

Sub-surface trickle may have key role in water-rich Burdekin

Traditional Burdekin irrigation using fluming may be replaced by trickle irrigation on some farms.
Photo by Bill Kerr.

By Bill Kerr

Furrow flooding is an almost universal farming practice in the water-rich Burdekin district, but a handful of innovative cane growers are looking closely at trickle irrigation as a way of reducing water usage, minimising run-off and deep drainage, and keeping nutrients on-farm.

Joe Linton has received a federal Reef Rescue grant via NQ Dry Tropics to establish infrastructure for a drip irrigation trial on his 6000-tonne farm on Kirknie Road, Home Hill.

Because he is one of only two Inkerman growers using a 1.83m dual row cane cropping system, the other being Mark Rossato, a successful drip irrigation trial could influence farmers' attitudes and demonstrate the value of a whole new farming systems approach in the area.

Potential benefits from trickle include greatly reduced water demand from the underground aquifer, possible less

nutrients escaping into the water table through deep infiltration, reduced deep drainage, elimination of run-off, staged nutrient application through the system, lower electricity bills for pumping and higher productivity with fewer inputs.

Joe's decision to establish the trial was influenced by the excessively high volumes of water he has needed to grow crops with furrow irrigation due to increasing infiltration levels.

Each year for four years he has applied more than 4 ML/ha in the first irrigation after planting cane into legume fallows with a double-disc opener planter.

This is more than half the usual amount (8 ML/ha) needed to grow crops in the BRIA area. Joe considers that this first irrigation should be about 0.75 ML/ha. Joe does not expect much yield increase from the initial trial area grown with drip due to unusual wet weather conditions and a late start to the trial.



Burdekin grower Joe Linton with a trickle irrigation trial on his Home Hill farm.

Less surface wetting could result in lower herbicide application and trickle allows use of soil ameliorants, improving soil structure and water-holding capacity. Importantly, it might also allow him to adopt green cane blanketing, currently not feasible on most district farms. The big unknown with trash blanketing will be the extent of rat damage to irrigation tapes. ►



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Reef Rescue is aimed at addressing off-farm impacts on water quality by encouraging voluntary uptake of the latest technology and best practices.

broken in the process. And we were only able to establish a 1.4 ha area this year instead of our target of 8 ha."

He intends to maintain the trial for the full crop cycle and if trial results are good and maintenance costs low enough he will consider gradually installing trickle across the whole farm.

Joe did considerable investigation before embarking on the trial. He sought advice from trickle users who had used sub-surface drip irrigation since early 2008 to eliminate deep water percolation and wastage of water and nutrients on 400 ha of cane and small crops on Beach Rd, Ayr.

Joe Linton believes that water saving will have a much higher priority in the future in the Burdekin. He likes trickle because it means that only necessary amounts of water and nitrogen are used and the possible chance of nutrients escaping into the water table is lessened.

Also, drip systems can be automated and are able to apply small amounts of fertiliser more often.

Trickle allows precise amounts of water to be placed in the plant root zone instead of waterlogging the whole paddock, as with furrow irrigation.

"We should be able to give the plant what it needs when it needs it," says Joe.

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Joe Linton, Burdekin grower

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He began growing cane on the family farm 38 years ago after leaving school. During the past 12 years he has gradually been moving towards a minimum till, controlled traffic operation.

His adoption of best practice has included 1.83 m dual rows, GPS guidance, zero till fallow, legume fallows, overlap cropping and lower N applications (he factors nitrate content of water into his N calculations). He has also been using shielded sprayers for the past four years.

He has had electromagnetic (EM) maps made of his soils, completed a Farm Productivity Assessment and undertaken the BSES Six Easy Steps nutrition course and Chem Cert courses.

"As well as reducing costs we are seeing plenty of evidence in our soil tests

that our farming approach is building up carbon, improving soil health and breaking up soil compaction," says Joe.

"However I am concerned about the detrimental effect on ever increasing water infiltration. We've used every method we can think of to reduce the rate of water infiltration without much success. Also we don't know what effect if any, it may be having on nutrient movement."

His intention was to place trickle tape between dual rows about 100 mm below plant level during fallow prior to bed-forming and legume planting. Because funding took longer to finalise than expected, he had to put the tape between growing rows of cane.

"We were right at the edge of the window of opportunity to put the tape in and in fact some cane stalks got



Inkerman grower Joe Linton with a 3 row stool splitter.