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Headline: Wheat Straw Ammoniation

WARSAW, Mo. – The spring of 2018 offered up some interesting weather issues relative to hay production. Seedheads emerged on cool-season grasses, but undergrowth was thin in many places. Many producers are searching for hay or other forage sources to replenish depleted hay reserves.

One option to fill hay needs might come in the form of ammoniated wheat straw. In order to be successful, straw needs to be baled and treated soon after grain harvest.

Bales need to be covered to seal in the anhydrous ammonia. Use either 6 or 8 mil black or clear UV resistant plastic sheets for covering the stack. A 40' X 100' sheet of plastic will completely cover 38 round bales of straw. Stack two bottom rows of 13 bales and one top row of 12 bales. Anhydrous ammonia should be applied at a rate of 60 pounds per ton of wheat straw, so it is important to weigh some bales to get an average bale weight. Once the weight of 38 straw bales is known, the correct amount of anhydrous ammonia can be purchased and the anhydrous tank can be slowly emptied under the covered stack.

To treat the straw, insert a 1-inch pipe into the center of the stack under the plastic and attach it to a steel fence post to keep it in place. Apply the ammonia slowly to the center of the stack. Three to 5 hours is suggested. Be sure to seal the sides of the plastic against the ground with dirt, waste lime, etc. Enough fill should be placed on the plastic to keep it from being pulled loose by winds and ballooning when the ammonia gas fills the covered stack.

Bales should be stacked in an area that has excellent air flow. Be aware that vegetation under the stack will be killed. Stacking the bales on gravel will help keep moisture from wicking up from the ground below, but be absolutely sure to get the plastic sealed to the ground completely around the stack in order to prevent the anhydrous ammonia from escaping.

Safety when working with anhydrous ammonia is of the utmost concern. Follow these safety instructions: 1) Wear goggles, rubber gloves and protective clothing. 2) Work upwind when releasing ammonia. 3) Have fresh water available to wash off any anhydrous ammonia that comes in contact with the skin. 4) Check all valves, hoses and tanks for leaks. 5) Check the plastic cover for leaks and patch with duct tape. 6) Do not smoke near anhydrous ammonia. 7) Keep children away from treatment area.

Keep the straw pile covered until 2 to 3 weeks before feeding begins. At that time, the ends of the stack can be opened to allow the stack to air out. The chemical reactions occur within a couple weeks during the summer months, but the pile must remain covered to maintain forage quality of the treated straw. When feeding begins, some producers will remove several bales from the pile a few days before feeding to allow the straw time to air out.

Toxicity can occur in animals when some forages are ammoniated, so only treat low quality forages such as wheat straw or fescue stubble following seed harvest. Consider working with a nutritional consultant to develop feeding programs. If toxicity issues do occur, avoid working the cattle and remove ammoniated hay from the diet for several days. A mixture of 50% ammoniated hay and 50% untreated hay should eliminate any problems.

Treating wheat straw with anhydrous ammonia does improve the straw's feeding value and can stretch tight hay supplies. However, utmost care should be taken when treating and handling the straw. Supplementation programs will also be different than for traditional grass hay. For more information contact me at the Extension Center in Warsaw at (660) 438-5012 or e-mail at schmitze@missouri.edu.

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