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| .  | **J Dairy Sci. 2003 Nov;86(11):3575-81.**The effect of Lactobacillus buchneri and Lactobacillus plantarum on the fermentation, aerobic stability, and ruminal degradability of low dry matter corn and sorghum silages.AbstractThe effect of Lactobacillus buchneri, alone or in combination with Lactobacillus plantarum, on the fermentation, aerobic stability, and ruminal degradability of low dry matter corn and sorghum silages was studied under laboratory conditions. The inoculants were applied at 1 x 10(6) cfu/g. Silages with no additives served as control. After treatment, the chopped forages were ensiled in 1.5-L anaerobic jars. Three jars per treatment were sampled on d 2, 4, 8, 15, and 90. After 90 d of storage, the silages were subjected to an aerobic stability test lasting 5 d, in which CO2 production, as well as chemical and microbiological parameters, was measured to determine the extent of aerobic deterioration. At the end of the ensiling period (d 90), the L. buchneri- and L. buchneri + L. plantarum-inoculated silages had significantly higher levels of acetic acid than the control and L. plantarum-inoculated silages. Therefore, yeast activity was impaired in the L. buchneri- and L. buchneri + L. plantarum-inoculated silages. As a result, L. buchneri, alone or in combination with L. plantarum, improved aerobic stability of the low dry matter corn and sorghum silages. The combination of L. buchneri and L. plantarum reduced ammonia N concentrations and fermentation losses in the silages compared with L. buchneri alone. However, L. buchneri, L. plantarum, and a combination of L. buchneri + L. plantarum did not effect in situ rumen dry matter, organic matters, or neutral detergent fiber degradability of the silages. The L. buchneri was very effective in protecting the low dry matter corn and sorghum silages exposed to air under laboratory conditions. The use of L. buchneri, alone or in combination with L. plantarum, as a silage inoculant can improve the aerobic stability of low dry matter corn and sorghum silages by inhibition of yeast activity. |
| .  | **J Appl Microbiol. 2009 Nov;107(5):1632-41. Epub 2009 Apr 15.**Clostridia spore formation during aerobic deterioration of maize and sorghum silages as influenced by Lactobacillus buchneri and Lactobacillus plantarum inoculants.AIMS: The effect of the inoculation of maize and sorghum silages with Lactobacillus plantarum (LP) and Lactobacillus buchneri (LB) on the clostridia spore formation during aerobic deterioration has been studied.METHODS AND RESULTS: The crops were ensiled in 30 l jars, without a lactic acid bacteria inoculant (C), and with an LP or LB inocula (theoretical rate of 1 x 10(6)). After 90 days of conservation, the silages were analysed for the chemical and microbiological characteristics and subjected to an aerobic stability test, during which pH, temperature, nitrate, yeast, mold and clostridia spores were measured. Compared to the C and LP silages, yeasts were reduced in the LB silages, resulting in an increased aerobic stability. Clostridia spores, determined by most probable number (MPN) procedure, increased to 6 log(10) MPN g(-1) in the C and LP maize silages, whereas they reached 3 log(10) MPN g(-1) in C and LP sorghum silages.CONCLUSIONS: Clostridia spore count only slightly increased in the LB maize silages after 342 h (2.59 log(10) MPN g(-1)), whereas it did not show any increase in the LB sorghum silages for the whole period of air exposure.SIGNIFICANCE AND IMPACT OF THE STUDY: The data indicated that clostridia spore outgrowth can take place during silo feedout in aerobic-deteriorated silages and that LB inoculation reduces the risk of clostridia outgrowth after silage opening by increasing the aerobic stability. |