

Case Study Effluent Management

Craig & Stuart Matthews - Dairy Farmers, Glen Alvie

Areas of concern

- The need to comply with EPA regulations
- Property is in the catchment area of the Lance Creek Reservoir
- Original single-pond effluent system too small for the amount of effluent produced
- Potential of effluent overflowing from pond
- Danger of effluent pond bank being washed away
- Effluent not being utilised as a fertiliser (wasted nutrient)

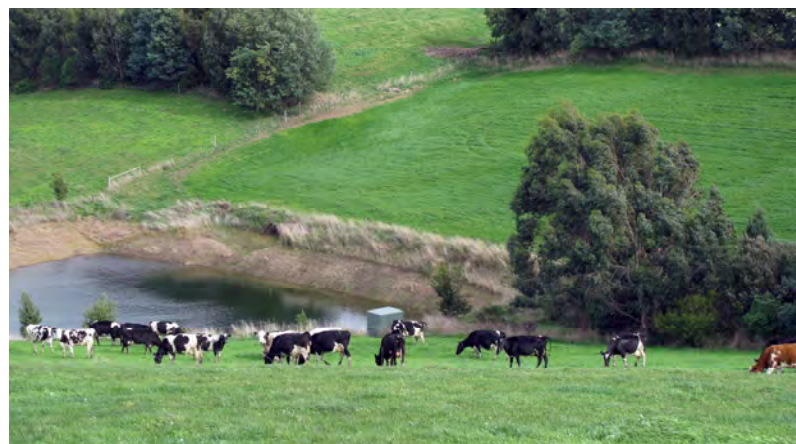


Benefits

- Complying with EPA regulation
- Fertiliser savings (particularly nitrogen and potassium)
- Improved soil health
- Irrigation of the effluent as water to kick start the season and nutrients to keep it going
- Water savings through recycling of the water component of the effluent for yard wash

Action Taken

- Cleaned existing pond
- Enlarged existing pond and built a second pond
- Set up water recycling system for washing yard
- Purchased effluent pump, pond stirrer, travelling irrigator and poly pipe
- Irrigating pastures with effluent and utilising the nutrients in effluent as a fertiliser





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Who:	Craig and Stuart Matthews
Where:	Glen Alvie
Size:	180 ha (approximately 160 ha of pasture)
Enterprise:	Dairy: 30 DSE/ha Average cows milked: 240
Soil:	Clay loam
Rainfall:	900 mm
Aspect:	Undulating to hilly

Craig and Stuart Matthews' dairy farm is in the catchment area of the Lance Creek Reservoir. In addition to complying with standard EPA regulation, farmers in this location aim to manage their effluent and nutrient management responsibilities beyond a standard 'duty of care' level.

The farm had an old single effluent pond storage system that had been on the property for many years and had never been cleaned out. Craig and Stuart could see the unused fertiliser and irrigation-value of the nutrients and water in the pond. Furthermore, the pond was in danger of overflowing and they had concerns that the bank would eventually be washed away. The pond had become so hard and encrusted on the surface that "the bulls could walk on it".

With the support of Landcare, the Australian Government, West Gippsland Catchment Management Authority and South Gippsland Water Authority, Craig and Stuart have extended the

existing effluent pond, built a second pond, set up a system for recycling effluent water for yard washing and established an effluent irrigation system.



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The first step was to clean the existing pond. They decided to borrow their brother's excavator and after removing much of the built-up solids they began pumping the effluent onto pastures. Pumping was done using a Reeve 10 hp stand-alone effluent pump which they mounted below the bank wall. They irrigated using a 40 metre-diameter rotating sprinkler.

Success in the first year was limited as the effluent was thick and kept blocking the pump. They were only able to pump out half of the pond.

After these initial actions, the brothers received funding through a grant that their local Landcare group received from the Australian Government's Community Water Grants to set up a Best-Practice Effluent Management System. The West Gippsland CMA and the South Gippsland Water Authority were partners in this project and contributed matching funds which assisted all six dairy farmers in the catchment to upgrade their effluent systems. Barrie Bradshaw, the Gippsland Nutrient Extension Team Manager, assisted the farmers in the project by developing Effluent Management Plans which included designs, suitable equipment types, areas identified for irrigation and analysis of the nutrient content.

The Matthews first investment was in an effluent pond stirrer. This allowed the solids to be mixed with the water and facilitated even pumping. As a result they were able to further reduce the level of the pond through pumping.



The brothers then purchased a travelling irrigator and additional poly pipe. The benefits of the travelling irrigator are reduced time in moving the irrigator and more even coverage of paddocks. The additional poly pipe allowed them to irrigate a greater area of their property. They also purchased a new floating pontoon pump that is awaiting installation.

The existing pond was enlarged and a second pond was built. The second pond enabled them to recycle this cleaner water back to the cow shed for washing the yard. This has been a great saving in water, especially in the recent drought years. The cost of electrical work to set up this transfer of recycled water to the cow shed was partially funded by the grant.





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The Matthews' farm has recently been audited by the EPA and their effluent system was awarded a full pass.

Craig and Stuart currently have the capacity to irrigate approximately 60 hectares of their property. The paddocks that are irrigated receive no fertiliser for that season bringing a significant cost saving.

On the Matthews' farm, effluent irrigation is applied in early autumn to pasture. They find that, in addition to the nutrient, the extra 25 mm of water at this time of year gives the paddocks an extra start, providing grass for their Autumn calvers. They also apply the effluent to Summer crops.

and hay are produced. Effluent contains high levels of potassium which can be returned to these paddocks at a considerable saving given the high cost of biologically-friendly potassium fertilisers. Muriate of potash is not a preferred form as the high salting index and chlorine content can be harmful to soil life. The better but more costly alternative is sulphate of potash. Effluent also contains high levels of nitrogen.



Fertiliser savings and soil health



If managed within a whole-farm plan, the value of savings in fertiliser costs through irrigating with effluent can be considerable. This is particularly so for potassium, a major growth nutrient taken up in large quantities from paddocks where silage

Barrie Bradshaw points out that the additional cost of purchasing a larger pump and larger diameter poly pipe to enable more targeted use of effluent nutrient by distributing it to the paddocks with greatest need, can be quickly offset by savings in fertilisers.

As a natural nutrient source, there are also soil-health benefits in using effluent to replace some of a farm's synthetic inputs. The sludge in the first pond has soil conditioning properties. Biological life in the soil is enhanced and the resulting increased nutrient cycling can help further reduce fertiliser input requirements.

This Case Study was produced through the 'Demonstrating production benefits from best practice on Bass Coast Farms Project', funded and supported by the Australian Government Caring for Our Country Landcare Sustainable Practices Program.



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