Trial Summary: Biotal Plus; Corn Silage; CEDAR

BIOTAL

Site	Centre for Dairy Research, Reading, UK
Lead Researchers	Dr. Richard Phipps
Objective	To determine the effect of Biotal Plus on fermentation and dry matter recovery in corn silage and the effect on fermentation and nutritive value in stalkage.
Protocol	There were two separate experiments with whole plant forage corn. Each experiment contained six replicates (mini-silos, capacity ~ 2.5 kg each) each for the treated and untreated material. Mini-silos were weighed at filling and opening to determine dry matter losses. Samples were taken at opening for analysis (pH, lactic, acetic, propionic and butyric acids). Silos were incubated for 100 days at room temperature (~22°C). In addition, there was a third experiment looking at the effect of Biotal Plus on the fermentation and nutritive characteristics of the stalkage.

Results

1. 27% Dry Matter Forage:

Parameter	Control	Treated
Dry Matter (%)	25.1	25.7
pH	3.90	3.90
Lactic Acid (%DM)	10.2	12.10
Acetic Acid (%DM)	5.4	5.0
Propionic Acid (%DM)	0.4	0.3
Butyric Acid (%DM)	<0.1	<0.1
Ethanol (%DM)	2.4	1.4
Dry Matter Loss (%)	12.8[a]	4.6[b]

2. 36.4% Dry Matter Forage:

Parameter	Control	Treated
Dry Matter (%)	33.9	35.0
pH	3.90	3.90
Lactic Acid (%DM)	9.2	9.4
Acetic Acid (%DM)	4.1	3.4
Propionic Acid (%DM)	0.3	0.2
Butyric Acid (%DM)	<0.1	<0.1
Ethanol (%DM)	1.1	1.0
Dry Matter Loss (%)	9.9[a]	3.1[b]





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Results

3. 22% Dry Matter Stalkage:

Parameter	Control	Treated
Dry Matter (%)	19.4	20.5
pH	3.80	3.80
Lactic Acid (%DM)	10.4	9.7
Acetic Acid (%DM)	2.9	1.5
Propionic Acid (%DM)	0.3	0.1
Butyric Acid (%DM)	<0.1	<0.1
Ethanol (%DM)	4.2	5.5
NDF (%DM)	63.5	63.0

[a,b]: Values in different columns with different superscripts are significantly different (P<0.05)

Conclusions

In the two whole plant silage experiments terminal fermentation profiles were only marginally affected by treatment, however, Biotal Plus significantly reduced dry matter losses in both experiments.

In the stalkage experiement, again there was only marginal differences in the fermentation profiles. There was a trend towards lower NDF in the treated material.