

# How to monitor surface water quality on your farm

## Key messages

- Surface water quality monitoring is used to understand if nitrogen is present in water bodies on the farm.
- Surface water quality monitoring involves collecting a water sample and either testing it via a nitrate test strip or sending it for laboratory analysis.

## Introduction

Surface water monitoring involves collecting samples from water bodies on your farm, such as paddock inter-rows, ponds, dams, main water drainage lines, creeks, and springs (if groundwater comes to the surface).

By monitoring regularly, you can assess changes in nitrogen concentrations across the farm over time.

Changes in nitrogen concentrations can occur in response to seasonal effects, fertiliser application and other farm management practices (e.g., tillage, fallow, cover crops, irrigation practices, etc.).

Higher nitrogen concentrations in surface water are generally observed during the first 3-4 rainfall and/or irrigation events following fertiliser application. Consequently, surface water sampling should be undertaken during these times, when there is the highest likelihood of nitrogen losses.

## Where should I sample?

The locations to sample will depend on the question you want to answer, such as where am I losing nitrogen, or has my management change made a difference? On a farm map, identify areas where:

water from the cropping area drains into creeks or neighbouring properties

springs occur (groundwater comes to the surface)

there are signs of elevated nutrients, such as algae or rampant weed growth

you want to assess a change in farm practices (either agronomic or a [treatment system](#)).

Choose 5 or more of these areas, representing different parts of the farm. If you want to assess management change you should include monitoring locations upstream and downstream of the area where the management change occurred.

## Is collecting surface water samples expensive?

Collecting surface water samples is cheap as often only a wide-mouth container is needed (it can also be a clean 1.5 L plastic bottle cut in half). If the sampling location is not easily accessible, a rope (or fishing rod) and a bucket may be used in some circumstances. A more expensive telescopic pole (≈ \$300) may be needed if it is unsafe to enter the water (e.g., excess vegetation, crocodiles, or snakes) or if wading into the water will stir up the sediment on the bottom.

## What equipment do I need?

- powderless gloves
- clean wide-mouth container
- rope (or fishing rod) and a clean bucket (optional)
- telescopic pole (optional)
- deionised water (optional)

## How do I collect a surface water sample?

Collecting a surface water sample with a rope (or fishing rod) and a bucket:

1. Attach the rope (or fishing rod) to the bucket.
2. Immerse the bucket under the surface, being careful not to collect sediments or organic matter from the bottom.

Collecting a surface water sample with a telescopic pole:

1. Insert the wide-mouth container in the telescopic pole socket (if needed).
2. Immerse the mouthpiece of the wide-mouth container just under the surface and allow the intake of water without drawing from the surface, being careful not to collect sediments or organic matter from the bottom (Figure 1 and Figure 2).

**NOTE:** During a sampling event, prevent cross-contamination by wearing gloves, not smoking, and not sampling near car fumes. Ensure that the containers are rinsed thoroughly with the water being sampled or deionised water.

This factsheet provides a brief overview of collecting a sample. For accurate results it is important to follow all the steps for sample collection, processing, transport and quality controls outlined in the [Queensland Government's Monitoring and Sampling Manual 2018](#). Talk to your local extension officer, Council or Regional NRM body for assistance with sample collection and processing.

### How do I test a surface water sample?

Surface water samples can be tested using nitrate strips or processed and sent to a laboratory for analysis. Refer to “4. How to use nitrate strips to test water quality on your farm” and “5. How to process a water sample for laboratory analysis” for further information.



Figure 1: Using a telescopic pole to collect a water sample. Note the sample is being taken just below the surface not to disturb the bottom of the water body (photo: from DES. 2018. Monitoring and Sampling Manual: Environmental Protection (Water) Policy. Brisbane: Department of Environment and Science Government).



Figure 2: A sample can also be collected by hand in smaller drains like this.

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**Disclaimer**

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