Storing Effluent and the One Plan

Storing effluent so you can defer irrigation when soils are too wet is essential.

Why store effluent?

Deferred irrigation is achieved by storing effluent and applying it to land when soil moisture conditions are suitable. Having enough effluent storage to allow for deferred irrigation is a vital ingredient in sustainable dairy farming practice, and enables effluent to stay in the root zone where it is readily available to your pasture.

Having enough effluent storage to practice deferred irrigation enables more efficient use of the nutrients within effluent. This can increase pasture quality and quantity, and reduce the amount of fertiliser you need to use.

Nutrient runoff to surface water and leaching to groundwater, caused by effluent ponding and applying effluent when the soil is too wet, can have major detrimental effects on water quality in our Region. Deferring effluent irrigation is one of the most effective practices to avoid nutrient runoff.

Effluent storage requirements in the Horizons Region

All dairy farmers in our Region need to think about whether your existing system includes adequate effluent storage, and what you will need into the future. You can contact our Rural Advice team for free advice about what you will need to consider.

If your farm does not have storage, or if your existing storage is too small, your current effluent discharge consent conditions will continue to apply until the consent expires. However you will need to install adequately sized and lined storage as a requirement of your new consent.

If your farm systems change, for example you increase your cow numbers beyond what is allowed for by your current discharge consent or you install a feed pad, you will also need to install an adequately sized, lined storage facility and update your consent.

Storage can be above ground (tanks) or below ground (ponds). It depends entirely on what works for you.

It is sensible to start planning early, to give yourself time to explore the systems that are available and decide what will best suit your operation. Horizons' Rural Advice team can help you work through your options.

Storage design and construction

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The volume of effluent storage needed to practice deferred irrigation is different for every farm and every system. In the Horizons Region, we use the Dairy Effluent Storage Calculator to work out the minimum size of storage you will need. You can access the Dairy Effluent Storage Calculator here on the Dairy NZ website.

Your farm details are entered into the Calculator, which calculates the volume of storage that is right for your farm using 30 years of climate data.

Some of the other factors the Calculator uses are:

- Cow numbers
- Water use and diversions
- Soil type
- Irrigator application depth and rate
- Catchment areas which contribute to storage such as milking shed, yard, concreted races and feed pads.

Effluent storage is a requirement in all new dairy discharge consents in the Horizons Region.

As well as being big enough to be able to store liquid effluent when soils are too wet to take more liquid (deferred irrigation), all new effluent storage (and new treatment systems) must be lined to the permeability standard, which is 1 x 10^{-9} m/s (0.6 mm drop in level per week). There are several requirements for ensuring that liners meet the permeability standard.

For artificially lined storage:

- Proof of permeability. It is sensible to talk to the Rural Advice team about what you can use to prove your pond lining meets the permeability standard before you start.

For clay lined storage:

- A registered engineer to design and supervise the construction and undertake post-construction (pre-use) testing of the clay.
- Certified clay must be used, and evidence provided to Horizons

Horizons expects that all new effluent storage facilities will be built in accordance with the best practice set out in IPENZ Practice Note 21 and its associated chapters which can be found here.

You will also need to check with your local district council that your effluent storage will meet the conditions of the district plan rules, and with the dairy company you supply to that it will meet all their requirements. This could include siting your storage specified distances away from dwellings, your boundary or public buildings, or from waterways. All new effluent storage should also have under flood drainage that includes a leak detection system, so you can check your lining isn't leaking.

Additional information

Contact Horizons Regional Council on 0508 800 800 or email help@horizons.govt.nz.