

Small Scale Solutions for your Farm

Balancing Animals with Forage



How Many Acres of Pasture Do Animals Need?

The number of head of your pastured livestock herd or flock should be matched to the amount of forages your pastures are producing. Having the acres of forage needed for grazing your livestock while still having your forages with enough height to allow for regrowth is the key to healthy pastures and quality feed for your livestock.

Finding the right balance between your herd or flock size and your available forage is essential to good grazing management regardless of what grazing method you use. We call this the Forage-Animal Balance.

To answer the questions above, you'll need to know:

- The length of your grazing season in days OR you can figure how much you will need for the whole year by using 365 days.
- The average weights of each group of animals from your herd or flock.
- The total number of each livestock in the herd or flock.
- Total available acres for grazing.
- The average yield of your pasture per acre.
- The daily intake rate for livestock. For beef cows for example it is .03, or 3%. This figure is used because livestock need to have 3% of their weight in forage each day (3% intake allows some loss from trampling and we want to be conservative on what the livestock need). This number does vary.

Your local NRCS office can help producers find appropriate utilization rates and animal weights. The concept of the forage animal balance is what we want to demonstrate here.

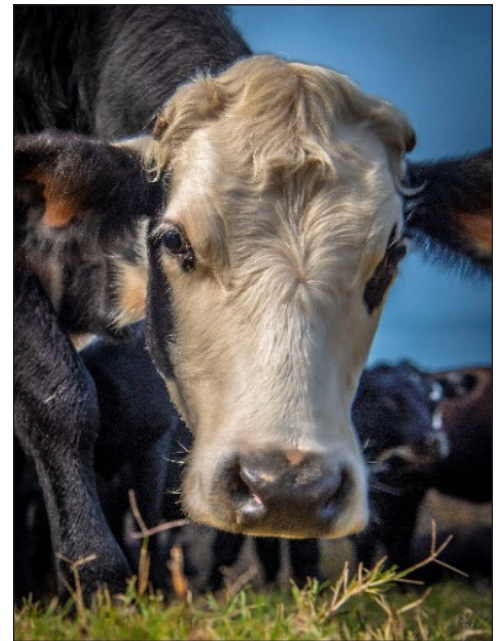
If we plug in our example pasture operations' numbers, we can get an idea if the Pasture Supply and Animal Demand are in Balance.

$$\begin{array}{l} \text{Pasture Supply} \\ 240,000 \text{ Pounds} \times \text{Utilization Rate } 50\% \\ 0.91 = \underline{\hspace{2cm}} \end{array}$$

$$\begin{array}{l} \text{Animal Demand} \\ 360 \text{ Pounds Per Day} \times 365 \text{ Days} \end{array}$$

$$\begin{array}{l} \text{Pasture Supply} \\ 120,000 \text{ pounds} \\ 0.91 = \underline{\hspace{2cm}} \end{array}$$

$$\begin{array}{l} \text{Animal Demand} \\ 131,400 \text{ pounds} \end{array}$$



Managing your grasses will be key to the success of your farm.



Active engagement is critical to achieve forage balance.





Our rule of thumb came close to a balance! Of course, management will be needed such as rotating the animals to different pastures, giving each pasture rest to regrow, and not grazing the plants too short; that may cause plant regrowth to be delayed. If we increase the pasture supply or decrease the animal demand, we can easily be in balance for the year. So now we're done right? Unfortunately, NO. Grass does not grow in equal amounts for each month of the year. So, we will need to break the forage growth down by month for the year. To do this, we will need to know the growth pattern or rate by month for your forages on your location. Your local NRCS conservation planners or grazing specialists can get these for you, but they may also be found at your land grant university, or you can use your own numbers if you have them. Let's look at our example operation's monthly growth rates of our pasture:

Many forage specialists use a rule-of-thumb that it takes about 4 acres to feed a beef cow calf pair for 12 months. This is based on 3% intake and 3-ton average yield per acre. Let's see how the rule of thumb holds up by looking at a typical example.

This is just an example to give you some idea of what to expect when you work with your local NRCS office on the details of a grazing plan. You should not use these calculations for your herd or flock but work with a NRCS conservationist to be specific to your farm's situation and managing decisions for the livestock and the pasture forages.

So, for our example, we answer those first questions with:

- the length of your grazing season in days, we will figure how much we will need for the whole year by using 365 days.
- the average weight of an animal from our beef cow herd is 1200 pounds (includes calf up to 300 pounds).
- The total number of livestock in our beef cow herd is 10.
- the total number of acres available for grazing is 40.
- the average yield of our pasture per acre is 3 ton or 6000 pounds.
- The daily intake rate for our beef herd is .03, or 3%.

How Much Forage Do We Have for the Year?

In our example balancing equation, we call that the "Pasture Supply."

How Much Forage do Animals Need?

We call that the "Animal Demand."

The Forage

Animal Balance of pasture is determined by 4 factors:

PASTURE SUPPLY

$$\frac{\text{Total Yearly Forage Production (lbs)} \times \text{Seasonal Utilization Rate (\%)}}{[\text{Per acre} \times \text{Acres}]}$$

Balance Must ≥ 1 = ANIMAL DEMAND

$$\frac{\text{Intake per day (\% bodyweight)} \times [\text{for the herd/flock} \times \text{avg.} \times \text{length of grazing ind. Livestock wt.} \times \text{season (days)}]}{\text{X no. of head}}$$

This will vary depending on where you are located, forages, soils, and your class of livestock.

This is only a rough estimate and on-site conditions regarding yields and animal demands will dictate the appropriate number of livestock. The example monthly growth table represents tall fescue at 6,000 pounds per acre in the North Carolina Piedmont area.

Jan	1%	Jul	13%
Feb	4%	Aug	12%
Mar	12%	Sep	6%
Apr	14%	Oct	-3.0%
May	17%	Nov	2%
Jun	15%	Dec	1%



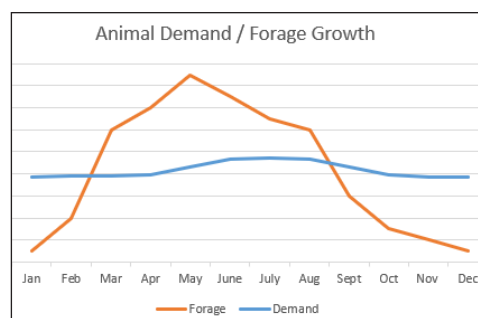


Now let's compare that to the amount of our animal demand per month (used 30 days for a month). The orange line represents forage growth. The blue line represents typical spring calving cow dry matter needs. The orange line that is below the blue line represents where forages are lacking. This time frame can be covered, forage wise, by adding stockpiled forages, crop residue, annual forages, and hay or other forage feeds. Surplus during the peak forage growth months can often be utilized during the deficit periods.

Putting it All Together:

NRCS conservation planners can help you get the detailed numbers for your specific operation. The monthly forage balance sheet gives you a fair idea of what to expect during the year. You can use information like this to plan your management activities. For example, you can stockpile part of a pasture or cut it for hay when you have a surplus and use it during the months you have a deficit, such as in the winter. You will also need to keep your animals off the pasture during the winter when the grass is not growing or growing very slowly. Overgrazing at this time

can slow down spring growth or, if done for long periods, will severely damage your pasture. In our example above, we could probably graze until mid-October. Looking at the height of the forage is the best way to decide when to start and stop grazing. Remember, the forage balance sheet is an estimate. The yields will vary each year, so you should be prepared for a drought or an early freeze. You can also revise the information each month as your animals change weight or change in number during the season. Getting the proper balance of animals and forage is the foundation to good grazing management.



Technical and Financial Assistance

Whether you measure your farm in terms of feet or acres, your local Natural Resources Conservation Service (NRCS) office has experienced conservationists that can help you develop a Conservation Plan to conserve, maintain, and restore the natural resources on your land and improve the long-term health of your operation.

There is no charge for our assistance. Simply contact your local office to set up an appointment. You may also be eligible to receive financial assistance. Your NRCS office will explain any programs that are available so you can make the best decision for your operation. All NRCS programs and services are voluntary.

For More Information

Visit the Natural Resources Conservation Service or visit farmers.gov/service-locator to find your local NRCS office. You can also check with your local USDA Service Center, then make an appointment to determine next steps for your conservation goals.

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