

Considerations Before Cutting Corn Stalks For Feed



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Yesterday we completed two drought information meetings in southern Illinois. As expected they were well attended. It was great to see cattlemen; but I wish the circumstances were different.

I think it goes without saying that most pastures are “toasted” and most of 2012 hay has been of poor quality and/or quantity. Then add another problem – some have been feeding hay since the beginning of June and do not have sufficient hay stores to make it through winter. Thus there was an immense interest in utilizing the standing corn crop as forage for cattle, sheep, and goats.

I called the Animal Disease Lab in Centralia to inquire about the levels of nitrate (dry matter basis) they were observing in corn stalk samples. Thus far the lab has analyzed 100 samples. The following numbers are only estimates at this time – he has not had time to determine the exact number in each category – but I think some vital information can still be gleaned.

An estimated 15 corn stalk samples fell in the non-toxic category (<4400 ppm or 0.44% nitrate); 25 samples required that the corn stalks be limited to less than 50% of the ration dry matter (4400-8800 ppm or 0.44-0.88% nitrate); 30 samples must be limit fed to less than 25% of the ration dry matter and cannot be fed to pregnant cattle (8800 – 17,600 ppm or 0.88-1.76% nitrate); and 10 samples were too high in nitrates to feed due to potentially toxic effects (>17,600 ppm or >1.7% nitrate).

This tells me that regardless of your corn – since only approximately 15 percent of the samples tested thus far fall within the safe range – you should have it tested prior to utilizing it as ruminant feed whether that is as silage, baleage, or baled dry stalks.

To obtain the most accurate nitrate test results in your corn it is important to sample the entire stalk; leaves contain the least amount of nitrate and will give you a false sense of security. Cut the stalk at the height you intend to harvest. Since nitrates accumulate at the highest levels in the lowest portion of the stalk you may want to leave at least a 12 inch stubble at harvest. Take a randomized sample that is representative of all plants (stalks at various heights) from the entire field. If you have any questions, call the lab that will receive your samples.

When you receive the results of the test remember that forage testing laboratories may report their findings as percent NO₃, parts per million NO₃, percent NO₃-N, or parts per mil-

lion NO₃-N. To make it even more confusing, laboratories may report results on a dry matter basis, or “as is” moisture. Test levels based upon “as is” moisture will always be higher when converted to a 100 percent dry matter basis. Any results based upon “as is” moisture must be converted to dry matter basis for the sake of consistency.

Several producers inquired whether the nitrate levels would be reduced if the corn stalks were baled after it had sufficient time to dry. Emphatically NO – making hay from drought damaged corn will NOT reduce nitrate levels. The nitrate levels can ONLY be reduced after fermenting (ensiling). Fermenting corn as silage can reduce nitrate levels by 25 to 40 percent. It is important to test the silage prior to feeding.

But that standing forage has the potential to have far better feeding value than poor quality hay. The feeding value of drought damaged corn silage has been evaluated by several universities. The feeding value (as a percentage of normal silage) of silage made from corn that stressed all summer (without ear development and stunted growth) is approximately 70-80 percent. Silage made from corn that is severely stressed (yielding 5 to 20 bu. per acre grain yield) has approximately 80-90 percent of the feed value of normal silage. Corn that is stressed only during pollination will still have a feed value of 90-100 percent of normal silage.

Drought damaged corn that is going to be green-chopped and fed should be tested prior to harvest. Animals should be limit fed, and introduced to the forage slowly. Making hay from drought damaged corn will NOT reduce nitrate levels. Hay made from drought damaged corn should be tested prior to feeding.

The worst thing is to chop a load of cornstalks, then let the forage sit on the feed wagon overnight. In that time, the deadly nitrates convert into even deadlier nitrites. Nitrites tie up the oxygen-carrying capacity of blood hemoglobin leading to suffocation.

Forage nitrate levels will be highest in fields that received high nitrogen fertilizer or manure applications, and in plants that are severely stunted and did not form an ear. If corn plants have green active tissue, the plant may recover and produce more plant dry matter or yield per acre if rain arrives. Do not harvest too early.

Harvesting drought damaged forage should be delayed at least five days following a rain event. Immediately after rainfall, there is a rapid uptake of nitrate by the plants. Waiting a few days will allow the plants to metabolize the nitrate and reduce nitrate concentrations within the plant. Δ

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