Case study: Peter Birch, Moree

May 2012

Location

43 km east of Moree.

Water source

353 ML Gwydir River licence and bore water.

Soil type

Alluvial sandy loam.

Enterprises

Irrigated olives for oil.

Irrigation system

Drip irrigation system.

Area irrigated

Total farm area is 400 ha with 260 ha of irrigated olive trees.

Background

Peter Birch has an olive farm 'Loch Lomond' located on the Gwydir River, near Biniguy, approximately 43 km east of Moree.

The total area of the farm is 400 ha with 250 ha of irrigated olive trees. Around 160 ha or 45,000 trees were planted in 2000 and a further 90 ha was planted in 2009.

The trees are planted at 7 m x 4.5 m spacing giving a density of 317 trees per hectare.

The existing drip system was installed in 1999 for the 2000 plantings and is a closed reticulation system with a single drip line per row. However, the irrigation system needed a second drip line to be installed to increase the total wetted volume and improve water application.

Peter Birch with the valve control equipment installed on his olive grove. Image: S. Bray.

The initial system had an 'Eagle' radio control system, however this company had ceased to exist and spare parts were no longer available. As a result, the irrigation system was manually controlled with valves being changed approximately every four hours during the day and left to run overnight.

Soil moisture is monitored using capacitance probes. Analysis of this data found that water was being lost through deep drainage.

"To improve our water use efficiency, we needed to use less water for each irrigation, irrigate more often and pulse irrigate, which the new system allows us to do."

Description of the project

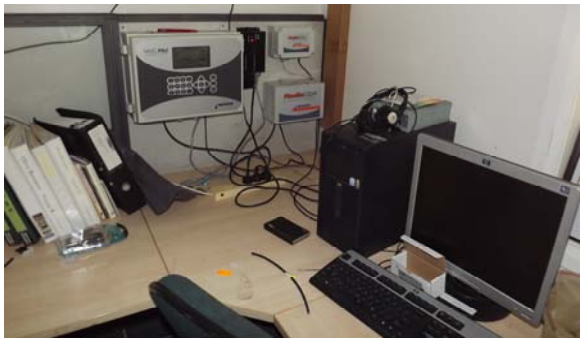
An integrated control system designed by *Netafim* was installed by a local irrigation business, *Waterquip*. This 'smart system' will monitor soil moisture and operate the pumps and valves to optimise irrigation efficiency.

The new equipment consists of:

- Computer monitoring equipment and a control program (Radio Net & Irriwise™) installed in the farm office.
- Pump control equipment at each of the three pumps.
- Valve control equipment including radio antennas, solar panels and aquative solenoids mounted at each of the 12 valve clusters.

The interface between the components of the crop monitoring system became available during 2011 and was also installed as a separate component to the funded project

A second drip line was also installed to ensure the system is operating at its design capability.



The computer based monitoring system. Image: S. Bray.

The benefits

Both the short and long term benefits are:

- Increased irrigation efficiency, yield per hectare and yield per ML so a larger area can be irrigated and efficiencies can be increased through economies of scale.
- Gross margins will increase by up to 10%.
- The equipment installed has achieved the current industry standards of two hourly pulse irrigations on similar soils.
- A further 20% water saving can be achieved by using regulated deficit irrigation (RDI) during stone hardening (November, December and early January).
- Being a modular system, the Radio Net has the ability to extend over a larger area as development continues by simply adding more modules.

What aspects of the project proved most challenging?

Mr Birch commented that the initial approved design had to be modified to incorporate a tower at each valve as the original plan allowed for hydraulic control tubes to join groups of valves.

“It wasn’t something we considered in the original design, because of the short time frame to get the Tender in,” he said.

Harvesting olives at ‘Loch Lomond’. Image: S. Bray.

What advice would you give to other irrigators?

Mr Birch suggests that you need time to get experts to visit the site and thoroughly look at the potential options and problems rather than draw up a quick design in the expectation that the Tender may or may not be successful.

“There needs to be a review period after the Tender process so successful Tenderers can refine the design, with advice, to make sure it is absolutely the right way to go,” he said.

What are your thoughts on the Border Rivers-Gwydir project?

Mr Birch said the short time frame of the project made it difficult with ordering equipment, and if orders needed to be changed it wasn’t always easy to meet the deadline.

“However, the local CMA staff and DPI Irrigation Officers provided very good support during the project to alleviate some of the issues,” he said.

Mr Birch also believes a major benefit of the project was that the whole exercise made irrigators think about water use efficiency and how they could achieve the efficiencies they were after.

The Australian Government is providing $83 million to this project through its *Water for the Future* initiative.

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