

How to take a Manure Sample



Manure is a valuable source of nutrients that is essential for good crop growth. Animals eliminate approximately 75 percent of the nutrients they eat in their feed. Applying manure on farm fields is a great way to return nutrients to the soil from which they were removed during crop harvest.

Along with its fertilizer value, manure also improves the soil by adding organic matter.

You need to know how much nutrients are in your manure before you spread it on the fields. This information is essential to meet the crops nutritional demands and to prevent potential environmental risk by over applying manure.

Nutrient Variability

Recent studies in Nova Scotia and Canada show that the nutrient content of manure varies considerably from farm to farm and even within the same storage facility. *Using average manure values will not provide an accurate nutrient value for your farm.* Manure should be tested annually.

The level of available nutrients in manure depends on many factors such as type and age of the animal, supplemental feeds, bedding material, water runoff into storage, the type of manure storage, the amount of time it is stored, application methods and biological breakdown.

Manure needs to be stored to contain both the solid and liquid portion to ensure the maximum amount of nutrients can be used as fertilizer. In general, 90% of the phosphorus is found in the solids, 75% of the potassium is found in the liquid and the nitrogen is highly variable.

In liquid manure storages, it's important to thoroughly mix the manure as there are significant differences in nutrient content at different depths in the storage facility.

When should you sample manure?

The best time to sample manures is **before** they are spread so the information can be used to adjust application rates.



But due to the **danger** and difficulty of obtaining a good representative sample of liquid or semi-solid manure from storage, the **safest method** is to obtain the sample prior to spreading from the manure spreader itself. For solid manure packs, stacks and litters, a sample can be taken safely directly from the manure storage facility at anytime.

Sampling at application time will help to ensure the sample is well-mixed and representative of the manure being applied. Always follow good safety practices.

Sampling Methods

Lagoon (liquid) and Pit (semi-solid) - the safest time to collect liquid manure is at spreading time. To ensure a good representative sample, collect samples out of several tanker or spreader loads and mix well in a plastic bucket. A one liter sample can be taken from the mixed samples and poured into a wide mouthed plastic container.

TIP

- *Sample the tanker immediately after filling so that the solids don't settle.*
- *Stir the bucket before taking a final sample to ensure that the solids are in suspension.*

If samples are to be taken from a lagoon or pit prior to spreading make sure you use safe methods and extreme caution. Using a dipper, which can be constructed by attaching a tin on the end of a long stick, take a minimum of 10 subsamples of manure from the lagoon, about 3–4 feet below the surface, from different sections of the storage facility. Samples can also be taken from the recycle inflow pipe. Mix all of the samples in a bucket and take a 1 liter size sample from the mixture. Remember up to 90% of the phosphorus content can be found in the solid portion of the manure so it is important to mix well before sampling.

TIP

- **Maintain all safety precautions.**
- *Do not take a sample from the surface crust layer. Sample from various depths.*
- *Do not take samples from the corners where solids tend to congregate. This may give a false high rating.*



Feed lot, Pack, Pile (solid) - For feed lots, use a shovel to collect samples near the buildings, fences and in the center of the lot, where the animals tend to spend most of their time. For stacks, use a fork or shovel and take samples throughout the pile. Thoroughly mix subsamples together by continuously scooping the outside of the sample to the center of the sample. Once mixed, take a 1 liter size sample for analysis.

TIP

- *Take at least 10 subsamples to ensure the final sample that is sent to Laboratory Services is a good representation of the manure.*
- *Take samples from different sides of the pile, including the center.*
- *Take samples at various depths in the pile and do not sample the surface layer.*

Broiler house (solid) - Take samples near the water and feed areas. Also walk through the broiler house in a zigzag pattern taking subsamples (similar to soil sampling patterns). Mix the subsamples and take a 1 liter size sample for analysis.

TIP

- *Take at least 10 subsamples.*

Getting the sample ready to take to Laboratory Services

Approximately 1 liter of sample is required for analysis. Ice cream containers or freezer bags work well for this purpose. If the sample can not be taken immediately to Laboratory Services, it is important to freeze the sample as ammonium (nitrogen) gas can escape, especially if the sample is warm. This could result in a low nitrogen analysis. Do not use glass containers as they may break, as a result of pressure build up in fresh manure samples, during the freezing process or during transportation to Laboratory Services.

TIP

Important things to remember when getting the sample ready to send to Laboratory Services

- Tape the container lid closed.
- Label the container with your name and type of manure.
- Leave room in the container for the manure to expand when freezing.
- Plastic ice cream containers and freezer bags work very well as sample containers.
- Do not store in glass containers.

Common Mistakes when Sampling Manure

- Forgetting to take a manure sample and the pit is empty. The sample is collected from anything that can be scraped from the pit which will result in an inaccurate test result.
- The sample was taken in the barn from behind the animal. The results are inaccurate because the sample was too fresh and not representative of what is being spread. The nitrogen levels will test out higher than an accurate sample from the pit.
- Liquid manures are not properly mixed allowing the solid portion to settle out.
- Samples were not taken separately from multiple manure pits or piles. If manure is stored in more than 1 location, then samples should be taken from all sites as the analysis could be very different between sites.
- Manure sample is taken, then left in the barn or truck for a period of time before it's taken to Laboratory Services. This will result in lower nitrogen levels than a properly stored sample, due to release of ammonium gas.

REMEMBER, the accuracy of the manure analysis is only as good as the sample that you send to Laboratory Services.