



Two Pond Effluent System

Name: Don and Jeannie Harris

Location: Poowong, West Gippsland

Dairy Shed: 30 Unit Swingover Herringbone

Milking Area: 138ha

Herd Size: 230 Cows

Land Type: Hilly Dryland

When Don and Jennie Harris purchased their 162ha Nyora property in 2006, improving the effluent system was high on their list of priorities.

"There was only one small pond and it was totally inadequate for our set-up," explains Don, who is currently milking 220 cows. "We wanted a two pond system like we had on our previous farm. It was a fairly simple system but it worked well."

The two pond system allows for more flexibility. The second pond water can be recycled to wash the yard and stored to use to extend pasture or crop production when it is drier.

Ultimately, they decided to construct a second, larger pond next to the existing pond, even though site restrictions meant they had to dig into the side of a hill. "By building it there, we could use the existing [30HP] pump, and a lot of the wiring and piping was already in place," says Don. "All we really had to do was buy the spray arms for the yard wash system and connect it all up."

Construction of the 40 metre x 20 metre dam was linked in with the construction of a number of new tracks, took between four and five days to complete and cost around \$5,000. Additional piping, four hand pieces for washdown, and labour and fittings brought the total cost to around \$20,000.

It was money well spent. As well as being more than adequate for managing the amount of effluent being produced by the herd, the system delivers real savings in terms of time, labour, water and fertiliser.

Washdown time has been slashed from 40 minutes per milking, to just five minutes, and uses water from the second pond, rather than fresh water from another dam. Don is pleased that he spent the extra money installing four hand pieces rather than the more commonly used fire hose.

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"Anyone can use the hand pieces," explains Don. "You just point them wherever you need them. They're much easier and safer than a fire hose."

The hand pieces use less water than a fire hose, but the mist they create can be problematic on a windy day. "It's fine if you have a head wind, but a bit of a nuisance if you've got a tail wind!" says Don. "But given the amount of time we save, it's worth putting up with."

An advantage of the two pond system is that Don and Jennie can use water from the second pond to extend their summer growing season.

"It grows beautiful feed," says Don, who has irrigated 3 hectares for the past two summers, but has capacity to apply the effluent water over another six hectares.



"In fact, it's probably worth buying more pipe to cover a greater area and target some of the poorer paddocks."

Don currently pumps the effluent water over the paddock using two inch pipe and a stationary sprinkler, but is planning to buy a travelling irrigator to save him time, and allow him to irrigate more evenly. "You just set it and leave it to move slowly along the paddock," he says. "I'd irrigate more frequently than because I wouldn't have the hassle of moving everything around."

Soil tests have revealed that the property has low to moderate fertility, Don and Jennie are not yet concerned about over-fertilising. As time goes on, however, they will carry out further soil tests to ensure that they are not creating any imbalances, and to identify the potential for using the effluent water to boost fertility in other paddocks. "Fertiliser is our main cost," says Don.



“If we can save a few dollars here and there, we’re mad not to do it!”

Cost Benefit Analysis

Benefits	Costs
<p>General</p> <ul style="list-style-type: none"> ■ Target application for pasture response ■ Yard wash down faster, therefore reduced labour ■ Reduced water use at the dairy ■ Less risk of effluent running off farm in wet weather ■ Not irrigating waterlogged soil ■ Reduced fertiliser applications 	<ul style="list-style-type: none"> ■ Land lost for pond site
<p>Financial Summary</p> <p><i>To be a good investment would require benefits of about \$3,000/yr. This would give a 16% internal rate of return on the extra capital and break-even in 8 years (after interest).</i></p>	<p>Total Capital Cost = \$21,000 (approx)</p> <ul style="list-style-type: none"> ■ \$5,000 pond construction ■ \$15,000 for suction pipe, connecting piping to the dairy, hand pieces for washdown
<p>Financial Details</p> <p>How likely is \$3,000/yr of benefits?</p> <ul style="list-style-type: none"> ■ 30 minutes saved per milking @ \$25/hour for about 300 days/year = \$7,500. However, there is an extra 8 hours per year involved with irrigating the 3ha area (\$200) ■ 1 t of dry matter/ha extra pasture grown on 3ha @ \$150/t dry matter = \$450/yr ■ Fertiliser saving estimate = \$1,000/yr <p>Total = \$8,750/yr</p> <p><i>\$8,750/yr of benefits would give about an 83% internal rate of return on extra capital and break-even in under 2 years (after interest).</i></p> <p><i>The performance of this investment is heavily dependent on the labour savings, and the labour savings may or may not translate into a cash benefit. Without the labour savings the \$1,450 of other benefits would give a 1% internal rate of return and it would take more than 10 years to break-even (after interest).</i></p>	<p>Assumptions/Things Unchanged</p> <ul style="list-style-type: none"> ■ Area of land irrigated remains the same ■ Power difficult to quantify but assumed the same, <ul style="list-style-type: none"> - Extra power for pumping recycled effluent for yard cleaning - Less power for effluent irrigation due to less volume from recycling and evaporation ■ Life of system 10 years
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