



REDUCE EXPOSURE OF SILAGE TO AIR TO **REDUCE LOSS AND IMPROVE QUALITY**

Research conducted at KSI
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the silage was exposed to a
has a profound effect on it
can producers do to reduce their effects?

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Fill Rate is one factor that determines the length of time that the fresh forage is exposed to air before it begins to ferment. A forage such as haylage or small grain silage is alive when it is mown and while it wilts. Even after it is chopped the plant continues to respire and burn stored sugars. Respiration will continue until the plant's environment becomes anaerobic. If the plant utilizes too much of these sugars then there will not be adequate sugars available for the bacteria which ferments these sugars and produces the acids that preserve the silage. Inadequate sugars to fuel fermentation are a major reason for haylage and small grain silages going butyric. Solution – fill silos as fast as packing ability allows using a progressive wedge technique for optimum silage quality.

Interrupted Harvest is always a possibility. Mechanical breakdowns, weather conditions, inadequate dry down etc. can all result in there being an interruption in harvesting. Air penetrates a minimum of 6 inches from the top surface of uncovered silage. Again, this air allows the silage to continue to respire. Sugars are used up and yeast and molds proliferate. Whenever there is a delay of a day or more there will almost certainly be a “fill line” or a layer of spoilage as a result. In general the longer the delay, the thicker or deeper and more pronounced the line will be. Solution – if harvesting must be delayed a temporary cover should be used and removed when harvest can resume. If possible treat the top layer with 1-2 pounds of a buffered acid preservative per 50 square feet before applying the cover to help prevent spoilage.

Delayed Covering is a leading cause of spoilage in the top of piles and pits of silage. When covering of silage is delayed spoilage on the top surface can be anywhere from 1 inch to 1 foot. The black spoilage layer seen is where a large amount of shrink occurs. For every 1 inch of black layer, 3 inches of silage was lost to produce it. This black layer is essentially a “fill line” only it never had more new silage placed on top of it. Solution – covers should always be in place within 24 hours and preferably within hours with at least a minimum amount of weighting, tires or gravel bags.

Opening and Re-Covering occurs when producers either have such a large delay in filling (more than one day) or they store two cuttings in the same pit or pile. This allows oxygen to reach the fermented silage, yeast then grow, the pH raises and undesirable bacteria also proliferate, resulting in massive spoilage losses plus the risk of toxins. Solution – when producers know they will be re-opening a silo to store more silage they should fill the first silo or pile to the desired final height and finish with as steep of a ramp as possible. This allows the producer to then only have to expose a minimum amount of silage. Again, a preservative such as buffered propionic acid should be applied at 1-2 pounds per 50 square feet.

Oxygen Access During Storage occurs despite the best packing across properly placed plastic covers and through damaged layers of plastic. Seams and damaged plastic obviously allow air to reach the silage plus oxygen actually crosses conventional plastic covers. Solution – Oxygen Barrier Films which are now available drastically reduce the amount of air which reaches the silage during storage. These “films” offer several benefits over single layer plastic. First, the simple benefit of a second layer of protection at seams and where any physical damage occur, they provide a more clingy layer which bonds tighter to the silage and they also allow less oxygen transmission

For more help on producing, harvesting and storing the best quality silage contact North Star Services LLC.

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