

Managing perennial pastures for finishing

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Finishing cattle on pastures requires a consistent supply of appropriate quality forage for as many days of the grazing season as possible. Geographical location and availability of soil moisture are the two primary determinants of pasture-finishing opportunities using perennial pastures. Grazing management is the primary determinant in how effective your finishing program will be. There is no wonder-forage that automatically guarantees animals will finish well on your pasture.

Pasture-finished beef usually targets a finish level of USDA High Select or greater to ensure beef will provide a consistently pleasant dining experience. This degree of finish requires animals to be gaining at least 2 lb/day as they near maturity. Animals should be gaining at this rate for a minimum of 60-90 days prior to harvest. Typical cow-calf pasture and grazing management will not achieve this target finish.

Standard feed tables give the minimum requirements for 2 lb ADG to be about 61% TDN and 10% crude protein. This is based on controlled feeding studies and requirements in real-world field situations is somewhat higher. Keeping pasture forage above 65% TDN and 12% CP provides consistent finishing quality forage. It is very easy to keep CP levels above the 12% requirement in cool-season pastures. Energy content is much more challenging. In warm-season pastures, CP levels can become limiting as grasses approach maturity.

Most perennial pastures have the capability of producing finishing quality forage for at least part of the growing season. Location dictates when the optimum finishing window will be for a particular forage. Strategic grazing management can extend the effective finishing window for most forages. Always remember it is the forage the animals are allowed or forced to eat that determines their dietary intake, not just the analysis of what's standing in the pasture.

Because energy is usually the limiting factor in pasture-finishing diets, our management needs to focus on maintaining high energy intake by grazing animals. Some forages are inherently higher in energy than others. Cool-season annuals are usually the highest energy plants available followed by cool-season perennials. Warm season annuals can be higher energy than cool season perennials during part of their growth cycle, but decline rapidly in energy with approaching maturity. Warm-season perennials are usually considered to be lowest on the energy scale. Within each of these groupings there are individual species and cultivars within species that contain higher energy levels.

Legumes can provide higher levels of digestible energy than grasses over much of the growing season. Legumes also provide much higher protein levels. When pastures become legume dominant, it is very easy to have excess non-protein N levels in the rumen and

bloodstream which results in reduced animal performance as the energy:protein balance becomes increasingly skewed. Finishing pastures should not exceed 50% legume content. Some of the less desired 'grassy' flavor that some pasture-finished beef exhibits is due to chemical compounds found in legumes, not the grass.

Long-term sustainability of pastures demands we rely more on legume-fixed N and less on synthetic fertilizer N so we do need to maintain a minimum amount of legumes in pasture also. The required legume level for meaningful N fixation is about 30% so we need to be managing for a target range of 30-50% legume in the pasture.

Among cool-season grasses, perennial ryegrass (PRG) is generally considered the highest energy grass. If you can grow PRG in your environment, it is an excellent choice for finishing pasture. It takes less management to finish cattle on a forage that is naturally high in energy. Unfortunately, PRG does not do well in many continental climates where summer heat and drought pervade and we are forced to use lower energy grasses along with legumes.

There is a good deal of variation in the energy content of warm-season grasses and cultivars. As an example, Tifton 85 bermudagrass was selected for increased digestibility and animal performance. It consistently produces animal gains well above Coastal bermudagrass even in midsummer. Selecting the right variety can significantly extend finishing opportunities where growing conditions dictate primarily warm-season grasses as the base pasture.

Grazing management becomes increasingly more important for finishing as the inherent energy content of forages is lower. Our challenge is to keep energy intake high across a range of growing conditions. Forage intake on pasture is controlled by the time the animals spend grazing, how many bites they can take, and the size of those bites.

Because ruminant animals must balance their daily activities among grazing, rumination, and rest, there is a limit to how many hours they can spend grazing. The better the pasture conditions, the fewer hours they must spend grazing. Higher energy forage requires less time spent in rumination, so they can spend more time grazing and increase total daily energy intake.

When pasture conditions are ideal, animals take fewer bites because every bite contains more mass. As pasture becomes shorter, they must take more bites every day. At some point, intake from a lot more short bites becomes less than the volume of fewer big bites and total energy intake is lowered. Plus they are expending more energy to take those added bites.

The one factor we try to manage is bite size. We do this primarily by regulating the forage mass in front of the animal at all time. It is easy to tell when a pasture is ready to be grazed again. Almost every grazier recognizes good pasture as they let cattle to a new paddock. In our work at U of Missouri, we found about 23% of grazing intake was explained by pre-grazing pasture mass. Not so many graziers recognize when cattle should be moved off a paddock even though it is a more important factor in determining performance. We found post-grazing residual accounted for 82% of the variation in intake.

There are two basic strategies for maintaining high rates of gain on pasture. The first is to use a relatively low stocking rate with continuous grazing. Cattle have the opportunity to selectively graze throughout the season and can generally select a diet of adequate quality for the necessary gains. The problem with this approach is output per acre is too low to begin paying the bills. As stocking rate increase, individual performance declines and cattle may not achieve the target finish.

Intensive management of forage allocation is the second strategy. Many producers attempting pasture finishing move cattle to a fresh pasture every day. This should ensure fresh, high quality feed every day. This approach works well as long as adequate post-grazing residual is being left behind. Remember, what you leave behind is nearly 4X more important for determining intake (82% r^2 vs. 23% r^2). If your cattle are out of grass 8 hours into a 24-hour grazing period, they will not perform satisfactorily.

To be an effective grazing manager and maintain high rates of gain on pasture, it is critical to be constantly monitoring pasture conditions. Do not think just because you moved the cattle this morning that they have all they need to make it to tomorrow morning's move. This is the most common and most significant failure I see on the part of graziers whose cattle are not making grade.

If you are using grazing periods longer than a single day, the risk of inadequate nutrition on subsequent days in the grazing period increases. The most difficult pasture rotations to manage and achieve acceptable gains are those in the 4-10 day range. Periods of these durations allow greater and greater selective grazing to where the cattle cream the pastures in the first few days and then end up eating at maintenance level late in the grazing period. This roller coaster diet does not support consistent, high rates of gain.

Pastures for finishing can not be utilized to the same extent we typically think of grazing cow-calf pastures. The pasture canopy is a multiple strata of forage quality with the highest energy bites located high in the canopy and each lower bite being lower in energy. Because cows have lower nutritional requirements, we can force them to eat deeper into the canopy. Particularly with warm-season grasses, we may only have finishing quality forage in the top 25-35% of the canopy. Forcing finishing animals to utilize more than this will depress performance.

Summary:

Always choose the highest energy forages you can grow in your environment for a finishing program. But remember, planting a high-energy species that won't survive in your environment will not be profitable.

As a general rule, how you manage the pasture is more important than what is growing in the pasture when it comes to finishing cattle. It is absolutely critical to maintain a high rate of daily forage intake to ensure consumption of adequate energy to support the rate of gain the cattle need to meet the finish target. Closely monitor post-grazing residual for effectiveness.