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Nitrates and Silage

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Many questions have come into the office recently about cutting drought-stressed corn for silage. These questions usually deal with nitrate levels in corn as well as the right moisture content to make silage.

Nitrates accumulate in the stalks of drought-stressed corn. Higher levels of nitrate are found primarily in the lower portion of the stalk, while corn leaves will not accumulate any nitrates. Following a rainfall event, nitrate levels in the corn plant will spike as the plant takes up more nitrogen from the soil. Fields where higher levels of nitrogen fertilizer was added will be more at risk for higher nitrate levels in the plant.

If you are planning to cut drought-stressed corn for silage, call your local University of Missouri Extension center to have your corn spot-tested for nitrates. While this test is not quantitative, it will give you an idea of where nitrate levels are in the plant and will help you decide how you want to manage the nitrates. Some producers decide to raise the cutting height when making silage to leave the higher nitrate level stalks in the field. While this will lower the nitrate levels in the silage, it will also reduce the overall tonnage taken from a field. It is estimated that each foot of plant height in the field will produce one ton of silage per acre.

Nitrate levels will drop anywhere between 25 and 50% with at least 30 days of proper ensiling and fermentation. This drop will occur in silage pits, bagged silage or baleage. It is also recommended to wait at least 3 days after a rainfall event to resume cutting silage to wait for the spike in nitrates to go down. Before feeding silage, consider getting a quantitative test for nitrate levels to help make feeding decisions for your livestock.

Corn silage should be chopped when it reaches 65% moisture. The easiest way to check silage moisture is to use your microwave oven and determine the weight of moisture lost after drying. MU guidesheet 3151 goes into detail on this procedure, and can be obtained from your local University of Missouri Extension center.

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