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Ensila Plus, Sila-lator, and Silo-Guard for Alfalfa Silage^{1,2,3}

Keith Bolsen and Harvey Ilg

Experimental Procedure

Four alfalfa silages (34 to 37% DM) were made May 30 and 31, 1979, as follows: 1) no additive (control), 2) 3 ounces of Ensila Plus per ton, 3) 1.0 lb of Sila-lator per ton, and 4) 1.5 lb of Silo-Guard per ton. Silos were opened after 51 days and each was fed to 41 bred, yearling heifers (one pen of 20 and one pen of 21) during a 26-day trial (July 21 to August 16, 1979). All heifers also received 2.0 lbs daily of a grain mix that contained 200 mg of Rumensin for one pen fed each silage and no Rumensin for the other pen. The silages were full-fed so that the two pens (Rumensin or no Rumensin) receiving each silage got approximately the same quantity of feed. Ensiling temperatures, fermentation dry matter losses, and stability when exposed to air were determined for each silage.

Results

The four alfalfa silages appeared to be well preserved, except for the control silage being a darker brown than the other silages. Chemical analyses (Table 18.1) were similar for the four silages.

Feeding results are shown in Table 18.2. Weight change advantages were +21.6 to +24.8 lbs for heifers fed alfalfa silages made with additives compared to those fed control alfalfa silage. The number of heifers losing weight during the 26-day trial was 28, 2, 3, and 9, respectively, for the control, Ensila Plus, Sila-lator, and Silo-Guard silages. Heifers fed control silage had the lowest feed intake throughout the trial.

Alfalfa silage DM losses during fermentation were 5 to 6 percentage units higher for the control silage compared to the three silages made with additives (Table 18.3).

When compared to the control silage, ensiling temperatures during the first 14 days were 9.9°F cooler for Sila-lator silage, 4.2°F cooler for Ensila Plus silage and 2.3°F cooler for Silo-Guard silage (Table 18.5).

¹Ensila Plus is an enzyme product of Agrimerica, Inc., 1829 Stanley St., Northbrook, IL 60062.

²Sila-lator is a lactobacillus inoculant and enzyme product of Anchor Laboratories, Inc., 2621 North Belt Highway, St. Joseph, MO 64502.

³Silo-Guard is an enzyme (and its co-factors) product of International Stock Food, Inc., P.O. Box 29, Waverly, NY 14892.

Stability of the four alfalfa silages when exposed to air on feedout is shown in Table 18.4. All were highly stable until day 9 when Sila-lator silage was the first to show initial temperature rise. Silo-Guard silage heated on day 11; control and Ensila Plus silages, on day 19.

Table 18.1. Chemical analyses of control, Ensila Plus, Sila-lator, and Silo-Guard alfalfa silages.

Silage	Dry matter	pH	Crude protein	Lactic acid	Acetic acid	Propionic acid	Butyric acid
	%			% of the DM			
Control	37.2	4.57	15.2	5.90	.89	.10	trace
Ensila Plus	36.1	4.59	15.3	5.92	.82	.11	trace
Sila-lator	36.1	4.69	15.1	4.93	.90	.10	trace
Silo-Guard	36.4	4.70	16.2	6.14	1.05	.12	trace

Table 18.2. Weight change and feed intake by heifers fed the four alfalfa silages with or without Rumensin.

Item	Alfalfa silage				Rumensin	
	Control	Ensila Plus	Sila-lator	Silo-Guard	no	yes
Initial wt., lbs.	785	789	786	778	774	795
Final wt., lbs.	775	804	801	790	780	804
Avg. wt. change, lbs.	-10.0	+14.6	+14.8	+11.6	+ 5.6	+ 9.9
Avg. daily feed, lbs. ¹	13.05	15.16	16.06	14.79	14.81	14.72

¹100% dry matter basis.

Table 18.3. Alfalfa 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	16,900	84.6	8.5	6.9
Ensila Plus	16,740	90.0	7.2	2.8
Sila-lator	15,780	90.4	6.5	3.1
Silo-Guard	14,260	89.7	6.9	3.4

Table 18.4. Changes in temperature and losses of dry matter during air exposure by alfalfa silages.

Silage	Day of initial rise above ambient temp.*	Maximum temp, ^o F	Accumulated temp. above ambient, ^o F			Loss of DM, %		
			day 7	day 14	day 20	day 7	day 14	day 20
Control	19	77	**	**	8	4.1	4.7	6.3
Ensila Plus	19	75	**	**	12	1.8	2.1	3.3
Sila-lator	9	94	**	74	190	<1.0	6.7	20.4
Silo-Guard	11	99	**	74	150	<1.0	2.0	10.3

*A 3^oF rise or more.

**No rise in temperature.

Table 18.5. Ensiling temperatures for alfalfa silages.^a

Days post- ensiling	Control	Ensila Plus	Adv. ¹	Sila-lator	Adv. ²	Silo-Guard	Adv. ³
	^o F						
1	84.5	79.5	+5	75	+9.5	79.5	+5
2	88.5	84.5	+4	75.5	+13	85	+3.5
4	90.5	87.5	+3	77.5	+13	88.5	+2
6	90.5	87.5	+3	81	+9.5	90	+0.5
9	91.5	88.5	+3	83	+8.5	90.5	+1
14	92.5	85.5	+7	81.5	+11	91	+1.5
20	93.5	85.5	+8	82	+11.5	91	+2.5
25	93	84.5	+8.5	83	+10	92	+1
35	89.5	81.5	+8	81	+8.5	88.5	+1
45	90.5	81	+9.5	81	+9.5	89.5	+1

^aEach value is the mean of six thermocouple readings.^{1,2,3}Advantage for additive over control (control minus additive).