Post Rock Answers
Week of: 8/6/18 – 8/10/18
Barrett Simon
Post Rock District – Livestock

Use of Drought-Stressed Corn for Cattle

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Throughout Kansas, there are areas of extreme drought and even in areas that show adequate moisture on the drought monitor, rain has been very "spotty" so some corn is beginning to look tough. Luckily, cattle are one potential option to salvage some value if the corn crop does not look like it will yield.

When should I consider harvesting corn for silage or hay?

The two weeks prior to and the two weeks after tasseling are key periods in determining grain yield. The two weeks prior to tasseling is when ear length is being determined and extreme stress at this time can reduce the number of kernels per row. Pollination can be inhibited by heat or drought stress. Poor pollination and reductions in kernel set and kernel development can all contribute to reduced grain yield.

For many, if the estimated yield is less than 25 bu/ac then harvesting as forage is a great management option; if yield will be greater than 50 bu/ac harvesting as grain is a better option. The tricky decision is when yield is between 25 and 50 bu/ac. The decision to harvest as forage depends on factors such as price of corn, timing of harvest (appropriate moisture), the ability to use or sell the silage and any herbicide or insurance limitations. All these things need to be taken into account as they play a big role in breakeven calculations. Another factor to consider is the removal of the above ground portion of the plant and effects on soil health, moisture loss, and nutrient removal. A spreadsheet is available (KSU-SilageValue) to help estimate the value of corn silage based upon the price of grain, harvesting costs and nutrients removed.

Which forage option is the best?

Generally, silage is a better forage option than haying or baleage for several of reasons. Ensiling and baleage of drought-stressed corn reduces nitrate concentration (30-60%), if properly ensiled. Optimal moisture content for proper ensiling depends on storage method and is often deceptive in moisture-stressed crops. Silage stored in a bunker should be at harvested at 65-70% moisture whereas baleage can be 45-60% moisture. Drought-stressed corn silage or baleage is often higher in protein than conventional corn silage, even though energy values are generally lower. Additionally, drought-stressed corn silage has less lignin than conventional silage. Estimated wet tonnage of drought stressed corn silage is 1 ton per foot of height on corn without ears or poorly pollinated ears.

Baleage of drought-stressed corn is an option, however, there are a few things that can make this process cumbersome. For example, the bales are difficult to maneuver, there is plastic wrap waste to deal with, and improper wrapping can ruin the bale. In regards to maneuverability and care of the baleage during the ensiling period make sure no holes are poked in the covering. If

punctures occur then seal with approved tape since the ensiling process becomes ineffectual if oxygen gets to the forage.
Putting up drought-stressed corn for hay is not recommended because even when we think it is very dry, it's large stem generally isn't. In a 2012 North Dakota State University study, corn that was cut for hay had to cure for 30 days before reaching 16.2% moisture. Nitrates are not reduced in hay in contrast to the reduction achieved during the ensiling process.
Grazing of corn can be an option, especially if trying to minimize nutrient removal from field via silage harvest. The cattle will remove less forage while also recycling some of the nutrients back to the field. Issues with this forage option include potential for nitrate toxicity as well as acidosis if there is sufficient mature grain in the field. To minimize issues with acidosis, strip graze and allow the cows only a couple of days in each strip. Calf gains while grazing standing corn have been reported between 1.6 lb/day up to 3.3 lb/day (some years the corn was drought-stressed and in other years normal precipitation).

Cattle performance with drought corn silage versus conventional
The energy value of drought damaged silage can range from 75-95% that of regular silage. This range of values is influenced by the amount of corn in the silage as well as the type of corn and its fiber composition. It is extremely important to test the silage for nutrient content and balance a ration to meet performance demands. Drought stressed silage is a good option for cows, especially if limit-feeding. Cows will voluntarily consume 2.5% of body weight on a dry matter basis of corn silage, which can provide more protein and energy than a cow demands, depending on stage and level of production. In this case, restricting the amount of corn silage in order to meet but not exceed requirements will stretch this valuable forage commodity.

Pricing
The general rule of thumb is that the cost of silage in the field is 6 to 7.26 times the value of corn, so even if grain yield is low, there is a possibility of capturing some revenue off that field. Depending on the amount of grain in the silage, a price adjustment should be applied.
In summary, some locations may need to look at salvaging drought-stressed corn as corn silage or baleage. This drought stressed silage has potential as a great feed resource for cattle. Test the silage or baleage prior to feeding and formulate to meet performance objectives. Utilize extension professionals or nutritionists to help capture the feeding value of this "failed crop". Also, don't forget to contact your insurance adjuster to determine which management option is the most economical for your operation.

Source: Kansas State University extension beef tips

Feeder Calf & Stocker Fall Program Coming the Second Weekend of September!
Join us at Mankato Livestock's new facility to discuss best management practices for receiving calves this fall. From limit feeding and nutrition, to health protocol, K-State Research & Extension Specialist Dale Blasi along with other industry experts will discuss how to protect your bottom line when taking in feeder cattle this fall. Contact any Post Rock Extension office or email Barrett8@ksu.edu for more further details.

Post Rock Extension District of K-State Research and Extension serves Jewell, Lincoln, Mitchell, Osborne, and Smith counties. Barrett may be contacted at Barrett8@ksu.edu or by calling Smith Center, 282-6823, Beloit 738-3597, Lincoln 524-4432, Mankato 378-3174, or Osborne 346-2521. Join us on

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