Historically, soybean planting dates have been delayed relative to corn and were considered non-critical in regards to yield potential. However, research has shown that early planting can be critical for increasing soybean yield potential.

**Early Planting Benefits**

By planting early, canopy photosynthesis can be increased throughout the season. Increased photosynthesis comes from a large soybean canopy to maximize the solar radiation captured during the June and July time period. This can lead to increasing the number of plant nodes, lengthening the reproductive period due to earlier flowering, and increasing the crop growth rate during pod set, which can lead to a greater seed filling rate. The early canopy development can also help: 1) in the conservation of soil moisture, which is critical during reproductive periods, 2) reduce weed competition early in the season, and 3) may help prevent later emerging weeds from becoming a problem.

When planting early, it is important to wait until good soil and seedbed conditions exist. Planting when soil is too wet can result in compaction, poor seed placement, and poor stand establishment. Excessive tillage or a heavy rain soon after planting can result in soil crusting, which can lead to a poor stand. Soybean seed planted into wet soils will likely negate any potential yield advantage from planting early.

**University Studies**

Data from several universities suggests planting soybean seed early (in late April or early May) can help maximize yield potential. Available data should be examined to try make an informed decision on planting date. While there are risks, the potential yield benefits for early planting are compelling and tools are available to help mitigate most risks associated with early planting.

- If soil conditions are good, soybean should be planted anytime after April 15 in Southern Ohio, while Northern Ohio soybean planting should begin the last few days of April.¹ The Ohio State University planting date studies throughout multiple years have indicated that soybean yield loss due to delayed planting ranges from 0.25 bu/acre to more than 1 bu/acre per day.

- Michigan State University planting recommendations state that soybean seed can be planted during the last week of April in an effort to capture a longer planting window for attaining maximum yield potential.² Soybean seeds planted during the last week of April yielded similarly to soybean planted during the first week of May.

- Iowa State University found that most farmers can increase yield potential by 3 to 4 bu/acre by planting early.³

- Yield losses of 0.25 bu/acre occurred in poor growing conditions and losses of 0.6 bu/acre occurred under good growing conditions for each day soybean planting was delayed after May 1st in Nebraska.⁴

- University of Minnesota trial results showed maximum soybean yield was obtained when the planting date was between May 1-15.⁵

- North Dakota State University research showed that late plantings resulted in lower soybean yields, seed quality, and seed oil content and shorter plants. In addition, seeds were set lower to the ground in late plantings compared to those planted on the optimum planting date, which is no sooner than five days before the average last killing frost in the spring.⁶
Early Planting Soybean Considerations

- South Dakota State University reported the highest yield for both early and mid-season soybean products at the earliest soybean planting date (May 1st).\(^7\)
- A two-year research trial in Indiana found that soybean yields were higher when planting dates were in late April or early May, due to more pods per unit area.\(^8\)

**Risks and Management**

Along with benefits, planting early can have a negative impact on soybean yield potential. Consider the following recommended management practices to help limit some risks associated with early soybean planting:

1. Selecting a soybean product with sudden death syndrome (SDS) tolerance and planting fields with no history of the disease are options to help reduce the risk of SDS infection and development later in the season. The disease is associated with cool and saturated soil conditions, which are common in an early growing season (Figure 1). Soybean products that are resistant to soybean cyst nematodes (SCN) (Figure 2) can also help, since the presence of SCN has been associated with increased SDS.

2. One concern with early planting are cool, wet soils that can slow germination and soybean establishment. These conditions can result in seed and young seedlings being susceptible to seed and seedling pathogens and insects. Using Acceleron® Soybean Seed Treatment Products for disease and insect protection can help mitigate the effects of unpredictable early season planting conditions. Acceleron® Fungicide Soybean Seed Treatment Products provide excellent control of *Rhizoctonia*, *Pythium*, *Fusarium* and early-season *Phytophthora*. Acceleron® Insecticide Soybean Seed Treatment Products provide above ground protection to early season pests, such as bean leaf beetle (BLB) (Figure 3) and early-season soybean aphids.

3. Minimize the chances of imbibitional chilling injury and frost damage by planting when soil and environmental conditions are good.

4. Fields should be monitored frequently to help address problems and prevent soybean yield loss to pests. A larger canopy earlier in the season can provide a favorable environment for diseases such as frogeye leaf spot and white mold (Figure 4).

Establishing good stands may require:

- Using some tillage to reduce residue, but only when soils are dry enough to reduce compaction.
- Applying adequate fertility to maintain healthy soybean growth.
- Adequate soil drainage, which can help promote good root development.
- Calibrating planting equipment to maintain proper planting depth and seeding rate. Always refer to the manufacturer’s manual before performing any maintenance.

**Sources:**

7. Berg, R. R., Draper M., Stevens, R., Jurgensen, B., Williamson, G., Wiebesiek, A., Ruden, K., and Schilling, S. 2002. Date of planting soybean with and without fungicide seed treatments. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Acceleron® is a registered trademark of Monsanto Technology LLC. Leaf Design® is a registered trademark of Monsanto Company. Channel® and the Arrow Design® and Seedsmanship At Work® are registered trademarks of Channel Bio, LLC. All other trademarks are the property of their respective owners. ©2015 Monsanto Company. 140405061002 021515SMK