

Ensuring Proper Utilization

This lesson will familiarize you with information on soil, manure, and plant tissue sampling and record-keeping needs. These tools are necessary for proper manure utilization. Now that you understand what is in a manure utilization plan, you can use those tools to help determine manure application rates and verify appropriate manure application volumes. *The material discussed here presents general sampling and record-keeping guidance; you should become familiar with sampling and record-keeping recommendations and requirements in your area or state to properly manage your manure and ensure compliance with state regulations.* In addition to maintaining compliance with rules, proper manure utilization saves money by using the manure nutrients in the most efficient manner as determined by manure and soil-testing results. As issues related to land application records and sampling are discussed in this lesson, producers are encouraged to evaluate their own sampling and record-keeping program. This can be done with the aid of the Environmental Stewardship Assessment (see Appendix A) and Regulatory Compliance Assessment (see Appendix B).

Nutrient concentrations vary in most manure. A review of samples analyzed by certified laboratories shows the available nitrogen (N) in manure can vary greatly. For example, in swine lagoon liquids, available N can range from 0.03 to 617 pounds per 1,000 gallons, in dairy slurry the range is 0.1 to 250 pounds per 1,000 gallons, and in broiler litter the range is from 4 to 140 pounds per ton of nonstockpiled litter. This is a broad range of nutrient levels with the maximum and minimum values differing by more than a hundredfold. These numbers should send a clear message: Average nutrient estimates may be suitable for the purposes of developing a manure utilization plan, but these averages are not adequate for calculating proper application rates.

Do not base your application rates on laboratory test results from previous years because nutrient concentrations can change significantly, particularly when the manure has been exposed to the environment. For example, nutrient levels in a lagoon or storage pond can be greatly influenced by rainfall.

Manure should be tested as close to the date of application as practical. Several states require manure sampling within 60 days of any application. Preferably, the sample should be taken as near the application time as possible prior to the manure application. However, if you urgently need to pump down a full lagoon or storage pond, you should not wait until you can sample and obtain the results. Instead, you should sample the day of irrigation. The results can later be used to determine the nutrients applied to the fields and identify the need for additional nutrients to complete crop production.

Those producers who do not test each manure source before or just after land application are faced with a number of questions they simply may not be able to answer: Am I supplying plants with adequate nutrients? Am I building up excess nutrients that may ultimately move to surface waters or groundwater? Am I applying heavy metals at levels that may be toxic to plants and permanently alter soil productivity?

Because environmental damage and losses in plant yield and quality often happen before visible plant symptoms, always have your manure analyzed by a competent lab. Certified labs in your state can analyze manure samples and may be able to make agronomic recommendations regarding the use of the manure as a fertilizer. However, your manure utilization plan or operating permit may require that you use specific state-certified laboratories to satisfy monitoring requirements in your state.

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