

Extension Responds: Feeding Immature Corn

Dairy Cattle Feeding Tips for Immature Corn

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- 1. Test for moisture:** Expect moisture content of corn silage and high-moisture corn to be highly variable as it is fed out of the silo because of variable maturity and dry-down at harvest. Test frequently for moisture content of wet ensiled feeds at feed-out and adjust as-fed feeding rates to maintain the correct dry matter amounts and proportions of these feedstuffs in the diet. See the attached tables for harvesting and feeding guidelines for corn silages made at different stages of maturity.
- 2. Test for starch:** Expect starch content of corn silage and high-moisture corn to be highly variable, because of variable grain yield and ear kernel fill. Starch is a major component of corn silage and high-moisture corn and has a large influence on its energy content. Test corn silage and high moisture corn for starch content and adjust grain feeding rates accordingly.
- 3. Adjust for low test weight corn:** Low test weight corn may be prevalent in some areas. Minnesota workers report similar energy values and animal performance for corn with test weights ranging from 50 to 58 pounds per bushel. Corn with test weight below 50 pounds per bushel has an energy value about 95 percent of normal test weight corn. As a result, you may need to increase feeding rates of low test weight corn to maintain the desired energy content in diets. Analyzing corn for its nutrient content, including starch, and estimating its energy value using modern summative equations is a better way to determine feeding rates for low test weight corn. Because of highly variable test weights, it is important to feed corn on a weight and nutrient basis rather than on the basis of volume.
- 4. Processing and preserving:** High-moisture corn harvested too wet with more than 35-40 percent kernel moisture is possible but excessively fast starch digestibility can be harmful to high producing dairy cows. Ensiling may also be a problem when high-moisture corn contains excessive moisture as ethanol fermentations can occur. Depending on the specific conditions, you may decide at harvest to inoculate high-moisture corn with a microbial additive, treat it with an organic acid stabilizer, or treat it at full rates with an organic acid preservative to aid aerobic stability so these types of corn can be limit fed in the diet.

5. **Test for NDFD:** Immature forages may have variable levels of neutral detergent fiber digestibility (NDFD). Corn silage harvested too wet -- with more than 65 percent whole-plant moisture may have acceptable NDFD. You can have corn silages tested for NDFD at many commercial forage-testing laboratories, and this test is highly recommended. When you know NDFD, you can more accurately estimate the energy value of corn silage and other forages. When NDFD is low in corn silage or other forages, adjust grain feeding rates accordingly or add highly-digestible by-product fiber sources to the diet.

6. **Control Molds and Yeast: Test for mycotoxins:** One of the keys to handling immature corn silage and grain is controlling the inventory and aerobic instability. Producers should consider that corn silage and high moisture corn made from immature corn often has to be fed at a much lower feeding rate than normal corn or corn silage. Additives and inoculants that control molds and yeast can improve aerobic stability allowing the producer more flexibility in feed-out rates. If you produce corn silage or high moisture corn from corn that has stood in the field for an extended period, you should test for mycotoxins, especially the *Fusarium* sp. mycotoxins such as vomitoxin, zeralanone and T-2 toxin. *Fusarium* molds are especially problematic in cool fall conditions on immature corn. If the silage or high moisture corn is contaminated with one or more of these anti-quality factors, you may prevent decreases in milk production, cow health or reproductive performance by diluting the affected silage with other feeds.

7. **Alternative forages:** Because of a high rainfall and low summer temperatures during the summer of 2004, many farmers have alternative forages such as soybean silage, milage, sorghum-sudan grasses available. Sample and test alternative forages to determine their nutrient content. Don't rely on book values to determine their nutritional characteristics. Near infrared reflectance spectroscopy (NIRS) data bases are limited for some of these forages, so you may need to arrange for wet chemistry laboratory tests to fully determine nutritive value before feeding to livestock. As with corn silage, evaluate alternative forages for NDFD and energy content using modern summative equations.

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