WISCONSIN - To Reduce Chance of Clostridial Silage, Apply Manure to Alfalfa Stubble

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Dairy producers need more options for spreading manure that are independent of corn production. Producers are asking questions about the risks associated with applying manure to growing alfalfa. It is understood that contamination of silage crops by soil or manure can increase numbers of clostridial spores at ensiling, but it has been difficult to relate initial spore counts with the probability of undesirable clostridial fermentations. Clostridial silages characteristically exhibit elevated concentrations of ammonia and butyric acid that are formed as secondary fermentation products, thereby rendering the silage unacceptable to most dairy cattle.

In a recent study, dairy slurry was applied to alfalfa plots at the UW-Marshfield Agricultural Research Station at 4,500 gallons/ac. Four application strategies were evaluated. These included: no manure, manure applied directly to stubble immediately after harvest, manure applied after one week of regrowth, or manure applied after two weeks of regrowth. Manure was applied initially after removal of the first cutting during June 2012, and the experiment was repeated after the second cutting was harvested. Forage from all plots was ensiled as wrapped balage.

In May 2013, all silages appeared to be well-fermented, with no indication of undesirable odor. Although the analysis of silages is incomplete, preliminary results indicate only minor differences in forage nutritive value, as well as final pH, unfermented water-soluble carbohydrates, and starch. *Clostridium tyrobutryicum*, known to negatively affect cheese production, was not detected in any silage on a pre- or post-storage basis. However, counts for other manure-related Clostridia were affected by manure application treatment, and the counts increased as application was delayed following the previous harvest. Preliminary results suggest the risk of clostridial fermentations is greater following manure applications to alfalfa, and applications to stubble are preferred (and less risky) over delayed applications onto growing alfalfa. Most recommendations for producing balage include wilting forage to about 50% moisture before ensiling; this may have prevented obvious indications of a clostridial fermentation.