



UNIVERSITY OF WISCONSIN AGRONOMY, SOYBEAN RESEARCH, UNIVERSITY OF WISCONSIN-EXTENSION

## Choosing soybean varieties for rotation with winter wheat - 2021

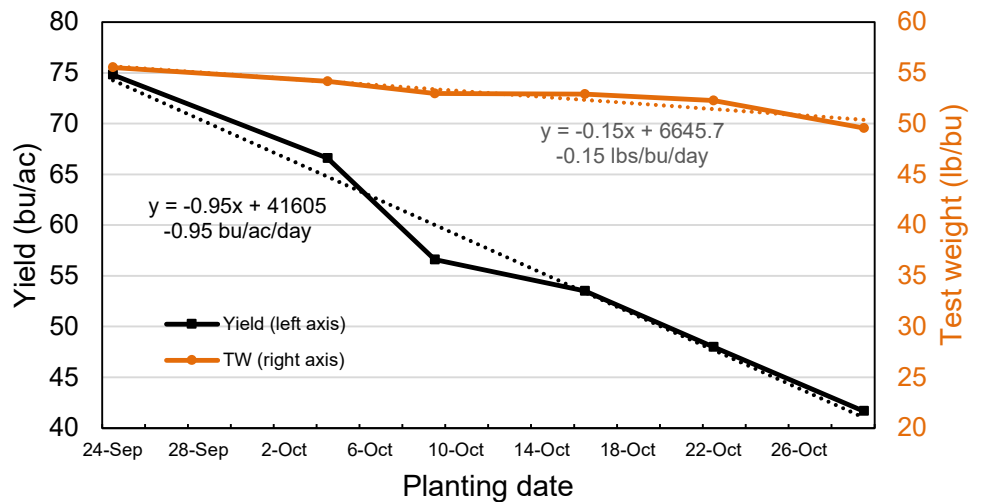
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### In a bean pod...

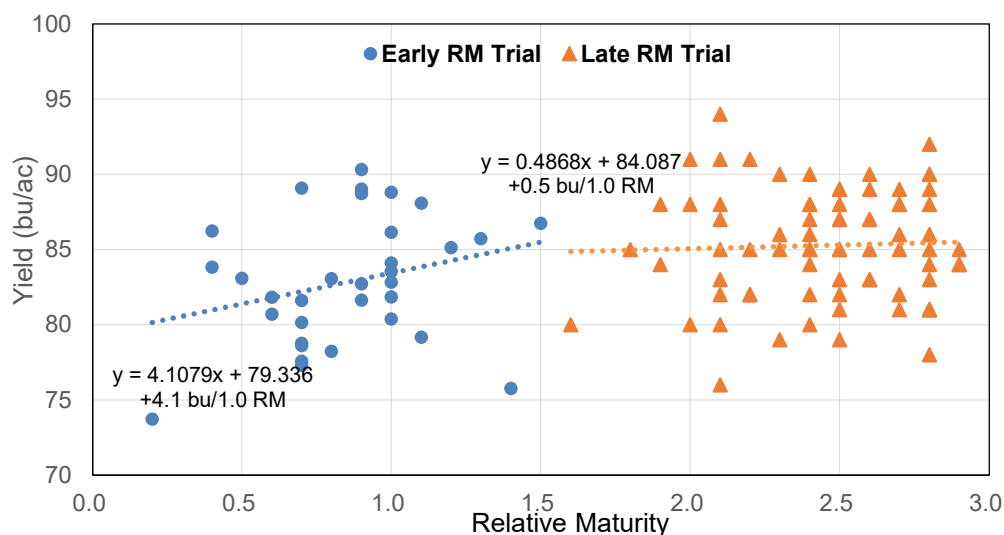
- ▶ Timely winter wheat planting requires planning and rotational considerations
- ▶ Wheat and soybean in a rotation should be managed as a system
- ▶ Many high yielding – early maturing soybean varieties are available for WI growers to facilitate recommended wheat planting dates

Most of the winter wheat acres planted in Wisconsin follow a soybean crop. Producers typically rotate wheat with soybean and corn and can utilize the earlier harvest of soybean, compared to corn for grain, to establish their wheat crop in a timely manner. UW recommendations based on recent field research show that establishment of wheat in late September or early October maximized wheat yields and test weight as compared to later planting (Figure 1). Delaying winter wheat planting after the last week in September in southern Wisconsin can result in a 0.95 bu/ac/day yield loss. Test weights can decrease up to 0.15 lb/bu/day after late September. A timely soybean harvest can facilitate early planting for healthy wheat establishment and growth in the fall. Timely wheat planting following a soybean crop depends partly on when the soybean crop matures and is harvested, and soil and weather conditions during that time period.

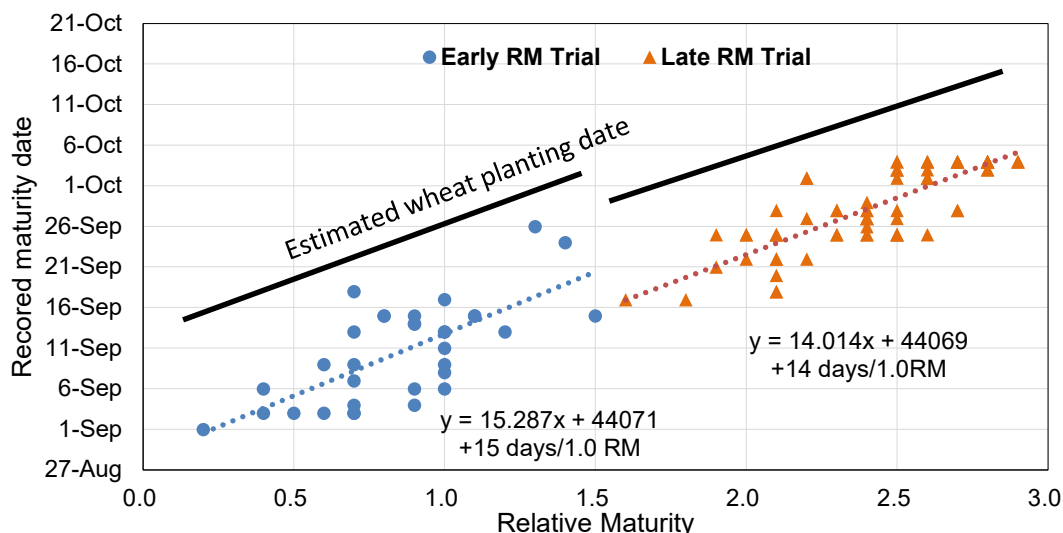
**Figure 1.**  
 Yield and test weight of winter wheat across multiple planting dates. Arlington, WI. 2019-2020.



For growers planting wheat after soybean, several variables are in their control to achieve an on-time planting. These include field selection, timely soybean harvest, and proper soybean variety selection for both yield and maturity date. Wheat that is in a rotation with soybean needs to be considered as part of a system, with both crops contributing to the entire enterprise budget. The yields of both crops need to be maximized and grown in concert with each other. Traditionally, it was assumed that to establish wheat in the best time window, soybean yields would be compromised because an earlier, and hence a lower yielding soybean variety would be needed. New research at the Arlington Agricultural Research Station in 2020 compared early (RM<1.6) Relative Maturity (RM) soybean varieties, planted in early May, to later RM's to assess their maturity date, yield, and suitability of planting wheat after harvest. Varieties that were slated to be tested in the Northern region were also planted at Arlington in a separate trial. Thirty-three varieties with RM ranging from 0.2 to 1.5 were entered. The average trial yield was 83 bu/ac; which was 2 bu/ac lower than late RM (1.6 to 2.9) trial. Many varieties in the early trial yielded equivalent to the varieties in the late trial (Figure 2).



**Figure 2.** Yield of a range of RM soybean in early and late RM performance trials. Arlington, WI. 2020.



**Figure 3.** Relative maturity rating and recorded maturity (R8) of a range of RM soybean in both early and late RM performance trials. Estimated wheat planting dates following harvest are shown in black line. Arlington, WI. 2020.

Maturity (R8) dates were noted for all varieties in the early and late RM trials. With warm and dry weather, growers can expect to harvest 13% soybeans in about 6 to 10 days after the R8 growth stage. All the varieties in the early trial matured early enough to allow wheat planting in the recommended time of September 20 to October 10 (Figure 3). In the late RM trial in 2020, varieties below RM 2.4 were suitable for harvest in time to establish wheat in the recommended window. Years can differ significantly with regards to yield potential and length of growing season. **Our results from one year show that many high yielding, early RM soybean varieties are available to use in a rotation with wheat which will allow timely establishment of wheat for adequate fall growth and high yield potential.** This research will be continued in 2021.

**Resources:**

- [2020 Wisconsin Soybean Variety Performance - Early RM Trial](#)
- [Wisconsin Winter Wheat Timely Information](#)

