

Graziers: Get the Most out of Your Land

Using these steps to measure your pasture will help you manage your grazing system efficiently.

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For livestock producers wanting the most out of their pastures, measuring forage dry matter content before and after livestock grazing is the most effective way of managing an intensive grazing system.

Pasture measurement allows a grazier to determine how much forage dry matter is available in a pasture paddock, and once estimated, the producer can calculate how many animals should be grazed for a given period of time.

"Pasture measurement will help the grazier to make decisions about how to best use pasture paddocks and over time will provide a trend of how much forage dry matter is being produced per week," says Rory Lewandowski, Ohio State University Extension agriculture and natural resources educator.

"Using this type of information can help a grazier plan the livestock rotation for periods of rapid growth as well as periods of slow growth," he says. "The trend can provide an early warning system in a drought year and help the grazier plan accordingly."

When to Measure Your Pasture

Lewandowski offers some strategies for taking pasture measurements. One strategy is to measure a paddock due to be grazed on a weekly basis.

"This will give you an idea about your rotation speed," Lewandowski said. "If you consistently measure 2,400 to 3,000 pounds of forage dry matter per acre in paddocks about to be grazed, this indicates the rest period has been long enough.

"If forage dry matter is less than 2,200 pounds per acre, then rotation speed should be slowed down to allow the pasture more time to recover and grow."

Another strategy is to measure the paddock before and after animals are turned out.

"These additional measurements will give you information about how you are managing plant residual, an important part of how quickly a plant recovers from a grazing pass," he said. "Most pastures should be managed so there is 1,200 to 1,400 pounds of forage dry matter after animals have grazed. This will also give you a good idea of pasture growth rate in terms of how much dry matter is being added per acre each week."

How to Measure Your Pasture

The Pasture Stick

To take pasture measurements, the most economical option is to use a pasture stick. The current pasture stick model being used in Ohio has a scale to measure forage height, a scale to estimate forage density, a table of pounds of dry matter per inch for various pasture forage types, information about length of grazing rotations and information about calculating the pounds of dry matter available for grazing.

To use the grazing stick, measure pasture height in 20-30 random areas of the paddock and record those heights.

Then add the measurements to get a total and divide the total by the number of measurements. This will give you average pasture height.

Estimate pasture density using the dot scale on the pasture stick. This allows you to estimate the pounds of dry matter per inch.

Now multiply the average height (in inches) by the pasture density (pounds of dry matter per inch) to get the total dry matter per acre in that paddock.

Subtract the amount of residual dry matter you want to leave in the paddock. This is plant height after grazing times the pounds of dry matter per inch. "If you plan for a 3- to 4-inch residual, 1,200-1,400 pounds is about right," Lewandowski said. "Consider the result of total dry matter minus residual dry matter to be the forage available for grazing."

Figure out the amount of utilizable forage. All of the forage available for grazing will not actually get grazed. There will be waste, Lewandowski said. The smaller the paddock size and the fewer days animals spend in the paddock the higher the grazing efficiency. If animals are moved every 3-4 days, use a 60 percent grazing efficiency to start with, he said.

To do this, multiply the available forage dry matter by the grazing efficiency expressed as a decimal. For example: 1,500 pounds of dry matter times 0.60 equals 900 pounds of utilizable forage dry matter per acre. Graziers also will need to figure out the livestock need in pounds of dry matter per day. "Most livestock will consume between 2.5 to 3 percent of their body weight in dry matter per day," Lewandowski explained. "You'll need to know the average body weights of your livestock."

To do this, multiply the dry matter per day requirement for an individual animal by the total number of animals to graze in that paddock. For example: 30 head of sheep that average 150 pounds, consuming 2.75 percent of body weight in dry matter per day is 150 times .0275 equals 4.1 lbs of dry matter per day. And 4.1 times 30 head equals 123 pounds of dry matter per day that is needed.

Then to figure out what the paddock can support, divide the utilizable forage by the livestock requirement to get how many days of grazing the paddock will provide. For example: 900 pounds of utilizable dry matter divided by 123 pounds of dry matter needed per day equals 7.3--about a week's worth of grazing in this paddock.

Lastly, make any necessary adjustments. "For example, if your goal is to rotate every 3-4 days and in our example we found that one acre is providing 7 days worth of grazing for 30 head of sheep, then provide about 0.5 acre every 3 days," he said.

The Rising Plate Meter

Another option to measure pastures is the rising plate meter, which has a built-in counter.

To use the rising plate meter, record the beginning number on the counter, make 30 measurements, and record the end number.

Then subtract the end number from the beginning number and divide that result by the number of measurements to get an average.

Multiply this average by a conversion factor (currently 107.04) for cool season grass pastures. Use this number as the total forage dry matter acre and follow the steps outlined for the pasture stick to make the remaining animal use calculations.

"The plate meter is quicker, but the cost of this instrument is about \$450, compared to \$5 to \$7 for the pasture stick," said Lewandowski. "It is important for graziers to put some effort into pasture measurement. Pasture measurement can help take some of the guesswork out of allocating pasture forage and it can help reduce the slope of the learning curve associated with management intensive grazing."

For more information on pasture measurement and the instruments used, contact Lewandowski at lewandowski.11@osu.edu.