

SMARTER IRRIGATION FOR PROFIT

South East South Australia Optimised Irrigation Site

Smarter Irrigation for Profit is a national project that aims to quantify the expected water, energy and labour savings associated with adoption of innovative irrigation technologies over two irrigation seasons, as well as the associated management/skills requirements, maintenance costs and labour and lifestyle implications. It will target irrigators to improve their individual enterprise profit by \$20,000 - 40,000 per annum.

The SA Project

The South Australian project is based on three centre pivots located South of Mt Gambier at Mt Schank, Allendale East and Eight Mile Creek, the aims are to:

- Assess the potential performance of VRI technology at each site,
- Identify opportunities to improve irrigation performance on those existing pivot sites,
- Develop a decision support tool for farmers to assess VRI (Variable rate irrigation).

Baseline

Each pivot was EM and Radiometrically surveyed in 2015 at the time soil cores were taken to estimate plant-available water capacity (PAWC). The project will undertake a review of readily available water (RAW) and a catch can test for distribution uniformity (DU%) and coefficient of uniformity (CU%) at each site. Each site also keeps water use and financial records that will be made available to the project.

Eight Mile Creek/Wye: New centre pivot installed in 2014 on relatively flat and consistent soils. This pivot is used to grow Lucerne for a cut and carry system rather than grazed.

Mt Schank: A relatively old centre pivot (installed around 2000) on undulating ground. Pasture at the site was sown between 2010 and 2014. This site shows extreme variability of soil type, from deep clay soils on rises to shallow sand over rock on flats.

Allendale East: Also a relatively old centre pivot, installed in around 2000 used to produce grazed perennial pasture. Only about half of the site has been surveyed by EM38 sensor and radiometrics. The pasture at the site is also relatively old (10 -12 years).

Modelling VRI Performance

The four scenarios to be modelled at each site are:

- Standard centre pivot – where travel speed (and application rate) can only be adjusted manually,
- Variable walk speed – where travel speed can be programmed for sectors determined by the angle of rotation of the pivot, e.g. less water applied over a laneway,
- Variable sprinkler bank – a variable walk pivot with individual control of a number of sprinkler banks. For the purpose of this exercise the number of banks has been set to four,
- Individually variable nozzles – a centre pivot with both variable walk and individual control of all sprinkler nozzles.

Modelling outputs will include

- irrigation water applied,
- drainage,
- plant transpiration (an indication of water stress), and
- soil water evaporation.

Further modelling of the biophysical and economic performance of the irrigation strategies will be used to examine the business case of the four VRI scenarios at each site.

Optimising Irrigation

Over the next two irrigation seasons the project will also monitor the performance and decision making on the existing sites in order to explore the value of improved monitoring and management.

For further information or project progress updates, contact:

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