

# Requirements of an Effluent Management System

Guideline No 3.



*Your dairy effluent management system must be capable of managing all of the effluent generated at the dairy shed and yards. It must do this in such a way that it does not degrade the soil or water resources and does not leave the property of origin.*

To ensure that these requirements are met, you also need to consider the following:-

- How the effluent is stored
- How to manage effluent in the wet South East climate
- Installation of a back-up plan
- Effectively manage Nitrogen content in effluent

An effluent management system must be capable of managing all the effluent generated at the dairy shed and yards and must ensure that:

- All effluent is managed in such a way that soil or water resources are not degraded.
- Effluent does not leave the property of origin.

To ensure this, there are a number of fundamental requirements that the effluent management system must meet.

## What are the requirements of an Effluent Management System?

All effluent from the dairy and holding yards must be collected at the dairy. This may occur in a sump from which the effluent is pumped or transported direct to pasture or the effluent may be transferred to a pond storage or treatment system for later spreading. Irrigation from ponds may provide better flexibility. If a two pond system is used the effluent from the second pond may be re-used to wash the dairy yards.

## Taking in-to account South East wet winters

Pumping effluent direct to pasture is only an option at times of the year when pasture is actively growing and pasture water use is greater than rainfall. In the South East this means that pumping direct to pasture is not suited to the months of May through to September in normal years in the Mount Gambier district. Some form of storage will be required for dairy shed effluent produced during those months. For more information, refer to [South East Guideline No 6 – Rainfall and Evaporation](#).

Effluent stored in the pond system over the winter period is best spread on pasture during spring and summer to maximise the use of the nutrients it contains. Also the storage pond level should be drawn down by April to a level which enables the pond to store the effluent generated in the next winter period.

In the ponds, a minimum freeboard of 600 millimetres from top water level to the spillway is required as a buffer for storm events and other unforeseen circumstances.

## **Have a back-up system**

Back-up systems must be in place in the event that there is a pump breakdown. This may be a spare pump of similar or lesser capacity or the availability of a manure cart. Another option may be holding tanks sufficient for at least two days peak storage. Such back-up holding tanks must not be used on a day-to-day basis, otherwise they will probably not be available in an emergency. For more information, refer to [\*\*South East Guideline No 18 – Emergency Backup Plans.\*\*](#)

## **Clay lined ponds**

Effluent ponds that have been lined with imported clay should not be completely emptied or the clay liner may dry out and crack which will allow the pond to leak. The clay liner can be protected with a layer of crushed rock or some effluent may be retained to ensure the liner remains wet. The amount of effluent held back to protect the liner must be allowed for when calculating the size of the effluent pond.

## **Managing the nitrogen levels in the effluent**

Effluent should be spread on pastures at rates which allow the pasture to utilise the nutrients it contains. In the South East the nutrient that has attracted the most attention is Nitrogen (N). Excess applications of nitrogen can result in nitrate being leached below the root zone and into groundwater.

The pasture or crops grown from applied effluent should be utilised to their maximum to remove as much of the pasture and the nutrients applied in the effluent as possible. This will minimise the area required for spreading the effluent by maximising the removal of nutrients from the area.

A nitrogen budget for the effluent utilisation area should be used to balance the nitrogen input with the amount of nitrogen removed from the area. Nitrogen inputs will include the nitrogen in the effluent, nitrogen in any solid manure spread on a specified area as well as nitrogen from fertilisers that have been applied. Nitrogen removed will include milk produced from the area; protein nitrogen harvested from the area in the form of silage or hay and live weight gain of livestock grazed on the area. Some nitrogen is also lost by grazing cattle in the form of ammonia.

Effluent is not a balanced fertiliser. Application of effluent to meet pasture nitrogen utilisation and removal rates may over-supply phosphorus and potassium. Where milk fever and grass staggers are a likely problem, avoid grazing effluent utilisation areas with springing cows and recently calved cows. On farms with high potassium levels the potassium content of the effluent should be considered when deciding effluent spreading rates.

Dairy shed effluent composition varies between farms and between times of the year. Effluent should be tested for nitrogen content at several times throughout the year. Any laboratory, which carries out soil, plant and fertility analysis should be able to carry out an effluent nutrient analysis.

Soil nutrient testing should be done at least every two years to monitor soil nutrient levels. The results of monitoring can be used to check the build-up of nutrients in the soil that could affect the rates at which effluent can be spread. For more information, refer to [\*\*South East Guideline No 19 – Monitoring the Effluent Management System.\*\*](#)

## Tips on managing your Dairy Effluent Management System

Avoid having loose material on races running up to the farm dairy. Wood chips placed on races near the yard area are commonly brought into the dairy by the cows and block the drains, sump inlets and pump.

Over the calving period, watch out for afterbirth entering and blocking the stone trap.

Clean out screens, filters and solid traps regularly. Coarse materials moving through pumps and piping will cause damage and wear.



Regular maintenance of the effluent management system will reduce the number of breakdowns and allow the system to function as planned.

Maintain drains and repair broken or badly laid concrete to prevent effluent from ponding.

Rubberware and ear tags commonly block sumps. A rubbish drum should be placed outside the farm dairy for bags, tubes and other disposable items.