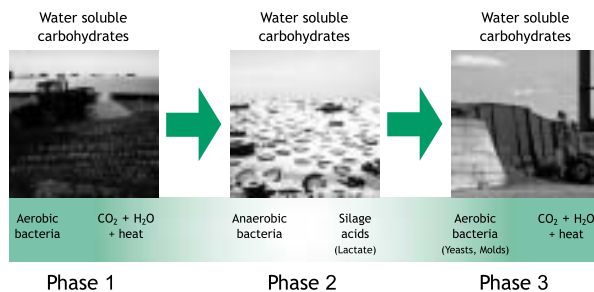


More quality silage at feedout with Biomax® A

Biomax® A Microbial Inoculant for Alfalfa Haylage provides a guaranteed source of specially selected strains of *Lactobacillus plantarum* and *Pediococcus pentosaceus*. These live bacteria immediately begin to produce lactic acid which rapidly lowers forage pH, stopping respiration and nutrient losses. University research shows that Biomax A, along with good forage management, improves forage quality.

The ensiling process

The goal of silage production is to maximize the amount of nutrients preserved in the forage crop. The process of ensiling, storing and feeding of silage can be broken down into three phases. **Phase 1**, the aerobic phase, lasts from when the crop is ensiled until all oxygen is depleted within the plant material. Peak temperature normally occurs during this phase. Anaerobic bacteria take control in **Phase 2**, initiating the drop in pH. The decline in pH eventually inhibits growth of acetic acid bacteria and favors growth of lactic acid bacteria (LAB). Phase 2 is the longest phase. Once the pH drops to 4.5 or lower, depending on the buffering capacity of the ensiled crop, the silage can be kept for a considerable amount of time, as long as oxygen is kept out of the silo. **Phase 3** is the aerobic phase that occurs during feedout.



Biomax® A results in greater stability and lower number of yeast

Research conducted by Chr. Hansen showed that the strains in Biomax A had faster growth rates resulting in a quicker pH drop, plus the strains produced more lactic acid.

Comparative Strain Data

Identification	Strain No.	ENS dbi time(min) ¹	ENS final pH	ENS net acids
Lactobacillus plantarum	A	63/100	3.5/3.7	300L
Lactobacillus plantarum	Lp401	63/51	3.4/3.6	400L
Pediococcus pentosaceus	B	78/66	3.8/3.7	300L
Lactobacillus plantarum	C	65/63	3.4/3.8	150A, 250L
Lactobacillus plantarum	D	72/70	3.3/3.5	300L
Pediococcus pentosaceus	E	47/25	3.6/3.6	200L
Pediococcus pentosaceus	PP202	52/47	3.6/3.7	30A, 300L

Identification	Strain No.	Oxygen Relations	Anti-yeast hits ²
Lactobacillus plantarum	A	Facultative	3
Lactobacillus plantarum	Lp401	Facultative	2, 3
Pediococcus pentosaceus	B	Facultative	3
Lactobacillus plantarum	C	Facultative	5
Lactobacillus plantarum	D	Facultative	1, 2, 3, 4
Pediococcus pentosaceus	E	Facultative	2, 3
Pediococcus pentosaceus	PP202	Facultative	2, 3, 4

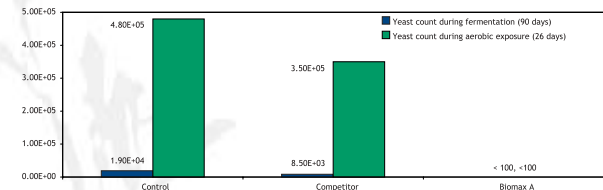
¹Doubling times in aerobic / anaerobic ENS (Environmental Silage medium).
²Numbers refer to yeast strains that were inhibited.

Yeasts are the major cause of aerobic deterioration, resulting in nutrient and DM (dry matter) losses. Results also showed that the strains in Biomax A hit three of the five major spoilage organisms. This suggests that inoculating alfalfa haylage with Biomax A can result in significantly more stable silage, more nutrients, and less spoilage.

Biomax A results in more digestible dry matter and lower yeast count
 Independent research showed that Biomax A performed equal to or better than other products with various inoculation rates.

Comparative Strain Data

	Control	Competitor	Biomax A
pH decrease	<5.0 in 13 days	<5.0 in 3 days	<5.0 in 3 days
Lactate in HDM (90 days)	0.9%	4.2%	2.3%
ADF (90 days)	33%	33%	29%
NDF (90 days)	41%	41%	38%
Digestible dry matter	63%	63%	67%
RFV (90 days)	144	144	163
Aerobic stability (days)	11	10	16



Biomax A results in additional income
 Greater aerobic stability can mean higher DM recovery, longer bunk life, less spoilage on the silage face, more available nutrients, and greater palatability. These benefits can result in higher DM intake, and higher production. University research has shown an increase of 4.8 lb more milk/cow/day when feeding inoculated alfalfa haylage. The potential is high for a significant return on an inoculant investment.

Additional milk production, lb	+5
Inoculated silage: milk value/cow/day*	\$6.53
Untreated silage: milk value/cow/day	\$6.05
Extra income/cow/day	\$0.48
Extra income/300 cows/day	\$144
Extra income for 100 days of production	\$14,400

*Based on milk price of \$10.00/cwt. Cost for inoculant may vary. Estimated cost in this example is based on 50 lb of silage consumed/cow/day and inoculant cost of \$0.80/ton of silage.

Checklist for Good Silage Management

- ▼ Make sure the silo structure is in good condition, free from cracks, holes and poorly fitting doors.
- ▼ Harvest crops at recommended moisture and maturity.
- ▼ Chop forage at the optimum length.
- ▼ Use a bacterial silage inoculant for more efficient fermentation. Apply at recommended rates, using a well-calibrated applicator.
- ▼ Fill silo as quickly as possible.
- ▼ Distribute forage evenly in silo.
- ▼ Level and pack silage well.
- ▼ Cover and seal silo.
- ▼ During feedout, remove recommended amount of silage from the face daily.



Benefits

- ▼ Higher dry matter recovery (average 4%)
- ▼ Over 1 day longer aerobic stability (bunklife)
 - Lower forage temperature
 - Less spoilage on forage face
 - Less wasted forage
- ▼ Increased nutrient availability
- ▼ Better palatability and intake for improved production efficiency
- ▼ Greater return on investment

Features

- ▼ Specially selected strains that work to inhibit major spoilage yeasts
- ▼ Controls fermentation: produces high levels of lactic acid and quickly lowers pH
- ▼ Proven by university and field research conducted on a variety of corn hybrids, harvest and storage conditions
- ▼ Concentrated and stabilized bacteria that are faster acting than competitive products
- ▼ Safe and easy to use

Produce
Quality
Silage With

Biomax A

Microbial Inoculant for
Alfalfa Haylage

NutriSave™
Forage Management System
Saving more of the valuable nutrients you grow

Call 1-800-851-8810, ext. 5541 for more information