

**ADDCON OFFERS SCIENCE**

## Top layer or lower layers in the bunker – a huge difference



During feed-out the whole silage surface seems to be uniform quite often. Reheating and spoiling of the silage are often unseen in the top layer or at the edges of the bunker. The compaction at the top layer is always lower than in middle and lower areas of the bunker respectively, because the material at the surface rebounds. Especially in silage pills but in bunkers also, the edge or flanks are mostly not well compacted.

However, an airtight sealing is necessary for the ensiling process. Carbohydrates will be metabolized to fermentation acids and  $\text{CO}_2$  under anaerobic conditions. During the feed-out period the  $\text{CO}_2$  can easily flow out of the areas of lower compaction and fresh air,  $\text{O}_2$  is sucked in. The  $\text{O}_2$  activates yeasts and moulds and they start their aerobic metabolism, which causes spoiling and reheating of the silage.





On-top and center location in a bunker are often characterized by differences in the feed material. Analytical results of farm bunkers show that corn silage has often a higher dry matter (DM) at the top layer which results in a lower intensity of fermentation accompanied by a lower concentration of fermentation acids. *Lactobacillus buchneri* metabolizes less acetic acid under these conditions! However, acetic acid is needed to inhibit the growth of yeasts. Lower amounts of acetic acid can become critical when older and riper material high in starch and digestibility will be put on top of the bunker.

Lactic acid will be metabolized by yeasts during the reheating process. Here, the content of lactic acid is identically in both layers (tab.1). There has been no reheating in that silage.

At the first glance there is no need to worry. But the lower content of acetic acid in the top layer in combination with a higher DM, lower compaction and higher starch concentration poses a risk of reheating. Because of a lower fermentation activity at top-layer, inoculants cannot guarantee a protection from reheating.

If a higher DM and lower compaction can be expected in the top layer the use of **salts** like KOFASIL STABIL, MAIS KOFASIL liquid or KOFASIL SALT is recommended. Chemical additives have a higher protection against reheating compared to inoculants.

Table 1: Differences of feed and fermentation parameters between on-top and lower layers in a maize bunker caused by different plant ripeness.

	DM (g/kg)	starch (g/kg DM)	ELOS (%)	pH	lactic acid (% DM)	acetic acid (% DM)
top layer	335	320	66	4,0	5,0	1,8
center layer	310	290	63	3,9	5,0	2,9

ELOS = enzyme soluble organic matter

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