



Protein important for optimum forage utilization

By STOCKADE Brands

Ruminants (cattle, sheep, goats, etc.) have the unique ability to utilize materials which are undigestible by humans (grasses, forbes and other roughages) and convert them into highly nutritious food for human consumption. This is made possible by the symbiotic relationship between rumen microbes and the ruminant. The ability to convert inexpensive, underutilized roughages into high quality meat and milk is the main advantage ruminants have over other commercially raised livestock (pork, poultry, etc.). Given that forages are among the least expensive feeds available, it goes without saying that anything we can do to maximize forage intake and/or utilization is going to positively affect economic returns.

Unfortunately, not all forages fed to ruminants are going to be of the highest quality. Unfavorable weather can set back hay harvests resulting in over-mature or rain-damaged forages. In general as a plant matures it converts from a vegetative (leafy) state into a reproductive (stemy) state. When a plant is in the reproductive state the plant's nutritional resources are focused on producing reproductive structures (flowers, stem, seeds, etc.) instead of leaves. Nutritional quality decreases due to an increase in indigestible fiber (stem) and decreased nutrient content (less leaves). The total loss of quality is dependent on the type of forage. Grasses mature faster than legumes such as clover or alfalfa. Thus nutritional quality of grasses such as Bermuda, Orchardgrass, Prairiegrass or Fescue drops off faster than that of legumes such as Clover or Alfalfa. Indicators such as stem size and stem softness as well as the presence of seed heads or flowers can help to gauge forage maturity. Hay containing large amounts of mature seed heads will be of low quality.

When it comes to bulky, high-fiber, low-quality forages, intake is limited by the amount that can fit in the rumen at one time. The faster the bulky forage can be digested and moved out of the rumen into the lower gastrointestinal tract (rumen turnover), the faster more forages can be consumed. Quicker rumen turnover time is advantageous in that more nutrients can be processed by the animal in the same amount of time. More nutrients mean more building blocks, thus improving overall animal performance.

Protein is key to optimal fiber digestion and intake. Ruminally available protein is a limiting factor in fiber fermentation. Remember, the reason low quality forages are lower in nutritional quality is that they contain higher amounts of fiber. Recall that in feeding a ruminant, one is actually providing nutrients for the rumen microbes. Protein is a key component for microbial adhesion to fiber which is needed to begin the fiber digestion process. Protein is also needed for the enzymes responsible for breaking down fiber. Additionally, inadequate dietary protein depresses animal performance, in turn, depressing appetite which further hinders animal performance. For all of the stated reasons, protein supplementation improves forage digestion and increases forage intake.

Just as you and I like three regular meals and between meal snacks throughout the day instead of one huge meal, rumen microbes respond better to small regular doses of protein rather than slug feeding once a day or less frequently. Research repeatedly shows that regular daily supplementation of protein yields better results than less frequent protein supplementation. Studies conducted at Kansas State University reflect this. In one study, reducing supplementation frequency resulted in cows losing more weight during the winter. In another, daily supplementation was shown to improve forage intake and digestibility as opposed to twice a week supplementation.

Research shows that it doesn't take much protein to enact a positive influence. Supplementation with limited amounts (less than 2 pounds) of a high protein supplement increased digestibility and intake of lower quality forages in numerous studies.

When it comes to providing supplemental protein to cattle for the purpose of stimulating forage utilization and intake, there is no better method than the use of self-fed **STOCKADE® Stock Lix®** poured blocks. Highly palatable STOCKADE Stock Lix quality supplement blocks result in cattle consuming small, regular doses of ruminally available protein throughout the day, every day. This continuous delivery of protein to rumen microbes results in optimum fiber utilization and helps improve rumen turnover.

STOCKADE Stock Lix poured blocks are weather-resistant and can be used under even the harshest winter conditions. These blocks don't require special feeders and will not blow away or spoil as opposed to commodity supplements like soyhull pellets, cubes or dried distillers' grains. Just roll them off of the truck bed or trailer and forget them. These highly palatable protein supplement tubs are also an excellent source of magnesium to aid in the prevention of grass tetany in early spring pastures.

In summary, dietary protein is a key factor in the digestion and intake of low quality forages. Research confirms that regular, daily intake of even a small amount of protein helps aid forage digestibility and increase rumen turnover rate. Self-fed, STOCKADE Stock Lix poured blocks deliver 1 to 2 pounds of supplementation daily in a convenient, weather-resistant, no-waste form. STOCKADE Stock Lix poured blocks are available in multiple formulations to allow the greatest amount of flexibility for cattle producers.

Call us at 800-835-0306 for more information or go to your local STOCKADE dealer and ask for STOCKADE by name!