

Stop your nutrients going underground

Uncovered wintering pads are common on Southland farms to reduce pasture damage and maintain animal condition over the winter.

A popular location for a wintering pad is on free draining soils with plenty of gravel content, typically found in valleys near waterways. Unfortunately in these locations, uncovered wintering pads can leach nutrients into groundwater that then enters waterways, contributing to poor water quality. With Environment Southland's help, one farmer found out contaminants from his wintering pad were making their way to a local stream. This prompted him to move his wintering pad, having a positive effect on water quality.

In October 2013 a wintering pad in the Aparima catchment fairly typical of many others around Southland, was investigated to see whether it was having an effect on the groundwater below. Samples were taken of soil water, groundwater from below and around the site, and the nearby stream. The aquifer below the wintering pad was also assessed using an electromagnetic conductor to detect chemicals in groundwater, allowing scientists to see the depth and extent of contaminated water. This revealed a plume of nitrogen-rich groundwater six metres in depth moving through the aquifer gravels into the stream 120 metres away.

Aquifer: An underground formation of sand, soil and gravel where groundwater is stored.

Wintering pad: A purpose-built area on production land for confining stock in order to avoid damage to pasture, and for feeding out supplements during periods when soils are saturated. It excludes self feeding from silage stacks when stock are not confined tightly to the area adjacent to the stack, but have the ability to graze on adjacent paddocks for most of the day.



Having confirmed the leaching from the wintering pad and the connection to the nearby stream, a new wintering pad was developed and located well away from any waterways on land not prone to leaching. The new pad has a base constructed from compacted rock to further reduce leaching. It is designed to collect most of the animal waste, which is spread back onto pasture or cultivated land.

In October 2014, after a year without use, the original wintering pad site was tested again to see what was happening to the contaminated plume of groundwater. This aquifer is closely connected to the stream, so groundwater was rapidly leaching. Results show that the plume is disappearing and scientists predict that it should be back to normal levels in three years.

Further assistance

Every farm is different and some activities require resource consent, so having the expert advice of a land sustainability officer is recommended.

To arrange a free visit please contact Environment Southland's land sustainability team on 03 211 5115 or 0800 76 88 45.

New wintering pad details

LOCATION:	Aparima catchment
SIZE:	35m x 35m for 99 cows (no consent required*)
SITE:	Stony ridge top, well away from any waterways
BASE:	Compressed quarried rock on top of naturally hard stony land
DESIGN:	Silage stack on the higher end with effluent collection section at the bottom
STOCK:	Rest in a fenced area moving in and out of the wintering pad when hungry
EFFLUENT:	Majority deposited on wintering pad rock base
COSTS:	\$2500 for digger and rock cartage

* Rule 5.4.1 in the Regional Effluent Land Application Plan makes wintering pads with no more than 100 adult cattle or 250 adult deer a permitted activity as long as certain criteria are met. Otherwise a resource consent is required.



▶ *New wintering pad well away from any waterways and with a great view.*