Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

CRITICAL SOURCE AREAS
Identifying risks on farm

Ngā Pūrararu Ahuwhenua
Ko te tautohu i ngā tūraru pāmu

What are Critical Source Areas?

A critical source area is anywhere on a farm that is at risk of losing contaminants. They are often called "hotspots" for contaminant loss. The four main contaminants that affect water quality are bacteria, sediment, phosphorus and nitrogen.

There are a number of factors that create a critical source area:

SLOPE	The steeper the slope, the greater the risk for contaminant loss.
SOIL	Certain soil types, or when there are different soil types in the same area, are at an increased risk for contaminant loss.
STOCK	When stock types aren't suitable for land type, this can create pressure on the land.
MOISTURE	Heavy rainfall increases movement on land and can create hotspots.
LAND USE	Different uses of land can increase (or decrease) pressure in different ways.

All of these increase pressure on to land, which increases the risk of losing contaminants.

Farm Environment Planning

Once you've identified the critical source areas, you can find the best mitigations for your farm. A Farm Environment Plan can help you identify these risks and prioritise actions to reduce the risk.

This guide should help you identify where you might find areas of risk around your farm and how you might mitigate these areas. Head over to farmmenus.org.nz for mitigation ideas.

Common critical source areas

RACEWAYS

Raceways are not only good at transporting stock and farm traffic, but also good at transporting contaminants directly into surface water if they are not managed properly. Tracks can transport all four contaminants and often deposit them directly into streams or drains at crossing points.

Constructing with good camber and cutoffs alongside can help tracks and races shed water quicker and divert it away from waterbodies.

STREAM AND RIVER CROSSINGS

Because of their location, poorly designed crossings can discharge a large amount of contaminant into water. Crossings are often situated at the bottom of race or track where contaminants are concentrated.

Crossings, like raceways, need to be able to shed water back into paddocks where contaminants can be filtered out.

CULTIVATED LAND AND BARE GROUND

Cropping is common because it can be helpful during periods of feed shortage and can reduce nitrogen leaching from soil into groundwater. However, having periods where soils are bare or without vegetation increases the risk of contaminant loss to waterways.

Simple strategies to reduce the risk include not cultivating in areas that have increased slopes, areas that remain wet for extended periods or are likely to become ephemeral waterways. Using low or no-tillage cultivation techniques also helps.

WINTER GRAZING

Grazing winter crops can cause a large amount of soil loss and damage during winter months. Having heavy animals on wet soils can also decrease productivity.

Some management techniques to reduce the risk of contamination include:

- grazing paddocks strategically so standing crops act as a filter for contaminants
- grazing towards rather than away from waterways
- leaving a buffer of rank grass around waterways
- using a catch crop to pick up surplus nitrogen post-grazing.

SLIPS/SLUMPS AND EARTH FLOWS

Erosion is a critical source area because of its ability to lose sediment and phosphorus. Erosion events are common in certain soil types and can be increased by other factors such as stock pressure, weather events or by removing vegetation.

Erosion can often be managed by introducing poplar pole planting or reducing grazing pressure on erosion susceptible areas. Providing wide riparian margins or detainment areas can capture contaminants before they enter waterways.

STOCK CAMPSITES/IN-PADDOCK FEED AREAS

Stock campsites are found in sheltered areas where stock congregate during extreme weather (wet or hot). They can usually be identified by their bare ground and pugging.

Some good strategies to manage this include:

- feed, shade and shelter away from waterways
- shade and shelter options across the farm
- placing water troughs appropriately
- appropriate stock types and rates for the area.

SILAGE PITS OR FEED BUNKERS

Silage pits or supplementary feed containers create a critical source area because contaminants could get into waterways. In particular, silage leachate is highly toxic in the water.

A well-designed storage area ensures that everything is contained and can be spread through effluent irrigation when conditions are suitable.

YARDS AND ANIMAL HOLDING AREAS

Yards are critical source areas because they have traditionally been situated near waterways to help with the disposal of waste or chemicals. Animals are usually held here before they are shorn or treated, which can increase contaminant load and risk in these areas.

The best way to reduce contaminants from yards is to control the flow of water onto or from these areas. Ensuring liquid has time to be filtered through grass before entering waterways can reduce the level of contaminant entering water.

INTERMITTENT/EPHEMERAL WATERWAYS

Waterways that flow intermittently are considered risk areas because they can transport contaminants when present. For much of the year, these areas can be grazed like the rest of the paddock. However, during wetter periods they should be excluded from stock grazing and left with a grass buffer, which can help filter out contaminants.

It's also important to not crop through these areas to minimise the impact that cultivation may have.

WE CAN HELP

Talk to your industry or sector representatives or contact us.

0800 800 401 (8am - 5pm, Mon - Fri)
waikatoregion.govt.nz
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facebook.com/waikatoregion

Farm menus

Farm Menus was created by Waikato Regional Council and industry leaders to provide a menu of practices to improve nutrient management and reduce impacts on water quality.

Start thinking about which mitigations are right for your farm.

Dairy farms *Drystock farms* *Cropping land*

farmmenus.org.nz

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