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Double Crop Soybeans in WI: More Risk than Reward

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Commodity prices for new crop wheat (\$5.86; 6/4/08, Southern WI) and new crop soybean (\$12.30; 6/4/08, Southern WI) have some growers contemplating double cropping soybean after wheat in Wisconsin. Double crop soybean is a common and profitable practice across southern Missouri, southern Illinois, and Indiana and across much of Arkansas, Kentucky, and Tennessee. In these locations, wheat is harvested in mid to late June and soybean is often planted no-till into wheat stubble by July 4th at the latest.

In most years, winter wheat harvest in Wisconsin does not begin until mid-July at the earliest. In 2008, we are likely to begin wheat harvest even later as the crop is developmentally behind due to cooler than normal environmental conditions. As of May 29th, we are 174 growing degree units behind our normal heats units (as measured from March 1 [WIDATCP](#)). An abnormally warm June will expedite development, however this will also speed up the grain fill period and likely reduce grain yield.

Other factors that will lead to delayed maturity include late planted wheat and wheat that received a foliar fungicide application.

Growers considering double crop soybean will likely ask what can be done to expedite harvest. One common question will be "Can I apply glyphosate or some other desiccant to my winter wheat to aid in dry down?" First read the label of any product you intend to use to make sure the application is legal. If the product is labeled, read the application timing information and understand how to properly stage the wheat plant prior to application. Below is subset taken from the Roundup WeatherMax label.

Preharvest (feed barley and wheat only)

USE INSTRUCTION: This product provides weed control when applied prior to harvest of feed barley and wheat. For feed barley, apply after the hard-dough stage and when the grain contains 20 percent moisture or less. **For wheat, apply after the hard-dough stage of grain (30 percent or less grain moisture).** Stubble may be grazed immediately after harvest.

PRECAUTIONS, RESTRICTIONS: Do not apply more than 22 fluid ounces of this product per acre. **Allow 7 days between application and harvest or grazing. Preharvest application is**

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not recommended for barley or wheat grown for seed, as a reduction in germination or vigor may occur.

In winter wheat, the timing for WeatherMax is hard dough (or 30 percent or less grain moisture). An application before this growth stage will not only be off label, it will likely reduce grain yield as the plant is prematurely killed. We do not want to sacrifice any wheat yield in hopes of gaining a few extra days for soybean. In terms of its effectiveness to aid in dry down, I have spoken with many colleagues across the country as well as Canada and the consensus is that the application will not greatly enhance dry down. As you note in the text from the WeatherMax label, the intent of the product is to provide weed control, not increase the rate of wheat drying.

An alternative to herbicide desiccation is to swath the wheat crop when the grain is still wet and let it dry in windrows. This option is risky because rainfall on swathed wheat can lead to sprouting in the head and raking a wet windrowed wheat crop can lead to large shatter losses. Also, an appropriate combine header is needed to harvest swathed crops.

The other option to expedite harvest is physically combine the wheat crop at a greater moisture content than we normally would. If a grower has access to a stripper header, winter wheat can be combined a few points wetter than with a conventional reel type head. Recognize that stripper headers decrease straw quality and if you are intending to sell the straw, then this must be factored into your decision. The other factor to consider is the drying cost or dockage associated with harvesting and selling wet grain. After contacting several elevators, the average dockage for moisture was \$0.03 to \$0.05 per bushel per point of moisture above 13.5%.

Once we have the wheat harvested we must consider the realistic yield potential of soybean planted in July for WI. An extensive planting date study was conducted in the early 1990s to quantify the effect of planting date and maturity group on soybean yield. Since full season maturity group soybeans are unrealistic for this late of planting only early and mid-group soybean cultivars were considered. The average yield of a soybean planted on July 5th was 20 bushels per acre with a range of 9 to 33 bushels (Figure 1). The latest planting date in this study was July 12th which yielded 13.6 bu per acre (only one year data). For yield potential and harvestability, (a combine may not be able to pick up the lower pods) a grower should plant a mid maturity group soybean (1.2 to 1.5) instead of an early maturity group bean (0.5 or earlier).

To maximize yield potential in late planted soybean, a minimum of 180,000 plants per acre is required in a drilled system as yield potential in rowed beans would be significantly reduced due to decreased canopy development. To achieve 180,000 plants per acre a grower may have to seed as many as 225,000 seeds per acre. That could easily add up to a seed investment of \$48.00 per acre. Add together the planting cost (\$14.80 per acre; [2008 Iowa Custom Rate Guide](#)), herbicide plus application (\$18.00 per acre; Conley best guess), plus harvest cost (\$27.10; [2008 Iowa Custom Rate Guide](#)), fertilizer cost (given the yield potential and assuming optimum soil levels we need to add 15 and 30 pounds of P and K, respectfully = \$24.60 (Laboski, WI Crop Manger, 2008 Vol 15 No. 4)), plus any miscellaneous cost (??) we quickly approach a losing proposition.

Environmentally there are two major events to consider with double crop soybeans. The first is crop establishment. It is likely that soil moisture will be depleted following a winter wheat crop and rainfall patterns in July are often spotty at best, therefore crop emergence and establishment may greatly be delayed if we need to wait on adequate moisture. The second and perhaps more important environmental event is frost prior to physiological maturity. Individual soybeans that are not mature and

are subjected to a significant frost event will remain green even if weather conditions warm. Even if frost does not occur, a grower will likely harvest some green beans. The implications of these green beans are storage problems as well as significant dockage at the elevator.

Figure 1. Planting date effect on grain yield of early to mid maturity group soybeans (0.4 to 1.8 RM) in southern WI (Data from early 1990s planting date study).

