



From Forage to Profit: The Science of Protein Supplementation with Roughage Buster

As forage quality declines in late summer and fall, grazing cattle face a critical nutritional challenge: the drop in forage crude protein content creates a nutrient deficit relative to the cow's crude protein requirements. Dormant grasses and crop residues are typically low in crude protein, which limits rumen microbial activity and reduces the efficiency of fiber digestion. This can lead to poor body condition, reduced milk production, lower weaning weights, reduced reproductive performance, and increased winter feed costs.

The most cost-effective strategy to minimize range cow production costs and maximize production is to maximize forage utilization and keep cows in moderate body condition year-round. A cow's body condition can be economically maintained by maximizing forage utilization through proper supplementation, which can result in greater profit potential. Getting the most value out of forages year-round is crucial to the viability of brood cow operations.

Protein supplementation during this period is not merely a nutritional adjustment—it is a strategic investment in herd health, productivity, and profitability. ADM's Roughage Buster offers a scientifically backed solution that enhances rumen function and maximizes the value of low-quality forage. Roughage Buster can be fed free-choice, reducing the amount of iron and fossil fuels required to provide supplemental nutrients to grazing cows.

THE ROLE OF PROTEIN

Protein is necessary to replenish turnover of body tissue, including muscle, gastrointestinal tract lining, blood, hair, and hooves. It is usually the first limiting nutrient for cattle

consuming low-quality forages. Rumen microorganisms require protein to ferment fiber and other feedstuff components. When forage falls below around 7% crude protein, microbial activity slows, and cattle cannot efficiently utilize available fiber. This leads to energy deficits and poor performance.

Lack of protein in a brood cow's diet can lead to:

- Lower body condition score
- Higher feed costs
- Reduced conception rate
- Weak calf
- Lighter weight calf
- Poor health
- Reduced milking ability
- Low quality colostrum

NON-PROTEIN NITROGEN (NPN) SOURCES: UREA VS. BIURET

Traditional protein supplements often use urea, a fast-release NPN source. While effective under controlled conditions, urea can pose risks when management is not on par, especially in free-choice feeding scenarios.

Feeding higher levels of urea with high-forage diets is not as effective because much of the urea is not utilized due to the rapid ammonia release rate of urea. This rapid release

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of ammonia into the rumen from urea can exceed the rumen microorganism's ability to utilize the ammonia and results in more ammonia being converted back into urea by the liver and excreted. Rapid ammonia release can also cause ammonia toxicity, which can lead to death.

Biuret, the primary protein source in Roughage Buster, offers a superior alternative. Biuret is a very safe source of NPN and has a rumen ammonia release rate similar to soybean meal (Figure One). Biuret can be utilized with forage-based diets with greater efficacy than feeding higher levels of urea.

BIURET MODE OF ACTION

- **Slow-release nitrogen:** Biuret releases ammonia gradually in the rumen, providing a sustained ammonia supply.
- **Stable microbial support:** Continuous nitrogen availability enhances microbial protein synthesis and fiber digestion.
- **Reduced toxicity risk:** The slower release of ammonia minimizes the chance of ammonia spikes, making it safer for free-choice feeding.

ROUGHAGE BUSTER: NUTRITIONAL AND ECONOMIC ADVANTAGES

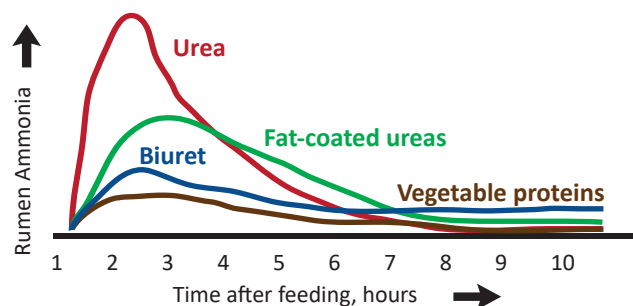
ADM's Roughage Buster is formulated to deliver targeted protein supplementation with added vitamins and minerals.

Its benefits include:

Nutritional Profile

- **Biuret:** Supports microbial activity over time,
- **Balanced mineral package:** Includes phosphorus, calcium, and 100% chelated trace minerals for metabolic and reproductive health,
- **Enhanced fiber digestion:** Highly soluble cobalt further supports greater microbial activity, further increasing fiber digestion and energy extraction,
- **Vitamin fortification:** Elevated levels of vitamin A to 3X NRC requirements (with proportional vitamins D and E) to correct deficiencies in mature forages,
- **Palatable carrier:** Encourages consistent intake, even in variable weather.

FIGURE ONE Rumen Ammonia Release Rates



Economic Impact

- **Improved forage utilization:** Cattle extract more energy from existing feed resources, reducing the need for additional energy supplementation or feeding for body condition increases later in the feeding season.
- **Low feeding rate:** Decreases per cow supplement cost while increasing return on investment.
- **Better body condition and fertility:** Leads to healthier calves, fewer open cows, and lower vet costs.

CONCLUSION: NUTRITION AS AN INVESTMENT

Feeding protein during late summer and fall is not just about meeting nutritional requirements—it's about investing in your herd's future. ADM's Roughage Buster provides a scientifically sound, free-choice, economically smart solution that turns low-quality forage into high-value performance.

By supporting rumen health, improving feed efficiency, and reducing risk, Roughage Buster helps producers achieve better outcomes—because smart nutrition is a smart investment.

GET RESULTS... TALK TO OUR NUTRITION EXPERTS TODAY

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