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### SOIL SAMPLING PASTURE AND HAY GROUND

Any farmer worth their salt knows the importance of fertilizing a crop for optimal production. With current high fertilizer prices, knowing the fertility of a pasture or hay field is more important than ever.

Soil sampling now, before the ground freezes can help with planning this winter and give time to develop a fertility plan if our soil tests show fertilizer is needed. Hay ground should be the first location to consider testing, as plant material is constantly harvested and moved to another location, slowly depleting of the major nutrients needed for plant growth.

Two other factors to consider are weed control and available moisture during the growing season. Pastures that are weedy may benefit more by addressing grazing practices and controlling weeds rather than fertility. In these situations, additional nutrients are used by the weeds and can make matters worse.

When it comes to production, especially for native grass hay and pastures, moisture is the most limiting factor, not fertility. You can apply all the fertilizer in the world, but doing so in a drought won't help plants grow. Fertilizer applications on dry land areas, especially for nitrogen, should be based on expected moisture.

Once we have a location selected, we can begin sampling. Pull 10-20 cores at a consistent depth of 8 inches for every 40 acres sampled. These samples can be taken in a representative area for the field, or arranged by soil type and topography. Mix samples together and take about a pint's worth out to send off for analysis.

In Nebraska, the main long term fertility focus should look at phosphorus and potassium. In areas of the state with sandy, low organic soils, sulfur should also be included. Finally, keep an eye on soil pH. Differences in soil pH play a big role in nutrient availability. Nitrogen is one element that a test now may not provide beneficial results for. Nitrogen is nearly always used or lost in the year it is applied, so a soil test this fall doesn't help much with planning next spring. In alfalfa fields, nitrogen isn't a concern at all as alfalfa plants can fix their own atmospheric nitrogen. In these fields, digging up a plant or two and checking nodulation can provide some insight to the health of this process. Other nutrients can remain for a few years between applications, so a 2 or 3 year testing rotation is often enough to make decision on.

Before deciding on a fertility plan, the economic value of a treatment should also be considered. Often fertilizing will increase plant productivity and quality, but only up to a point. Dry land fields in areas with limited rain fall may be more limited by moisture than fertility, so will only see a small boost where a fully irrigated field could see noticeable benefits. As such, the actual increase in productivity should be compared with the cost. In some circumstances where fertilizer prices are high, improving grazing practices or finding another pasture to rent may be a better and more economical choice to increase forage available in pastures. Strategic fertilization in hay ground in these cases may be the route to take, only applying much needed nutrients in the areas they are lacking and skipping a broadcast application.

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