

Section Editor:

Roy Latta

SARDI, Minnipa Agriculture Centre

Section

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Farming Systems

Eyre Peninsula Farming Systems

3 Project – Responsive Farming Systems

Farmers have always had to cope with a wide range of seasonal variables. One of the main factors affecting farm viability and profitability in these difficult seasons has been risk created by a mismatch of inputs and production. Looking forward, farmers will continue to face several challenges including a predicted increase in season variability, higher input costs, managing grain price volatility, and changing agronomic factors. Increasingly farmers need to understand exactly what their land is capable of producing under a range of conditions and how to tailor inputs or alter management to run low risk and flexible systems – ‘responsive farming systems’.

The current five year (2008-2013) GRDC funded project ‘Eyre Peninsula Farming Systems 3 – Responsive Farming Systems’ is continuing to study the opportunities to tailor inputs to get the most profitable outcomes under a range of conditions. There has been a key research site at the Minnipa Agricultural Centre supported by regional sites at Mudamuckla and Wharminda on red sandy loam, grey calcareous loamy sand and siliceous sand over sodic clay respectively.

Collective groups of farmers, researchers and consultants set goals and make decisions about the management of these sites. Field days are then held to showcase the innovative ideas and hold discussions with farmers.

At the key research site we are combining the latest soil and plant science with new machinery technology. The sites have been EM38 mapped, yield mapped and variable rate technology is used for sowing and fertiliser applications. We are ground truthing the modelling tool Yield Prophet® to see if these programs will be a benefit in making better farming decisions as the year progresses.

At the Minnipa Agricultural Centre, the key research site, over the 4 years the project has been operating there has been very low, very high, above average and average growing season rainfall conditions. In studying the opportunities to tailor inputs to maximise profits over that period the major opportunity has been the level of residual phosphorus and total soil N available to maintain crop production. At the completion of a 4 year wheat-wheat-wheat-barley rotation there are examples of no yield difference, on heavier clay based soils, in the 2011 barley, and 3 previous wheat crops, between no applied and applied P and N over that period. This outcome has been repeated at regional focus sites over 3 years. The indications certainly are to tailor inputs to specific needs, not a historical recipe.

The following series of articles are from trials undertaken in 2011 on the three focus sites or funded via the EPFS 3 project:

- Can adjusting zones within N1 paddock at Minnipa improve VRT outcomes?
- Small plot evaluation of the variable rate sowing paddock N1 at Minnipa
- Farming systems WUE survey 2010 – practices
- Responsive farming for soil type at Mudamuckla
- Responsive farming for soil type at Wharminda
- Manganese response in barley at Wharminda
- Can we reduce our phosphorus inputs?
- Crop production using replacement P
- Measuring the effect of residual P



Grains Research & Development Corporation