

The effects of piling up, packing density and storage on fermentation quality and aerobic stability of corn silage⁽¹⁾

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Abstract

The purpose of this research is to investigate the effects of piling up, packing density and time of storage on fermentation quality and aerobic stability of corn silage by laboratory scale ensiling. Four ensiling treatments combining different packing density and piling up were conducted in this experiment and silos were opened and sampled for analysis on day 48 and day 168, separately. All treatments were in “good” score at the time of silo opening, but significant difference existed in volatile acid profile and pH value. Higher pH value was found in treatments of piling up and treatment of low packing density. Treatments of low packing density also had higher butyric acid content and lower silage score. Contents of lactic acid decreased and pH value, acetic acid, and butyric acid increased according to prolonging of storage time. Aerobic stability was investigated with silos opened on day 168. Temperature and pH value increased in all treatments according to time exposed to air, and increase of temperature was previous to increase of pH value. The combining treatment of piling and low density spoiled faster than the other treatments. The results indicated that piling up and low packing density prolonged the time of aerobic activity when ensiling and it was apt to raise pH value and butyric acid content. Though the silage quality might be acceptable at first, their quality would be getting worse according to storage time and also bad for aerobic stability.

Key words: Corn silage, Fermentation quality, Aerobic stability.

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