Northern and Yorke Dairy Effluent Guidelines

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 is 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 winter*
- *Installation of a back-up plan*
- *Effectively manage the nutrients 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 into account Cold and 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 effective rainfall. Some form of storage will be required for dairy shed effluent produced during the “winter” period when effective rainfall exceeds evaporation, or pasture growth is suppressed by low soil temperatures. For more information on effective rainfall and evaporation, and information on temperatures as they affect pasture growth in your district refer to **Guideline No 6 – Climate and Soils.**

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 before the winter period each year to a level which enables the pond to store the effluent generated in the following winter period.

In the ponds, a minimum freeboard of 600 millimetres from the designed top water level to the spillway must be maintained as a buffer for storm events and other unforseen circumstances.

Have a Back-Up System

Operators of dairy farms should have effective procedures and plans in place to respond to emergencies or contingencies, which can impact on the operation of their farm. By having plans in place, the emergency can be managed more effectively with less disruption to production and less impact on the environment.
Back-up systems must be in place in the event that there is a pump breakdown. This may be a spare pump, or access to a manure tanker. 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 ***Guideline No 4 – Emergency Backup Plans.***

Clay Lined Ponds

Effluent ponds that have been lined with imported clay may dry out and crack if completely emptied and the clay exposed, 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.

Similarly, the pond should be over-excavated to allow for the depth of the clay liner – a depth of 600 millimetres is recommended for ponds over 2 metres deep – plus the depth of any protective crushed rock overlay.

Managing the Nutrient Levels in the Effluent

Effluent should be spread on pastures at rates which allow the pasture to utilise the nutrients it contains. Excess applications of nutrients can result in soil degradation, surface runoff of nutrients, or leaching 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 nutrient budget for the effluent utilisation area should be used to balance the nutrient inputs with the amounts removed from the area. Nutrient inputs will include those in the effluent, in any solid manure spread on a specified area, as well as nutrients from fertilisers that have been applied. Nutrients removed will include milk produced from the area, silage or hay harvested from the area, 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 the most limiting nutrient for pasture utilisation and removal rates may under supply other nutrients. 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 which is applied directly to pasture should be tested at several times throughout the year. Stored effluent should be tested before spreading. 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 ***Guideline No 15 – Monitoring the Effluent Management System.***

Tips on Managing Your Dairy Effluent Management System

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

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.

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

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

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