

News Column

by Greg McClure, KSU-Riley County Extension Agriculture Agent  
110 Courthouse Plaza  
Manhattan, KS 66502

For Release 11/28/22  
Phone: 785/537-6350  
Fax: 785/537-6353

## VALUE OF NUTRIENTS IN CORN STALK BALES

While I say I grew up on a farm, our farm was clearly a livestock operation. Every acre that Dad owned was surrounded by a permanent fence so it could be grazed,...and every acre was grazed at some time during the year.

The water table was high enough that much of the bottom ground was sub-irrigated. We could grow good alfalfa in a dry year and I once asked my dad why we didn't sell alfalfa as a cash crop. I thought alfalfa was the best crop we raised and I wondered why we didn't capitalize on that,... and bring in some cash.

Dad's response was that he didn't want those nutrients to leave the farm. He wanted all of the hay he produced to run through a cow (or sheep) and the manure to go right back on his own land.

In dry years, when feed prices are high, it is tempting to bale corn or milo stalks and sell the bales to cattlemen needing feed. While I understand why someone would bale stalks if they needed the feed, I like to leave some residue behind to protect the soil from erosion and to conserve moisture.

When pricing corn stalk bales, it is important to recognize the value of the nutrients in the residue. Those leaves and stalks aren't free. They have value and the producer needs to get more than just the cost of swathing and baling if they are sold off the farm.

One ton of corn residue contains about 17 pounds N, 4 pounds P<sub>2</sub>O<sub>5</sub>, 34 pounds K<sub>2</sub>O, and

3 pounds of S. If we value the N at \$0.87, P<sub>2</sub>O<sub>5</sub> at \$0.73, K<sub>2</sub>O at \$0.68, and S at \$0.60, we can calculate the fertilizer value of the nutrients in a ton of corn residue to be worth \$42.63.

So, how much residue is out there after harvesting a 100 bushel per acre corn crop?

Let's do the math.

Corn produces about 41 pounds of residue for each bushel of grain production.

Therefore, 100 bushels of corn would leave behind 4,100 pounds of residue – leaves, husks, and stalks. We wouldn't cut clear to the ground if swathing and baling, so let's just say 4,000 pounds,...two tons.

If we baled that two tons of residue and moved it off the field, we would be removing about \$85 worth of nutrients per acre from the field. That's the previously calculated fertilizer value per ton (\$42.63) times two tons per acre.

If we grazed the corn stalks instead, the majority of those nutrients would be deposited right back on the field. In fact, University of Nebraska data says only one to two pounds of N would be removed by grazing. No P or K would be removed.

Because a mineral supplement is commonly provided to cows while grazing stalks, there might actually be slightly more P put back on the field than what is consumed. It is a small number though – basically it is a wash.

While nutrients will remain on the field, they will obviously be redistributed. Expect areas where cattle spend more time to receive more than their share nutrients in the form of manure and urine. Resting areas and watering areas will likely receive heavier "fertilization".

I am not a proponent of baling corn stalks, but I am definitely a proponent of grazing. As a cattleman (OK, now a sheep herder), I like cheap feed. Cows (and my ewes) will gain weight on corn stalks in the fall and it's the cheapest feed they eat all year.

As a crop farmer, I look to University of Nebraska research for guidance. Their research shows no yield effect on the next summer's crop from grazing in the fall and winter. In other words, grazing doesn't hurt crop production.

I like to remove cattle at least by mid February to allow time for freezing and thawing to heal any fall surface compaction, and to avoid having cattle on muddy fields in the spring.

Don't graze up to planting day, but go ahead and graze. You won't hurt your yields.

If you have questions, you can reach me at the Riley County Extension Office at 785/537-6350. Or, you can send e-mail to [gmcclure@ksu.edu](mailto:gmcclure@ksu.edu).

K-State Research and Extension is an equal opportunity provider and employer.