

Large square baled silage mould problems in modules

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Large square (actually rectangular) bales of silage can be stored above ground in small compartments or modules, in-ground in slightly larger compartments, or can be wrapped in stretch-wrap plastic either individually or continuously in-line.

Storing large square bales of silage under sheets of plastic in modules should be cheaper than being individually or continuously in-line wrapped. If the stack remains airtight during storage and are not too large, this can be the case (Figure 1). However, in many situations, this is often not the case because many bales are mouldy when the stack is opened or rapidly become mouldy once opened!



Figure 1. Large square baled silage in well-sealed and weighted module

Mouldy silage (Figure 2) usually occurs due to the presence of air in the stack at some stage. Mouldy silage represents a loss in dry matter and silage quality and results in increased cost per unit weight or energy. The amount of loss will depend on the extent of mould growth and aerobic deterioration of the bales. The moulds, aerobic bacteria, yeasts, etc. which set up camp and multiply profusely in these ideal conditions, actually “feed” on what you were try to preserve for your animals, the energy and proteins.



Figure 2. Mouldy large square bale of silage

Under these “aerobic” conditions the silage breaks down into carbon dioxide, moisture and heat, eventually becoming compost. The bales will begin to heat with the result that, the hotter the bales, the higher the proportion of dry matter and nutritive value being lost.

Mould Problems

Following are some possible causes of the different degrees of mould growth in large square baled silage storage systems:-

- 1. Small areas of mould on the bale exterior after several months of storage.**
The plastic sheet may have a slow leak due to a small hole or air is entering the stack at the bale-ground juncture, or the folded ends are not airtight.
- 2. Large areas of mould on the bale exterior after several months of storage. Moisture build-up on the underside of plastic sheet (Figure 3).**
Large or many small holes in the plastic sheet is allowing a lot of air to enter, the seal at ground level is not totally airtight, bales not packed tight enough in module, or the folded end flaps are not very airtight.



Figure 3. Mould on large square bales of silage due to poor stacking

- 3. Large areas of mould on bale exterior and “growing” inwards towards the bale centre and bales may be warming. Moisture build-up on the underside of plastic sheet and on bale exteriors.**
Very large or many small to medium sized holes in plastic sheet or very poor seal at base of stack or folded ends ineffective. If the bales are tight then the air has been entering for quite some time.
- 4. Large areas of mould on bale exterior, mould throughout most bale interiors, bales will be very warm to hot! Excess moisture build-up on the underside of plastic sheet and on bale exteriors.**
Very large or many holes in plastic sheet or very poor seal at base of stack or folded ends ineffective and/or the air has been entering for a long time. Bales may have been baled relatively “loosely” (for large squares) or the crop may have been too mature, ie stemmy,

at baling.

5. Any of the above with effluent flowing out of stack bottom.

This effluent could be from silage made too wet, or as a result of the silage substantially deteriorating from air entering the stack. Aerobic deterioration leads to the ensiled forage “breaking down” and producing carbon dioxide, heat and water. This silage will have undergone a poor fermentation and lost a lot of nutrients, dry matter and will be unpalatable to stock

NOTE: Try to avoid breathing in “air” from under these mould affected stacks as the carbon dioxide levels may be very high and the “air” may contain mould spores. Uncover a small proportion of the stack and allow some time for the “dangerous” air to escape.