

How well do you know yourum.....manure?

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Several years ago I took an NRCS course for Nutrient Management Planners. I had to chuckle at the "Sample Nutrient Management Plan" which included a field by field manure application schedule listing rates of 14.7 loads on field one and 11.3 loads on field two and so on. I just couldn't picture my neighbor or any other farmer stopping in the middle of a load just because his plan said he should! Perhaps I should have cried because it showed me just how little some people making legislative decisions or reviewing plans know about farming and the importance of keeping things practical. It did, however, send the message that farmers will need to tighten up their management to meet increasingly strict guidelines when it comes to nutrient management planning.



In any event, you can't calculate manure application rates, determine supplemental fertilizer needs or complete a nutrient management plan on your farm without knowing the nutrient content of the manure you apply. Book values can be a good starting point, but manure nutrient content can be quite variable due to differences in rations, storage facilities, amount and type of bedding used, dilution by snow or rainfall, etc. Laboratory analysis is the only way to determine the actual manure dry matter and nutrient content for a particular livestock enterprise.

Farmers are advised to sample annually for 3 years to establish their own manure database and every 3-5 years after that. Each type of manure on the farm should be sampled separately, e.g., bedded pack from the heifer barn, liquid manure from the free stall barn lagoon, and daily spread from the dry cow barn should be treated as three separate samples. Additional samples may be needed if there is a major change in feeding programs, the type or amount of bedding used or if there is a major departure from the "average" annual precipitation, etc. And like anything else, accurate results depend on getting a sample that is representative of the entire storage so multiple samples may be needed if the manure is variable within the storage.

The best (and often easiest) time to collect a sample is when the manure is removed from storage and spread. Below are some general guidelines to help you become a "Connoisseur of Manure".

1. Stay Safe;

The most important consideration of course, is safety! Make sure all employees understand and follow safe sampling guidelines. Emergency phone numbers should be clearly displayed, enclosed areas should be ventilated before entering and breathing apparatus and safety lines should be used in areas that may contain dangerous manure gases.

2. Be prepared;

- Use a plastic pail, not a metal one, to mix samples without contaminating them.
- You can use a spade or soil test probe to sample dry or bedded pack manure.

- An ice cream scoop works well for semi dry manure (manure with the consistency of tuna salad).
- A plastic jar attached to a 10 foot pole can be used to sample liquid manure in a lagoon. My grandfather's telescoping aluminum golf ball retriever worked well for me. It was easy to clean and it fit into the back of my car without a problem!
- A ½" to 1 ½" PVC pipe with a rubber ball stopper (a lacrosse ball works well) attached to a rope to pull it into place to plug the pipe also works well for sampling liquid manure.

3. Sample correctly: Contact Dairy One or your nutrient management planner for specific sampling guidelines.

- Liquid storages must be fully agitated before sampling & solid manure should contain both manure and bedding.
 - Collect small samples of manure in a clean plastic bucket periodically or from 5 or more representative areas in the storage as it is emptied.
 - Take multiple samples during unloading if the manure varies considerably from the beginning to the end of unloading and spreading.
 - Keep it as cool as possible but don't use the same cooler or refrigerator for food or beverages!
 - Mix this composite sample completely and send a small sub-sample to the lab for analysis.
 - Send refrigerated or frozen samples in a screw top plastic pint jar. Leave about ½ - 1 inch headspace to allow for expansion if you freeze it or to accommodate gas buildup in transit. PLEASE DO NOT USE ZIP LOCK BAGS FOR YOUR SAMPLE CONTAINER! They usually break open which makes a mess and you'll lose some of the nitrogen, so the results will be affected. It doesn't make the mailman or the folks in sample receiving very happy either! And please, clean off sample containers before you ship them and ship them early in the week so samples are less likely to sit in the post office or the lab over a weekend.
- Include the following information with the sample;
 - Livestock species
 - Type of manure, ie. Liquid slurry, bedded pack, daily spread, etc.
 - Farm Information - name, location, phone, fax, email account number or payment
 - Where and how to send results
 - Analysis requested

4. Analysis requested.

Check with your planner or local NRCS staff to find out what analyses are required. A typical manure analysis will include total nitrogen, ammonia nitrogen (readily available), organic nitrogen (slowly available), phosphorus, phosphate equivalent, potassium, potash equivalent, total solids and density. Other tests, including other macro and micronutrients, ash, pH and nitrate-N are also available on request.

After all is said and done, it's a messy job but someone has to do it! Like anything else, a bit of common sense is the best tool to get the job done right! Just do your best to get a sample that is representative of the manure being spread. This is how you can become connoisseur of your manure!

You can also find detailed guidelines at the following websites.

- http://www.dairyone.com/Forage/services/Manure/manure_sampline_instructions.htm
- Cornell Nutrient Management Spear Program
<http://nmisp.css.cornell.edu/>
- Sampling Manures for Nutrient Analysis
<http://ianrpubs.unl.edu/watermgt/g1450.htm>
- How to Sample Manure for Nutrient Analysis
<http://www.extension.iastate.edu/Publications/PM1558.pdf>
- Manure Sampling for Nutrient Analysis
<http://cru.cahe.wsu.edu/CEPublications/eb1819/eb1819.html>
- Links to many other manure sites in Canada and the USA
<http://www.agric.gov.ab.ca/manure/webs.html>

For more information, contact the Dairy One Forage Lab at 1.800.496.3344 ext. 2172.