

## Silage Inoculants Can Be Cost-Effective

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When appropriate silage inoculants are applied to chopped forages, they are cost-effective, says J.W. Schroeder, North Dakota State University Extension dairy specialist.

“Several factors influence the degree of response from inoculants, but on average, net returns increase when inoculants are used on silages,” says Schroeder.



He points out that a survey of inoculant studies in all silage crops found milk production improved in about half of the studies. In those studies where milk yield was improved, the average increase was 3 lbs per cow per day.

The most important factor affecting the success of an inoculant is the size of the natural population of lactic acid bacteria on the crop, according to Schroeder. The higher the natural population, the less likely the inoculant will succeed. In alfalfa, the natural population varies with wilting conditions. It's increased by higher average wilting temperatures, longer wilting times, rainfall during wilting and higher moisture contents at chopping. Consequently, these conditions, rather than cutting, are important for determining the best time to use an inoculant on hay-crop silage.

“Under typical conditions, the profitability of an inoculant will be more variable in the first cutting than in subsequent cuttings,” he says. “This is true because we typically have longer wilting times and a greater likelihood of rainfall during wilting in the first cutting, which reduce the chances for an inoculant to succeed. However, do not assume that using an inoculant in the first cutting is unprofitable.”

Inoculants may contain one or more strains of lactic acid bacteria. The most common is *Lactobacillus plantarum*. Other *Lactobacillus* or *Pediococcus* species may be present; *Enterococcus faecium* also is common. Rarely, a *Bacillus* species may be present to improve bunk stability. Be skeptical of products that contain other species, Schroeder warns.

Comparing inoculants is difficult, but here are some things he says to do when buying a product:

- Look for a product that guarantees to supply at least 90 billion live lactic acid bacteria per ton of crop.
- Be sure to buy a product that is labeled for the crop you are going to ensile.
- Ask for research, particularly independent research data, to back up the product manufacturer's claims.
- Once you have purchased a product, be sure to store and use it according to directions.

Costs vary by products and the volume you buy. The typical cost is \$1 per treated ton of crop, but it can range from 60¢ to more than \$2 per ton.

“At present, responses to hay inoculants are quite variable,” adds Schroeder. “Additional research and development are necessary before hay inoculants offer the degree of economic benefit noted for silage inoculants.”

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