Winter Wheat Planting Date Trial: Dryland

Carrie Eberle

Introduction
Variety performance evaluations conducted by the Wyoming Agricultural Experiment Station (WAES) are continuous and ongoing programs. WAES evaluates many varieties/lines of winter wheat each year in cooperation with the Crop Research Foundation of Wyoming, University of Nebraska, Colorado State University, Montana State University, and private seed companies.

Objectives
Our objective was to test how planting date impacts the yield of winter wheat variety Goodstreak to help growers select the planting date best adapted to the region.

Materials and Methods
The experiment was located in dryland fields in Goshen, Platte, and Laramie counties in southeastern Wyoming. The experimental design consisted of three replications in a complete block. Measurements taken included: grain yield, test weight, and moisture. Other information was gathered, as well, including disease and weather data (Figure 1; information not presented). Goodstreak winter wheat was seeded on September 16, October 9, and October 21, 2015. Seeding took place in plots 5 by 25 feet using a hoe drill with a row spacing of 14 inches in Platte and Goshen counties. Laramie County plots were seeded using a disc drill with row spacing of 10 in. The seeding depth was 1.5 in, and the seeding rate was 50 lb/ac. Plots were harvested July 17 (Goshen), July 21 (Platte), and July 23, 2016 (Laramie dryland), using an ALMACO plot combine.

Results and Discussion
Yield results are presented in Table 1. In Laramie and Platte counties, the earliest planting date had the highest yield, with the yields of the two later dates being significantly lower. This yield decline is most likely due to smaller plant size going into the winter season. In Goshen County the yields of the first and second planting were not significantly different, while the third planting date yield was significantly lower. Another trial was planted in 2016 and will be harvested this growing season. Results from the 2014–15, 2015–16, and 2016–17 studies will be used to help determine final planting dates established by the U.S. Department of Agriculture’s Risk Management Agency. Complete results for these trials and many others are available at: www.uwyo.edu/uwexpstn/variety-trials.

Acknowledgments
Appreciation is extended to the cooperators: Marti and Lou Hubbs (Goshen), Derek Jackson (Platte), and Tim Anderson (Laramie County) who allowed us to place trials on their land and to the Panhandle Coop Association, Scottsbluff, Nebraska.

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Figure 1. Wendy Cecil and Matt Bebo collect disease data at one of the dryland wheat test sites in southeast Wyoming. A weather station is in the background.
Table 1: Yield of Goodstreak winter wheat variety planted on three dates in Goshen, Platte, and Laramie counties. Letters next to means indicate significant difference between planting date within a location.

<table>
<thead>
<tr>
<th>Planting Date</th>
<th>Goshen County</th>
<th>Platte County</th>
<th>Laramie County</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/16/2015</td>
<td>43.8 a</td>
<td>44.1 a</td>
<td>47.8 a</td>
</tr>
<tr>
<td>10/9/2015</td>
<td>26.8 b</td>
<td>25.7 b</td>
<td>41.4 a</td>
</tr>
<tr>
<td>10/21/2015</td>
<td>8.1 c</td>
<td>9.8 c</td>
<td>23.8 b</td>
</tr>
<tr>
<td>Average of all entries</td>
<td>26.2</td>
<td>26.5</td>
<td>33.4</td>
</tr>
<tr>
<td>Least significant difference</td>
<td>4.0</td>
<td>6.0</td>
<td>7.5</td>
</tr>
<tr>
<td>p-value</td>
<td>0.0001</td>
<td>0.0001</td>
<td>0.0006</td>
</tr>
</tbody>
</table>

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