

# Spreading the benefits of effluent

## Environmental management case study

### Summary

- Upgrade of effluent system to ensure all waste is utilised in a simple, effective system that is easy to use.
- Effluent is seen as a valuable source of nutrients and moisture that can be utilised to improve soils and pasture production.
- While investment is required to receive a reward, utilising support programs can ensure the costs are minimised.

**"We are encouraging farmers to catch it, store it and reuse it."**

*Western Dairy Regional Extension Officer, Dan Parnell*

### FARM SNAPSHOT – WHITE ROCKS

Michael and Leanne Partridge run an operation at Brunswick Junction, located approximately 100km south of Perth, Western Australia.

The Partridge family have been farming at this location since 1887. It is a 3,000 acre enterprise running 900 dairy cows supplemented by a dairy beef herd.

#### Farm system

- A pasture based rotational grazing system with approximately 200 acres of irrigation.
- A total of 900 cows are milked that are run in two herds.
- Calve all year round with all milk being sold into the fresh milk market via the Bega factory in Bentley.

#### Diversification

- They rear all their calves and operate a substantial dairy beef herd selling them as six-month old vealers or store stock (12–18 month olds).

#### Key farm features

- The property has a mix of flat and undulating land.
- The flatter country is irrigated via flood irrigation.
- The farm is part of the Collier River Irrigation District with water supplied from the Wellington Dam.

#### Business purpose

The Partridge family intends to continue the family farming business so that the next generation can take over if they want to. Running a sustainable and profitable business is a key driver and reducing and reusing waste is a key factor in this. They look at their outputs (calves and effluent) as an opportunity to enhance their business. This is shown through their dairy beef enterprise and their use of effluent as a way of recycling nutrients on their property.

**"We view all our outputs as useful resources. We ask the question, 'how can we make this work for us?'"**

*Dan Parnell, Western Dairy*

## Practice change

### Issues identified

- In 1994, the Partridge family built their rotary dairy and a connected effluent pond. It was a simple single 10 million litre (ML) pond system that captured solids and liquids from the dairy and associated yards. The solids were retained in the pond and the liquid was delivered via gravity to 80 hectares (ha) of irrigated pastures on the property.
- Over many years, the sludge in the ponds had built up, making it an almost impossible task to remove the solids.
- After 20 years of use, it was decided an upgrade was needed so they could allow for the increase in milking herd size (from 350 to 550), the increased calf shed effluent and a simpler method of removing and using effluent solids across the farm.

### Changes made

- In 2017, the Partridges were introduced by Western Dairy's Dan Parnell to the 'DairyCare' program. This program is a collaboration between Western Dairy and Western Australian Department of Water and Environmental Regulation and supports dairy farmers to upgrade their effluent management systems with the aim of reducing dairy effluent entering waterways.
- In 1998, DairyCare provided 50:50 funding that enabled the design, construction and development of a new effluent system to meet the growing needs of the dairy business
- The system upgrade included the following:
  - Solids separation ditch (2.8ML).
  - Construction of a 'weeping wall' to allow for liquids to be strained from the solids.
  - Installation of a new storage pond alongside the existing pond – increasing available storage to 20ML.
  - Increase in application / irrigation area to 30ha (previously 7ha).
- Liquids are used from either pond for irrigation (via gravity) and mixed with irrigation water during summer months.
- Solids are removed every two years, dried and spreading in targeted areas on the farm as part of the pasture renovation program.



Weeping wall allows liquid to be separated from solids.

### Benefits of the change

- Increase in capacity of system to allow for increased herd size.
- Benefits of distributing the liquids and solids across the farm – reducing overload of nutrients to previous problem areas and distributing solids to specific areas of the farm to assist with the nutrient management on the property.
- Reduction in total fertiliser costs.
- Ability to use solids as part of the rehabilitation of areas of the farm that were previously mined for mineral sands. The application of effluent solids increases organic matter and nutrients to poorer soils.

### The future

- Ongoing issue with saline irrigation water (from Wellington Dam) – looking at options to ensure salt can leach through the soil profile, reduce water logging and increase pasture production. Ongoing strategies include:
  - Deep ripping in autumn.
  - Sub-surface drainage.

### Learnings

- Use the resources and support of other organisations.
- View effluent as a resource that can be utilised.
- Keep the system simple.
- Investment is required so that you can have the reward.

#### FOR FURTHER INFORMATION

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