



Agronomic Spotlight

Selecting Corn Products

- Two main goals when selecting corn products should be maximizing yield potential and minimizing risk.
- Selecting products with different growing degree unit requirements to mid-pollination may help decrease risks of heat and drought stress during pollination.
- For optimum performance in corn-on-corn environments, corn products should have strong early emergence and tolerance or resistance to key insects and diseases.

Yield Potential

Generally, the first selection criteria when evaluating corn products is yield potential (Figure 1). Product performance in plots across multiple locations and years can indicate the consistency and yield potential of a product, and in which environments it tends to excel or falter. When interpreting performance results, consider the soil type, crop rotation, tillage, temperature, and rainfall at each location.



Figure 1. Consistent yield potential is a top corn product selection criteria.

Standability is critical for ensuring the grain produced is harvestable. Stalk and root strength are particularly important for corn that will be planted at a higher population, or for corn that is likely to be under drought stress or any stress that reduces photosynthesis. Stalk diameter decreases with increasing population and drought stress favors stalk rot. If stalk rot appears to be a persistent problem in your system, consider placing more importance on standability and stalk rot resistance in your product selection.

Drydown, stalk quality, and root strength can help manage harvest schedules. Several variables can affect these characteristics, such as stresses endured throughout the growing season, untimely frosts, and various pathogens.

Evaluating Traits

The relative importance of individual traits differs with production practices and growing conditions. Standability, disease and drought tolerance, insect and herbicide resistance, and good emergence and seedling vigor in cool conditions are important agronomic traits to consider.

Emergence ratings should be considered when selecting corn products. Commercial products often have very good or excellent vigor and emergence ratings. Products with poor emergence or vigor are not advanced to commercial status. A strong emergence and vigor rating is especially beneficial if that product will be placed in a no-till or reduced tillage field, or will be planted early, as these management practices can result in cool, wet soil conditions.

It is important to evaluate products for tolerance to diseases that are common in your geography. Fungicide applications may mitigate some of the negative impacts associated with a product's susceptibility to fungal diseases such as gray leaf spot and northern corn leaf blight; however, fungicidal yield protection comes at a higher cost and risk than host resistance or tolerance.

Growing Degree Units

An often overlooked characteristic when selecting a package of corn products is growing degree unit (GDU) requirements to flowering or mid-pollination. Spreading out GDU requirements to mid-pollination can help decrease the risks of heat and drought stress during pollination (Figure 2).

Consider Relative Maturities

A good management practice is to plant a combination of products with early-, mid-, and full-season relative maturities (RM) to help spread out the harvest schedule and help minimize losses from drying costs and lodging. The early RM products can help fulfill early fall delivery commitments to elevators. Often, the majority of acres in an operation should be planted to mid- and full-season products due to the tendency for them to have higher yield potential since they have more days to photosynthesize and fill grain. In addition to helping manage harvest schedules, having a spread of RMs may help mitigate risks associated with an early fall frost such as low test weight, lower yield potential, and poor drydown.

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Corn-on-Corn Acres

Choosing corn products that can handle the additional stress associated with corn-on-corn environments can be challenging. Regardless of the environment, the first selection criteria should be yield potential. Choosing a product with strong early emergence is important as corn-on-corn systems may have the additional challenge of cooler and wetter soils due to heavy residue. Planting products with multiple modes of action insect protection such as products with Genuity® SmartStax® technology can help minimize the risk of damage from insects including northern corn rootworm, western corn rootworm, corn earworm, and European corn borer. Diseases such as gray leaf spot, northern corn leaf blight, southern corn leaf blight, stalk rots, ear rots, seedling blights, and Goss's wilt, are potentially more severe in corn-on-corn. Though fungicide applications can help effectively manage many of the foliar fungal diseases, selecting corn products with high levels of resistance to these types of diseases is often the best management strategy.

In some cases, continuous corn acres should be rotated among corn products. Many of the pathogens that cause diseases overwinter in crop residue and inocula will be present in the debris the following year. Therefore, if disease was present in a growing season, there is a higher risk that the same product will be infected again if it is used in the same field the next year. Rotating to a different product with better ratings for that specific disease can help minimize yield losses the following year.

Sources:

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Web sources verified 7/21/15



Figure 2. Having a package of products with various GDU requirements to mid-pollination can help reduce the risk of poor pollination due to heat and drought stress, zipper ear, diplodia ear rot, and silk clipping from insects such as Japanese beetle and corn rootworm.

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