

THE FORAGER

Agronomics with livestock in mind!

The Effect of *Lactobacillus buchneri* 40788 on the Fermentation and Aerobic Stability of Ground and Whole High Moisture Corn

At the University of Delaware, experiments were conducted to evaluate the effects of inoculating high moisture corn (HMC) with *Lactobacillus buchneri* 40788 on silage fermentation and aerobic stability, two elements that are critical to the nutritional value of ensiled feeds.

In the first experiment, HMC (73% DM) was ground and treated with nothing (Treatment N); *L. buchneri* 40788 (Treatment LB) to achieve 6.6×10^5 cfu/g of HMC (LB); a mixture of enzymes (Treatment ENZ); LB + ENZ Treatment – LB/ENZ); or 0.1% (wet weight basis) of a liquid mold inhibitor (Treatment LMI). These test-treatments were ensiled in 20-liter bucket silos for 90 days. Treatments LB and LB/ENZ both showed an increase in the concentrations of acetic acid, while improving the aerobic stability of ground HMC relative to the other treatments.

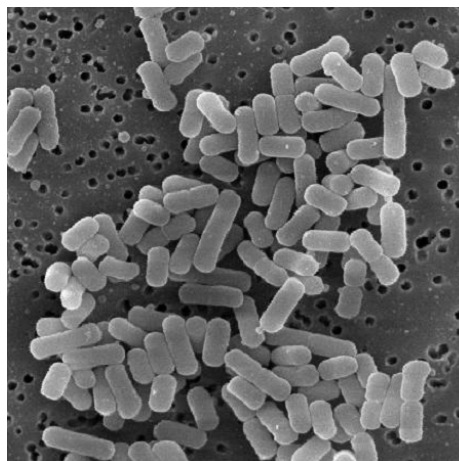
Treatment ENZ had no effect on the chemical composition or aerobic stability of ground HMC. The only effect of Treatment LMI relative to untreated HMC was that it increased the concentration of propionic acid, but this did not improve its aerobic stability.

In a second experiment, HMC (75% DM) was harvested as the intact, whole grain and treated with nothing; *L. buchneri* 40788 to achieve 4×10^5 cfu/g of HMC; *L. buchneri* 40788 to achieve 6×10^5 cfu/g of HMC; or *L. buchneri* 40788 to achieve 8×10^5 cfu/g of HMC and ensiled for 120 days. Treatments with *L. buchneri* 40788 resulted in whole HMC having lower concentrations of water soluble carbohydrates, higher concentrations of lactic, acetic and propionic acids, and greater numbers of lactic acid bacteria, but fewer molds when compared to untreated corn.

As a group, inoculated feeds were more aerobically stable than untreated feeds, but increasing levels of application did not improve the response any further.

These experiments show that addition of *L. buchneri* 40788 ~ but not the addition of an enzyme mixture or a liquid mold inhibitor ~ improved the aerobic stability of ground and whole HMC harvested between 73 and 75% DM.

The bottom line: These studies show that addition of *L. buchneri* 40788 can be helpful in improving the aerobic stability of high moisture corn under a variety of storage conditions, whether it is ground or whole.



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