

Forage Acreage Needs Calculator

Joe Lawrence

Understanding and managing forage inventory needs is critical to a dairy farm to assure both adequate quantities and qualities of forage to meet the needs of various animal groups on the farm. A number of methods are in use to help determine the number of acres needed to support the forage needs of a dairy herd. The [Forage Acreages Needs Calculator](#) presented here offers a few important factors that should be considered to accurately determine acreage needs, most notably the ability to account for forage shrink losses and desired carryover.

This article provides considerations on how to best utilize this or other forage inventory calculators.

Animal groups

Each group of animals on the farm has different forage needs at different inclusion rates. Accurately identifying the number of animals, quality needs and feeding rates for each group is useful in both determining acreage needed and planning out storage strategies to best utilize each forage for the intended group of animals. See [Strategic Forage Storage Planning](#) article.

Yield

Accurate estimates of yield are critical to acreage planning. While a number of variables impact the annual yields of forages, it is critical to use farm-specific data available to determine the most accurate estimates of yield possible. If there is great uncertainty around yields, work with CCE or other support professionals to implement strategies to gain better data on yields.

Forage shrink

Reducing forage shrink has been a focus of many farms but some level of shrink from harvest to feedout is unavoidable and it is critical to account for the impact this has on acreage needs. For fermented forages, it is very difficult to reduce total shrink losses below approximately 10 percent but unfortunately this number can be much higher. Similar to yields, a farm needs to take a hard and honest look at current shrink losses while also making plans to more accurately monitor and reduce these losses.

It is feasible to achieve lower shrink numbers for dry hay; however, these numbers can also be very high depending on storage and feeding systems. Studies have found 20 to 35 percent shrink in dry hay stored outside and uncovered. Other studies have reported feedout losses (on top of storage losses) up to 14 percent when dry hay is fed outside and not well confined with in a feeding ring or other form of feed manger.

Carryover

Carryover is important to both assuring adequate supplies of forage as well as its role in forage quality and diet consistency.

Planning for some level of carryover is helpful to maintain diet consistency and mitigate any annual fluctuations in forage yields due to weather challenges, unexpected changes in acreages, changes in forage quality or other hard to manage variables. The level needed may vary by farm.

Complete fermentation offers a more stable feedstuff that is desirable to maintain diet consistency. For hay crop silage six weeks of fermentation prior to feeding is desirable. For corn silage, in addition to allowing time for complete fermentation, it is well documented that starch digestibility continues to improve for a minimum of three to four months after ensiling. Maintaining 90 to 120 days of corn silage carryover is highly advisable to optimize the forage quality of a new crop prior to feeding.

It is important to recognize that the number of days of carryover used in calculating acreage needs will fluctuate from year to year based on existing inventory. When using the calculator, if starting with zero inventory then it is advisable to use approximately 42 days for hay crop silage and 120 days for corn silage. If adequate carryover of each forage is already present then zero days of carryover can be used in the calculator, as one year (365 days) of forage will be adequate to maintain inventories.

For this step it is important to have a sound understanding of current inventories and usage rates. Information on various methods for inventorying forage can be found in this article [Inventorying Forage](#) and you can work with farm advisors to calculate these values.

A planning tool

This calculator can also be used to better understand how changes to the farm will impact forage needs.

- What happens if you expand mature cow numbers?
- What happens if you reduce youngstock numbers to better match herd size?
- What impact will improving management to reduce shrink have?