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Agronomic Services for Dairy Farms

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Testing services available from the NCDA&CS Agronomic Division provide dairy farmers with meaningful nutrient management information that promotes profitable production. For help in learning how to take and submit samples or to interpret report recommendations, visit the Division's website or contact your local NCDA&CS regional agronomist — www.ncagr.com/agronomi/rahome.htm. NCDA&CS agronomic laboratories are certified by the N.C. Department of Environment and Natural Resources.



Soil Testing — recommended annually for fields receiving animal waste

Routine monitoring helps prevent environmental problems related to excess nutrient application. Three to six months before planting, submit soil samples for analysis. Early sampling allows sufficient time to apply lime and to let it begin working before planting.

Aerial photos or maps make good permanent records of field sample areas. Farm Service Agency maps are ideal for this purpose. Soil surveys by the USDA Natural Resources Conservation Service can also be a guide to changes in soil type. Take note of changes in soil color, texture, slope and cropping systems. Divide fields into separate areas based on these criteria, with no sample representing more than 10 acres.

Once sample areas have been identified, label sample boxes with the correct sample ID (up to 5 characters) and grower name. Walk a random pattern over each uniform sampling area collecting 15 to 20 cores. Sample to a depth of 6 to 8 inches for tilled areas or 4 inches for established pastures and no-till fields. A soil probe is best, but a shovel will work. If the soil is too wet to mix well by hand, wait for drier conditions.

Place each soil core into a clean, plastic bucket. Avoid using metal containers, especially galvanized ones. Thoroughly mix all the cores from the sample area, breaking clumps and removing any large particles of trash. Fill a standard NCDA&CS soil sample box to the fill line marked on its side. Never put soil samples in plastic bags.

Waste Analysis — measures nutrient content of waste to be applied

This laboratory test assesses the fertilizer value of waste by quantifying plant nutrient content and availability. In addition, this analysis identifies potential environmental hazards by measuring levels of nutrients and soluble salts.

Specific instructions for collecting dairy waste samples are available online at www.ncagr.gov/agronomi/pdf/files/dairywaste.pdf. Sampling tools and methodology vary

depending on the waste category. Most dairy waste samples are liquid slurry (code LSD). Other common dairy waste samples include surface-scraped or stockpiled manure (SSD) and composted waste (FCD). For the most accurate results and appropriate recommendations, you must put the correct code on the information form.

Take samples as close to the time of application as possible. Nutrient concentrations can change over time. Timing of sampling is especially critical if the waste has not been protected from rainfall.

As with soil samples, the quality of waste samples is critical. In all cases, take samples that represent the texture, consistency and moisture of the bulk of the waste material to be used. Refrigerate samples that will not be shipped within two days.

Before sampling liquid slurry, it is ideal to mix the waste storage basin thoroughly. If this is not possible, break through the crust and sample from several areas to a depth of 18 inches. Place the subsamples in one large plastic container and mix well. Pour 10- to 16-oz of the slurry mixture into a clean, plastic container, leaving sufficient air space in the container to allow for expansion. The container should be no more than three-quarters full.

When sampling solid waste, always take cores to a depth of at least 18 inches from at least six locations. Combine all cores and mix thoroughly, then put one-quarter of the mixture in a plastic bag.

Plant Tissue Analysis — useful for production of feed and forage crops

Once active spring growth begins, tissue analysis can help identify nutrient deficiencies and/or excesses in a feed or forage crop. Tissue analysis recommendations help correct nutrient problems before they reach a critical stage. Sound plant nutrition will aid in maximizing crop quality and yield.

Sample plants randomly across a field to obtain a representative, composite sample. Generally, the most recent mature leaf will provide the most accurate representation of plant nutrient content. In problem situations, it is best to submit separate samples from good and bad areas for comparison. Put samples in small paper bags, and add a few air holes if the plant sample is somewhat damp.

Submitting Samples to the NCDA&CS Laboratory

Do not package soil, waste and tissue samples together in the same shipping container. Send each type of sample separately—along with the appropriate sample information form(s) (completely filled out) and laboratory fee(s)—to the appropriate laboratory: Plant/Waste/Solution/Media section or Soil Testing section. The most reliable way to ship samples to the lab is via services like UPS or FedEx, using the Agronomic Division's physical address (see front of this flyer).

Soil boxes and sample information forms can be picked up at county Cooperative Extension offices, at the NCDA&CS laboratory in Raleigh or from your local regional agronomist. Information forms are also available online. Test results are posted online soon after completion.

*Thank you for using agronomic services to manage nutrients and safeguard environmental quality.
— Steve Troxler, Commissioner of Agriculture*