

# Improve feed efficiency, increase profitability by selecting high-quality corn silage hybrids

Larry Chase for *Progressive Dairyman*

Recent economic hardships have left the dairy industry reeling. Now more than ever, it is crucial that dairy producers carefully analyze all of their input costs to make sure they are using their dollars wisely. Since feed expenses can represent up of 60 percent of input costs, analyzing their feeding program is a logical place to start.

When evaluating feeding programs, dairy producers should look at high-quality corn silage and its role in feed efficiency. For a corn silage to be considered high-quality, it needs to meet certain criteria. I'd like to see a starch level higher than 30 percent and a neutral detergent fiber (NDF) level lower than 45. Additionally, there needs to be a good digestibility of the fiber in the forage, and it has to be well-

fermented and palatable to the cow. If you put all those together, you have quality corn silage.

## Corn silage comparisons from recent Cornell study

I recently completed a study that compared NutriDense silage, brown midrib and a conventional yellow dent hybrid. I was interested in looking at NutriDense silage because the information we had indicated there was potential for better fiber digestibility, more protein and a little bit softer kernel that would give us more starch digestibility. If all those came together correctly, it should result in higher-quality nutritive-value corn silage. Also, previous work had indicated that there might be an advantage in improved feed efficiency in conversion of feed to milk.

When we considered experimental design, we decided that if we wanted to look at a corn silage hybrid, we should feed corn silage very heavily in the ration. We used corn silage as the only forage with just a touch of straw to get enough physical chewing for the cow. We ended up with about 59 percent of the total ration dry matter as corn silage, which is very heavy, as that would give us a better chance to find differences between the three hybrids we were investigating. We also only used early lactation cows because they're more sensitive, or better models, to evaluate potential responses.

We used 20 cows per treatment, so we had 20 cows per hybrid. When the cows calved, all the cows went into a common ration for one to two weeks, which allowed us to assess whether they were healthy, coming on feed well and if they had any other problems. If in that week or two they didn't have any other problems, then we assigned them to one of the hybrid treatments and used that information as a covariant when we



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analyzed the data. Once the cows were assigned, they stayed on the treatment for about 10 weeks. It was a continuous trial, and we kept each cow on the same hybrid the whole way through.

In terms of cow response we did the typical measurements and looked at feed intake, milk production, body

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condition score and bodyweight. On the analysis side we used both conventional chemistry, in vitro analysis and in situ. We used a combination of analytical approaches to look at the quality and composition of the silage.

**Improved feed efficiency should equal income over feed costs**

In terms of actual NDF of the hybrids, NutriDense silage was numerically a little higher in NDF than the other two hybrids. In the 30-hour in vitro it was just a touch lower than the other two hybrids.

Though numerically they showed a difference, the hybrids were very similar in NDF so there wasn't a big difference up or down. We did see a little bit higher protein in NutriDense silage than the conventional hybrid that was in the trial, which was expected from the information we had received from the company. The starch content was a touch lower in NutriDense silage.

One of the most interesting conclusions from the study was the difference in feed efficiency. NutriDense silage was about 6 to 8 percent better in feed efficacy,

or converting feed to milk, than either of the other two hybrids that were used, so we did get a highly significant improvement in feed efficiency in NutriDense silage in this particular trial. That means to get the same pounds of milk, producers would feed about 6 to 8 percent less pounds of feed. In theory that would say they're going to get the same milk income with a lower feed cost input or a wider difference between milk income and feed costs. It should improve profitability. The other thing it should do is decrease the amount of manure produced by

the cow at the same level of milk because you have used more of the feed in the cow, so there should be less manure produced.

Now it's important to remember that this was one trial in one area, but we did end up with an improvement in feed efficiency, which should translate then into income over feed costs. If I were to speak to a dairy producer about this particular study, I'd tell him that NutriDense silage is one he should put on the list to seriously look at as he evaluates his hybrid selection policies.

When dairy producers are considering hybrid selections, it is important that they consider both yield and composition. If they pick a hybrid only for nutrition and don't think about the agronomy side, they may get a hybrid with great composition that doesn't yield or stand up. If the agronomy person is only thinking about getting a high-yielding silage and they don't think about the nutrition side, then at the cow level, producers are not going to end up with what they want either. Producers have to marry those two together when evaluating hybrids and pick varieties that will perform best in their geography and their herd. **PD**