ONA REPORTS

published in

THE FLORIDA CATTLEMAN AND LIVESTOCK JOURNAL

October-1993

Results of 1992-93 Hay Ammoniation Demonstrations in Florida

W.F. Brown
University of Florida, IFAS

For questions or comments regarding this publication contact  William F. Brown

During the fall and winter of 1992-93, we assisted Florida ranches in treating hay with anhydrous ammonia. Ranches used round bales weighing from 800 to 1200 lbs. Some ranches stacked hay in a 3-2-1 pyramid, with 15 rows of three bales on the bottom, 14 rows of two in the middle, and 13 rows of one on top, resulting in 86 bales per stack. Other ranches stacked hay in a 4-3 configuration, with 15 rows of four bales on the bottom end 14 rows of three on top, resulting in 102 bales per stack. A 40 foot wide by 100 foot long sheet of 6-mil thickness black plastic costing approximately $100 covered both stack types. An advantage of stacking 43 is that more bales can be treated per stack, but a disadvantage is that rain can collect in the crevices on top of the plastic. Hay was treated with anhydrous ammonia at four percent of the forage dry matter. Total ammoniation cost averaged $12.00/ton of hay, including materials, labor and machinery.

Most ranches had bahiagrass, bermudagrass and stargrass hay (see table). Initial quality of these hays was low, and typical of most hay produced in Florida. Direct comparisons between ranches regarding effectiveness of ammoniation for different grass species should not be made, because conditions at each ranch varied. Anhydrous ammonia treatment increased the crude protein (CP) concentration of all hays. Increased hay CP from ammonia

tion is due to nitrogen addition provided by the anhydrous ammonia. This nitrogen is non-protein-nitrogen (NPN), and is similar to nitrogen from urea. Ammoniated hays were greater in total digestible nutrient (TDN) content than the untreated hays. Increased hay CP and TDN due to ammoniation forms a base to which alternate supplementation

programs can be applied compared to untreated hay. Even though CP concentration of ammoniated hay is sometimes greater than animal requirements, younger cows, developing heifers or bulls may respond to supplemental protein in the form of natural protein (cottonseed meal, soybean meal, feather meal). Also, because supplemental NPN is provided in the ammoniated hay, other by-product energy sources such as standard molasses, citrus pulp, soybean hulls, or hominy can be considered relative to a commercial energy-protein feed.

All ranches reported that cattle consumed ammoniated hay better than untreated hay. Also, less hay waste is observed with ammoniated hay. If differences in hay waste are accounted for, ammoniation costs are reduced by 30 to 50 percent. Old weathered hay which has lost most of its nutritive value and would be wasted by cattle is a very good candidate for ammoniation. If you have further questions, or would like assistance with ammonia treatment of your hay please feel free to contact me at (81 3) 735- 1 3 14.

		Crude Protein		**Total Digestible Nutrients**	
Ranch Contact:	**Grass**				
Location	**Species**	**Untreated**	**Ammoniated**	**Untreated**	**Ammoniated**
Charles Lawton					
Ft. Lonesome	Bahia	7.9	18.5	43	56
Claude Smoak					
Minneola	Bahia	6.4	13.8	45	53
Bob Anson	Star/				
Myakka City	Bermuda	7.9	16.5	45	54
Dan Sumner					
Ruskin	Bahia	5.1	14.6	48	57
Dave Partin					
Kenansville	Bermuda	6.7	15.1	47	58