ENVIRONMENT SOUTHLAND

# A guide to managing silage leachate

**Good design and well managed silage stack**

Southland has on average 100 days in the winter with little plant growth. To have enough food for stock during this period grass is stored as silage. Pasture is cut, left to wilt (dry) then collected, compressed and covered to exclude contact with air (anaerobic conditions). This process pickles the grass to preserve the nutrients and energy it contains.

As the silage stack matures, liquid leaches out of the grass. This liquid called leachate is full of nutrients, especially nitrogen. It is highly concentrated and extremely damaging to waterways, and can contaminate groundwater. A big discharge of leachate into a waterway can quickly remove all oxygen, killing all aquatic life over a large area. Smaller discharges can cause excessive growth of toxic algae and nuisance weeds.

environment SOUTHLAND REGIONAL COUNCIL
Te Taiao Tonga

**Silage leachate**

## Leachate control

Leachate can be controlled by:

1. Choosing a low risk site and designing the silage stack carefully to reduce leachate production or runoff risks. Ensure the chosen site for the stack is well back from any waterways, drains or tiles, and avoid wet or gravel areas. Keep in mind property boundaries, neighbours, water abstraction points and critical source areas. Design your stack to sit on an impermeable base to prevent loss to groundwater. Divert rainwater away from the stack and collect leachate to spread onto pasture when grass growth resumes.
2. Working with contractors and plan ahead with weather forecasts to ensure pasture is appropriately wilted to 25-32% dry matter. Rapid wilting also reduces the quantity of sugars lost, leading to higher quality silage.
3. Collecting any leachate that is produced and adding this to an existing effluent management system. Note that leachate must be diluted with water or liquid effluent before applying to pasture.

Northland Regional Council estimates the following (not including stormwater and rainwater inputs):

- Without wilting, up to 500 litres of leachate per tonne of silage is produced
- 20% dry matter wilting will still produce between 50-120 litres of leachate per tonne of silage
- Optimal wilting to achieve 25% dry matter will only produce 30 litres of leachate per tonne of silage.

You can have a silage system that poses little environmental risk and take advantage of the high nutrient value by:

- Appropriately locating the stack
- Designing it to minimise surface water mixing
- Following best practice silage making
- Collecting any leachate.

## More information

More information on silage systems can be found on the Environment Southland, DairyNZ and Agriland websites:

- www.es.govt.nz
- www.dairynz.co.nz
- www.agriland.ie

## Further assistance

For advice on whether your silage stack meets best practice, and options to minimise risk from leachate including initial scoping for a leachate collection system, call us to arrange a free visit by Environment Southland's land sustainability team on 0800 76 88 45

Environment Southland | July 2020