



Roughage Buster® Get more out of your forages.

1

Forage's protein content drops to 7-9% in late summer and 6% or less after the first frost. When protein drops below 10%, rumen microbes begin to starve for nitrogen, which can result in inefficient utilization of forage, with less nutrients available for maintenance of body condition, milk production and reproduction.

2

Roughage Buster is designed to fill the nutritional gaps that forage lacks. Providing a small amount of a high-protein supplement can significantly increase available energy to cattle. **Roughage Buster's strength lies in its unique rumen degradable protein source Biuret**, ADM's exclusive non-protein nitrogen (NPN) source that is safer than urea and more affordable than other protein sources. In addition to protein, Roughage Buster supplies macro and micro minerals along with vitamins A, D and E. Feed additives to promote health and performance are available in specific products.

Roughage Buster products are suited for cattle consuming mature or winter pasture/range forages or fed low-protein forages.

3

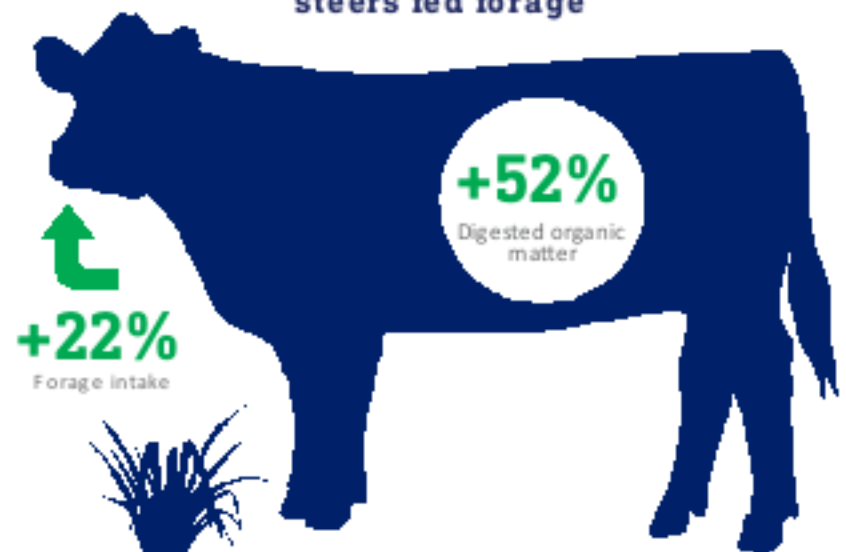
Effect of Biuret on steers fed forage

Biuret is gradually degraded in the rumen for microbial needs. Ammonia is slowly released from Biuret at a release rate similar to vegetable proteins, which supplies rumen microbes with a sustainable, continuous supply of nitrogen to fuel microbial digestion of forage, releasing more energy for growth, lactation, reproduction, and maintenance of body condition.

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Your bottom line will benefit. Roughage Buster delivers a high return on a low investment.

Effect of Biuret on steers fed forage



Source: Loast et al, Kansas State University

Benefit of Biuret

Protein nutrition for ruminants requires more than simply providing a source of crude protein. Supplementing with ADM's exclusive biuret protein source in Roughage Buster provides a source of slow-release ammonia-nitrogen over several hours, better fueling the rumen microbes' task of breaking down forages (Figure One). This action releases energy, boots the microbial population and increases forage intake which results in optimal animal performance.

Unlike the high amount of urea found in other supplements, biuret has an ammonia release curve similar to vegetable proteins (Figure Two), supplying rumen microbes with a sustainable, continuous supply of nitrogen to fuel microbial digestion of forage, releasing more energy for growth, lactation, reproduction, and maintenance of body condition. This means cattle fed Roughage Buster on high forage diets can make more efficient use of the forage.

Minerals Matter

Late season forages can lack essential nutrients. Matching mineral requirements to forage supply and cattle needs is a juggling act to meet physiological demands.

Roughage Buster ...

- minimizes mineral antagonisms,
- accounts for the differing mineral needs of the rumen microbes and the cow,
- delivers proprietary cobalt to enhance rumen fermentation,
- utilizes 100% organic chelated trace mineral to support the animal's health, well-being and performance.

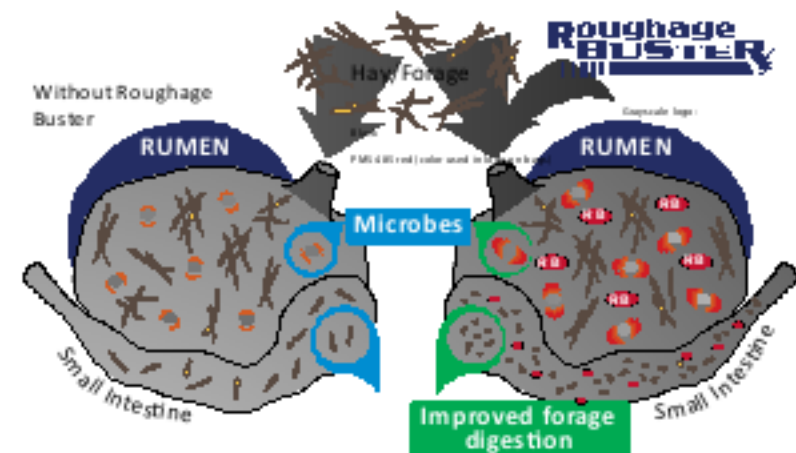
Roughage Buster is specifically formulated to take these factors into account without hampering mineral availability, rumen function and animal productivity. Roughage Buster provides the right amount of available minerals in the most cost-effective manner possible.

Get Results

Connect with an ADM Beef Specialist today to put Roughage Buster to work in your operation.

FIGURE ONE Stimulating microbial activity.

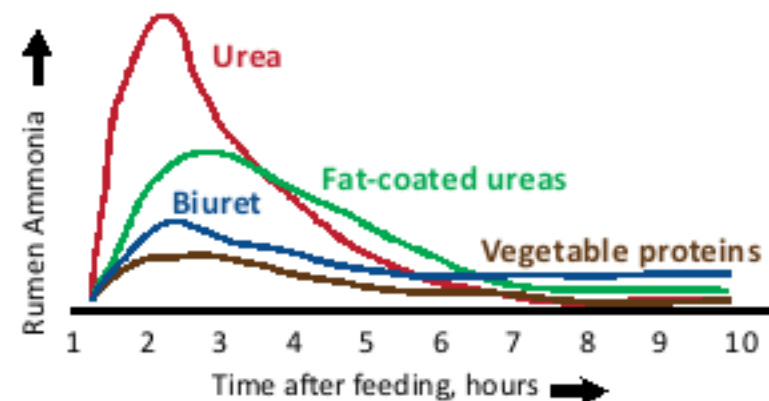
FIGURE ONE Stimulating microbial activity



When **Roughage Buster** is added to the diet, the activity of the microbes increase and may result in **50%*** more TDN supplied to the animal.

* Up to 50% improvement can be seen depending on forage quality and management scenario.

FIGURE TWO Rumen Ammonia Release Rates



Roughage Buster

- Designed for free-choice feeding
- Provides vitamins and minerals lacking in mature forages
- Available in range of varying crude protein contents and product forms (block, tub, cube, loose mix)
- Formulations are also available with IGR for horn fly population control and Endo-Fighter® to help counter the harmful effects of fescue toxicosis