

# Soil Health and Precision Agriculture

**Location:** Mt Madden, Western Australia  
**Region:** South Coast  
**Industry:** Broadacre cropping  
**Group:** Ravensthorpe Agricultural Initiative Network (RAIN)

**Issue:** Precision agriculture technologies have the potential to result in more sustainable farming system in south western WA, but benefits and robustness of these technologies must be demonstrated to encourage uptake.

**Key Outcomes:** • Assessment of the restraints and barriers to the adoption of stubble retention

## Background

About 80 per cent of WA broad acre farmers have adopted no till farming systems over the past decade. This has raised a range of constraints and opportunities, including issues associated with managing high stubble loads in a continuous cropping rotation and an increase in stubble burning, particularly following good seasons. Increased burning was considered the major cause of a massive dust storm across the WA wheat-belt in May 2004. Precision agricultural systems, including row cropping or tram-lining offers a potential solution to some of the constraints resulting from the adoption of no till farming systems. This project is closely linked to two other NLP-funded projects in the central and northern wheat-belt being developed and implemented by the Corrigin Farm Improvement Group and the Leibe Group. These projects are focused on issues associated with variable rate technology, wide row spacing and surface water management issues associated with tram-lining / row crop technology and form linkages to this project.

## The Project

This project focuses on quantifying the impact of maintaining organic residue on soil health and better defining the role of precision technology in a continual cropping system. RAIN, in association with the South East Premium Wheat Growers' Association and Western Australian No Till Association will undertake a series of trials and demonstrations examining chemical, physical and biological changes to the soil as a result of medium to long-term adoption of minimum disturbance, stubble retention systems. The use of row cropping technology, inter row seed placement, precise placement of soil ameliorants and chemicals and variable rate fertilizers will also be demonstrated.

## Outcomes

This project will highlight the potential of precision agricultural systems to improve sustainability. It will also identify barriers to the adoption of stubble retention and quantify the benefits of moving toward full organic residue management systems. This project is closely linked to two other National Landcare Program-funded precision agriculture projects in Western Australia, based in the central and northern wheat-belts, which are focused on variable rate technology, wide row spacing and surface water management issues associated with tramlining and row crop technology. All participating groups are members of the Grower Group Alliance, a GRDC initiative aimed at developing better cohesion between farming systems groups in Western Australia.

## The Future

Precision agriculture is an emerging issue in WA and has great potential in developing more sustainable agricultural systems. Further investment will be required to further determine barriers to adoption and to investigate a range of other potential NRM benefits resulting from implementation of the technology, including catchment water management and potential rotation applications, including inter row and summer cropping.



(Photo: Glen Fretwell, Jennifer Chambers)