

## **WEEDSEEKER SPRAYER CASE STUDY**

### **Introduction**

A sprayer that is equipped with WeedSeeker technology uses sensors to detect the presence of weeds. The WeedSeeker will spray only weeds and not bare ground. It is effective wherever weeds occur intermittently. Summer weed spraying is where the WeedSeeker technology could be used very successfully.

A real life paddock scenario was evaluated during the summer to assess the benefits of using a WeedSeeker sprayer. At the time of spraying it would have been a 50/50 decision whether to use a conventional sprayer or the WeedSeeker sprayer due to the patchy distribution of weeds throughout the paddock. A conventional spray application would have certainly been justified, although chemical would have been wasted in some areas of the paddock. Patching out would not have been an option. This was a perfect scenario to evaluate the cost effectiveness of the WeedSeeker sprayer where weed pressure was considered to be at the 'upper limit'.

### **Trial paddock details**

Location: Boolite area, near Minyip

Total paddock area: 177ha

Spray application date: Friday 12 March 2010

### **Weeds present**

Volunteer wheat (head emergence)

Typical density: 13 – 25 heads/m<sup>2</sup>

Crabhole/hollow: 30 heads/m<sup>2</sup>

Sparse areas: 3 heads/m<sup>2</sup>



*Volunteer wheat at head emergence*



*Typical volunteer wheat density in a 1m<sup>2</sup> quadrat*



*Typical volunteer wheat distribution across paddock*

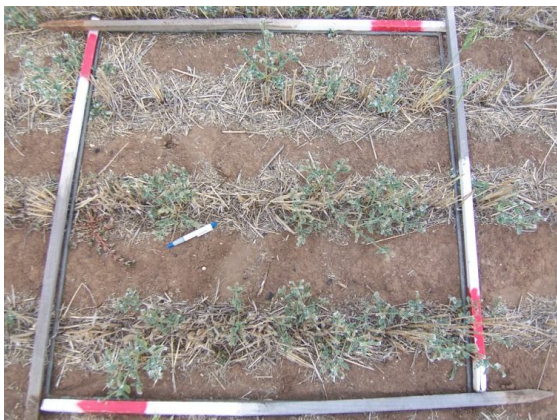
Heliotrope (flowering)  
Patches only, no uniform distribution  
12 plants/m<sup>2</sup> in a typical patch



*Average size of heliotrope*



*Larger heliotrope plants were also present*



*Typical heliotrope density in a 1m<sup>2</sup> quadrat*

## Results

The WeedSeeker worked!

53% of the paddock actually got sprayed (93.6ha).

Water rate was 79L/ha.

Glyphosate DST @ 1.2L/ha (112.8L used) (\$6.00/ha)

Ester 680 @ 350ml/ha (33L used) (\$3.20/ha)

Garlon @ 100ml/ha (9.4L used) (\$3.80/ha)

L1700 @ 0.25% (18.5L used) (\$2.00/ha)

\$15/ha for chemical + \$10/ha (contract rate) for application

= Total outlay of \$1,404 + \$1,770 = **\$3,174**

If the paddock was sprayed conventionally (177ha):

Glyphosate DST @ 1.2L/ha (212.4L used) (\$6.00/ha)

Ester 680 @ 350ml/ha (62L used) (\$3.20/ha)

Garlon @ 100ml/ha (Would not have used it due to very sparse population of melons)

L1700 @ 0.25% (35L used) (\$2.00/ha)

\$11.20/ha for chemical + \$6/ha for application

= Total outlay of \$1,982.40 + \$1,062 = **\$3,044.40**

## Conclusion

It was a split decision in terms of the total financial outlay between the application methods. An extra \$129.60 was spent by using the WeedSeeker on this occasion, even though significant chemical savings were made. The original assessment of the weed density in the paddock was correct - it certainly was the 'upper limit' for using the WeedSeeker (53% of the paddock got sprayed).

## Take home messages

- The technology works.
- Using a contract WeedSeeker sprayer where more than 50% of the paddock is actually sprayed is not likely to offer a financial saving (when a typical \$15/ha chemical mix is used).
- Paddock experience or 'trial & error' is the best way to gauge how much chemical is likely to be used in different scenarios. The weed densities described in this case study equated to 53% of the paddock area that actually got sprayed. This can be used as a guide.
- The greatest financial savings are likely to occur where less than 25% of the paddock area is sprayed. For example, if 25% of the paddock got sprayed, this would only be 44ha. \$660 (chemical) + \$1,770 (application) = \$2,430 outlay. Compared to the conventional spray application's costs, this is a saving of \$614 for the paddock.

## Acknowledgements

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