



by John Goeser

All grain isn't the same

THINK like a plant breeder when looking at your corn grain and feed costs this coming year. This statement likely doesn't make sense at first glance, but bear with me as I explain my thought process and, more importantly, the associated opportunities.

We can apply experience and ideas taught by other scientists and industry professionals from outside our dairy discipline.

For example, Jim Coors and other University of Wisconsin plant breeders taught me in graduate school to seek out desirable genetic variation, and

then move the population average in this direction through selection and management. Breeders have recognized what is possible when taking a single plant with desirable trait(s) and extending that trait in the entire population over time.

I've leaned into this plant breeding and genetics training fairly regularly in my role with the dairy industry, working with nutritionists, agronomists, and producers in forage management, dairy feeding, and nutrition programs. Whether it's plant or dairy herd genetics, like veterinarian Byron Williams explained to me in the August 2022 column, "We can feed for fertility," taking a breeder's approach can help your farm pad your balance sheet.

The path to uncovering margin opportunities begins with looking for unrecognized, and sometimes seemingly unrealistic, opportunities in feeds. Then, when this newfound variation is found, work to make it the norm. This will make sense as we delve into uncovering nutrition opportunities with dry ground corn.

Variation does exist

In the dairy industry, we've taken corn and commodity feeds

for granted. When I survey producers and nutritionists about what are the most consistent feeds in their rations, the response is typically soybean meal or corn grain. We have assumed homogeneity in these feeds, perceiving that commodities are all the same and consistent.

While corn and soybean meal are more consistent than your haylage inventory, assuming commodities are consistent is shortsighted. Think of this like grocery store shoppers buying milk, butter, and ice cream, perceiving that all dairy farms are the same. We know that all dairy farms are different, but we may take it for granted.

We take dry ground corn for granted as well in our rations. Yet, dry ground corn can have multiple unrecognized attributes. We just have to think like plant breeders and know where to look for the variation to take advantage of it.

Know the differences

The basic attributes to understand with your shelled corn are moisture, starch content, and mean particle size. Working with business-minded dairies that regularly sample their corn, we've found moisture ranging from 12% to 17% and starch content ranging from 68% to 73% of dry matter.

Starch content is influenced by genetics and the growing environment. While these two factors aren't easily managed week to week, grain marketing, storage, and handling experts have helped me come to understand that corn grain starch content can vary due to other factors. These may include:

- Blending higher and lesser quality grains while still meeting yellow No. 2 corn requirements
- Following grain deterioration in less desirable storage conditions

A five-unit difference in starch content in your shelled corn may seem small, but with an average dairy diet including 10 pounds of

supplemental corn, this equates to 0.5 pounds of raw corn starch. Translating this into corn grain equivalent, it means adding or subtracting just shy of a pound of corn grain to your ration, depending if your corn is on the high or low end in starch. At today's cash price, this value is roughly 10 cents or more in feed cost per hundredweight of milk produced.

Aside from starch, the next variation to seek out with corn is particle size. Finer ground corn improves rumen bacterial access to corn's nutrients and, subsequently, dairy performance. The goal for particle size has shifted following awareness of what's possible. This is selecting corn attributes but in a nutritional sense.

A finer grinding standard

Ten years ago, 400 to 600 micron mean particle size (MPS) was acceptable. Now, with dairy economy and industry awareness, the goal has moved down to 300 micron MPS. Today's commercial corn grinding mills can meet and exceed this goal.

When surveying Rock River Laboratory's database, University of Wisconsin-Madison's Randy Shaver and I found that the range in commercial ground corn is easily below 300 micron MPS. To understand the MPS impact on performance, when we compared the range in MPS to rumen starch digestion measures, we found that a 100 unit difference in MPS correlated to a 7% unit difference in rumen starch digestion. This observation was striking. Ask your nutritionist what a 7% unit difference in corn grain starch digestion would mean for your diet and feed costs.

While corn grain evaluation and monitoring programs have been in place with regular quality control programs at grain marketing and feed mill facilities, dairy farms have not been as aggressive in monitoring corn. Many have assumed consistency in corn, but in today's commodity

markets, take nothing for granted.

Transition your mindset to think like a breeder. Check your corn and seek out positive attributes to take advantage of, understanding that the economic ramifications associated with moisture, starch, and MPS may prove to be staggering. 🐄



For more insight from John Goeser, watch "Make the most of this year's corn silage" at on.hoards.com/WB_080822.



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