

Selecting Corn Silage Hybrids

Joe Lauer, *Corn Agronomist*

Corn is a versatile crop that can be planted from early to late spring. In the fall, producers have the option of harvesting corn for either silage or grain. Corn silage is an important source of forage, especially in the northern Corn Belt of the U.S.

Corn can produce high dry matter yields with one harvest. Corn is a good crop to recycle nutrients from manure and maintain water quality. Corn silage is easily ensiled and results in palatable forage with relatively consistent quality and higher energy content than other forages. Corn silage production requires less labor and machinery time than other harvested forages. Thus, the cost per ton of dry matter produced tends to be lower for corn silage than for other forages.

Offsetting these benefits of corn silage are some disadvantages relative to other forages. There are few established markets and transportation costs are high, so the crop must be fed on or near the farm where it is produced. Storage facilities for corn silage can be more expensive than facilities for dry hay. In some locations, where corn is not well adapted, production costs may be too high to warrant silage production. On erodible soils, corn silage production may be limited because of soil residue requirements for conservation compliance.

Corn silage quality characteristics

Any good forage crop should have high dry matter yield, high protein content, high energy content (high digestibility), high intake (low fiber), and optimum dry matter content at harvest for acceptable fermentation and storage. With the exception of high protein level, corn silage exhibits these characteristics better than other forages. Both hybrid selection and agronomic management influence silage yield and quality.

Hybrid selection

Corn hybrid selection is one of the most important management decisions in silage production. Selecting the correct hybrid can often mean the difference between profit and loss. Even selecting the "best" hybrid might not be enough if some aspect in agronomic management is lacking such as delaying harvest. Selecting hybrids for

silage production depends somewhat on whether a field is planted specifically for silage or whether the field may be harvested for grain (dual purpose).

Many U.S. farmers and livestock producers grow corn for both grain and silage and they decide at harvest, which fields are to be used for each purpose. This flexibility is appreciated because at planting it is difficult to predict overall forage needs later in the year or know the condition of the corn crop at harvest. Acreage of silage production will increase in years when perennial forage legume production is reduced due to winterkill or drought or when moisture stress or early frost limits corn grain production. On the other hand when adequate forage from other crops isn't readily available and corn grain yields are adequate, producers may prefer the option of selling their grain production in the cash market.

How different are corn hybrids for silage quality?

Until recently there was little information about the extent of variation for nutritional quality of corn germplasm in the U.S. Most concepts about nutritive value of silage corn were the results of past studies of grain to stover ratios and genetic oddities such as the brown midrib mutants. It is generally agreed that most single gene mutants or germplasm stocks exhibiting radically altered morphology (profuse tillering, barren or "sugar" corn, dwarf, etc.) will not have much use as forage types due to their inherently poor productivity compared to adapted hybrids selected for grain production.

The highest yielding grain variety hybrids are not necessarily the highest yielding silage hybrids (Coors, 1994). Furthermore, whole plant digestibility and fiber ranges seem rather narrow (Allen et al., 1991; Carter et al., 1991; Hunt et al., 1992). Data from around the world such as Canada and Europe indicate larger differences in stover and whole plant digestibility.

Animal performance

Predicting animal performance and relating it to improvements in corn silage quality is complex. In

