



# Precision Ag Trials

**Ryegrass Management**  
*Wickliffe, Victoria*

Although PA tools have been available to Australian grain growers for many years, and the benefits have been well documented, it is estimated that less than 1-% of grain growers utilise PA 'beyond guidance' in any form.

The objective of this GRDC / SPAA funded project is to increase the level of adoption of PA 'beyond guidance' by broadacre farmers. The project specifically aims to increase the level of adoption of variable rate (VR) by growers in the project to 30% by 2013. This goal will be achieved by demonstrating how to use PA tools to growers at a regional level and by increasing the skills of growers and industry in PA to a level where they can then use PA tools in their farming systems to achieve economic, environmental and social benefits.

Trials and demonstrations are conducted on growers' properties and are visited throughout the season using farm walks and workshops to discuss the advantages and disadvantages of PA techniques with the involvement of other regional growers.

This information sheet presents the outcomes of the SPAA trial **Ryegrass Mapping** from season 2011.

## **Aims:**

To test the accuracy of ryegrass mapping using satellite imagery.

## **Background:**

Managing ryegrass in south west Victoria is one the of major crop management challenges for farmers. For the past few seasons we have found farmers commenting on how they can see the effects of ryegrass in their satellite imagery paddock reports. This lead to the idea of testing how accurate a farmer could draw their ryegrass patches on maps of current and previous season's satellite imagery.

## **About the trial:**

George Burdett who farms near Wickcliff has seen the potential for mapping his ryegrass using satellite imagery. George has been using satellite imagery for the past three seasons to better understand crop development, responses to on-farm trials and to identify ryegrass patches.

This project tested the accuracy of mapping ryegrass from satellite imagery. George manually drew his ryegrass patches on a spring biomass map and we visited these two paddocks to see how accurate his drawing were.

### Assessments:

We had George manually draw ryegrass patches on two paddocks and we ground trothed these zones by collecting ryegrass counts on a 1ha grid across these paddocks (wheat and barley).



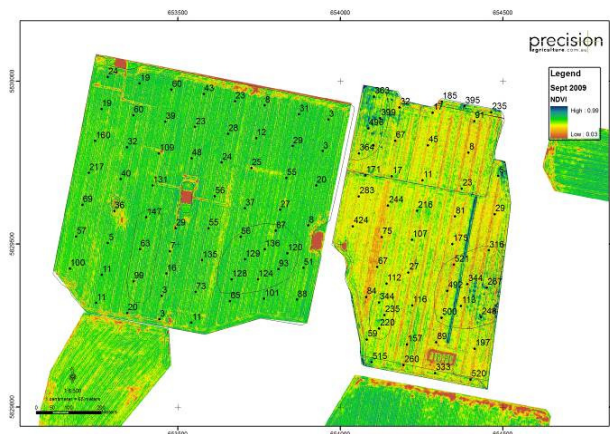
As seen here the ryegrass patches were quite intense with tiller numbers reaching 745 tillers per square metre.

### Results:

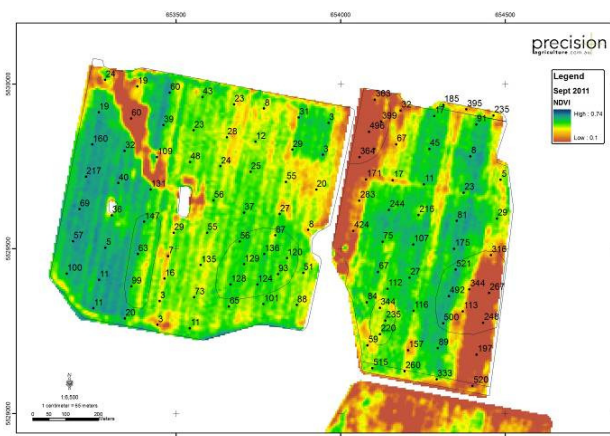
George used the 2011 satellite imagery to manually draw the major ryegrass patches across two paddocks. Andrew Whitlock then digitised these maps and overlaid against the 2009 & 2011 imagery maps. These results illustrate that George managed to identify the majority of the ryegrass patches despite using a satellite map which did not highlight weed issues.

The 2011 image was dominated by waterlogging effects rather than weed issues. This highlights that George was able to draw his ryegrass boundaries based on paddock knowledge. His maps would possibly have been even more accurate if he had of used the 2009 imagery, especially for the paddock on the right (canola) where higher biomass areas correlated with ryegrass pressure.

Picking out the ryegrass from the cereal crops (paddock on left plus both paddocks for 2011 map) in spring did not prove to be effective.



**iSAT0.8 satellite imagery September 2009 with ryegrass tiller counts and manually drawn ryegrass patches**

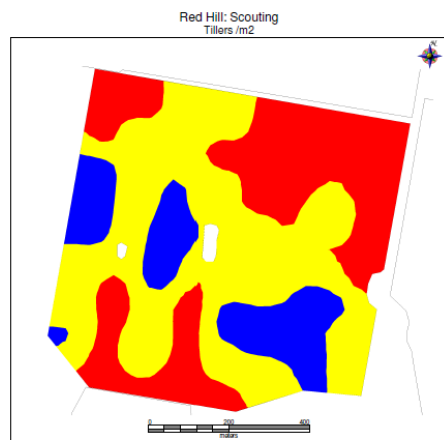


**iSAT5 satellite imagery September 2011 with ryegrass tiller counts and manually drawn ryegrass patches**

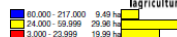


The ryegrass tiller count data was converted into a contoured map and divided into three zones for each paddock. Once again we compared the manually drawn zones and found a relatively good correlation but not good enough to implement patch ryegrass management with confidence. A dual boom

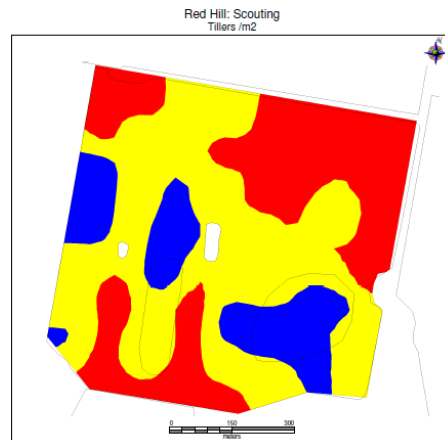
A more detailed analysis of previous yield maps when farmers determine their ryegrass patches would certainly improve the accuracy of their zone drawings. Any farmer wanting to implement patch ryegrass management should also consider obtaining imagery at a time of the year when ryegrass is more visible such as prior to sowing or around crop establishment as these maps would more accurately define the weed patches with less crop effect.



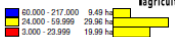
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Farm: River Bend  
Paddock: Red Hill  
Name: Redhill ryegrass 2011  
Type: Scouting  
Date: 21/11/2011  
Min: 3,000  
Max: 217,000  
Avg: 18,206



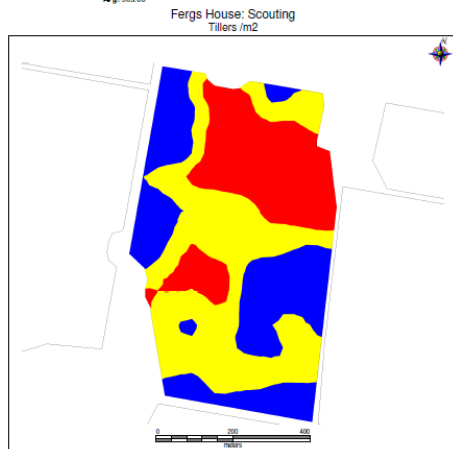
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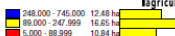
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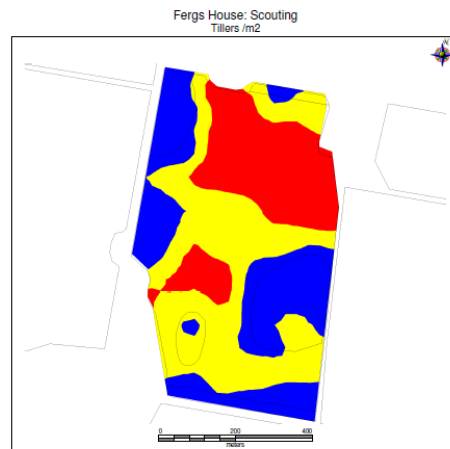
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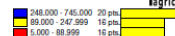
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Farm: River Bend  
Paddock: Fergs House  
Name: Fergs house ryegrass 2011  
Type: Scouting  
Date: 21/11/2011  
Min: 3,000  
Max: 745,000  
Avg: 219,981



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### Who was involved?

George Burdett, cooperating farmer, Wickliffe Victoria  
Andrew Whitlock, PrecisionAgriculture.com.au  
Karen Haigh, SFS

### Grower/Regional feedback:

George is certainly keen to further progress ryegrass patch management by more accurately defining these ryegrass zones.

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## For more information

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