

Double-cropping Soybeans & Wheat

IN LOUISIANA DURING 2008

Historically in Louisiana, when producers double-crop behind wheat, 85 percent of those acres have been planted with soybeans. More recently, however, producers have double-cropped other crops such as cotton behind wheat. Considerable research has been done by LSU AgCenter scientists on wheat/soybean double-cropping systems since the 1970s. This fact sheet compiles research and observations from recent studies in Central Louisiana to aid producers in developing soybean production practices in a wheat/soybean double-cropping system.

Stubble Management

Wheat stubble creates a challenging seedbed in which to obtain an acceptable stand of soybeans. The key to obtaining an adequate plant population is to maintain soil moisture and then place the seed with good seed-to-soil contact. There are several options to manage the wheat residue – ranging from no-till into standing stubble to the extreme of burning the straw. Wheat stubble management research at the Dean Lee Research and Extension Center at Alexandria examined various stubble heights, as well as burning and disking operations. Two years of study showed no yield differences among stubble management regimes (Figure 1).

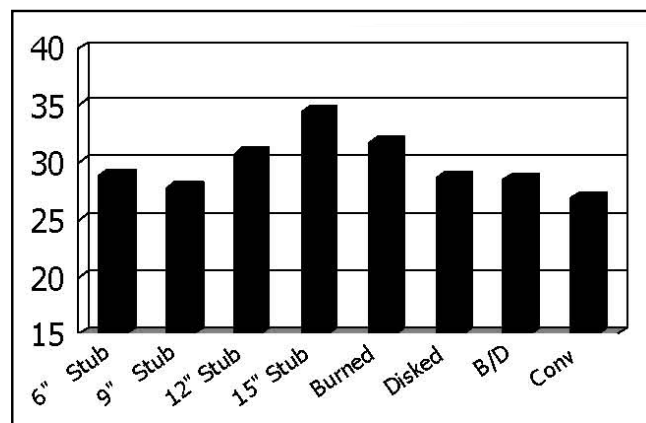


Figure 1. Soybean yield in a stubble management trial with four cutting heights and residue management regimens at Dean Lee Research and Extension Center, 2003 and 2004.

Maturity Group Selection

In addition to the stubble management research, additional trials have evaluated the specific maturity groups (MG) of soybeans that would perform well in a wheat/soybean double-cropping system. Two varieties within each MG 3, MG 4, MG 5 and MG 6 were planted on stale seedbeds, as well in wheat stubble.

Regardless of the stale beds or wheat stubble, seed yields were highest for MG 4 and MG 5 varieties (Figure 2). MG 6 varieties were not harvested because of excessive yield losses from late-season diseases and insects.

Plant Population

Without considerable modification some planters may not be able to properly place seed in the furrow because of dense wheat stubble and plant residue. To compensate for some stubble interference and because of the late planting date, soybean seeding rates should be increased 10 percent to 15 percent. The LSU AgCenter recommends planting 130,000 seeds per acre in a normal planting window, and it recommends increasing that rate to around 145,000 per acre in this system. If planting is delayed past June 15, rates should be increased to 180,000 seeds per acre.

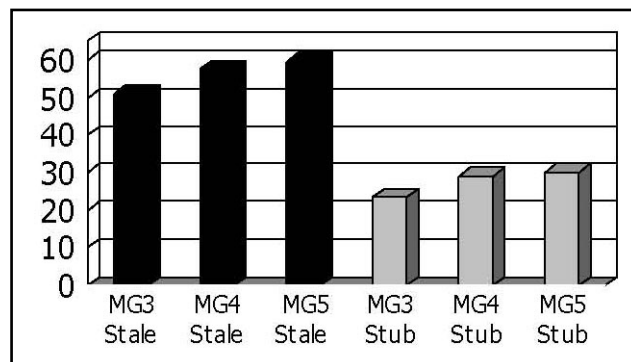


Figure 2. Yield of soybean maturity groups late-planted into stale seedbeds and wheat stubble at Dean Lee Research and Extension Center, 2005 and 2006.

Row Spacing

When planting soybeans after wheat harvest in May and June – at a relatively late planting date – rows spaced less than 30 inches consistently out-yielded rows wider than 30 inches.

Weed Control

Burn-down herbicides such as glyphosate or paraquat should be considered following wheat harvest so that double-cropped soybeans are planted under weed-free conditions. Pre-emergence herbicides also should be considered at planting. (See “Louisiana Suggested Chemical Weed Control Guide” at www.lsuagcenter.com/en/communications/publications/Publications+Catalog/Crops+and+Livestock/Weed+Control/Louisianas+Suggested+Chemical+Weed+Control+Guide.htm.) The burn-down and pre-emergence herbicides can be applied simultaneously. In-season weeds can be controlled using various post-emergence herbicides suggested in the Weed Control Guide.

Insect Pest Management

Producers planting soybeans following wheat should recognize the potential of economic losses from insects is much higher than what usually is experienced with soybeans planted during the early spring months. Late-planted soybeans, regardless of the production system, can be subjected to high and persistent populations of insect pests. Producers should budget for three to five insecticide treatments to manage any single pest or combination of several pests. Bean leaf beetle, three-cornered alfalfa hopper, a complex of stink bugs and defoliating caterpillars should be the most common pest problems in a wheat and soybean double-cropping system. Insecticides should be applied based upon established action thresholds, but the treatment rate and application frequency should be adjusted to reduce the impact on crop yield and seed quality.

Disease Management

Diseases can be a problem for soybeans regardless of planting date, but late-planted soybeans have more disease pressure than early planted soybeans. Budgeting for one application of a fungicide may not be sufficient for plant protection. Several diseases including soybean rust, pod and stem blight, *Cercospora* leaf blight, aerial blight and anthracnose likely will be yield-limiting problems. Fields should be scouted at least weekly, especially during the reproductive stages R1 (beginning flowering) through R6 (complete pod fill).

Overall Observations

The wheat and soybean double-cropping system can be successful for Louisiana producers if certain cultural practices are followed. Perhaps the most important factor in achieving maximum yield potential is stand establishment. Wheat straw is a valuable resource that should be conserved, but it can hamper stand establish-

ment if not managed properly. A stubble cutting height of 12 inches or more will increase the amount of vertical residue that could interfere with planter operation. At the same time, it will decrease the amount of horizontal residue the planter has to plant through. Cutting heights much greater than 12 inches, however, can shade emerging soybean seedlings and reduce yield. In very heavy residue on the soil, planters may need added straw management implements (which are widely available) and double disk openers.

Burning the wheat residue has not improved yields of double-cropped soybeans in LSU AgCenter research. Burning wheat stubble causes air pollution, nutrient loss and soil quality degradation. It also increases soil water evaporation and, therefore, should be considered only as a last resort.

Selection of the appropriate varieties also is an important consideration. North of Alexandria, a late-maturing MG 4 should be planted. South of Alexandria, producers should plant very late MG 4 or MG 5 varieties. Increase the seeding rate 10 percent to 15 percent to ensure stand establishment and maximize yield potential. Soybean yields in a wheat and soybean double-cropping system usually are 10 percent to 20 percent lower than in a conventional system. To maximize success, producers and their pest managers must be vigilant in scouting fields and applying integrated pest management strategies on a timely basis.

This material was prepared by the following
LSU AgCenter personnel:

Rob Ferguson, Extension Associate
Dr. David Lanclos, Former Assistant Professor, and
Soybean, Corn and Sorghum Specialist
Dr. B. Rogers Leonard, Professor and Jack Hamilton
Chair of Cotton Production
Dr. Don Boquet, Jack and Henrietta Jones Endowed
Professor of Agronomy
Dr. Clayton Hollier, Professor and
Extension Plant Pathologist
Roy Vidrine, Former Professor and
Extension Weed Specialist

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Louisiana State University Agricultural Center
William B. Richardson, Chancellor
Louisiana Agricultural Experiment Station
David J. Boethel, Vice Chancellor and Director
Louisiana Cooperative Extension Service
Paul D. Coreil, Vice Chancellor and Director
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