

MANURE SAMPLING AND ANALYSIS



Manure sampling is the only reliable way to determine the nutrient and contaminant content of manure. However, the analysis is only representative if the sample has been collected, handled and analysed correctly.

Collection and handling

The aim of the collection procedure is to get a representative sample of the manure or litter. You will need gloves, a shovel or hand trowel, a clean bucket, a zip-lock bag and an esky with ice (for storing and transporting the sample).

The sampling procedure is as follows:

1. Label a zip-lock bag with permanent marker, including property name, date, sample type and a description of where the sample was taken from (e.g. "layer shed no. 1").
2. Fill eskies with ice.
3. Put on disposable gloves and dust mask (if sampling dusty products). When sampling, do not eat, drink or smoke. Carry out standard hygiene practices.
4. Sample manure after it is removed from the shed if possible*. Shed cleanout will help mix the manure/litter making it easier to get a representative sample.
5. Collect approximately 25 sub-samples from throughout the pile with the shovel and mix these in the bucket.
6. After the sub-samples are mixed together, collect the final sample (about 1 kg) and place in the labelled zip-lock bag. It is recommended to place a second bag over this for protection.
7. Immediately place the sample in an esky, pack crushed ice completely around it and replace the esky lid. Store the esky in the shade.
8. If the sample is to be stored for more than 48 hours, it should be refrigerated or frozen.
9. When all samples have been added to the esky, seal it with waterproof tape.
10. Thoroughly wash your hands.
11. Complete the analysis request forms and photocopy for your own records (if possible). Place the original forms in an envelope. Clearly address the envelope to the laboratory and add their phone number. Put your own address and phone number on the envelope as "sender". Firmly tape the envelope to the top of the esky.
12. Deliver the samples or arrange for courier delivery.
13. Contact the laboratory to confirm that the samples were received within 48 hours of sampling.

*If sampling must be done within a shed (e.g. barn laid system prior to clean out), it is necessary to collect a larger number of sub-samples (40–50) throughout the shed, covering areas with high and low manure coverage to get a representative sample. These samples should include surface and sub-surface litter. Sampling should be done as close as possible to the end of the cycle to represent the spent litter available for reuse.

Manure analysis

Samples should be analysed by a laboratory accredited by the National Association of Testing Authorities (NATA) for relevant soil, plant or environmental testing methods.

The cost of manure analysis can vary considerably between laboratories. Most laboratories offer bundled test packages, with pricing depending on the range of parameters included (Table 1). Individual analyses can also be requested; however, selecting an appropriate package is often the most cost-effective approach.



Table 1: Typical testing packages for manures and composts with likely price ranges (as of 2026)

Package type	Typical inclusions	Indicative cost (\$)
Basic	Moisture content, organic matter (or carbon), total nitrogen, pH, electrical conductivity	70–120
Agronomic nutrient package	Major nutrients (e.g. total nitrogen, phosphorus, potassium, sulphur) and key cations (e.g. calcium, magnesium, sodium), sometimes including trace elements	80–120
Available nutrient forms*	Plant-available nutrient forms determined using laboratory-specific extraction methods (e.g. nitrate, ammonium, extractable phosphorus, sulphur, calcium)	50–140
Heavy metals	Metals such as cadmium, chromium, arsenic, lead, zinc, copper	80–100
Pathogens	Microbiological indicators (e.g. E. coli, total coliforms, Salmonella)	150–220

* “Available” nutrients are method-dependent and may include water-soluble or other extractable forms depending on the laboratory.

The first step is to determine the purpose of the analysis (e.g. nutrient management, regulatory compliance, pathogen testing, or contaminant assessment), as this will guide the selection of an appropriate suite of tests. Not all parameters are required for every purpose, and selecting unnecessary tests can increase costs without adding value.

Typical analysis groupings and indicative cost ranges are provided in Table 1 as a guide only.

Given the variability in pricing and services, it is recommended to obtain two or three quotes from different laboratories before proceeding.

Records

Records of the time, location, sampling procedure and analysis request information sent to the laboratory should all be kept with the manure analysis.

When monitoring manure quality over time, it is important that results are comparable. Differences in laboratory methods and extraction techniques can influence reported values, so, where possible, the same laboratory and analytical methods should be used for ongoing testing.

Maintaining consistent records and analytical approaches will improve the ability to identify trends in nutrient levels and other parameters of interest.

References and Further Reading

McGahan, E., Wiedemann, S. G., & Gould, N. (2018) *Egg Industry Environmental Guidelines*, Edition II. Australia, Australian Eggs Limited.