

<vii...IRRIGATION SCHEDULING



Pivots can accurately deliver daily water requirements to crops.

Spring water use

Wheat needs almost continual RAW in the effective rootzone in September and October to produce high yields. Soil water prior to head emergence helps determine head size and the number of florets to be fertilised (number of grains). Soil water during the 10 days after flowering determines the size of the grains.

Wheat needs water for at least six weeks after flowering has finished. It uses water at the same rate as pre-flowering for about 25 days after full flowering, and then the rate of use declines during the next 17 days or so.

Spring irrigation scheduling

Judging when to irrigate by crop appearance is a poor guide. If the crop is showing signs of moisture stress, then much of the yield potential has already been lost.

Assessing soil moisture is a better guide. When assessing soils, auger down to at least 0.5 m, not just to shovel depth. If you can make a ball of soil from clay or clay loam but it will not ribbon, then RAW has already run out.

Soil moisture monitoring instruments are the most accurate guides. Weather based scheduling is a satisfactory alternative and a back-up. Make use of the ETo readings from the CSIRO or other weather stations.

As a late May sown wheat crop should finish flowering in the first week of October in southern NSW. Table 2 shows average expected water use for moderately good wheat crops (around five tonnes per hectare) if the crop has RAW throughout the spring.

Note that the Kc should be increased by 0.1 for crops with well over five tonnes per hectare yield potential, and by 0.2 if aiming for an eight tonnes per hectare crop. ■

Old but precise

When Victorian Mallee farming brothers Albert and George Oliver built their own four-wheel-drive articulated tractor in 1977 there was no way they could foresee that in 2008 they would be sitting in the cabin, hands off the wheel, watching it steer across their paddocks with two cm precision.

The 79 year old twins, who still work every day on the farm near Manangatang, have readily adapted to GPS technology and marvelled at its benefits. They defy the stereotypical view that older people find it difficult to cope with modern electronic equipment.

Albert's son, Peter, had seen the potential for applying better technology to their cropping operation and approached Jim Castles from gps-Ag who is based at Ouyen. Jim takes up the story.

"I had only been with the company a month when Peter rang. It sounded routine and I arranged a visit. He then said "the only thing is that we're putting it on a home built tractor". I thought to myself, yeah, right!

"My training had told me that our Auto-farm systems would fit anything, so I said yes, we can do it. It actually turned out to be pretty straightforward and no more expensive than any other tractor."

George Oliver's son, Kevin, operates a Ford New Holland 9680 as the second large tractor on the family's 4850 hectares of owned and leased country. The cousins decided to equip both tractors with identical A5 Autofarm RTK two cm systems

that rely on base stations at either end of the spread.

Jim Castles says both stations are available to other farmers in the area using gps-Ag gear. "We're creating a network right across the Mallee."

Peter Oliver has seen major advantages with the systems. "It really takes the pressure off at night and when you are working in dust. But the real benefit is what you save by avoiding overlap. In one paddock of 260 hectares, we saved eight hectares. It's costing us about \$200 per hectare – that really adds up. Just in that one paddock we were \$1600 ahead.

The brothers' tractor has worked for 30 years and over 14,000 hours. Power comes from an 8V 71 Series GM diesel putting out around 315 hp at 2100 rpm. It drives through a 13 speed Fuller transmission via a drop box which splits the power between two massive Sherman tank differentials.

It's never been weighed but George Oliver estimates it would go at least 15 tonnes, possibly closer to 20. "It certainly doesn't need any ballast."

"It took us about a year to finish the project – about six months scratching stuff together and another six months to actually build it. We had the cabin built in Ballarat but did everything else ourselves."

Stories about the old tractor abound. The brothers once decided to find the tractor's top speed. George said they got it up to almost 90 km per hour and still had a gear left but weren't game to use it! ■



The Olivers with the 1977, 315 hp home built tractor now sporting two cm precision steering. Albert (second left) and George (second right) still do 90 per cent of the sowing while their respective sons, Peter (left) and Kevin, spray ahead and keep up the seed and fertiliser.