

Trial Summary: Biotal Plus; High Moisture Corn (HMC); KSU

Site Kansas State University

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Objective To determine the effect of Biotal Plus on fermentation efficiency and growth performance of finishing steers (high moisture corn).

Protocol High moisture shelled corn was harvested at approximately 84.5% dry matter (DM). Corn was rolled into a feed truck in 4,000 lb loads and treated with the inoculant, which was mixed with water and applied at a rate of 6 pints per load, to deliver the target application rate of 120,000 CFU/ g. The load was then mixed for 2 minutes and unloaded into the silo. Plain water was added to untreated loads at 6 pints/load, using a separate mixer wagon and packing tractor to avoid cross-contamination. Approximately 5,000 bushels of corn were put in each of the untreated and Biotal Plus II treated silos, which were thoroughly packed and covered with plastic. Silo dimensions were 70 ft x 13 ft x 6 ft.

At the same time as the silos were filled, treated and untreated corn was also packed into PVC silos 12" long x 4" diameter. The corn was compacted with a force of 1500 lbs over the 4' surface and the silos sealed with rubber bungs fitted with air-locks. There were 5 replicates per treatment per time point.

128 steers were selected and stratified by weight into 8 groups of 16 head each. Within each weight strata steers were assigned randomly to 16 pens (8 steers each). Initial weights were based on an average of two weight measurements, one each on the first two days.

Results

1. PVC Silo Study

Parameter	Control	Treated
pH - day 0	5.30	5.30
pH - day 3	4.85	4.60
pH - day 5	4.65	4.20
pH - day 7	4.30	4.05
pH - day 21	3.90	3.85
pH - day 90	3.85	3.85

2. Feeding Study

Parameter	Control	Treated
Initial Weight (lb)	801	799
Final Weight (lb)	1213 ^b	1240 ^a
Feed Intake (lb/day)	20.3 ^b	21.2 ^a
ADG (lb/day)	2.95 ^b	3.15 ^a
Feed / Gain	6.89	6.76
Liver Abscess	0.22	0.19

Conclusion

In the PVC silos the rate of pH drop was faster in the Biotal Plus treated HMC than the untreated control.

In the feeding study both intake and average daily gain were significantly higher for the steers fed the ration containing the Biotal Plus treated HMC than for the steers fed the same ration with untreated HMC. There was also a trend to lower feed/gain (P = 0.4) and less liver abscesses for the steers fed the ration with the treated HMC.

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