Plant & Variety Selection - Seed

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Raising a profitable crop begins with selecting the right seed product to plant on your farm. When selecting seed, you'll need to identify characteristics important for a successful crop on your farm. Just as no two farms are exactly alike, neither are the fields in which you'll be planting. You need to understand the field conditions and potential environment you expect a plant to grow in. Then, select varieties that meet those expectations.

How To Get Started

It is important to remember that farming does not exist in ideals. Soil, location, climate and weather, and property are often far from ideal for producers; especially those early in their career. Therefore, to make the best of your situation, consider plant attributes that can help navigate factors outside of your control that will inevitably affect your farming season. Attributes include growth factors that focus on plant health and survivability, harvest condition and quality, tolerance or safety concerns when using pesticides, and even disease resistance or susceptibility. All of these are important when considering what to plant on your farm.

When selecting what to plant, it helps to start with the end in mind. Marketing is a very important component of owning and operating a farm business. It is especially important when considering what to produce. For example, beginning farmers should think about who they will be marketing their crops to, how saturated the market is in their region, and the value proposition they have for the marketplace.

Section 1: Field Crops

Seed product options for field crops are found in seed guides, available from seed companies or related seed dealers. Seed guides can be a little tricky to understand if you don't have experience reading them. The trickiness exists because every company sets up their guides slightly differently. However, while there are differences, there are also a lot of common types of information.

Primary considerations

- Growth characteristics
- Harvest timing, condition, and quality
- Costs and their impacts (i.e., planting, harvest)

Process for getting started

Variety numbering systems are the conventions by which companies name their different seed options. These conventions may use a combination of abbreviations for their company name, relative maturity (RM) numbers, and possibly trait information to identify varieties. An additional characteristic of a numbering system may be for an included trait package, designed to protect the plant against specific pesticide damage.

Seed guides offer information on a number of different plant attributes. Often these attributes are accompanied by a rating system. They may use a 1-9 rating system, with 1 being the best rating for one company and 9 as the best rating for a separate company. Other companies will use more descriptive terms such as poor, good, very good, and excellent. It is important to understand which rating scale the company is using to define growth characteristics and other attributes.

Another consideration is to identify when you need a plant to reach maturity. Many plant varieties will list maturity by at least one of two terms: relative maturity (RM) and growing degree days (GDDs). Relative maturity focuses on harvest maturity, or when a crop can be harvested with minimal loss or damage. Growing degree days focus on thermal accumulation, or heat units, needed for a plant to reach reproductive maturity. Reproductive maturity can often be reached before relative maturity. Often times, the importance of relative maturity or growing degree days is dependent on when crops will need to be harvested. Beginning farmers who raise field crops often focus on relative maturity to meet standard grades for grain.

Selecting the right seed for your farm starts and stops with profitability. You want to select varieties that are adaptable and will maximize yields across all acres. The economic returns related to seed and harvest costs are equally important, which include seed purchases, test weight, moisture shrink loss and drying charges.

Common Questions for Field Crops

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1. Are days of relative maturity the same as counting calendar days from planting?

Relative maturity is the days needed to reach harvest maturity or when grain can be harvested with minimal loss or damage. Under ideal field conditions, harvest occurs when grain has naturally dried to a desired moisture content. However, weather can impact how long it takes to reach ideal moisture levels. Temperature, humidity and water availability can delay or speed up the drying process. Due to weather, relative maturity days should not be considered the same as calendar days from planting. For more information, visit the MSU Extension presentation on Optimal Maturity Selection in Corn and Soybeans.

2. What are trait packages and how do they work?

In addition to pesticide use and disease ratings, seed varieties may be genetically modified with additional management attributes. When a plant is modified, and its resistance is not naturally occurring this is referred to as genetically modified organisms (GMOs) or simply “traits.” Plants with genetic traits may be able to provide their own protection against pests, injury from pesticides, or environmental stress conditions. For more information, visit the Handy Bt Trait Table for U.S. Corn Production (https://www.texasinsects.org/bt-corn-trait-table.html).

3. Does a higher disease rating mean I won’t need to use fungicides on my plant?

A better rating indicates the plant is less susceptible to disease development and injury, which means limited impact to plant health and yield. Fungicides may still be needed if environmental conditions favor disease presence or injury. Although a lot of data is not available on each disease, a general rule of thumb is that there is a higher chance of return on investment (ROI) when conditions are favorable for disease development. To learn more about diseases and management tips, visit the Crop Protection Network (https://cropprotectionnetwork.org/).

4. Why is planting population important when choosing seed to purchase?

Population density in a field is important to your decision when comparing seed options. Depending on growth factors, soil types and environmental conditions, higher or lower planting rates may be needed for a specific seed variety. In some cases, seed may be versatile and can be planted at different planting rates, depending on environmental conditions. Ultimately, you need to know the population options that go along with a potential seed purchase to identify the best fits for your fields. Planting rates also affect your overall cost per acre of seed planted. For example, a seed variety with a lower price per bag may have a higher cost per acre depending on the chosen planting rate. To learn more about planting considerations, visit the MSU Field Crops Virtual Breakfast session recording on Corn and Soybean Planting Considerations (https://www.canr.msu.edu/videos/corn-and-soybean-planting-considerations-1).

5. How do harvest costs factor in selecting what seed to plant?

Harvest time costs can also be helpful when comparing seed options. Commercial grain buyers will grade sold bushels based on a number of factors. Factors can include test weight, moisture content, kernel damage, heat damage from drying, and even non-grain or foreign material. Grain that is sold without meeting these standards is discounted by fee or reduced bushels. The most commonly used in seed selection is to look for better test weight and moisture

ratings. For an example of the impact of harvest factors, visit Grain Test Weight Considerations for Corn from Purdue University (https://www.agry.purdue.edu/ext/corn/news/timeless/TestWeight.html).

Linked text area to redirect to other sections of the document for specific information

Research & Recommendation Resources

- MSU Field Crops website: Source of research-based crop production recommendations and resources. Assistance is accessible through educational programs, fact sheets, bulletins, articles, websites, and individual contacts (https://www.canr.msu.edu/field_crops/index).
- Bulletin E-3430: How to Read a Seed Guide (Corn Edition) (Michigan State University Extension at https://www.canr.msu.edu/resources/bulletin-e-3430-how-to-read-a-seed-guide-corn-edition)
- Handy Bt Trait Table for U.S. Corn Production (authored by Chris DiFonzo, Michigan State University, at https://www.texasinsects.org/bt-corn-trait-table.html).
- Crop Protection Network: Provides unbiased, collaborative outputs on important issues affecting crops in the United States and Canada (https://cropprotectionnetwork.org/).

Educational Programs and Events

- MSU Extension Virtual Breakfast: This free weekly series for farmers and agribusinesses focuses on a wide array of relevant field crop pest and crop management topics during the growing season.
- MSU Extension Field Crop Webinar Series: An educational program where participants learn how to enhance their corn, soybean, small grain and forage production systems and have an opportunity to ask questions of MSU agriculture experts.
- MSU Extension Crop and Pest Management Update Meetings: Annual, in-person meetings held between January and February to help producers and agribusiness professionals prepare for the upcoming growing season.|

Industry Partners & Organizations

- Michigan Corn – https://micorn.org/
- Michigan Soybean Committee – https://www.michigansoybean.org/
- Michigan Wheat Program – https://miwheat.org/

Section 2: Vegetables

Primary considerations

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Process for getting started

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Disclaimer: For a specific list of resources in the above description, view the Necessary Resources area of this section.

Five most common questions for beginning farmers

1.
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Necessary resources

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Partners

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Section 3: Floriculture & Nursery

Primary considerations

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Process for getting started

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Five most common questions for beginning farmers

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Necessary resources

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Partners