

Converting furrow irrigation to drip - Stahmann Farms, Moree

NSW Sustaining the Basin: Border Rivers-Gwydir

Water source: Gwydir River High Security allocation

Enterprises: Pecan nuts

Irrigated area: Currently 75 ha drip irrigation and 217 ha surface irrigation

Background

Stahmann Farms, 40 kilometres east of Moree in northern NSW is spending \$2.7 million converting its surface irrigation blocks to subsurface drip.

David Reibel, Irrigation Manager said it's a complete overhaul of the 292 hectare pecan development.

"We will be starting with the replacement of pumps on the river and end with the flushing valves in the field," he said.

Over the last two seasons, *Stahmann Farms* have compared drip irrigation on a 75 ha block with surface irrigation.

"The comparison showed up to 50 percent water savings compared with similar surface irrigation fields and a 30 percent yield increase," Mr Riebel said.

"Despite the trial running during extremely wet summers we are still optimistic about the future water savings achievable with this system," Mr Riebel said.

The Benefits

The main benefits to *Stahmann Farms* in converting their surface irrigation system to drip are:

- water savings
- increased yields because of more targeted and efficient fertiliser application
- trees spend more time in optimum growing conditions
- soil is more able to store water from a rainfall event
- the system can be operated remotely



David Reibel, Irrigation Manager. Image: S Bray

Advice to other irrigators

David Reibel advises other irrigators considering a similar project to spend time planning it right at the beginning.

"Planning for this project began at least 12 months before the first trench was dug."

"Make sure your system is designed to deliver the water requirement of your crop."

"The design and planning are so important because once sub-surface drip is in the ground it is very expensive to dig it up and change it," he said.

The system being installed

The pumps were changed to variable speed high pressure units pushing water from the Gwydir River through a bank of Arkal™ Apollo disc filters directly into almost 1000 kilometres of subsurface drip tape.

The tape is buried 30 cm deep and will deliver water through emitters 50 cm apart with an output of 1.6 litres an hour and the capacity to deliver up to 12 mm a day.

There are two rows of tape on either side of the trees spaced so the first tape is 2.5 metres and the second is 3.5 metres from the tree centre.

The second tape is on the periphery of the root mass and is there to encourage more root growth, as the tree tries to reach the second source of moisture. This results in more tree growth and an increase in yield.

A single Netafim™ Mid-range Controller has been installed to manage over 32 individual valves as well as the filter and fertigation system.



Establishing the trench for the main line. Image: S Bray

The water requirements of the trees are assessed against daily evapo-transpiration records and soil moisture measurements. Fertiliser is applied on a continuous basis in relation to the trees physiological needs at various times of the year.

Maintenance of the system is critical so an intensive flushing program is undertaken via the flushing mains and valves which are set at 100 metre intervals and the use of regular cleaning agents like acid and peroxide.



The two lines of dripper tape coming off the main line. Image: S Bray

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