

CASE STUDY: JOHN WRIGHT

Making it work with a smart irrigation strategy

John Wright's Fairlie dairying operation was tested by drought this summer. But smart irrigation strategy and practice got him through. Janine Holland reports.

John Wright knows that his farming operation shouldn't add up. According to the pundits, he doesn't have enough water for Wainono Dairy Ltd's milking production levels. But smart irrigation strategy, backed by water storage and investment in a specialist irrigation staff member, make it work. The proof was in the pudding this summer, when despite drought biting home in South Canterbury, his farming operation kept two pivots going on limited water.

How does John make it work? He's the first to admit it's not easy. But three ingredients are crucial— keeping irrigation machinery well maintained and constantly moving, having access to on-farm storage, and understanding their soil types and daily moisture levels.

Wainono Dairy Ltd, just outside Fairlie, converted from a sheep, beef and cropping operation in 2006. Today the farm is split into two sheds milking a total of 1900 cows over 622 hectares. John, with the support of wife Sarah and two equity partners, oversees the operation with the majority of the herd under a lower order share milker and the rest with a farm manager.

Irrigation modernisation was an early vision. On conversion, the first of three pivots were commissioned, joining two rotorainers which have now expanded to four. John knew their consented water allocation wouldn't allow growth so the partners agreed to invest in on-farm storage.

"Our pond was one of the first in Canterbury. We put it in when we converted as an insurance policy, so if we ever lost water we could carry on irrigating."

Five metres deep, the six hectare pond has a self sealing mudstone base and walls of dirt, mudstone and shingle. Consented water from the Ophihi River is regulated by the Opuha Dam system. Water arrives via five wells/galleries and the pond holds 200,000 cubic metres allowing it to run two pivots.

When Opuha Dam dropped dramatically in January, the farm was cut off from water for six weeks.

"Some days we had a wee bit of drizzle and could irrigate for a day or two. The pivots and pond got priority. If it was only 20 litres a second, we put it into the pond as it wasn't really enough to run anything else. By doing that we managed to keep the

pivot area on the farm green when we basically had no water coming in."

Even with storage, John says the water balancing act is tight.

"When everything is going we are using about 255 litres per second and we are consented for 155 litres per second. Irrigating 500 odd hectares on that amount of water is a stretch. It works out at 2.5mls per ha per day. Some people would say that doesn't work. This year it didn't work, most years it does."

John is being hard on himself because Wainono Dairy Ltd came through the drought in reasonable condition.

"We farmed for the conditions, culled early, went to once a day milking in early February and brought in and fed outside feed. We were still milking in April when other farms in the area had dried off completely."

Targeting irrigation to the areas that really need it is another mantra at Wainono Dairy Ltd.

Landcare Research mapped the area soon after conversion. "When variable rate irrigation came in, we discovered 11% of the area under the pivots, the water was being wasted. It was going onto wasteland, tracks, swampy areas and creeks. It was a bloody waste."

Soil analysis confirmed which soil types could manage with less water. "We now water 50% as light soils and haven't noticed any reduction in growth from doing this."

Aquaflex tape to monitor soil moisture and evapo-transpiration data provide additional insights.

"We were one of the first in the country to put variable rate irrigation on. We thought we'd give it a go to see if we could save water. It's achieved 30% savings so we view it as an investment."

Any water saved is simply redirected.

"When we get rain we don't turn things off, we pump so it's going into the pond. We make sure we are using our 155 litres per second all the time. If the pond is full at 1st January we will get through but it's a fine balancing act. The pond is always full at the start of the season. We turn it over three times during a normal season but this year turned it over only once."

CASE STUDY: JOHN WRIGHT – CONTINUED...

With four major soil types under the pivots, all requiring different amounts and application periods, managing the irrigation schedule is a full time job. John's approach is to treat it as a specialist position. One staff member is employed to solely focus on maintaining and moving machinery.

"With the four rotorainers we've made more of an effort to speed them up and shift them more often. We want them moved when they are done. They can't afford to sit there and we don't want breakdowns."

When rain came in autumn, John says being prepared meant they could take full advantage of the break in the weather.

"We're trying to keep 80% field capacity all the time on the lighter soils as they can go from above field capacity to refill in three days, whereas the heavier soils can take three weeks. The heavier soils are in the right zone now and the lighter soils are coming right. But this is on land that has had quite a bit of water. Dry land farms around here will still be very dry."

Regardless of their investments to date, John thinks the farm still has some way to go to optimise irrigation scheduling, pasture choice and storage.

"I'm hoping we'll get to the stage where if the cows are going through a paddock at night, you can turn it off as they pass through."

"As we only put on 5–7mls, it doesn't really matter if you miss a paddock as it's back there in the next day and a half. The technology is still evolving and it will be good when it improves a bit more."

Drought has prompted soul searching around their storage situation.

"It takes a good drought to get you thinking again about your water needs and systems. I've thought about deepening the pond so it can store more water. But it's in the too hard basket at the moment. However it could cost less than what we had to pay out for feed this year."

John is also reflecting on their pasture choices, especially the role ryegrass plays in their operation.

"Is ryegrass the right species to grow as it can let you down badly if you don't get enough water?"

He's looking at fescue, lucerne, coxfoot and other species to identify alternatives that would grow just as much dry matter in his area but with less water.

The final part of the equation is measurement and monitoring. While Wainono Dairy Ltd has flow meters on all pumps, the irrigation machinery is another story.

Telemetered flow meters will soon be attached to the centre pivots and rotorainers so they can tell exactly what each machine is using. "As the farm is now running as two units we need to know what each block is using."

"We have got enough water. We just have to be smarter managing it and that's where we have to fine tune things."