Double-Cropping Soybeans After Wheat

- The first step in a successful double-crop soybean production system begins with residue management during the wheat harvest.
- Selecting later-flowering soybean products improves the chances that double-crop soybeans will produce adequate foliage and fill pods before frost.
- Controlling insects, diseases, and weeds can improve the chances that double-crop soybeans will produce anticipated yields in a shortened growing season.

Identify Challenges

Planting soybeans behind wheat presents the farmer with several production challenges. A shortened growing season, unpredictable weather, and weeds that can grow rapidly under hot and dry conditions (Palmer amaranth) can slash double-crop soybean yield potential.

Wheat Harvest

An early wheat harvest can extend the window for planting double-crop soybeans. It may be beneficial to harvest wheat at a slightly higher moisture content and dry the grain rather than waiting for wheat to reach 13% moisture in the field. Harvesting wheat at 18 to 20% moisture does not appear to affect the milling or baking quality, but will require drying costs or dockage when selling high-moisture grain.\(^1\)

Efficient Planting

To salvage as much of the growing season as possible, farmers must be prepared to plant immediately behind the wheat combine.

“The biggest hurdle we run into is getting the soybean plants big enough, quick enough, to provide the energy necessary to fill the pods before we get a frost,” says Jim Dunphy, Extension Soybean Specialist, North Carolina State University. “We’re typically planting relatively late, and we’re planting a crop that is sensitive to day length. Late-planted soybeans simply don’t have as much time to get big enough.”

“We want to get the soybeans up and growing quickly, so they have the best chance of growing large enough so the plants are lapping in the middles and plants have 4 layers of leaves before they flower,” Dunphy says. “The goal is to produce enough leaves to capture as much sunlight as possible. Soybean plants 3 feet tall in 30-inch rows will have about 4 layers of leaves and no bare ground exposed between the rows. Those plants are capable of capturing enough sunlight to provide the energy the plants need to fill the pods. If conditions keep the plants from developing 4 layers of leaves, or if there is bare ground between the rows, yield potential will suffer. On the other hand, taller plants will not contribute to yield potential.”

Selecting Soybean Products

One key to achieving the necessary plant growth is planting a later-maturing soybean product than would have been planted earlier in the spring. Later-flowering soybeans will continue growing later in the season, improving the likelihood that they will produce adequate foliage and fill pods.

“Later-maturing soybeans flower later, and more importantly, they stop growing later,” Dunphy says. “Which maturity group a farmer selects depends on where those soybeans are planted. In most cases, growers will just move up a maturity group or two from what they would have planted as full-season soybeans.”
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Dunphy notes that some soybean products perform better than others in the same maturity group, when planted in a double-crop system.

In some states, soybean products are planted both full-season and double-crop in Official Variety Tests (OVT). Seed companies also test their soybeans for performance in different planting conditions, conventional and no-till, full-season and double-crop. Farmers should check the OVT ratings and check with seed dealers to see which soybeans perform best under the conditions they anticipate.

Residue Management

No-till planting into wheat residue can speed soybean planting and help retain soil moisture. However, wheat residue can also create challenges. Farmers should cut wheat high or use a stripper header and uniformly spread the residue. Residue from the wheat crop should not be bunched or windrowed unless it is going to be baled and removed before soybean planting. Planters should be equipped with row cleaners and/or coulters that will cut through wheat straw and penetrate the soil to the desired seeding depth. Consistent seeding depth is critical to making sure that seed is planted in moist soil, which will promote rapid germination.

However, dry conditions at planting time may call for taking a chance on planting into dry soil. “We certainly hope we don’t plant in dry soil, get a tenth of an inch of rain to start germination, and then get no more rain to maintain the plants,” Dunphy says. “Rather than plant too deep or delay planting and lose part of the limited growing season, I have gotten away with planting dry and waiting for a rain more often than not.”

Disease and Insect Management

Because double-crop soybeans are planted later in the season, plants may face more disease and insect pressure at earlier growth stages than full-season soybeans. A 3-year research study conducted by Mississippi State University concluded that applying an insecticide seed treatment resulted in about a 2.4 bushels/acre yield advantage, regardless of maturity group, location, or month planted, and the average response did not change much based on yield potential.

Selecting soybean products with good disease resistance, and seed treated with Acceleron® Seed Treatment Products for Soybeans, can help protect double-crop soybeans from both diseases and insects. Farmers should also scout and apply additional fungicides and insecticides as needed to maintain soybean health.

Weed Management

The same environmental conditions that can encourage rapid double-crop soybean germination and growth can also stimulate rapid weed growth. Some difficult-to-control weeds, like Palmer amaranth, can grow very well even in hot, dry conditions. It is critical that double-crop soybean farmers begin with a weed-free seedbed by killing weeds before planting. As in full-season soybeans, preemergence herbicides should be used to prevent weeds from growing along with the soybeans.

Sources:
1 Early wheat could provide an opportunity for double cropping. 04/12/12. Purdue University New Service. Available on-line: http://www.purdue.edu (verified 05/22/2014);
2 Catchot. A. May 17, 2013. Do insecticide seed treatments provide any value on late planted soybeans? Mississippi State University Extension. Mississippi Crop Situation; Personal interview with Dr. Jim Dunphy, Extension Soybean Specialist, North Carolina State University.