



Crop Management

Considerations for Selecting Soybean Varieties

Selecting soybean varieties is one of the most critical decisions a farmer can make each growing season. Although high yield potential is important, there are also other factors you should consider when selecting varieties, including disease, insect, and herbicide resistance traits; maturity date; and target market.

This publication describes the main factors you should consider when selecting which soybean variety to plant. Here is a quick list of considerations for selecting soybean varieties:

- Choose varieties that perform well in multi-location performance trials. Do not rely solely on data from your farm or one location or source to make decisions.
- Select a range of maturity groups and varieties that best match your production practices.
- Pick varieties that yield well and have the traits that are important to you (such as herbicide or disease resistance).
- Consider field history when selecting varieties, particularly when you look for varieties with disease and insect resistance.
- Select different varieties to diversify genetics. Plant the majority of your acreage to proven varieties and test new varieties on a smaller scale.
- Pay attention to seed composition characteristics (for example, protein, oil, amino acids, and so on). These qualities may not affect your “premium” at the local elevator, but they can affect exports.
- Select varieties with low lodging potential for planting into irrigated fields or mucky fields. Lodging can increase harvest losses and significantly delay harvest operations.
- Select varieties with high ratings for tolerance to iron deficiency chlorosis (IDC). IDC can reduce yield potential in some areas.
- Buy only the traits you need. Pest management traits protect yield, they do not enhance it.



Figure 1. Iron deficiency chlorosis can cause yield loss in certain regions of the United States.

Herbicide Traits

It is important to know the weed history, previous herbicide use patterns, and herbicide-resistant weed issues in a particular field to help you choose the herbicide resistance traits you need when choosing a soybean variety.

There are many varieties available with and without herbicide resistance traits. The most common herbicide resistance traits include:

- Conventional (non-traited)
- Roundup Ready®, which allows for in-season glyphosate application
- LibertyLink®, which allows for in-season glufosinate application
- Roundup Ready 2 Xtend®, which allows for at-planting and in-season applications of dicamba and glyphosate
- Enlist®, which allows for at-planting and in-season applications of 2, 4-D choline, glyphosate, and glufosinate — note that international market approval for this trait is pending
- BOLT® soybean, which has enhanced tolerance to certain ALS inhibitor-type herbicides, and in-season glyphosate applications

Disease Considerations

Planting disease-resistant soybean varieties can be the most effective and economical disease management option. Soybean varieties are available that have varying levels of resistance to some of the major diseases that occur in the United States and Ontario, Canada, such as soybean cyst nematode, sudden death syndrome, and frogeye leaf spot.

Some varieties may include resistance ratings for other diseases, but not all varieties are rated for every disease. If you have a field with a history of one or more diseases, select varieties that are resistant to the diseases that have the greatest effect on yield.

Insect Considerations

There are resistance traits available that protect soybean against soybean aphid in several maturity groups. Soybean aphid-resistant varieties have *Rag1*, *Rag2*, or both resistance genes. The *Rag* resistance genes are non-GMO, so they are available for organic farmers.

The maturity group you select can also help mitigate the damage from some insect pests. For example, early-maturing varieties are often less susceptible to late-season pod feeding by bean leaf beetles or stink bugs.

Maturity

Several factors affect soybean development, including genetics, temperature, and hours of sunshine. Plus, diseases, moisture, and other stresses can lengthen or shorten the actual days to maturity depending on when the stress occurs. For these reasons, it's important to routinely evaluate the ability of new soybean varieties to adapt to these conditions. After this evaluation, choose the most appropriate maturity group (MG) to maximize yields and returns.

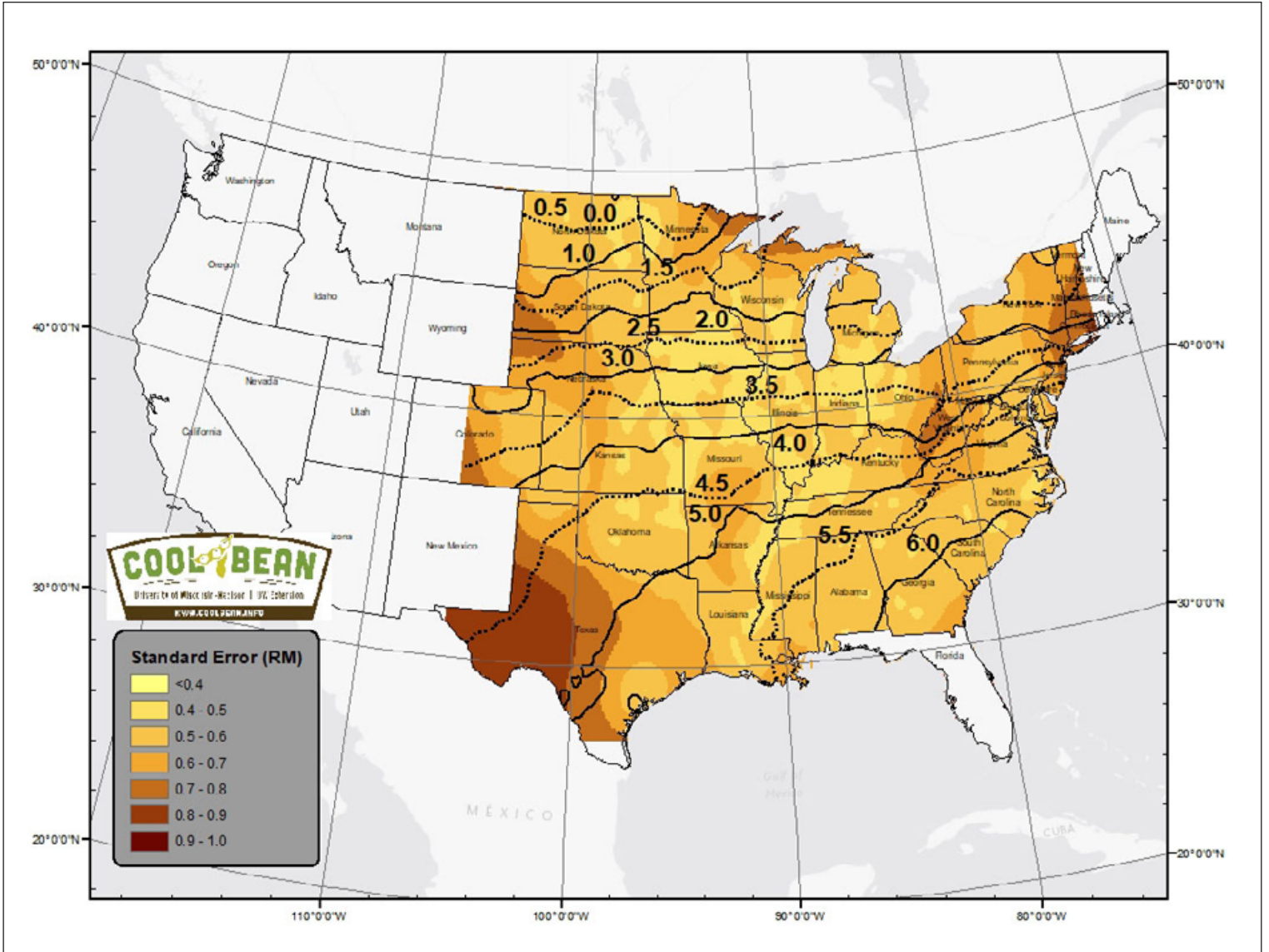


Figure 2. Optimum soybean maturity across the United States. Source: www.coolbean.info/library/documents/SoybeanMG_2016_FINAL.pdf.

The Bottom Line

Variety selection is key to maximizing yield potential. Carefully consider multiple factors when selecting varieties.

Other publications in the *Crop Management* series are available on the Crop Protection Network website (CropProtectionNetwork.org).

In particular, see: *Delineating Optimal Soybean Maturity Groups Across the United States* from University of Wisconsin Extension at www.coolbean.info/library/documents/SoybeanMG_2016_FINAL.pdf.

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