

Corn Product Selection for Silage

- Silage corn selection is critical for maximum yield potential and quality silage.
- Growing the right silage corn may have the potential to improve both meat and milk production and profitability.
- A good silage corn product should improve feed ration (by providing high starch, improved fiber digestibility, and other factors).
- Silage corn product selection should be based on university, seed company, and on-farm trials for multiple locations and multiple years.

Silage corn is a high quality feed crop for ruminant animals because of its relatively high energy content.

Silage Quality

Corn product selection for silage is one of the most important management decisions in silage production. Corn products recommended for silage should be selected for above average yield and high nutrition quality including NDFD and starch. Therefore, having corn silage products that have both high grain and high forage yield can benefit making a high quality and high yielding forage. High grain (starch) corn silage products can help provide energy in the dairy ration, allowing the producer to reduce the amount of shell corn needed in the dairy/livestock ration (Figure 1).

Product Performance for Silage

For improved silage performance, select silage corn products that have been tested locally and are adapted to local growing conditions for maturity, excellent or strong overall plant health, disease, and insect resistance, and drought tolerance. Products that show consistent performance over multiple locations with different soil and weather conditions are the best option. Growers should also evaluate corn product performance information from multiple sources, including universities, seed companies, and on-farm strip trials (Figure 2).

It is often best to build a package of several corn products for silage production to help spread out harvest and potentially reduce agronomic risk.

Corn Maturity

To optimize the growing season and environment and maximum silage yield potential, consider using products that mature slightly later than grain products. This could be up to 5 to 10 days later relative maturity (RM), keeping in mind the effect on grain drydown and risks of early frost. These products with later maturities have the potential of producing between two to four tons per acre yield advantage over the standard maturity products.¹ Selecting products with a range in RM may widen the harvest window.³ Planting products with a range in maturity also widens the pollination window, thus reducing the risk that the entire crop may experience hot and dry conditions during pollination. Feed requirements, harvest timing, and the potential of wet soils at harvest are other factors that may encourage the selection of earlier maturing products.



Figure 1. Harvesting silage corn.

Select for Yield and Quality

University and commercial studies have shown that grain yield is a good general indicator of high silage yield. However, high grain yield is not always an indicator of high quality silage yield. It is critical to evaluate each silage product being considered for maturity needs and strong agronomics then yield and high starch content and fiber digestibility.

Corn Product Selection for Silage

When growers select silage products, they should determine what is needed to improve their current feeding ration (higher starch, improved fiber digestibility or other factors). Forage analysis by a reputable laboratory and consultation with an animal nutritionist can also help determine the best silage corn for an operation.

Milk 2006 Formula- Using the Milk 2006 formula, developed by the University of Wisconsin, is one effective approach in determining the value of a silage corn product.² The formula evaluates laboratory forage analysis and yield potential to create an index of potential milk production for a particular silage product. Milk 2006 calculates an estimate of milk/ton, or the potential for milk production from one ton of silage. Combined with on-farm harvest data, this formula can also be used to estimate milk/acre.

While milk/ton is a measure of silage quality, milk/acre is a measure of silage yield times quality {milk/ton x silage dry matter (DM) yield}. By using this data, products with high values for both milk/ton and milk/acre can produce high quality forage and high silage yield. Products with a low milk/ton value and a high milk/acre value typically have below-average quality and high yield. Silage from these products may not be best suited for lactating dairy cows, but could be valuable products for the dry cows, heifers, and other livestock on the farm. Products with a high milk/ton value and a low milk/acre value have above-average quality and low yield. These products though having additional nutritional qualities could also mean not enough feed for the cattle and more acres are necessary that could be used for different commodities.

Milk 2006 can also provide an estimate of dry matter intake (DMI), based on fiber digestibility (NDFd), which has been shown to have a significant impact on milk production. The best silage products should provide a good balance between high milk/ton and high milk/acre. Corn product selection, environmental conditions, and agronomic

management will ultimately influence final silage yield and quality. Growers should remember that harvesting at the correct moisture level is critical for producing high quality silage

On-Farm Trials

On-farm testing of new corn products can provide valuable information on agronomic performance, silage yield and quality data. Growers may consider cooperating with neighbors to conduct multiple on-farm trials with the same set of corn products on each farm. This system can offer growers an opportunity to gain experience with new silage corn products, while gathering yield and quality data from multiple locations in a single year.

Seed Company Data

Seed companies can also provide valuable silage yield and quality data through their proprietary testing programs. Contact your local seed representative for the most current corn product performance data.

For additional agronomic information, please contact your local seed representative.



Figure 2. Silage product performance data from seed companies, universities, and on-farm trials can help in the silage product selection process.

Sources.

¹Roth, G.W., and Heinrichs, A.J. 2001. Corn silage production and management. Penn State Extension. Agronomy Facts 18. <http://www.cas.psu.edu/>. ²Undersander, D.J., Howard, W.T., and Shaver, R.D. 1993. Milk per acre spreadsheet for combining yield and quality into a single term. Journal of Production Agriculture vol 6: 231-235. ³Coulter, J. Corn silage hybrid selection. University of Minnesota. Silage. <http://www.extension.umn.edu/>. Other sources used: Hinen, J. 2006. The big 6 - Focus on the 6 keys to quality corn silage. Mid-South Ruminant Nutrition Conference. <http://www.txanc.org/>. Lauer, J. 2011. Selecting corn silage hybrids. University of Wisconsin. Agronomy Advice, Field Crops 28.5 – 89. <http://corn.agronomy.wisc.edu/>. Web sources verified 10/29/14.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** Asgrow® and DEKALB and Design® are registered trademarks of Monsanto Technology LLC. Leaf Design® is a registered trademark of Monsanto Company. All other trademarks are the property of their respective owners. ©2014 Monsanto Company. 131102070107 110714SMK