



Using a Grazing Stick to Take a Forage Inventory

Every Grazer Needs a Grazing Stick

Few things are more important to a grazing operation than managing forage inventory, which involves monitoring how much forage is available for grazing at various points of the season. A forage inventory can help project future forage availability to ensure the farm's seasonal production goals are met. In spring, a forage inventory determines when pastures are ready to be grazed, while in mid-summer it can help to avoid running out of pasture. By managing your forage inventory, you can extend the grazing season as long as possible and maintain a robust, healthy pasture for many years. A grazing stick is one of the most proven tools for taking a forage inventory.

What a Grazing Stick Tells Us

A grazing stick provides an estimate of current forage availability in a particular paddock. Like any tool, some skill and knowledge are needed to use a grazing stick properly. Predicting forage quantity can be challenging due to a high level of variability. An accurate estimate requires careful consideration of climate, soil type, soil fertility, forage species present, and pasture density.

How a Grazing Stick Works

A grazing stick estimates forage yield based on the *height*, *density*, and *type* of forage in a pasture. A yield estimate is only helpful if it is accurate, and that begins with a realistic assessment of forage density. Overestimating available forage can result in running out of pasture or overgrazing, both of which hurt long-term pasture productivity. A grazing stick helps farmers estimate forage density, which, over time, also helps farmers train their senses to differentiate between quality and poor pastures.



Figure 1. Grazing sticks are an important tool for determining when grazing can begin in the spring.

There are four steps to using a grazing stick to take a forage inventory:

- 1. Identify species present in pasture** – it is important to know what you have growing in your pasture; plant species structure has a significant impact on forage yield estimation.
- 2. Estimate forage density** – GrassWorks grazing sticks have a dot graph on one side for visually assessing forage density. Slide the stick into the sward horizontally at ground level and count the dots you can see while looking straight down from a standing position. The stick estimates density based on the number of dots visible. This should be done in conjunction with height measurements, which will be explained in step 3.



◀ UW-Extension publications A3637 and A3787 can help to identify grasses and legumes in your pastures.

▼ Figure 2. The dot scale is one method of assessing forage density, an important factor for estimating forage yield.



3. **Measure average forage height** – forage height is measured by holding the grazing stick vertically in the pasture vegetation. The height is read not at the height of the tallest leaves, but at the height of the densest part of the vegetation. In figure 1, the height reading would not be at 9” where the tallest leaves reach, but at 6 or 7” where the stand is thickest. Height and density measurements should be made at 10 to 20 spots representative of each paddock to come up with an average height and density.
4. **Calculate forage yield** – the chart on the stick (figure 3) provides forage availability estimates based on the average height and density of the sward. These estimates have been calibrated for each species or mix using clipped and dried samples. Subtract 4” (residual) from the average pasture height and multiply that value by the estimated pounds of dry matter per acre per inch. *Residual height is critical to pasture productivity. While 4” is the recommended minimum, leaving more by “taking half and leaving half” is a good rule of thumb.*
5. **Replicate** – this process should be completed multiple times for the entire farm throughout the grazing season. Frequency should increase when favorable conditions result in rapid growth or when dry hot conditions begin to limit forage availability.

An Example:

In Figure 3, a pasture with medium density orchardgrass/red clover has 250-300 lbs dry matter per inch per acre. An average height of 10” equals an estimated available forage of 2500-3000 lbs per acre (10 x 250-300). A 4” residual means only 6” of that is “grazable forage,” equating to 1500-1800 lbs per acre. A 1000 lb animal is allocated 40 lb of dry matter per day (4% of body weight = 2.5% consumed + 1.5% buffer). An acre will feed that animal for 38-45 days or 38-45 animals for 1 day.

Sward Density:	High	Medium	Low
Forage Type	Pounds of DM/inch/acre		
Alfalfa/Grass	250-300	200-250	150-200
Bluegrass Mix + N	350-400	200-250	100-150
Bluegrass/Clover	350-400	250-300	150-200
Brome/Orchard + N	250-300	200-250	100-150
Brome/Orchard + Clover	300-350	250-300	150-200
Meadow Fescue	250-300	200-250	100-150
Meadow Fescue + Clover	300-350	250-300	150-200
Per. Ryegrass + N	350-400	200-250	100-150
Per. Ryegrass + Clover	350-400	250-300	150-200
Tall Fescue + N	350-400	250-300	150-200
Tall Fescue + Clover	350-400	300-350	150-200

Figure 3. Estimated pounds of dry matter (DM) per inch per acre based on sward density for common types of pasture forages.

Putting the Forage Inventory into Practice

Once a forage inventory is complete, the final step is to determine how it influences management decisions. Here are a few common considerations:

- **Spring – begin grazing** when forage available for grazing equals the amount of dry matter needed by all grazing animals for 10-20 days.
- **Mid-summer – avoid running out of pasture** by making sure available forage equals the amount of dry matter needed by all grazing animals for 30 days or more. If it’s less, consider destocking or supplementing with stored feeds.
- **In-season – a paddock can be re-grazed** when the amount of “grazable forage” equals the desired amount of residual. A residual height of 4” means there must be at least 8” available forage to trigger “take half, leave half” grazing.
- **Harvesting – extra forage should be harvested** when the forage inventory estimates enough grazable forage for 30 or more days across previously grazed paddocks. At this point, the next rotation can begin and any paddocks remaining ungrazed can be harvested for winter feed and to maintain high quality forage in those paddocks.

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