dealer.

## Choosing herbicides

The following suggestions are current at time of printing and are compiled from information supplied by the Plant Protection Branch, Department of Primary Industries and Fisheries, Tasmanja, and agchem suppliers. These suggestions are **OFF LABEL** and may not be suitable for your area. **Check with your local agronomist or your agchem specialist.**

## Bracken

2.5g Brushoff (metsulfuron methyl, 600g/kg, DuPont), 50 ml of glyphosate and 2.0 ml of Pulse TM (a penetrant. Monsanto) per litre of water have given best results in Tasmanian trials. If ferns have been recently disturbed by cultivation or slashing, wait until the fronds are fully unfurled and use glyphosate at 33%.

Bracken fern becomes dormant during stress, and under these circumstances, translocation of the herbicide will not take place. Because there is no outward indication of the plant being stressed, it is important to avoid wiping during cold weather or dry soil conditions, the two common causes of stress.

If you are uncertain if soil dryness is likely to be a problem, dig down to the level of the rhizomes and check that there is sufficient soil moisture for the rhizomes to be active.

If renovating pasture after treatment, use a suitable amount of lime and potash in your fertil izer program to obtain full benefit from your investment.There are conflicting claims on whether or not decomposing fern plants will initially release potassium.

## Rushes (Juncus *spp.)*

Wipe actively growing plants with 33% glysophate, or as recommended on the label for your area. Travel in two directions at 90 degrees.

Old and dry plants may need to be slashed or burned to encourage new growth for wiping.

Anecdotal information suggests there is some benefit obtained by adding a small amount of Brushoff (metsulfurin methyl) at about 0.25g/L of mix. **Note that this mix is "off label" and not legal.**

## Variegated thistles (Silybum marianum) slender thistles (Cardus tenniflorus)

Tasmanian trials using Lontrel™ (DowElanco), at 4% have shown excellent results, even up to flowering stage. When 10% of the seed heads reached the white (pappus) stage, 8% was used.

**Note** that the active ingredient of Lontrel™ is Clopyralid 600g/L present as the triiospropanolamine salt. Lontrel™ may not be directly comparable with the U.K. product Dow Shield Note™ also that anecdotal evidence suggests that good soil moisture is neces sary for Clopyralid type herbicides to work well.

## Ragwort (Senecio jacobaea)

Lontrel™ at 10% wiped up to and including flowering has killed seeds in Tasmanian trials. At non-flowering stages, Brushoff at 1.0g per litre has given good results.

## Scotch thistle

New Zealand experience indicates the use of Tordon 50-D. Check with your agchem supplier for details.

## Using the Weedswiper in dense vegetation.

If the vegetation is so dense that the outriggers are continuously forced back, we recom mend that they either be locked in the folded position and the distribution pipe discon nected or that they be removed completely. Fitting two rubber springs may help.

The rubber springs can be easily removed by feeding a length of rope through each one and pulling the spring off the hook.

## Emptying the tank

A male adapter fitted with a short length of hose is supplied to match the breakaway cou pling on the tank. Use this to drain herbicide from the tank then connect the pump inlet to the clean water tank to flush the plumbing.

## Clean up

At the time of writing these instructions, information had been received from two chemical companies only, about procedures for cleaning up the Weedswiper. (Note that it is prefer able to change pads when a different chemical is the be used near a sensitive crop, rather than wash the pad).

## A summary of the information supplied follows:

1. **Glyphosates**
   As Roundup (Monsanto)contains a surfactant and is water soluble, the only clean-out required is to flush the system with clean water. Setting the Hydrostat to "con stant pumping" will expedite flushing.

2. **Sulfonylureas**

Because sulfonylureas such as Escort Brushoff™, Glean™ and Ally™ (Du Pont) are very active on many plant species, it is important that the Weedswiper is thoroughly cleaned if the machine is to be used where off target damage is a risk.

Chlorine (available as household chlorine bleach) will decompose these herbicides.

### Procedure:

1. Drain the tank, then flush the plumbing with clean water for a minimum of 10 minutes.

2. Fill the tank with clean water, then add 30 mL. of household chlorine bleach (con taining 4% chlorine) per 10 L. of water. Rush through the plumbing and allow to stand for 15 minutes, then drain.

3. Repeat step 2.

4. Remove the pads and soak them in the same chlorine mix as above. Let stand for 15 minutes then flush and repeat step 4.

5. Flush with clean water.

**!**

**Useful hint**

Instead of cleaning pads (and risking soil or stream pollution) use a different set of pads for each type of chemical used.

## Trouble shooting

When trouble shooting problems with the Weedswiper it is helpful to understand how the system works. For information about this, see earlier sections of these notes.

## Identifying problems

When a problem arises, work through it methodically, comparing the symptoms against the normal operation described in earlier sections.

Try to locate the problem by observing and testing separate parts of the system one at a time. If you decide to make changes to test something, make only one change at a time.

## Possible problems and check procedures

| | | |
|---|---|---|
| **POWER LED not illuminated:** | **1** | Is the Hydrostat connected to the battery correctly? |
| | **2.** | Is the fuse blown? Replace with 5 amp 3AG fuse. Why did the fuse blow? Old age?<br><br>Check for short circuits. |
| **POWER led on; PUMP led is on, but the pump is not operating:** | **1.** | Check that the pump discharge is not obstructed, e.g. the coupling to the boom is connected correctly. |
| | **2.** | Check that the pump has not short-circuited.<br><br>This can happen if the pump cannot suck fluid. (See the warning sticker on the frame of the machine near the pump). |
| | **3.** | Check that the solenoid is opening. |
| | **4.** | Check for broken wires to the pump. |
| | **5.** | Check for 12 volts between the solenoid terminals. Check pump wiring again. |
| | **6.** | If the solenoid does not have power, check for 12v between the red and green wires in the male 7 pin connector. |
| | **7.** | Test the pump separately from the system by connecting it direct to a 12v battery. Note that the polarity must be correct. |
| **Pump is operating but fluid is not reaching the pads:** | **1.** | Is there fluid in the tank? |
| | **2.** | Is it diluted to the correct concentration? |
| | **3.** | Is the tap turned on? |
| | **4.** | Is the strainer in the solenoid blocked? |

| | | |
|---|---|---|
| **Pump is operating but fluid is not reaching the pads cont..** | **5.** | Is the break-away hose coupling connected? |
| | **6.** | Is the solenoid valve opening? |
| | **7.** | Are all of the drippers blocked? |
| **Fluid is not being distributed evenly along the pads:** | **1.** | If starting with a dry pad, was it evenly saturated? |
| | **2.** | Check for blocked drippers. |
| | **3.** | Check for missing drippers (they may have been pushed into the delivery pipe during assembly or re-assembly of the pad). Use gloves when handling chemical laden parts. |
| **Fluid continues to flow, although the pump is not running:** | | Check the solenoid valve for something preventing the diaphragm sealing. |
| **Hydrostat will not switch the pump on normally, but the pump will operate when the control knob is set to the maximum limit:** | **1.** | Check for partly dry pad loaded with a very concentrated chemical. Wash the section of pad between the sensor plates with clean water to dilute the chemical, and thus bring the concen tration back into range of the Hydrostat. |
| | **2.** | Check for a short circuit in the sensor cables by disconnecting the sensor cable at the connector. The Hydrostat will see an open circuit as an "infi-nitely dry" pad and switch the pump on. |
| **The pad is saturated, but the Hydrostat will not switch the pump off:** | 1. | Is the fluid conductive enough? |
| | | Rainwater or distilled water with no herbicide in it will not be conductive enough for the Hydrostat to operate |

**The pad is saturated, but the Hydrostat will not switch the pump off cont..**

**2.** Check for an open circuit in the cable between the 2 pin connector in the sensor cable and the Hydrostat.

**a)** connect the test lead between the pins in the 2 pin socket;

**b)** when the knob is set to #5 or higher the Hydrostat should switch on;

**c)** when the knob is set to about #4 or lower the Hydrostat should switch off. If it does not, check for broken wires or bad connections.

**3.** Check for open circuit through the sensor plates by removing one of the plates from the pad and connecting the test lead between it and the plate in the pad. Test as in 2 (b) and (c) above.

## Using the test lead

The Weedswiper controller can be tested in the field by using the test lead. The lead feeds a dummy signal to the controller (Hydrostat) which makes it think a pad is attached.

In addition, the test lead can be used to test the sensor cabling under certain conditions.

## Hydrostat testing procedure

Connect the test lead to the two outer pins on the Hydrostat plug and switch the controller on.

The buzzer, the **POWER** and the **PUMP ON** led should all be on for about three seconds as the circuitry does a self check.

Setting the controller knob to about position #5 should switch the buzzer and **PUMP ON** LED on.

Reducing the setting to about #4 should switch the buzzer and **PUMP ON** LED off.

Adjust the knob slowly to allow for the time integration in the circuitry

## Analysis of problems

If the Hydrostat does not switch on and off at the stated knob settings check for a bad connection in the cable such as a loose screw which connects the signal wires in the plug (the outer terminals of the male 7 pin plug) or possibly a break in the wires between the plug and the circuit board.

To test open the plug and check the screws and identify the two signal wires (usually yellow and white).

Open the Hydrostat and shave a small amount of insulation off the signal wires inside the Hydrostat box and connect the test lead. If the buzzer stops when the Hydrostat is set to #4 or less, you will know the Hydrostat circuit board is o.k. and there is a break in the signal wires in the cable.

If it does not stop, there is probably a fault in the Hydrostat circuit board.

## Sensor cabling test procedure

This test can be done with <u>both</u> sensor plates installed in the pad only when

**a)** the pad is bone dry, or

**b)** there is either no herbicide or extremely dilute herbicide in the pad.

Herbicide in a wet or damp pad will upset the test signal.

If it necessary to test the signal cables when the pad is wet or has herbicide in it, remove one of the sensor plates from the pad so that no circuit can be made through the pad.

Note that only the plates on the front of the pad are active. The rear plates are washers to clamp the active plates to the pad.

With the test lead connected between the two sensor plates, use the same test sequence as described above for testing the Hydrostat.

In all tests, proeeed methodically through the problems, testing one section of the system at a time.

**WeedSwiper system designed and manufactured by Maddock Holdings Pty Ltd.**
**A.BN. 45 843 382 363**
**trading as**:

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Down to earth electronics

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**Warranty**

In addition to the rights and remedies available to the original purchaser under the various UK laws, Agtronix offers a 12 month warranty on all electrical and electronic components on the WeedSwiper.

All claims should be addressed to your local dealer.