

A-Maizing results from underground

A Victorian farm that set an Australian record irrigated maize yield in the 2004–05 season isn't resting on its laurels, testing new techniques and varieties in an effort to increase production and lower costs.

Sawers Farms, at Boort in Victoria's Northern Districts, harvested up to 20.5 tonnes per hectare from its 232 hectare corn crop — set up with an underground drip irrigation system on raised beds.

Farm Manager Ron Bramley said that while a great season helped, the result was largely attributable to the irrigation.

"We averaged 19.2 tonnes per hectare, compared to 12–15 tonnes from conventional furrow-irrigated maize

on other farms in the region, and used approximately 20 per cent less water," Ron said.

Sawers Farms' outstanding results saw it selected as one of the six irrigators to attend the Innovation in Irrigation Showcase at the Australian National Committee on Irrigation and Drainage (ANCID) Conference in October.

Sawers Farms has around 1500 hectares under irrigation, using largely flood irrigation for winter crops of canola, wheat, barley and faba beans in rotation.

The summer maize crop is grown on raised beds 1.63 metres apart with tape buried down the centre about 25 centimetres below the surface. Drippers are spaced every 50 centimetres, and the maize is grown in two rows either side of the tape. The system comes at a cost of approximately \$3,750 per hectare.

The beds are inspected for moisture once or twice a day, and a computer controls watering times in sections of around eight hectares. Typically, three sections are watered at a time by three drip pumps.



◀ 36...RESULTS FROM UNDERGROUND

"The soil has to be wet enough for the water to be almost running out the sides of the beds just after planting, to initiate germination and provide a reservoir of water in the soil profile for later use. As well, this encourages the depth and spread of the root system. After that, the moisture levels are cut back and kept fairly constant throughout the season," Ron said.

"Through the season any nutrients that are needed are dissolved in a tank of water and applied through the drippers, which gives much greater control over quantities. We find we use approximately 25 per cent less nitrogen per tonne of grain or tomatoes grown this way," he said.

"Much of the apparent improvement in water use efficiency could come from never getting the soil surface wet, save for the initial soaking, and less deep percolation losses due to irrigating daily on an as needs basis. It could be that the plants perform better without being regularly inundated as happens with furrow irrigation.

"I don't think we could achieve the yields we have without the drip irrigation, and I would definitely recommend that others consider the potential benefits."

OTHER SYSTEMS

Having said that, Ron is keen to investigate other options in an effort to maximise yield compared to input costs, and this year will trial other irrigation systems to benchmark the drip irrigation.

"It's important to compare the mix of costs, including labour, infrastructure, fuel for pumps and the water itself, versus the yield you achieve," he said.

"The pumps are going a lot of the time with the drippers, and you think twice about that with fuel prices being so high.

Ron said plans have been drawn up to convert more land to drip irrigation, but the timeframe will depend on the results of the trials over the coming season.

Sawers Farms also conducts regular trials of new grain varieties, often setting aside areas of land for the seed companies to use as well.

"If you find a good variety then stick with it, but don't close your mind to other possibilities because you never know when something different could beat its production," Ron said. "Even if something doesn't work as well, that's useful knowledge.

"It's also important to talk to neighbours and growers in other regions to compare performance, because you will always learn something to help your own operation."

