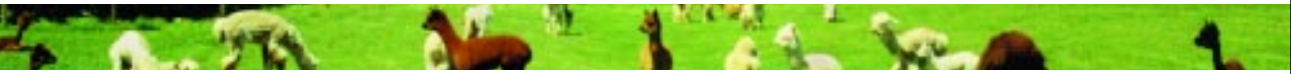
Well-planned barns and pastures, and innovative use of high- and low-tech gadgets can make life on the farm much easier. If you have any helpful "husbandry hints," *Alpacas Magazine* would like to hear from you.

Bill & Sherri Duey



Husbandry Hints

Soil Testing: Get the Scoop on Your Pastures' Nutritional Needs

You will need a clean plastic bucket, a spade or soil probe, and a soil sample test bag.

The soil sampling probe ($35) makes the job much easier.

The probe is pushed into the ground about four inches.

The soil sampling probe quickly removes a perfect soil plug.

As alpaca farmers and ranchers, it is important that you manage your land to grow nutritious pastures and hay fields for your herd. You can improve your ranching operation by testing your soils and then applying the recommended soil management practices. Soil testing is inexpensive, easy to do, and can increase your forage production. Testing may also help save you money by eliminating over-application of lime and fertilizers.

What is a Soil Test?

A soil test is a laboratory procedure that chemically removes the basic elements from a sample of dirt and measures them for their "plant availability." The quantity of these elements is used to determine the formulation and amount of fertilizer needed for your pastures. A soil test also measures soil pH (an analysis of how much acid is in your soil).

Soil tests are easy to do, take minimal equipment, and are inexpensive. There are a number of soil testing laboratories in most states that can supply you with test bags and analysis services. To locate one, use your favorite Internet search engine and search on "soil testing laboratory." You may also be able to get testing services through your local agricultural fertilizer dealer.

Begin your sampling process by selecting a field for sampling. The field should already be managed as a unit and have the same characteristics of vegetation, contour, and usage. Examples would be separated hay fields and individual alpaca pastures.

Equipment needed for soil sampling includes a clean plastic bucket, a spade or soil probe, and a soil sample test bag (request soil sampling bags from your soil testing lab service or fertilizer dealer). If you are taking a lot of samples, a soil sampling probe can be purchased for about US$35 and does an excellent job of pulling soil plugs. The probe is a pipe with a T handle that is pushed into the ground and removes a soil plug when pulled out of the ground.

To collect a soil plug, use a spade or soil probe to remove a "plug" of soil. The plug should be about one to two inches in diameter and about four inches deep. This depth is adequate for sampling pastures and hay fields. Take ten to twenty individual soil plugs at random locations across the field. Then thoroughly mix the plugs in a plastic bucket, insuring that the soil is pulverized into a fine powdery soil. The sample submitted to represent the field will end up being about a two cup mixture of all of your samples from that field.

Be sure to write your name and address, your fertilizer dealer's name and address, and a field identification number on both the soil sample bag and the lab order form. You will also need to indicate the type of test procedure you want the lab to perform. In most cases, this will be a "Regular Analysis: Phosphorous, Potassium, and Acidity (pH) Test". This test costs about $6 per sample. In some areas, a "Complete Test" analysis (which will test for

micronutrients) may be needed. Your soil testing lab can generally recommend if this test is needed for your area. That test costs about $20 per sample.

Soil samples can be taken any time throughout the year, but late summer or fall is a good time to sample. Any lime applications, for example, that are recommended (to adjust the pH level) can then be applied and have time to work before the next forage season. Labs can take several weeks to return the analysis to you, depending on their workload, so plan ahead.

Soil moisture does not affect soil testing, so collect the soil plugs when conditions are best for you to take them. If the soil is too dry, it may be hard to remove the plugs. If the soil is too wet, you may have difficulty mixing the random samples. Samples do not have to be sealed, but insure the samples do not become damaged or mixed before reaching the lab. Sample bags provided by the lab work well and can be packed in a sturdy box to ship to the lab.

Understanding the Results

When the soil sample test report comes back, you should get a cover sheet "Understanding a Soil Test Report" which will define all of the parameters shown on the report. A soil test report will usually recommend how much lime, if any, is needed to properly balance the soil pH. Soil pH indicates how basic or acidic the soil is. The number is a logarithmic function and is a relative measure. A pH of 7.0 is neutral. Battery acid has a very low pH, less than 3.0. Household ammonia is basic and has a very high pH, greater that 10.0. A pH of 6.0 is ten times more acidic than a pH of 7.0. A pH of 5.0 is one hundred times more acidic than a pH of 7.0. Most hay and pastures grow best with a soil pH of 6.0 to 6.5.

A Dash of Lime

Lime is a substance which can neutralize soil acidity. Lime is the "anti-acid" prescribed for soils. No other soil additive provides as many benefits as lime. It raises soil pH and provides a favorable surrounding for important micro organisms in the soil. Most lime used for agricultural purposes is dolomitic type lime and provides calcium and magnesium which are also required for plant growth. Soils that are properly balanced with lime utilize applied fertilizers the very best.

Lime is usually applied to the soil in a large bulk field broadcast spreader pulled by a tractor or in a truck with flotation tires and a spreader bed. The trailers can be rented from a local fertilizer dealer and the trucks are usually operated only by the dealer.

Nutritional Needs

A soil test report will also recommend the amount of nitrogen (N), phosphorous (P), and potassium (K) that needs to be added to the soil for the crop that you indicated on your soil lab test request. This N-P-K formulation for a fertilizer mix is a set of numbers indicating the percent of nitrogen, phosphate, and potash in the formulation. For instance, bagged fertilizer you typically see in a lawn and garden store may be a 10-20-10 formulation. The numbers indicate that the mix is 10 pounds of nitrogen, 20 pounds of phosphate and 10 pounds of potash for every 100 pounds of total bulk product in the bag.

Bagged fertilizer and a hand push fertilizer spreader may be appropriate for small alpaca pens/pastures. Bulk fertilizer carts and flotation trucks are needed for larger pastures and hay fields. With bulk application equipment, the fertilizer mix is formulated at the dealer and mixed in bulk directly into the cart or truck.

Once you have a soil test report in hand, you can contact your local fertilizer dealer. Your fertilizer dealer will be able to help you interpret the N-P-K formulation and lime needs as recommended on your report and calculate how much of each element is needed on your field. Work closely with them to formulate and apply the proper amounts of lime and fertilizer mix on your hay fields and pastures. Soil testing and responsible lime and fertilization programs can greatly improve your alpaca pastures and hayfields. Give it a try and see the results on your own ranch.

Carefully remove the plug and place in the bucket.

Take ten to twenty soil plugs across the field and mix them thoroughly.

Fill the soil sampling bag up to the indicated 'fill' line.

Be sure to include all information required on the sample bag.

Bill and Sherri Duey operate Southern Iowa Alpacas, located 60 miles southeast of Des Moines, Iowa. They have incorporated a number of innovative features into their alpaca ranch and are happy to share their experience in new ranch setup with existing or prospective alpaca owners. You may view their website at www.southerniowaalpacas.com or contact them directly at alpacas@southerniowaalpacas.com.