

Technical Bulletin

Arm & Hammer Animal and Food Production



CERTILLUS Buchneri inoculant efficacy.

INTRODUCTION

CERTILLUS™ Buchneri is an inoculant that includes scientifically selected lactic acid producing bacteria, formulated to drive an efficient fermentation to retain crop nutrients. It also includes *Lactobacillus buchneri* selected for its ability to convert lactic acid to acetic acid to increase aerobic stability of the crop. This combination was designed for efficient fermentation and maximum aerobic stability of forages and high moisture grains to minimize dry matter loss due to heating during feed out.

To observe the effectiveness of the CERTILLUS Buchneri inoculant, whole plant corn was chopped and packed in mini silos—one batch was treated with CERTILLUS Buchneri and one batch served as a control (no treatment). Fermentation was monitored over several weeks after ensiling. After 120 days of fermentation the corn silage was exposed to aerobic conditions to simulate the feed out phase; aerobic stability was measured during this time.

This experiment¹ was run twice using chopped corn from two separate dairies.

Experiment #1 (Set up in a humidity chamber with a heat challenge {90°F} at 85% relative humidity)

Aerobic Stability Measurements:

- Time for the silage samples to heat 2° C above ambient temperature (spoilage time)
 - Temperature recorded every 15 minutes

Experiment #2 (Set up in a humidity chamber at room temperature {70°F} at 85% relative humidity)

Aerobic Stability Measurements:

- Time for the silage samples to heat 2° C above ambient temperature (spoilage time)
 - Analyzed 0, 48, 68, 88, 96 and 116 hours after being exposed to aerobic conditions

THE STANDARD OF PURITY

RESULTS

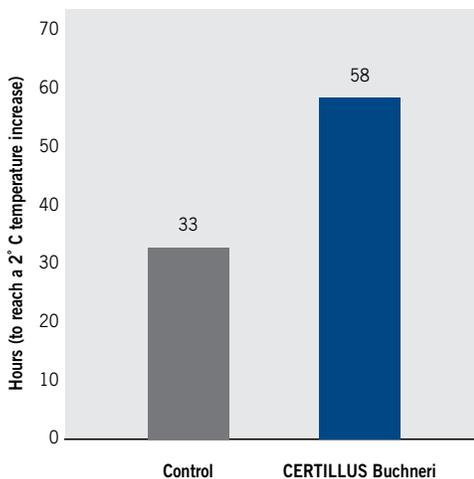
Experiment 1:

- CERTILLUS™ Buchneri treated corn silage remained aerobically stable 25 hours longer compared to the control (Fig. 1).

Experiment 2:

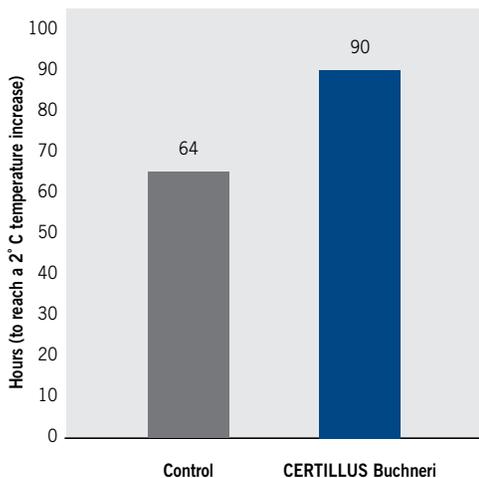
- CERTILLUS Buchneri treated corn silage remained aerobically stable 26 hours longer compared to the control (Fig. 2).
- Yeast levels were lower in the CERTILLUS Buchneri treated corn silage compared to the control throughout the aerobic stability experiment (Fig. 3).
- The pH of the CERTILLUS Buchneri treated corn silage was lower compared to the control throughout the aerobic stability experiment (Fig. 4).

FIGURE 1: Experiment 1 time in hours for the corn silage samples to heat 2° C above ambient temperature (spoilage time) in aerobic conditions comparing control and CERTILLUS Buchneri treated corn silage.



Data was analyzed for the mean of triplicate samples.

FIGURE 2: Experiment 2 time in hours for the corn silage samples to heat 2° C above ambient temperature (spoilage time) in aerobic conditions comparing control and CERTILLUS Buchneri treated corn silage.



Data was analyzed for the mean of triplicate samples.

CONCLUSIONS

The results indicated that the CERTILLUS™ Buchneri treated corn silage had an increased aerobic stability compared to the control corn silage. The CERTILLUS Buchneri treated corn silage had reduced heating, lower levels of yeast and a lower pH. Using CERTILLUS Buchneri can help ensure optimal stability of corn silage at time of feed out and retain the maximum level of nutrients in order to support optimal production by your livestock.

FIGURE 3: Experiment 2 average yeast levels during aerobic exposure. Yeast was not quantified in the control after 88 hours due to the high pH value, yeast levels were assumed to be above spoilage levels.

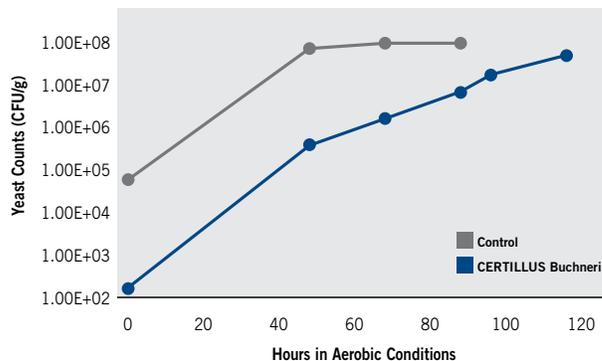
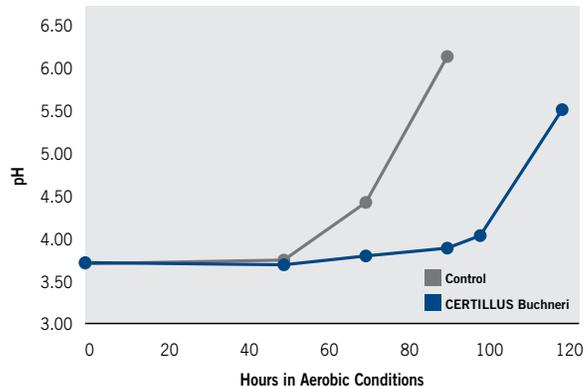


FIGURE 4: Experiment 2 average pH values during aerobic exposure. pH values were no longer recorded once detected above 5.0.



To learn more about CERTILLUS contact your nutritionist, veterinarian or ARM & HAMMER™ representative or visit AHfoodchain.com.

1 ARM & HAMMER. Data on file. 2020.