



water  
case study

## New system delivers water savings



**location:** Amiens, north of Stanthorpe, Queensland  
**project:** rural water use efficiency  
**undertaken:** 2005 – current time

It may not have been a change that John Turrisi wanted to make, but with a dry run of years and insufficient water in dams, converting from overhead sprinklers to subsurface drip irrigation was a change he says he had to make.

John and son, Alf Turrisi, cultivate 350 acres of vegetables on their property at Amiens, just north of Stanthorpe. Until recently the whole farm was irrigated using overhead sprinklers connected to a computerised system and supplied by water collected via overland flow in a number of storage dams.

In 2005 John and Alf decided to convert 80 acres at the top of the farm to an underground subsurface trickle irrigation system. The aim was to utilise the available water more efficiently and to produce greater returns per megalitre.

**Above:** Stanthorpe vegetable grower, John Turrisi, inspects a lettuce crop grown using the new subsurface drip irrigation system.

160 rolls of t-tape was laid out at 1500 mm centre spacings, beds mounded and 64 rolls of plastic laid over the top to reduce evaporation. The new system also required the purchase and installation of four sand filters to clean the water and reduce the chance of blockages in the underground tape.

Aside from the infrastructure costs involved, John says there were also considerable machinery adjustments required. With narrower spacings between rows and plastic covers to work with, tractors had to be converted to narrow wheels and a new planting device created.

John says it has been a steep learning curve. "Not many people have tried growing the short term, one-cut crops we grow, such as cauliflowers, lettuce, wombok, sugarloaf and red cabbage, on plastic. So we've been learning a lot as we go," John said.



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However, the time and effort seems to be paying off and the new system is already delivering benefits in a number of areas, most noticeably in water savings. Alf Turrisi estimates that the new system is using between 70 and 80 per cent less water than the overhead irrigation system in the cooler months and between 40 and 50 per cent less in the summer months.

While crops grown under the traditional overhead system required two or three small drinks a day, Alf said those grown under the new plastic, and using the subsurface drip system, only need watering once a day and for less than an hour.

The plastic plays a major role in reducing evaporative losses and holding moisture in the soil while the t-tape places the water precisely where it is needed at the plant's roots. It is this combination of benefits that leads to the significant water savings.

The plastic cover also has a number of other advantages. It limits the growth of weeds and reduces the reliance on chemical weed control. It also produces a cleaner crop and can often accelerate growth time by trapping heat and increasing the temperature. However, it does have a limited life span and it is expected that the plastic will need to be replaced after three crops.

John estimates the cost of converting the initial 80 acres from overhead sprinklers to t-tape and plastic to be around \$150-\$200,000. That includes a number of one-off costs, such as filters and he's hopeful the cost per acre will be slightly cheaper for future conversions.

"We'd like to put in further areas to trickle and plastic, once we get it mastered. Put simply, we just don't have the water to go back to the overhead system."

QMDC thanks John and Alf Turrisi for participating in the development of this case study.

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