

Irrigation trials target improved efficiency on the Downs

A number of irrigation trials are underway on cotton and grain properties on the Darling Downs this season.

RWUE3 demonstration sites

The Rural Water Use Efficiency 3 (RWUE3) project is working with local growers and consultants to demonstrate the value of improved irrigation efficiency. There has been significant effort from growers and consultants to help formulate the field activities for this season. Local RWUE Extension Officer, Jenelle Hare, has established two demonstration sites for the 2006–07 season with growers and consultants actively involved in the planning process.

The major site is in the Nandi area with commercial size test strips being evaluated. Three furrow irrigation strategies, each containing three Bollgard varieties, are being assessed for their response to the imposed irrigation treatments. Detailed weekly plant and soil measurements using several monitoring tools will be undertaken.

Simon White from the National Centre for Engineering in Agriculture (NCEA) will also be conducting measurements on each variety with a range of plant based sensors.

In addition, a single skip configuration is being monitored at this site and evaluated for crop performance and water use efficiency. HydroLOGIC is also being demonstrated in collaboration with Dirk Richards, CSIRO Narabri.

The second demonstration site is located in the Jondaryan area in collaboration with Spade Management and a local Irrimate consultant. At this site the effect of SoilPAM on soil infiltration and irrigation performance will be investigated. Four treatments are being evaluated using Irrimate equipment — an optimised and non-optimised irrigation control with and without PAM applied. Soil water status will also be monitored in-crop to evaluate and quantify performance.

Growers and consultants will be kept informed on



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these demonstration sites through a weekly newsletter — “Downs Water Chat”. Farm walks and a field day are on the agenda during the season to showcase the performance of these demonstrations.

Sensing plant water

As previously mentioned, NCEA researcher Simon White will be collaborating with Jenelle on one of the RWUE3 trial sites at Nandi. His work at this site will be used to assess the relationship between variations in cotton stem diameter, soil moisture and plant water status. The desired outcome from this work is to develop threshold levels of irrigation based on these variations in stem diameter so that special stem diameter sensors may be used for irrigation scheduling to more accurately reflect the water status of the plant. His work at this site will assess three different Bollgard varieties grown under three different furrow irrigation strategies.

In addition, Simon will be working on another site to investigate the relationships between remotely sensed crop parameters, measured soil moisture, plant water status and evaporative conditions.

This work will be undertaken under a



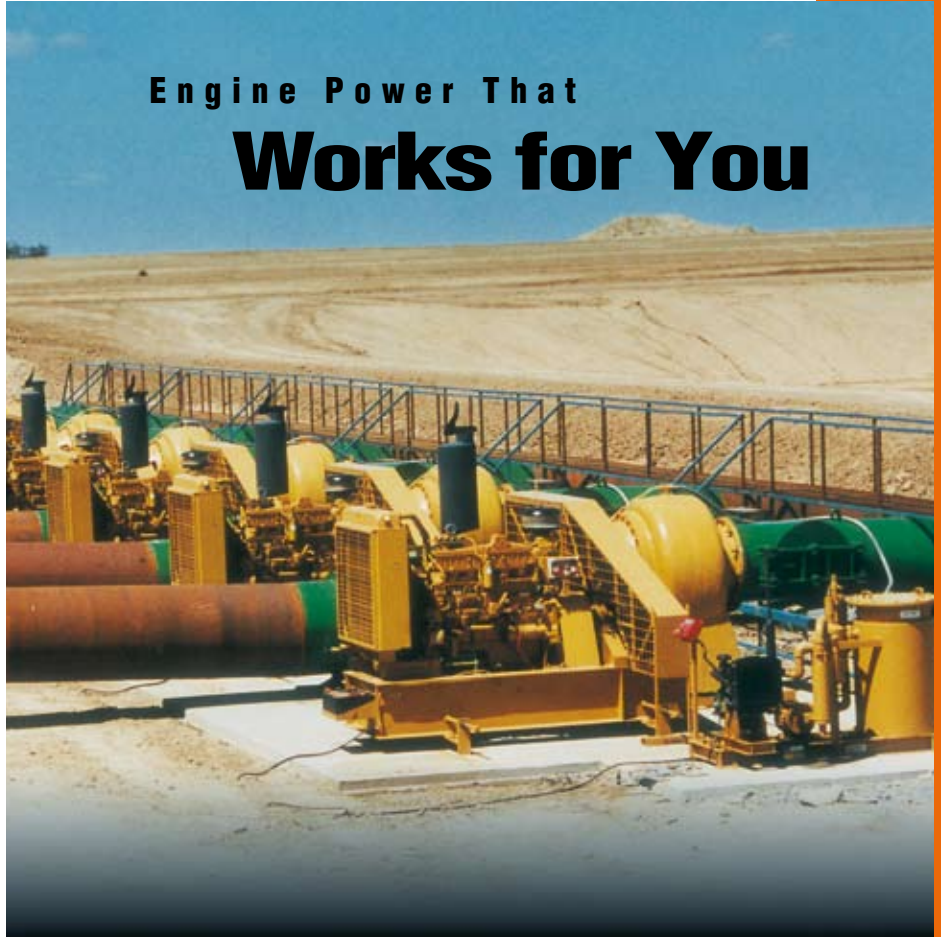
lateral move irrigator. The desired outcome is to define well correlated parameters of canopy reflectance to soil and/or plant water status and to use this relationship to quantify field variability due to soil moisture and the influence of irrigation non-uniformity.

Simon is performing this work as part of his current project on plant monitoring sensors for irrigation scheduling which is jointly funded by the Cotton Research and Development Corporation (CRDC) and the CRC for Irrigation Futures (CRCIF).

For more information contact Jenelle Hare, DPI&F on 0427 372 331 or Simon White, NCEA on 07 4631 1354.



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