

Water Sampling Procedure

INTRODUCTION

Water used in agriculture can be obtained from streams, bores or dams. Its quality may vary and therefore affect its suitability for its intended use.

Water is used on rural properties for:

- Irrigation
- Stock drinking water
- general use around the farm, garden and home
- as a carrier for agricultural chemicals and soluble fertilizers
- human consumption

The chemical, physical (turbidity and solid matter) and biological properties of the water may affect the health of the plants and animals which use the water and the physical structure and chemical fertility of the soil to which it is applied.

The Nutrient Advantage laboratory analyses water for its inorganic chemical properties. The biological and the organic chemical properties e.g. algae, faecal contamination, pesticides, are **not** analysed by the Incitec laboratories. If such properties need to be evaluated, e.g. if the water is to be used for human consumption, the sample should be sent to a government or other suitable laboratory which can provide such analyses or evaluations. Contamination is more likely to occur in surface waters than in those drawn from underground.

Note: Nutrient Advantage does not analyse and assess water to be used for human consumption.

This publication provides guidelines for taking water samples for inorganic chemical analysis by the Nutrient Advantage laboratory.

WHAT YOU WILL NEED

- Water sample collection bottle,
- Submission Form,
- Plastic gloves
- Press seal plastic bag for paperwork
- Freight bag

All materials above are available from Nutrient Advantage on 1800 803 453 or your local Incitec Pivot Agent or Dealer.

Water Sampling Procedure

SAFETY WITH SAMPLING

Sampling involves physical work in the outdoors. A common sense approach is required, as for all work on farm, with due consideration to:

- Exposure to the elements, including the sun. Wear appropriate clothing, a hat, and sunscreen during the summer months, stay hydrated
- Sampling near hazards eg high voltage / gas lines
- Paddock/block hazards including electric/barbwire fences, steep ground, pot holes, wet grass, channels/drains;
- Observe re-entry periods in crops that have been sprayed with pesticides, e.g. insecticides;
- Wash your hands between taking different samples, and before eating;
- Be aware of the presence of and on the lookout for farm animals, e.g. dogs, bulls, and native fauna, e.g. snakes, and maintain appropriate distances.
- Have a First Aid Kit available.

TAKING A REPRESENTATIVE SAMPLE

A representative sample is defined as a number (say 5) of small volume sub-samples (say 100 - 200 mL) taken from a large body of water to make up a sample which represents the whole (chemically, physically and biologically) body of water which is of concern or interest.

How the sample is taken depends on the source of the water, whether it is from a stream, a dam or a bore and access to the delivery system.

RECOMMENDED SAMPLING PROCEDURE

The recommended procedure for collecting water samples is as follows:-

- (i) use a clean water sample bottle (available from Nutrient Advantage Laboratory);
- (ii) Where a Nutrient Advantage sample bottle is not available, use another suitable container, ensuring it is strong and durable, so that it will not break in transit and that the cap does not leak once the cap is secured. The laboratory requires a minimum of 500 mL, so a plastic soft drink bottle, of 1 - 2 L capacity, would be suitable;
- (iii) rinse the bottle at least 4 times with the water to be sampled;
- (iv) do not dispose of the rinse water where it may contaminate or mix with that which is to be sampled;
- (v) take 5 sub-samples (say 100 - 200 mL each), to make up the full sample;
- (vi) fill the bottle to the top, leaving little or no air space and seal tightly with the cap;
- (vii) ensure the bottle is adequately labelled so it can be identified at all stages of the transport and analytical process;
- (viii) complete a Nutrient Advantage Water Form, recording any relevant field information which will assist in the interpretation of the results

Water Sampling Procedure

LOCATING THE BEST PLACE TO SAMPLE

Water samples can be taken directly from the body of water (stream or dam), or if a pump is used, from the first outlet along the supply line.

Where the water is used for irrigation or piped for livestock or domestic purposes, the simplest approach is normally to let the pump do the sampling. When water is drawn from an underground source, i.e. a bore or well, this is often the only way to sample.

Allow the pump to run for sufficient time to flush out water which has been in the pipe, then take samples at time intervals of 5 - 10 minutes, from the first offtake point, e.g. tap, trough, or sprinkler head.

If the water is drawn from a reticulated source, e.g. irrigation scheme, city or town water supply, check with the local supplying authority, as they may have analytical data on the chemical and other characteristics of the water.

Sampling guidelines for various situations are described below.

Bores and Wells:

- If in regular use, sample in the manner described above.
- If not used for several months, allow the pump to run for at least one hour before taking the sample.
- For a new bore or well, sample after the pump has run for several hours or days. For more precise details of the sampling procedures, refer to the Australian Standards AS/NZS 5667.1 and 5667.11.

Stream:

- Take sample from main stream flow. If assessing its suitability for stock drinking water, sample from where stock may drink.

Dam:

- If water is pumped from a dam, and the sample is not taken from the outlet side of the pump, take the sample from near where suction side of the pump draws water.
- For stock drinking water, take sample near the edge.
- If wishing to assess changes in quality throughout the dam, where the water may settle into well-defined layers, it may be necessary to sample the chosen layers separately. The practicality of sampling from specific depths needs to be considered. Sample upper layers first.

Water Sampling Procedure

HANDLING AND TRANSPORT

Care needs to be taken to ensure the sample reaches the laboratory in the same condition as when it was sampled. Send the sample bottle and Nutrient Advantage Water Form, as soon as possible by Express Courier to the laboratory. DO NOT send water samples through the normal postal service. While plastic is preferred to glass, both glass and plastic containers have been cracked or broken by the rough handling of the normal postal services, causing damage to other items of mail. Send the sample with an express courier service which delivers direct to the laboratory at Werribee.

**Attn Sample preparation
Nutrient Advantage Laboratory
8 South Rd
Werribee Victoria
Australia 3030**

OTHER PUBLICATIONS

Water sampling standards and guidelines are available from Standards Australia. The relevant standards are:

AS/NZS 5667.1 : 1998. Guidance on the design of sampling programs, sampling techniques, and the preservation and handling of samples.

AS/NZS 5667.4 : 1998. Guidance on sampling from lakes, natural and man-made.

AS/NZS 5667.5 : 1998. Guidance on sampling of drinking water and water used for food and beverage processing.

AS/NZS 5667.6 : 1998. Guidance on sampling rivers and streams.

AS/NZS 5667.11 : 1998. Guidance on sampling of ground-waters.

Version date: 15/5/2012

