

## Optical Spot Spray Technology - Considerations

Consideration (see details in table below)	WEED-IT	WeeDetect (Goldacres)	Sense Spray – Case IH Patriot	John Deere See & Spray	BeeLeap
What is the detection channel width?	250mm	3m	1m (2 nozzles)	1m (36m boom has 36 cameras)	3m The sensors will be placed according to the height from the sensor to the nozzle
What is the minimum application width?	250mm	250mm WeeDetect can also offer 16 sections (for a 36M boom, a combination of 2-2.5M sections)	0.5m (1 nozzle)	50cm on nozzle spacings of 50cm. Length of application is from 0.5m to 1.5m	1m This is adjustable per machine
ISO section control	Yes	Yes	Yes	Works independent of section control	Yes
ISO section width	1m	This is the same as application width	0.5m	50cm sections, individual nozzle control	It depends if you want to have variable rate over ISOBUS or not. You can choose

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					to VRA through our own task map system (LeapCat) which allows for individual VRA rate per nozzle
Does the system have Pulse Width Modulation (PWM)?	Yes (50Hz)	Yes, we offer PWM as an option	No. Conventional, even when fitted to Case IH 4450 Patriot	Yes, PWM with a combine 30MHz. Has an A & B nozzle at 15MHz	Yes, the system comes with a 100 Hz (maximum) PWM system. The frequency is variable per nozzle and based on the driving speed.
Does the system have turn compensation?	Yes	Yes, if it is optioned with PWM	No. Conventional, even when fitted to Case IH 4450 Patriot	Yes	Yes
Does the system offer both Spot Spraying and Blanket Spraying capability, using PWM?	Yes	No	No, not while using cameras	Yes, the A & B can work in different configurations	Yes

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Does the system offer Dual Mode?	Yes	No	No, not when fitted to Patriot Sprayer	Yes	<p>Three different modes. Spotspraying, Dual Mode and Modulation.</p> <p>Modulation mode = system detects weed size and sprays a lower rate on the smaller weeds.</p>
What is the recommended boom height?	80cm	60-70cm	50cm above target	50cm from target, John Deere boom height is 80cm in fallow situations.	70 cm. It is important to have a stable boom.
Detection Method	Real Time	Real time	Real time	Real time	Both. (Real time and map weeds with second pass to spray)
Green on Brown	Yes	Yes	Yes	Yes	Yes

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Green on Brown Subscription Price (one off/recurring/other)	No	One cost for permanent activation or \$2.50 per ha/year (unlimited passes for that year)	No	No	No
Green on Green	No	Yes	No	No (Yes in USA)	Yes
Green on Green Subscription Price (one off/recurring/other)	N/A	\$8.00 per ha/year unlimited passes for that year	N/A	Subscription in USA	No
Proven in field/Farmer Testamonial	Yes <a href="#">Craig Thomas/RP Case Study</a>	<a href="#">Video Links</a>	Yes, upon request (only been in field 6 months)	<a href="#">Video Links</a>	No. Three trials in place in WA this year. Other trials in Europe.
Retrofit Compatibility	Yes – large selection of brands	Yes, Goldacres only - model specific as well.	Only Patriot 4450 at this stage	Precision upgrade Kit available in USA but not currently in Australia	Yes – large selection of brands

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Other Info	<a href="#">Website Link</a>	<a href="#">Website Link</a>	<a href="#">Website Link</a>	<a href="#">Youtube Video</a> <a href="#">Website Link</a>	<p>The system is able to spotspray through corners/turns.</p> <p>The system can detect biomass. It is possible to do VRA fungicide/ fertilizer rates based on biomass levels.</p> <p><a href="#">Website Link</a></p>
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Other Info: [RP Innovation Expo 2023 RP Blog Post](#) [Optical Spot Spray Considerations - Drones.docx](#)

### Definitions/Glossary

Consideration	Details
What is the detection channel width?	<i>This is how wide the sensor/camera is sensing.</i>
What is the minimum application width?	<i>This is the width of the boom section turned on when a weed is detected.</i>
	<i>This width will have a major impact on the level of savings achieved.</i>



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	<i>This is <b>not</b> always the same as detection channel width – the system may be detecting every 0.5m but any detection turns on 2.0m of the boom. What a waste of chemical!!</i>
ISO section control	<i>GPS section control - turn off when going over same area</i>
ISO section width	<i>Minimum width of the sections controlled using ISO. Note the screen used can limit this even if spray technology is more advanced.</i>
Does the system have Pulse Width Modulation (PWM)?	<i>This will give the system speed compensated rate control (i.e. the ability to maintain application rate at varying speeds).</i>
Does the system have turn compensation?	<i>This will give the system the ability to maintain rate across the width of the boom at corners.</i>
	<i>This will require PWM, but having PWM does not automatically give you turn compensation.</i>
Does the system offer both Spot Spraying and Blanket Spraying capability, using PWM?	<i>This means you buy a Spot Sprayer and also get a PWM blanket sprayer (possibly more capable than your existing blanket sprayer).</i>
Does the system offer Dual Mode?	<i>The ability to apply a low blanket rate and simultaneously detect larger weeds and apply a higher spot rate to them</i>
What is the recommended boom height?	<i>A low boom height will mean poorer application on tall weeds.</i>
Detection Method	<i>Real time or Two Pass Operation (Drone pre-scan, Allow time for data processing, Spray application)</i>
Green on Brown	<i>Technology is for weeds (green) on fallow ground (brown)</i>

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Green on Brown Subscription Price (one off/recurring/other)	<i>Does the technology come with a fee per ha? If yes, this can be a one off, per use, annual or other type of fee.</i>
Green on Green	<i>Technology is for weeds (green) within a growing crop (green)</i>
Green on Green Subscription Price (one off/recurring/other)	<i>Does the technology come with a fee per ha? If yes, this can be a one off, per use, annual or other type of fee.</i>
Proven in field/Farmer Testamomial	<i>Demonstrated practice in field</i>
Retrofit Compatibility	<i>Can the technology be retrofitted to a boom? If so, what brands are compatible?</i>