DEVELOPMENT OF A DATABASE TO CHARACTERIZE THE EFFECT OF AMAFERM® ON CORN SILAGE, HAYLAGE AND HAY NDF DIGESTIBILITY IN DAIRY CATTLE

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AMAFERM supplementation significantly increased DM and NDF digestibility, as well as the rate of digestion for various forages.

SUMMARY

DOSE OF AMAFERM USED
10 ml/h/d liquid

Feeding 10 ml/h/d AMAERM increased both the extent and rate of DM and NDF digestion of corn silage at 36 hours, increased the extent of DM and NDF digestion of hay at 24 hours, and increased the extent of DM and NDF digestion and rate of NDF digestion of haylage at 12, 24 and 36 hours. NDF concentration was a significant variable in predicting ruminal digestion. This study also found positive relationships between NDF and digestible DM (dDM), and between dDM and digestible NDF (dNDF).

VALUE

By improving DM and NDF digestibility, AMAFERM allows the animal to utilize a larger proportion of feedstuffs to meet nutritional requirements and performance expectations.

PROTOCOL

Type of Animals/Experimental Units

- Lactating ruminally canulated cows

Number of Animals/Experimental Units

- Two

PROTOCOL (CONTINUED)

Trial Design

- Completely randomized design

Treatments

- Control
- 10 ml/h/d liquid AMAFERM

Diet Information

- 26.5% corn silage, 19.1% hay crop silage, 8.4% western hay, 26% corn meal, 4% soybean meal (49% CP), 4% roasted soybean, 2.8% beet pulp, 9.2% SHF lactation mix

Data Collection

- In situ DM and NDF digestibilities of corn silage, haylage and hay samples

DISCUSSION OF RESULTS

- The 36-hour residue for corn silage was lower for 10 ml/h/d vs. the Control, which contributed to the higher (7.1%, $P < 0.01$) DM Kd
- The 24-hour DM digestibility for hay was higher ($P < 0.04$), and the 36-hour DM digestibility for hay was numerically higher with AMAFERM supplementation
- AMAFERM also the digestion rate for hay by 12.8%
- The DM digestion of haylage was increased at all time points (12, 24 and 36 hours), however, Kd of haylage DM digestion was not affected
- AMAFERM increased the rate of corn silage NDF digestion at 36 hours (15.2% increase, $P < 0.01$)
- Residual NDF of hay was lower at 24h by feeding AMAFERM ($P < 0.05$).
- AMAFERM feeding resulted in a reduction ($P < 0.01$) of residual haylage NDF at 12, 24 and 36 hours by 13.3%, 12.6% and 10.0% respectively, and the linear NDF rate of digestion was 16.6% higher ($P < 0.01$) with AMAFERM supplementation
- The NDF concentration of corn silage was a constant and significant parameter in predicting NDF ruminal digestion. As NDF increased in corn silage, there was a tendency for dNDF to decrease

DISCUSSION OF RESULTS (CONTINUED)

- Regardless of AMAFERM supplementation, the relationships between NDF vs. dDM and dDM vs. dNDF were significantly positive for all forage types, but there was no consistent relationship between NDF and dNDF

Table 1
Effect of 10 ml/d AMAFERM on ruminal DM indigestibility of corn silage, hay and haylage

	Control	AMAFERM	
Corn Silage	**Mean**	**Mean**	**P <**
0 hours	69.2	69.2	–
12 hours	48.7	49.5	0.43
24 hours	39.1	38.4	0.45
36 hours	33.4	31.2	0.02
Kd, %/hour (0-36 hours)	0.98	1.05	0.01
Hay			
0 hours	76.0	76.0	–
12 hours	40.0	40.2	0.86
24 hours	34.7	31.8	0.04
36 hours	29.6	28.2	0.22
Kd, %/hour (0-36 hours)	0.436	0.492	0.1
Haylage			
0 hours	76.5	76.5	–
12 hours	50.0	42.9	0.01
24 hours	38.2	33.2	0.01
36 hours	31.6	28.4	0.01
Kd, %/hour (0-36 hours)	1.22	1.32	0.32

Table 2
Effect 10 ml/d AMAFERM on ruminal NDF indigestibility of corn silage, hay and haylage

	Control	AMAFERM	
Corn Silage	**Mean**	**Mean**	**P <**
0 hours	95.0	95.0	–
12 hours	85.4	87.3	0.91
24 hours	70.5	68.7	0.29
36 hours	60.5	55.5	0.01
Kd, %/hour (0-36 hours)	1.05	1.21	0.01
Hay			
0 hours	94.4	94.4	–
12 hours	76.3	77.5	0.5
24 hours	69.5	66.5	0.05
36 hours	60.6	59.9	0.66
Kd, %/hour (0-36 hours)	1.43	1.44	0.95
Haylage			
0 hours	95.2	95.2	–
12 hours	77.1	66.8	0.01
24 hours	63.4	55.4	0.01
36 hours	52.5	47.3	0.01
Kd, %/hour (0-36 hours)	1.26	1.47	0.01

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