

Getting the Most Quality Out of Your Pastures

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Pastures are the staple feed in grazing systems whether the goal is milk, beef, wool, or equine performance. Every farm is different but the goal is the same – to obtain the most quality possible while maintaining livestock in good body condition.

When looking at pasture quality, we consider the pasture potential to produce the desired animal response. If grazing on a dairy farm, the measure of a good quality pasture will be "milk in the tank;" for a beef operation, "pounds on the scale" or "calves on the ground;" and for horses, the measure would be performance. With few exceptions, highly digestible forages are consumed in greater amounts than forages of lower digestibility. Nevertheless, forage quality is affected not only by factors impacting nutritive value (digestible nutrients or protein) but also voluntary intake. If animals don't eat the forage, it doesn't matter how good the nutritive value is. The question becomes, what factors affect forage quality and how can we improve upon them? The following are important factors affecting pasture forage quality.

Plant species. There are over 40 species producing most of the cultivated forages (grasses, legumes, and other broadleaves such as brassicas), not including the different varieties existing for each. These plants vary significantly in quality. Legumes are higher in quality than grasses, and cool-season grasses are higher in quality than warm-season grasses, but within each there are also differences. Forage fescues in the northern U.S. have become very popular and valued for their use in managed grazing. Meadow fescue, a cool-season grass brought to the U.S. from southern Europe in the 1800s, has excellent forage quality with the combination of high palatability and high cold tolerance. Tall fescue is productive but not as palatable. Cool-season grasses average 13% more digestibility than warm-season grasses. Having mixtures allows the balancing of quality throughout the season.

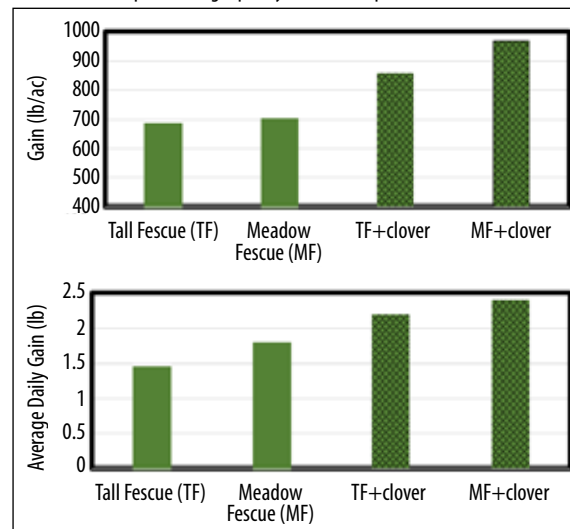
Pastures with mixtures including grasses and legumes will have lower fiber and higher protein than grass monocultures. Increasing legumes in the mix increases nutritive value by improving protein and mineral content. An example of the benefits of grass-legume mixtures can be seen in Figure 1, showing the results from a stocker steer performance trial. Wisconsin researchers looked at average daily gains and gains per acre of stocker steers grazing grasses only or in mixtures with white clover. Results illustrate the superior forage quality and animal performance of grass/legume combinations compared to grass-only pastures and the need for productive legumes as part of the pastures. Moreover, mixtures including plants from the brassica family, such as radish, chicory, and turnips, all having thick root systems, provide a quality boost and other benefits due to their high digestibility.

Maturity. Grazing pastures before plants are fully mature (fully flowered) is fundamental in grazing management and cannot be overstated. Once we know what forage mix is in the pasture, maturity is the most influential factor affecting quality. The more mature the forage, the lower the livestock voluntary intake. Often cool-season grasses will have digestibilities >80% during the first 2-3 weeks in spring, but as stems begin to develop, quality declines. Maximizing quality and expressing species potential often means grazing before the seed head is present. Graze at mid- to late-boot stage for most cool-season pasture plants, including small grains. In the case of perennial grasses (e.g., ryegrass, orchardgrass, brome grass), regrowth quality is best captured at a height of 10-12". Rotational stocking allows you to control forage maturity. By allowing a rest period, long enough for the plant to recover before the next grazing, you are also making sure the plants are replenishing their reserves.

Pasture nutrition. Proper fertilization or amendments, following soil testing recommendations, ensure the right pH is maintained for the persistence of legumes in the pastures. Nitrogen fertilization in grass pastures can substantially increase forage crude protein levels in addition to yield.

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Figure 1. Effect of white clover (40% inclusion) in grass pasture on Gain/Acre (top graph), and Average Daily Gain (bottom graph). Adding legumes demonstrates superior forage quality and animal performance.



Adapted from University of Wisconsin; available upon request.

Figure 2. Pastures grazed at proper maturity allow for excellent quality, maintaining cattle in good body condition. Pasture location is near Cottage Grove, MN, during mid-September.

