

Selecting Corn Hybrids and Soybean Varieties for 2010

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Selecting corn hybrids and soybean varieties is one of the most important management decisions producers make. The hybrids and varieties you select will directly affect your yield potential and profits. Because of this, you should select your hybrids and varieties carefully. Consider the following factors when selecting the best adapted varieties for your farm -- yield, pest resistance or tolerance, maturity and standability.

Yield

Yield is probably the most important characteristic to look for when selecting corn and soybean varieties. Refer to tables 1 through 4 to see how critical hybrid and variety selection is to your profitability. Yield potential under ideal growing conditions varies among hybrids and varieties. The maximum yield potential of a given hybrid or variety is also affected by weather and other environmental conditions. A hybrid/variety that has the highest yield potential under ideal conditions may not yield as well as others when confronted with yield limiting factors. The best way to account for this variability is to look at yield data from as many different environments as possible.



Research has shown that evaluating performance over a wide range of locations and over multiple years will help you select the best adapted hybrids and varieties for your farm. Since hybrids and varieties have relatively short life spans, multiple-location data is easier to obtain than multiple-year data. The “Michigan Soybean Performance Report” and “Michigan Corn Hybrids Compared” are excellent sources for this information. Both publications are posted online at www.css.msu.edu/varietytrials soon after their release. The 2009 “Michigan Soybean Performance Report” should be posted by mid-November and “Michigan Corn Hybrids Compared in 2009” should be available in early December. Both publications are also published in the Michigan Farm News.

Selecting Corn Hybrids and Soybean Varieties for 2010

Table 1. Yield advantage of the highest-yielding hybrids over the average yield of all the hybrids and the lowest-yielding hybrids averaged across all locations in maturity zones 1, 2 and 3 from “Michigan Corn Hybrids Compared” (2005 – 2008).

Year	High – Average (bu/ac)	High – Low (bu/ac)
2005	21.4	61.8
2006	20.0	52.0
2007	23.3	47.6
2008	15.2	33.0

Table 2. ¹Economic advantage of the highest-yielding hybrids over the average yield of all the hybrids and the lowest-yielding hybrids averaged across all locations in maturity zones 1, 2 and 3 from “Michigan Corn Hybrids Compared” (2005 – 2008).

Year	High – Average (\$/ac)	High – Low (\$/ac)
2005	\$42.80	\$123.60
2006	\$60.80	\$158.08
2007	\$97.86	\$199.92
2008	\$61.56	\$133.65

¹Economic advantage per acre was determined by multiplying the yield advantage of the highest yielding hybrids by the USDA average prices received for each marketing year (\$2.00/bu in 2005, \$3.04/bu in 2006, \$4.20/bu in 2007 and \$4.05/bu in 2008).

Table 3. Yield advantage of the highest-yielding soybean varieties over the average yield of all the varieties and the lowest-yielding varieties averaged across all locations and maturity groups from the “Michigan Soybean Performance Reports” (Roundup Ready varieties only).

Year	High – Average (bu/ac)	High – Low (bu/ac)
2006	6.8	14.4
2007	5.8	14.1
2008	5.0	10.7
2009	5.0	12.1

Selecting Corn Hybrids and Soybean Varieties for 2010

Table 4. ²Economic advantage of the highest-yielding soybean varieties over the average yield of all the varieties and the lowest-yielding varieties averaged across all locations and maturity groups from the “Michigan Soybean Performance Reports” (Roundup Ready varieties only).

Year	High - Average (\$/ac)	High - Low (\$/ac)
2006	\$43.72	\$92.59
2007	\$58.58	\$142.41
2008	\$49.85	\$106.68
2009	\$45.50	\$110.11

²Economic advantage was determined by multiplying the yield advantage of the highest yielding varieties by the USDA average prices received for each marketing year -- \$6.43/bu in 2006, \$10.10/bu in 2007, \$9.97/bu in 2008 (estimated) and \$9.10/bu for 2009 (projected).

Maturity

The maturity range of the hybrids/varieties you select also affects your net income. Always select hybrids and varieties that will reach physiological maturity prior to a killing frost. The latest maturity soybeans planted should have yellow pods just before the date when there is a 20% chance of a killing frost occurring. Selecting soybean varieties that are too early for a given area will lead to lower yields as the plants will be filling seeds under hotter and drier conditions. Selecting varieties that are too late increases the risk of frost and freeze damage.

Corn hybrid maturity can have a significant effect on harvest moisture, drying costs and test weight. Hybrids having lower grain moisture but above average yield will often have higher net returns than a top-yielding hybrid having higher grain moisture. A good rule of thumb is that a one point increase in grain moisture will require approximately two bushels/ac more yield to break even.

Historical weather data can be used to select corn hybrids that will have a high probability of reaching physiological maturity at the optimum point in the growing season to maximize profitability. This information is presented in an easy-to-use format in MSU Extension Bulletin E-2471 “Using Climatological Information for Corn Hybrid Selection in Michigan”. This publication is available at any MSU Extension office or online at <http://www.emdc.msue.msu.edu/Bulletin/PDF/E2471.pdf>.

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Pest Resistance or Tolerance

Pest resistance is another important characteristic to consider as it protects the crop's yield potential when attacked by insects, nematodes or diseases. Significant yield reductions from soybean diseases such as phytophthora root and stem rot, white mold, sudden death syndrome (SDS) and soybean cyst nematodes (SCN) can be prevented by selecting resistant or tolerant varieties. The MSU Soybean Performance Report lists the genetic resistance to phytophthora and tolerance to white mold for the varieties tested. Seed suppliers are the best source of information about their varieties' tolerance to SDS and phytophthora. They are also the best place to get information regarding the source of the SCN resistance for their SCN resistant varieties.

There has been a lot of interest in applying foliar fungicides to corn. However, foliar fungicide effects on corn yields have been variable. Yield increases have been the most consistent when hybrids having moderate or high susceptibility to gray leaf spot were treated. Gray leaf spot is more likely to occur in corn after corn, no-till situations or irrigated fields. If you will be planting into these situations, work with your seed supplier to select hybrids that are highly resistant to gray leaf spot and possess the other desirable traits covered in this article.

Many corn hybrids contain transgenic resistance to one or more insects such as European corn borer (ECB), corn rootworm and western bean cutworm. Consider selecting varieties having transgenic resistance to ECB when they will be the first or the last hybrids planted in an area. Western bean cutworm populations reached damaging levels in several areas of the state this season so consider selecting transgenic hybrids containing the Cry1F protein in these areas. Evaluate several factors before selecting Bt rootworm hybrids. First, use 2009 scouting information to predict if you will have a rootworm problem in 2010. Second, evaluate all the options for controlling rootworms on your farm. Crop rotation still provides adequate control in many fields. Transgenic hybrids will probably provide more reliable rootworm control when corn is planted in April than seed treatments or soil insecticides.

Lodging

Lodged corn and soybean plants can increase harvest losses and significantly delay harvest operations. Use the "Michigan Soybean Performance Report" and the "Michigan Corn Hybrids Compared" to obtain lodging scores for the varieties and hybrids entered in the trials.

Want to Learn More?

Visit one of these Web sites:

<http://web1.msue.msu.edu/soybean2010/>
www.css.msu.edu/varietytrials