ENVIRO FACT SHEET

Manure Sampling Procedure

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

This procedure will outline the correct process for sampling to ensure this is done correctly.

For more details on testing and sampling, refer to the *Egg Industry Environmental Guidelines* (Edition II, McGahan et al., 2018)

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 a cooler 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, i.e. '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 1kg) 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 48hrs, it should be refrigerated or frozen.
9. When all samples have been added to the esky, seal it with the waterproof tape.
10. Thoroughly wash your hands.
11. Complete the analysis request forms and photocopy for your own records (if you have access to a photocopier or fax machine). Place the original forms in an envelope. Clearly address the envelope to the laboratory and add their phone number. In smaller writing, 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 (i.e. in a barn laid system prior to clean out) it is necessary to collect a large number of sub-samples (40–50) throughout the shed, covering areas with high and low amounts of 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 be representative of the spent litter that will be available for reuse.

Manure analysis

It is recommended that a NATA accredited laboratory is used for manure analysis. Laboratories are available in most states of Australia, and manure analyses generally cost between $130–$310 (the average is approximately $180) for a basic analysis. Once a laboratory is selected, the next step is to document the type of analysis you require and send this with the sample. The analysis will depend on the reason for testing the manure. As a starting point, the following analysis can be used to cover most agriculturally relevant elements and properties of manure.

Table 1. Typical Manure Analysis Parameters

Parameters		
Moisture (%)	pH	Sodium (%)
Phosphorus (%)	Electrical Conductivity (dS/m)	Sulphur (%)
Nitrogen (%)	Calcium (%)	Zinc (mg/kg)
Nitrate Nitrogen (mg/kg)	Copper (mg/kg)	Molybdenum (mg/kg)
Ammonium Nitrogen (mg/kg)	Iron (mg/kg)	Manganese (mg/kg)
Organic Matter (%)	Boron (mg/kg)	
Potassium (%)	Magnesium (%)	

If there is concern about metals, these can also be analysed. The following metals and contaminants may be requested: Cadmium; Chromium; Arsenic; and Lead. Laboratories can also assess the level of weed seed contamination, pathogens and the degree of 'maturity' for composts. For further details contact your laboratory of choice.

Records

Records of the time, location, sampling procedure and analysis request information sent to the laboratory should all be kept with the manure analysis. Analyses collected over time will show if there are trends in the manure nutrient levels of interest.

References and Further Reading

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