Pasture Productivity Determination

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How productive was my pasture last year? How does that production compare to previous years? Farmers know their corn and soybean yields, and it is just as important for graziers to know their pasture production since that is a critical aspect of measuring the potential profit from pastures.

Knowing the productivity of pastures helps determine: (1) the number of days of forage that are available on the pasture being grazed, (2) if there is enough forage dry matter in the next pasture to be grazed, and (3) the regrowth rate of forage in the most recently grazed pasture.

How does one measure forage production in pounds of dry matter per acre from a pasture? Let’s take a quick look at some different methods that can be used.

Maintaining a pasture grazing record is one of the simplest ways. A form that lists the months across the top of the page and numbers representing days of the month from 1 to 31 down the left side is handy. The grazier simply records what day of the month livestock are put into a certain pasture or paddock. Every time livestock are moved to a different pasture, one enters the date on the record.

Knowing the animal unit month (AUM) for pastures is another method. AUM is the total amount of forage dry matter consumed by one animal unit (1,000 weight) in 30 days. AUM are typically found in county soil survey books. The AUM are listed by soil type and based on annual total forage produced per acre.

Converting hay yield to pasture yield is yet another method. Pastures may yield 15% to 35% less than the same field cut for hay due to inadequate rest or regrowth period. In addition, livestock may waste another 10% to 30% of the forage during grazing. Thus the amount of forage used by grazing animals may be 25% to 55% less than hay yield.

The most accurate method is to clip and weigh the forage from a small area and convert to pounds of dry matter per acre. This is very time consuming and not practical for producers, but is used by researchers to base other methods upon.
Another method is to measure the “natural” plant height (using a pasture measuring stick) and convert it to pounds of dry matter per acre. This method is not real accurate or consistent due to differences in plant species and plant density. The method works best on dense, uniform pastures.

Another approach is the pressboard or rising plate meter. The distance the ‘board’ or ‘plate’ settles on the forage above the soil line is converted to pounds of dry matter per acre. This method accounts for differences in plant height and plant density. This is a more accurate estimate of forage availability; however, the weight of the board (pounds per square foot) must be correct to use the reference table that converts inches to dry matter. Graziers may need to calibrate the reference table to their operation.

Various computer software programs are available that estimate dry matter production of various forage species. One such program is Illini-Graze (being developed by University of Illinois Extension), a decision aid for use in planning management-intensive grazing systems in Illinois.

The most accurate method of measuring pasture productivity is animal performance. Live weight gain or pounds of milk produced from a pasture or paddock is the true measure of pasture productivity.

In summary, the grazier needs to know the limitation of method(s) being used to measure pasture production. Graziers are encouraged to build a database of pasture yields. Even with all the above methods, don’t forget keen observation as with experience comes knowledge.

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