WISCONSIN - Inoculated Alfalfa Silage Changes Dairy Cow Rumen Bacteria

Rich Muck, U.S. Dairy Forage Research Center

Lactic-acid bacteria (commonly called inoculants) are often added to crops at ensiling to obtain good-quality silage and improve milk production. However, it has been a mystery as to why inoculants cause cows to produce more milk.

Recent laboratory research suggests rumen bacteria (bacteria from the main stomach of the cow) grow better on some inoculated silages. Rumen bacteria help the cow with feed digestion and are a major source of protein for the cow and the milk she produces.

In the current study, the effects of an inoculated silage on cows and their rumen bacteria were studied. The makeup of the rumen bacterial population was different between the cows fed inoculated and untreated silage. Also, there were differences in the rumen bacterial makeup between cows that produce low levels of milk fat and those with normal production of milk fat.

While this study still has not solved the mystery as to why inoculation of silage increases milk production, it does indicate that changes are taking place in the rumen bacterial population, and these shifts are likely tied to solving the puzzle. If researchers can understand how inoculants affect the cow, it should lead to the development of more effective silage inoculants, and help farmers produce silages that are more efficiently and effectively utilized by their cows.