

Manure Sampling Instructions for Pennsylvania Feed Management Planners

Virginia Ishler
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1. Use a certified manure testing lab.

The following website lists laboratories that are certified by the Minnesota Department of Agriculture <http://www.mda.state.mn.us/en/licensing/licensetypes/mapprogram.aspx>

This is the only manure analysis certification of laboratories in North America. All of the laboratories have been certified for Total Nitrogen and Total Phosphorus. Many laboratories also elected to become certified for other tests including: Total Potassium, Total Solids, Electrical Conductivity, Copper, Sulfur, and Zinc. As of April, 2008, Pennsylvania has only one certified lab for manure analysis, the Agricultural Analytical Service Lab.

Before submitting samples, please contact the laboratory for instructions. Many laboratories provide sample containers.

- [Agricultural Analytical Service Laboratory](#)
Ann M. Wolf ~ AASLAB@psu.edu
Tower Road, University Park, PA 16802
Phone: 814-863-0841 ~ Fax: 814-863-4540
<http://www.aasl.psu.edu/manureprgnew.html>
- Endorsements: Copper, Electrical Conductivity, Moisture Content, N-Combustion, Ammonium Nitrogen, Phosphorus, Potassium, Sulfur, Total Solids, Water Extractable Phosphorus, and Zinc

2. For dairy and beef cattle, a maximum of 5 groups can be selected under the EQIP program to receive funding.

A group of cattle is considered to be animals of similar age, sex, or receiving the same feed management strategies to achieve specific production goals (i.e. rate of gain, pounds of milk).

Fecal samples for the purpose of making adjustments for the nutritional feeding plans shall come from fresh feces, NOT from storage. Analysis shall be for content of nutrients (specifically, phosphorus). It is recommended that the Standard Manure Test 1 from the Agricultural Analytical Service Lab be selected.

Each animal group needs fecal samples taken for each season (4-times/year). The exception is the first year where there will be the base period and 3 seasons sampled.

3. Sampling procedures

Note: There are several approaches that can be taken to collect feces. It is important that the same approach be used each time samples are collected. Please include in the feed management plan the approach used.

Basic sampling protocols regardless of housing system

- A. Materials needed for sampling include gloves, arm length breeding sleeve, bucket and the lab's sample containers.
- B. Take a handful from each cow and place in the bucket. Mix well to get a representative sample for the respective group.
- C. Fill the sample bottle, leaving ½ inch of air space, label the bottle and fill out the sample information form from the lab.
- D. Include a check or money order for the appropriate amount. If sending samples to the Agricultural Analytical Service Lab, make check payable to The Pennsylvania State University.
- E. Be sure the sample bottle is securely closed and pack it, the sample information sheet and your check in the mailer.
- F. Attach proper postage and mail directly to the lab as rapidly as possible.

Approach 1 - Sampling cows in free stall systems by consultant

- A. In most cases, as you walk into the free stall barn, cows will get up and defecate. Collect the appropriate number of samples as listed under sampling groups of animals. Try to keep bedding contamination to a minimum.
- B. For dry cows and heifers and to keep both people and animals safe, request that animals be restrained. Rectum fecal samples may need to be taken.
- C. **Caution:** Check that there are no bulls in the free stall

Approach 2 – Sampling cows in a tie-stall barn by consultant

- A. In tie-stall barns it may be necessary to take fecal samples from the rectum in order to get the distribution of days in milk.

Approach 3 – Sampling animals by the producer

- A. If the herd is on a routine herd check program and the producer is agreeable to taking fecal samples while animals are restrained, the consultant can explain the basic protocol for taking fecal samples.
- B. It will be extremely important that samples be refrigerated or frozen if they can not be mailed out immediately.
- C. If heifers and cows are on a breeding synchronization program, fecal samples could also be taken at this time.
- D. If at all possible, the producer needs to follow the protocol for “sampling groups of animals”.
- E. It is recommended that the consultant fill out the paper work and take care of getting samples mailed out, unless the producer is willing to do the extra work.

4. Sampling groups of animals

- A. Lactating cows – one group feeding system – one ration for all cows
 - i. Sample 15% of the cows in the group. For example, if there are 60 cows in the group, sample between 9-10 cows.
 - ii. Sample 7.5% of the cows between 70 and 150 days in milk and 7.5% of the cows 151-250 days in milk.
 - iii. Maximum number of cows to sample per group is 20.
- B. Lactating cows – multi-group feeding system – different ration for each group
 - i. Sample 15% of the cows in the group. For example, if there are 60 cows in the group, sample between 9-10 cows.
 - ii. Avoid sampling animals that are very fresh (< 30 days in milk) and stale (>300 days in milk).
 - iii. Maximum number of cows to sample per group is 20.
- C. Dry cows
 - i. Sample either 15% of the cows in the group or at a minimum, 5 cows.
 - ii. Avoid sampling cows that have been dry less than 7 days or are due to calve in 7 days.
- D. Heifers
 - i. Sample heifers that are of similar age and on the same ration.
 - ii. Sample 15% of the heifers in the group or at a minimum, 5 heifers.
- E. Animals on pasture
 - i. Ideally, animals should be restrained and samples taken via the rectum.
 - ii. If animal restraint is not possible, fecal samples need to be fresh and void of insect contamination.

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