Soft Red Winter Wheat Response to Nitrogen Rate During an Abnormally Wet Spring
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INTRODUCTION
Current Ohio N rate recommendations for wheat were based on older studies that used public varieties. Producers question whether these recommendations for N are too low for maximum yield since most acres are planted to larger yielding private varieties.

OBJECTIVE
To determine N rates for optimum yields in soft red winter wheat

METHODS
- Medium maturity variety – AGI 2017B
- Seeded at 1.8 million seeds/A in soybean stubble, no till
- Seeded within one week of fly-free date
- 10 x 62 foot plots, 11 center rows harvested
- 7.5-inch row spacing
- 20 lb/A N applied prior to planting
- Seven treatments of broadcast urea-ammonium nitrate (28-0-0) applied for Feekes GS 5 at 20 - 30 pound increments per acre from 40 to 150, plus a zero check.
- Experimental design randomized block replicated four times
- Statistical analysis – simple ANOVA

RESULTS
- Rainfall 6 inches more than normal, March – June
- All N rate treatments had larger yields than the zero check
- Significant differences were between the high and low N rates
- Test weight not affected by N rate.
- Spike number not affected by N rates

Means for grain yield, test weight, and spike number (heads) in response to N rate.

<table>
<thead>
<tr>
<th>N Rate</th>
<th>Yield</th>
<th>Test Weight</th>
<th>Spikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>lb/A</td>
<td>bu/A</td>
<td>lb/bu</td>
<td>/ft row</td>
</tr>
<tr>
<td>150</td>
<td>42.9^A</td>
<td>52.2</td>
<td>41</td>
</tr>
<tr>
<td>130</td>
<td>48.2^AB</td>
<td>51.0</td>
<td>42</td>
</tr>
<tr>
<td>110</td>
<td>49.7^A</td>
<td>51.5</td>
<td>44</td>
</tr>
<tr>
<td>90</td>
<td>47.7^AB</td>
<td>49.3</td>
<td>44</td>
</tr>
<tr>
<td>70</td>
<td>42.4^B</td>
<td>52.5</td>
<td>42</td>
</tr>
<tr>
<td>40</td>
<td>41.8^B</td>
<td>50.8</td>
<td>38</td>
</tr>
<tr>
<td>0</td>
<td>26.4^C</td>
<td>53.0</td>
<td>39</td>
</tr>
<tr>
<td>Isd</td>
<td>6.5</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>cv (%)</td>
<td>12.2</td>
<td>5.6</td>
<td>21</td>
</tr>
</tbody>
</table>

Means with different letters are significant; ns, no significance (P < 0.10)

CONCLUSIONS
- Optimal spring N rate difficult to establish because excessive rains caused large amounts of N to be lost from the field

OUTREACH AND IMPACT
- Data has been presented at county and regional meetings to producers, consultants, and retailers.
- Data is one year of multiyear research to develop new N rate recommendations for Ohio wheat

References