

FINDING WHEAT VARIETIES WITH TOLERANCE TO FREEZE DAMAGE

Chad Lee and David Van Sanford, University of Kentucky

INTRODUCTION:

The ideal planting dates for most of Kentucky range from October 10 through October 30. According to the Kentucky Agricultural Statistics Service, 20% of the wheat is planted early and 20% is planted late in Kentucky. Even for those fields where wheat was planted on time, weather patterns can result in spring freeze damage on wheat. Spring freeze damage is usually worst when varieties that break dormancy early are planted early in the fall.

OBJECTIVES:

The objectives of this research are: 1) To identify wheat varieties with more tolerance to freeze damage; and 2) To identify wheat varieties that perform well at late planting dates.

MATERIALS AND METHODS:

Six wheat varieties were planted at three dates at Princeton and Lexington, Kentucky. The six wheat varieties were Allegiance, Declaration, Hopewell, Roane, 25R37, and 24R44. The planting dates for Princeton were October 8, October 16 and November 1 2002, while the planting dates for Lexington were October 24, November 9 and November 21, 2002. The wheat was planted into no-till conditions at Princeton and conventional till conditions at Lexington. The previous crop in each case was corn. Target populations were 35 wheat plants per square foot. Fertilizer and pest management was conducted according to University of Kentucky recommendations. The plots were harvested with small plot combines.

Outcomes

There was little to no freeze damage on any of the wheat at either location last growing season. As expected, later plantings of wheat reduced yields. Average yields across the six wheat varieties at Princeton were 95, 91 and 84 bu/a when planted on October 1, October 16, and November 1, respectively (Figure 1). Average yields across the six varieties at Lexington were 77, 71, and 59 bu/a when planted on October 24, November 9, and November 21, respectively. The latest planting dates resulted in 12 and 22% yield losses compared with the earliest planting dates at Princeton and Lexington.

The two wheat varieties, 25R37 and 25R44 were among the highest yielding varieties at all three planting dates in Princeton (Figure 1). Roane was among the lowest yielding varieties at the earliest and latest planting dates at Princeton. Wheat varieties at Lexington had different responses to planting date. For example, 25R37 planted on October 24 was among the highest yielding varieties while Allegiance was among the lowest yielding varieties. However, Allegiance planted on November 21 was among the highest yielding varieties while 25R37 was among the lowest yielding varieties.

This variety response to planting date at Lexington was unexpected. The response occurred at one site only and there is only one year of data to this point. The study is being repeated.

The first year of this research supports the recommendation that winter wheat be planted before the first of November in Kentucky. We will conduct the study at least

one more year to gain some better recommendations on the 20% of Kentucky wheat that is planted late.

Figure 1. Wheat yields from six varieties planted at three dates at the University of Kentucky Research and Education Center in Princeton, Kentucky and at Spindletop Farm in Lexington, Kentucky.

