

STARCH LEVELS OF DROUGHT STRESSED CORN SILAGE

Corn plants grown under low moisture conditions can have reduced levels of grain. Fewer ears and the failure of corn ears to fully fill out with grain cause this. The resulting corn silage can test below normal for energy and starch. Feeding this corn silage to lactating dairy cows can be frustrating since the total ration can be low in starch and overall energy resulting in reduced milk production, increased body weight loss and difficulties in obtaining conception.

A review of laboratory analysis of numerous corn silage samples conducted by Dr. Will Hoover at the University of West Virginia revealed a wide range of starch values for corn silage samples. The lowest value for starch tested was 12 % for high oil corn silage and the highest value was 40 %. The majority of the corn silage samples (not high oil) tested between 28-35 % starch.

Sugar and starch are relatively similar. The sugars in cane molasses and condensed whey are disaccharides and contain two basic units of glucose for molasses and a unit of glucose and galactose for whey. Starch consists of chains of glucose units. In the rumen of the cow, sugar and starch are degraded to their basic components and then further digested into volatile fatty acids that are utilized for milk production, growth, butterfat and other functions.

Thus, rations that are low in starch can be improved by the addition of sugar due to the similarity

Liquid sugar blends make a great addition for dairy cow rations containing drought stressed corn silage. The liquid supplement provides energy and palatability to the overall ration. Increasing energy density of the ration while improving feed intakes can improve the overall energy status of the cow. This improvement in overall energy status can result in increased milk production, reduce body weight loss and improve breeding efficiency.

The question arises if a ration is low in starch than why not just feed more corn? Indeed, increasing corn is an option, however, substituting a liquid supplement with sugar is often times a better choice. High levels of corn in the diet of dairy cows have been shown to increase the risk of rumen acidosis resulting in reduced intakes, incomplete digestion of feed nutrients and inconsistent feed intakes. Substituting liquid sugar for a portion of the corn can result in a higher rumen pH and improved digestion. Research has shown that rumen ammonia is more efficiently utilized with dietary sugar levels of 5-6 % of total ration. Research has also demonstrated a positive response in milk butterfat percent in cows supplemented with sugar. Sorting is another major concern for today's high production cow. Increasing corn grain can encourage sorting while adding a liquid feed to the TMR can make it more difficult for the cow to sort feed particles.

Current guidelines for total TMR on a dry matter basis include 24-25 % starch and 5-6 % sugar. Balancing the ration based on these and other accepted levels can greatly improve the profitability of the herd.