



by John Goeser

# If you short crops, you will short your cows, too

LET'S talk agronomy in the Feeding Fundamentals column to start this new year. While an agronomy discussion may seem out of place in a nutrition-focused column, it shouldn't be. In last June's Feeding Fundamentals column, "Don't cut corners as potential returns are too great," we crossed the bridge into an agronomy discussion, and we'll do so again here.

In 2022, the number of questions, calls, and invited talks I received digging into an agronomy topic and its impact on nutrition grew considerably. For example, at a recent corn silage-focused industry meeting, one of the unprovoked questions that came from the attendees was, "How does plant population affect nutritional quality?" Thanks to Joe Lauer's work in agronomy with silage plots at the University of Wisconsin-Madison, we could answer this question. Higher plant populations can have a negative effect on corn silage nutritional quality, but the questions still far outnumber the answers.

The interaction between agronomy and nutrition is too often taken for granted. Toss in the fact that agronomic inputs are projected to be exceedingly expensive, and I'm fearful that some farmers will short their crops in 2023. Decidedly, soil fertility and agronomic practices have an incredible impact upon forage yield and quality.

While there's a bit of research

here, the bulk of research focused on agronomic practices has been related to grain or total forage yield. In the absence of abundant controlled university research with forage quality and cleanliness, we lean on agronomist colleagues, field experience, and plot summaries to help producers pave a path toward success. Forward-thinking agronomic practices and value-oriented inputs will set up your future crop for success and also protect it from disease and catastrophe.

## Nitrogen is the bedrock

Would you pull back the protein from your highest-producing milk cow pen due to expensive feed prices? Obviously not, because we recognize that if the high-performing dairy cattle's nutritional needs are shorted, then milk production, efficiency, and cash flow will suffer rather quickly, too.

In agronomic terms, think of your forage crop inputs just like you do your high-cow diet inputs. Protein is rich in nitrogen, and your corn crop needs sufficient nitrogen for both yield and quality. In the corn crop, the growing plants need nitrogen to yield a robust ear.

While inputs are near record highs, so are corn and soybean meal prices. Any missing bushels per ton of silage due to agronomically shorted corn will need to be purchased and brought back in the diet as dry ground corn.

Recently, I had a discussion with a California nutritionist about how expensive inputs from last year may be correlated to roughly two per-

centage units less starch in silage throughout the western U.S. last year. In that conversation, we went through napkin math and determined that this two-unit decrease in corn silage starch content equates to at least a half-pound more corn grain per cow per day needed in the diet.

With \$350 per ton of corn, this elevates feed costs by 9 cents per cow per day. Much like how your nutritionist will ensure the diet does not limit high-cow performance, we need to ensure our high-performing crops aren't limited in potential.

While sufficient nitrogen puts your crop in a position to yield well and succeed, crop protection from plant disease or insect infection will help bring your high-value crop to the finish line. The industry is moving in this direction, and fungicide application is up by most agronomists' accounts, with an estimated 30% to 50% of acres protected, according to one agronomist I spoke with recently. Ear or stalk rot and tar spot have been appropriately targeted, recognizing that healthier plants equate to several positive silage nutrition outcomes.

## Carrying less baggage

For example, healthy plants are far less riddled with anti-nutritional factors like spoilage yeast or molds and mycotoxins. The right fungicide application and timing also can reduce vomitoxin in corn silage. Along these same lines, fungicide protection and a healthy crop also can help limit risk by ensuring disease infestation does not shorten the harvest window for silage.

Several years ago, tar spot infestation shortened a three-to-four-week harvest window to one week for some growers. The result was overly dry and poor feeding silage.

Beyond the risk of feed contaminants, coming out of 2022, I'm now believing more than ever that healthier plants can yield more energy per ton of silage due to greater grain yield coupled with more digestible fiber. More starch and better fiber digestibility typically do not go together. However, with the 2022 silage, both the starch and total-tract fiber digestibility results were up for the Midwest with normal moisture. I think agronomic practices are partly at play.

Reflecting on a conversation with my friend, Bruno Do Amaral, during which he challenged me to think about how healthier plants could maintain fiber digestibility while also achieving more starch due to higher grain yields. In hindsight, it's likely this case has played out en masse with the 2022 Midwestern U.S. silage. I believe we can achieve this unexpected outcome again in the future through advanced agronomic practices.

Thank you for bearing with another agronomy-focused article. While I probably know enough about agronomy to be dangerous, I'll also acknowledge I am out over my skis in recommending agronomic practices. I strongly encourage you to take up these topics with your agronomist or crop adviser and set your sights on achieving new forage quality goals through agronomic inputs and management. 🐮

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