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Silo-Guard for corn silage

Abstract

Two corn silages (34 to 36% DM) were made August 4 and 5, 1976; one was ensiled without additive (control), the other with Silo-Guard added at 1.5 lbs. per ton of fresh crop. Silos were opened after 68 days, and each silage was full-fed to 15 yearling steers (3 pens of 5 steers) during a 91-day trial (October 12, 1976, to January 11, 1977). Complete-mixed rations contained 84% silage and 16% soybean meal supplement on a DM basis.

Keywords

Cattlemen's Day, 1980; Report of progress (Kansas State University. Agricultural Experiment Station); 377; Beef; Silo-Guard; Rations; Corn silage

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K**S****U**Silo-Guard for Corn Silage¹

Keith Bolsen and Harvey Ilg

Experimental Procedure

Two corn silages (34 to 36% DM) were made August 4 and 5, 1976; one was ensiled without additive (control), the other with Silo-Guard added at 1.5 lbs. per ton of fresh crop. Silos were opened after 68 days, and each silage was full-fed to 15 yearling steers (3 pens of 5 steers) during a 91-day trial (October 12, 1976, to January 11, 1977). Complete-mixed rations contained 84% silage and 16% soybean meal supplement on a DM basis.

Results

Both silages appeared to be well preserved. Chemical analyses (Table 16.1) showed that the two silages had similar composition, except Silo-Guard increased propionic acid and decreased acetic acid.

Feeding results are shown in Table 16.2. Steers fed Silo-Guard corn silage gained 3.9% faster and consumed 3.2% more silage than steers fed control corn silage, but these differences were not statistically significant.

Silo-Guard decreased DM lost during fermentation more than 6 percentage units compared to the control (Table 16.3). Ensiling temperatures averaged 5.0°F cooler (84.3 vs. 89.3 F) in the Silo-Guard silage during the first 6 days (Table 16.4). Both silages were stable on feedout with no heating or molding when exposed to air for 7 days.

Table 16.1. Chemical analyses of control and Silo-Guard corn silages.

Silage	Dry matter	pH	Crude protein	Lactic acid	Acetic acid	Propionic acid	Butyric acid
	%						
Control	34.7	4.10	9.4	4.01	2.21	trace	.05
Silo-Guard	35.1	4.20	9.4	4.32	1.73	.26	.03

¹Silo-Guard is an enzyme (and its co-factors) product of International Stock Food, Inc., P.O. Box 29, Waverly, NY 14892.

Table 16.2. Performances by yearling steers fed control and Silo-Guard corn silages.

Item	Corn silage	
	Control	Silo-Guard
Initial wt., lbs.	764	773
Avg. daily gain, lbs.	2.57	2.67
Avg. daily feed, lbs. ^a	21.93	22.63
Feed/lb. of gain, lbs. ^a	8.61	8.55

^a100% dry matter basis.

Table 16.3. Corn silage fermentation and spoilage losses.

Silage	DM put into the silo	DM taken out of the silo and fed	DM not fed (spoilage)	DM lost through fermentation
	lbs.	% of the DM put into the silo		
Control	42,600	87.4	3.2	9.5
Silo-Guard	39,200	93.7	3.2	3.1

Table 16.4. Ensiling temperatures for control and Silo-Guard corn silages.^a

Days post-ensiling	Control	Silo-Guard	Adv. ^b
	°F		
1	83	83	0
2	88.5	83.5	+5
3	91	84	+7
4	91.5	84.5	+7
6	90.5	85.5	+5
9	89	84	+5
17	83	80	+3
20	80.5	78.5	+2
25	80.5	77.5	+3
30	77	75.5	+1.5
35	75	73.5	+1.5

^aEach value is the mean of six thermocouple readings.

^bAdvantage for additive over control (control minus additive).