Preservation of moist corn

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The use of a non-corrosive acidified preservative for moist corn storage under Philippine conditions

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Introduction: The potential action of organic acids under farm conditions in feed preservation and protecting feed from microbial and fungal destruction is already widely accepted in the agricultural business. The use of these acids will significantly reduce the microbial contamination of treated corn. This decontamination will furthermore secure the nutritional value of the stored corn and can therefore lead to healthy animals, good animal performance and ensure overall economic animal production. Despite this, year on year the agricultural industry faces huge losses due to spoiled corn which was not properly stored and preserved after harvest. This holds particularly true for the tropical regions

Fig. 1: Sampling during the trial

Material and methods: : A trial was conducted in a commercial feed-mill in Batangas Province, Philippines, to validate the efficacy of a preservative containing sodium benzoate, propionic acid and sodium propionate (KofaGrain pH5) in the treatment of commercial quality corn. Corn with a moisture content of 13% was treated with the supplier recommended dosage of the preservative (3.5 litre/t) and stored under simulated silo conditions in silo-shaped galvanized iron drums for 74 days (Fig. 1). Temperature was recorded twice daily. Mold and yeast count was taken at the beginning, midterm and end of the trial period

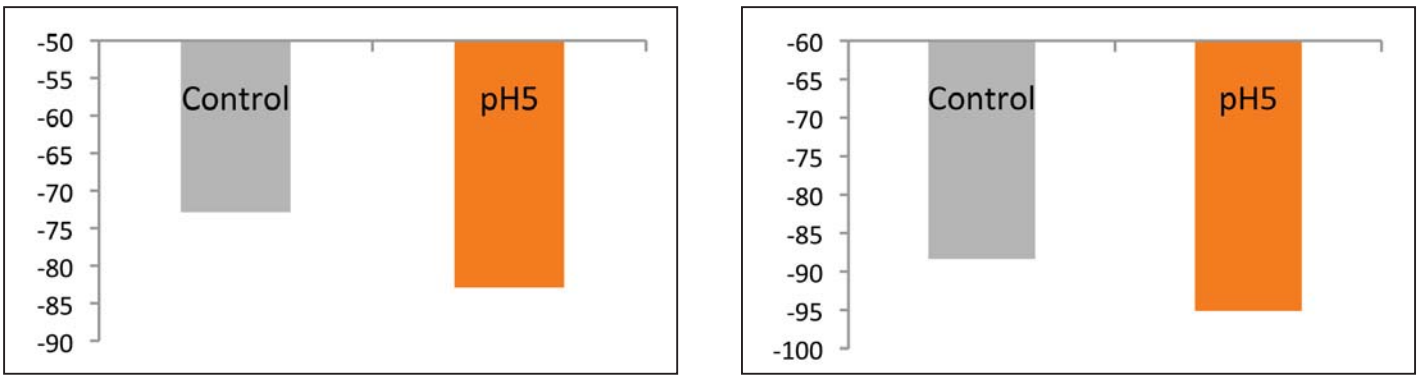

Fig. 2: Reduction of mould- (left graph) and yeast-count (right graph) in percent in control and preserved corn during 74 days of storage

Results and conclusions: The measured temperature in all groups followed the ambient temperature level between 27 and 29 degree C. For the treatment group, the initial mold and yeast count was 332,000 and 85,300 CFU/g, respectively. The preservative treatment yielded in a mold reduction of 82.9% (Fig. 2). This was significantly different compared to the control group (P=0.06). At the same time, the application of the preservative on the corn yielded for the yeasts a reduction of 95.1%. Again, this reduction level was significantly different (P=0.03) from the control group. No corrosion was observed in the drums that were directly exposed to the preservative. The trial outcome suggests that the preservative (KofaGrain pH5) offers a viable system for long term corn storage under tropical climate conditions for small to large commercial corn traders, feed manufacturers and integrators.