

Dairy Effluent Management Assistance Project

The Dairy Effluent Management Assistance Project is a joint initiative of the Mary River Catchment Coordinating Committee and the Queensland Dairyfarmers Organisation. The State Government has provided funds for this program through the Integrated Catchment Management Works Grants Program.

An audit of dairy farms in the Mary River Catchment was undertaken. A project officer was provided to assist farmers interested in enhancing their management systems to improve the use of the resource and reduce the potential for nutrient runoff into waterways. An effluent management system, which could be easily implemented and integrated into the farming enterprise, was then designed to meet QDO environmental guidelines.

This project has successfully shown that there are various methods available to effectively manage dairy effluent as a valuable on farm resource that, when properly utilised, can improve farm productivity and reduce fertiliser costs. The availability of grants, which we hope to make available again in the future, recognises the public benefits flowing from the improved management system.

The Property and it's History

The Mary River begins in the Conondale Ranges near Maleny. The property of Mr Col Bryant is located on the Mary River at Cambronn between Kenilworth and Conondale.

The property is an active dairy farm owned and managed by Col, the President of the Kenilworth Landcare Group. The Bryant family purchased the property in the 1930's and recently Col purchased the neighbouring property to make a combined area of 900 acres.

Out of 300 head of cattle being run on the property, 127 are milkers. Around 300 acres of the property have been left as natural forest. This area is bordered by a newly declared National Park and is grazed by Col's beef herd.



Above: Col Bryant, landholder

Problems Faced by the Landholder

In today's society there is an increasing emphasis on conservation and the need for sound farming practices that have minimal environmental impact. Nutrients that enter waterways can result in reduced water quality and increased algal activity, as was the case in Lake Baroon. This decrease in water quality results in higher water treatment costs and degradation of the riparian zone. Queensland now has legislation to impose an obligation on farmers to protect waterways from the effect of nutrient run off.

It is therefore in the best interest of the dairy farmer to meet the quality assurance guidelines and by doing so, maintaining the "clean green" image of the industry while harnessing a significant nutrient asset to help improve productivity.

Col's dairy was sending effluent straight into a gully. This gully feeds directly into the Mary River only 200 metres away. Besides the water quality issues, this was simply a wasted resource.

A range of historical factors has caused major bank instability in the Upper Mary River. These include the loss of vegetation and uncontrolled stock access which have accelerated the degradation.

Col noted that "the degradation of the Mary River has been evident since the 1960's". Col believes that clearing of surrounding hills for timber plantations in the 1950's led to the depositing of sand and gravel in the riverbed.

The combined impact of catchment clearance and land use pressure has resulted in the river becoming wider and shallower. The once deep holes inhabited by the endangered Mary River Cod have disappeared.

A vertical bank, approximately seven metres high, has formed on the outside bend of Col Bryant's stretch of the Mary River. The channel cross section has increased from around 40 m to 60 metres between the two high banks.



*Left: The Bryant's property
Below: Riverbank restoration project*



Why undertake a grant project?

Farmers often regard being environmentally minded as costly. Particularly in these times of deregulation, farmers state that they can not afford or are not aware of the most environmentally sensitive actions to take.

The Mary River Catchment Coordinating Committee and the Queensland Dairyfarmers Organisation were able to provide funding and advice to assist in this process.

What are the solutions?

During 1997 Col Bryant was one of the earliest farmers to undertake a Dairy Effluent Management Grant to improve his existing "green snake" delivering effluent straight into a creek that entered the Mary River only 200 metres away.

The new system is a 'PUMP-SUMP-MAINLINE-IRRIGATOR'. This means that sewerage is washed off the dairy pad and into a catchment drain, from there it is pumped through a mainline and attached at various hydrants to a travelling irrigator. The hydrants and irrigator cover approximately 25 hectares on Mr Bryant's property.



Above: Landholder explains benefits of project

During 1995, with support from the Land and Water Resources Research and Development Corporation, Col Bryant undertook fencing, offstream watering, instream works and riverbank stabilisation to his property. This project was completed in 1996 at a cost to the landholder of \$12,125 and a grant of \$10,804.

LWRRDC funded instream works at Col Bryant's stretch of the Mary River for riffle reconstruction. Mr Bryant believes that this instream work was essential to the success of the riverbank fencing and planting, to ensure that water pressure was taken away from the river banks.

Below: PUMP-SUMP



Further Information

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What are the benefits?

Col Bryant collects around 2000 Litres of effluent per milking. This effluent includes milk spillage, faeces, urine and wastewater from milking, cleaning and yard washdown activities. This wastewater contains a variety of nutrients including nitrogen, phosphorus and potassium and can be very beneficial when used as an additional source of irrigation water.

Estimated average annual fertiliser equivalents for manure collected from a 100 cow herd standing for 3 hours per day:

- Nitrogen - 912 kg Urea (46% N)
- Phosphorous - 444 kg Super (10% P)
- Potassium (K) - 1953 kg KCl (50% K)
- KCl - Potassium Chloride (Muriate of Potash)

It is not difficult to see then why Col Bryant estimates that the upgrading of his dairy has seen a **\$3000 per month increase in profits** due to costs saved on fertilisers. The extra area opened up for cultivation has also meant increased milk production.

The riverbank fencing, planting and off stream watering has minimised the loss of land on the river banks. Kingston Rural Management has measured the overall costs and benefits of riverbank restoration.

This study has shown that a total investment of \$22,929 gives a benefit/cost ratio of 0.79% with an internal rate of return at 4%.

Below: MAIN LINE - IRRIGATOR

