



Managing Farm Runoff

Managing farm runoff plays an important part in good farm management. Keeping stock out of waterway margins and wet areas such as drains, seeps and wetlands reduces stock losses, improves stock management and health, and improves water quality. It also helps keep dirty farm runoff out of streams and rivers. Find out how managing wet areas on your farm can benefit you.

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Clean water is good for our economy



Riparian protection

A big part of marketing our agricultural products to overseas customers is our high environmental standards and clean, green image. Keeping stock out of waterways and keeping our streams and rivers clean can help promote our agricultural products.

As the dairy company Fonterra's chairman has said, "...leveraging New Zealand's positive environmental image adds value to our products and therefore puts dollars in farmers' pockets."

Additional benefits include clean water for farm use, enhanced stream and wetland habitat, and improved farm values.

Reduce stock losses

How many stock have you lost this year to unfenced streams, rivers or wet areas? The loss of a cow worth \$1200 in a waterway is equivalent to the cost of fencing about 650 metres of stream edge with a single wire electric fence. By fencing wet areas and keeping stock out, you'll save money in the long-run and benefit from:

- reduced stock losses in waterways or other wet areas
- healthier stock – reticulated water is better for stock health
- improved stock and grazing management.



Fencing waterways helps to reduce stock losses

Fencing streams and rivers

Preventing stock access to waterway margins, such as along streams and rivers, is an important part of good farm management.

Waterway margins form an important buffer zone between land and water. When stock are excluded, waterway margins can act as barriers, preventing excess nutrients and dirty runoff from entering the waterway.

Find out more about the different options for [fencing](#) waterway margins. Use our online calculation sheet for [costing fencing options](#).

Fencing drains, seeps and wetlands

Drains, seeps and wetlands can be easily overlooked on the farm. However, fencing these areas has many benefits, such as reducing stock losses from bogging and improving stock management.

These areas can also be effective 'sponges' or natural filters for removing pollutants from farm runoff, even if they are a long way from the nearest stream or river.

Find out more about [fencing](#) drains, seeps and wetlands. Use our online calculation sheet to [cost fencing options](#) and check out our information on [managing wetlands](#).

Tracks and raceways

[Tracks and raceways](#) can channel effluent and sediment into waterways. It's important to maintain their edges, to keep nutrients on the farm and out of:

- waterways, for example, streams and rivers
- drains that flow into waterways.

Removing the 'lip' or raised edges that build up along the sides of tracks and raceways allows runoff to flow into adjacent paddocks. The pasture then acts as a filter, removing and using nutrients from the runoff for growth.

Find out more about the value of [effluent](#) as a natural fertiliser.

Waterway pollutants

There are four main pollutants entering our waterways from farm activities:

- [nitrogen](#)
- [phosphorus](#)
- [sediment](#)
- [faecal matter](#).

The table below describes why each is a problem, where they come from and how they get into water.

Pollutant	Why it is a problem	Source of pollutant	How it gets to water
Nitrogen	<ul style="list-style-type: none"> • It feeds nuisance plant and algae growth in waterways • Algae and nuisance plants affect stream life, block water intakes and drains, and make water unpleasant for swimming and drinking • Ammonia can be toxic to fish 	<ul style="list-style-type: none"> • Urine from stock • Nitrogen in fertiliser • Ammonia in dairy shed wastewater 	<ul style="list-style-type: none"> • It moves down through soil (leaching) into ground water and subsurface drains, which feed into streams • Surface runoff • Stock in streams • Discharges from oxidation ponds
Phosphorus	<ul style="list-style-type: none"> • It feeds nuisance plant and algae growth in waterways • Algae and nuisance plants affect stream life, block water intakes and drains, and make water unpleasant for swimming and drinking 	<ul style="list-style-type: none"> • Dung from stock • Phosphate in fertiliser • Farm dairy effluent • Soil sediment 	<ul style="list-style-type: none"> • Soil and bank erosion (phosphate binds to soil particles) • Surface runoff • Discharges from oxidation ponds • Stock in streams • Subsurface drains
Sediment	<ul style="list-style-type: none"> • It makes water murky and affects stream life • Poor water clarity makes water unsafe for swimming 	<ul style="list-style-type: none"> • Hillside erosion • Stream bank erosion and trampling • Tracks and races 	<ul style="list-style-type: none"> • Surface runoff • Stream bank collapse • Hillside erosion

Faecal matter (bacteria, viruses)

- It creates a human health risk from swimming and drinking
- It can affect stock health if present in stock water

- Surface of paddocks

- Dung from stock

- Farm dairy effluent

- Stock in streams
- Subsurface drains
- Discharges from oxidation ponds
- Surface runoff
- Poorly-managed effluent irrigation

Rivers in agricultural areas of the Waikato region are not suitable for swimming at least 50 percent of the time, due to poor water quality. Some rivers in the Hauraki and lowland Waikato areas are not suitable for swimming 70 to 80 percent of the time.

Well-managed waterway margins, grassed farm drains, seepage areas and wetlands help protect water quality. They do this by:

- filtering surface runoff
- taking up nutrients before they reach the water – through plant roots
- removing nitrogen – bacteria in wet soils in waterway margins can remove substantial amounts of nitrogen from water, releasing it to the atmosphere as nitrogen gas
- preventing stock access when fenced – reducing bank erosion from trampling, and reducing the amount of effluent reaching the water.

Find out more

Learn more about [runoff and leaching](#) and [river water quality](#).

Order a copy of 'Clean Streams – A guide to managing waterways on Waikato Farms'. This booklet explains how farming can affect waterways. It offers practical suggestions about what farmers can do, and what works best where on a farm.

Check out our land and soil [publications](#).

For policy information on the effects of non-point source discharges on water bodies, see section 3.9 of the proposed [Regional Plan](#). See section 3 of the [Regional Policy Statement](#) for issues relating to water quality.