2022 Arkansas Wheat Quick Facts
Dr. Jason Kelley – Extension Agronomist – Wheat and Feed Grains  
Chad Norton and Chris Elkins – Program Associates – Soybean and Wheat Verification Program Coordinators

2021 Facts:
- 145,000 acres harvested
- 58 bushel per acre state average
- Average dates in 2020-21 WRVP
  - Planting: October 23
  - Emergence: October 30
  - Harvest: June 12
- 60 lbs = 1 bu, 13.5% moisture is dry

Growth and Development:

<table>
<thead>
<tr>
<th>Description of Vegetative Stages</th>
<th>Stage</th>
<th>Feekes GS #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germination and seedling</td>
<td>1</td>
<td></td>
<td>Emergence through 3-leaf stage.</td>
</tr>
<tr>
<td>Tillering</td>
<td>2 – 4</td>
<td></td>
<td>Tillering begins. 4th leaf is on first tiller.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td>Tillering ends, plants start upright growth.</td>
</tr>
<tr>
<td>Jointing</td>
<td>6</td>
<td></td>
<td>First node visible at base of stem.</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td>Second node visible</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td>Flag leaf visible, still rolled up. Spike beginning to swell.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Reproductive Stages</th>
<th>Stage</th>
<th>Feekes GS #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boot</td>
<td>9</td>
<td></td>
<td>Ligule of flag leaf just visible. Flag leaf sheath completely out. Spike swollen but not visible (full boot).</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heading</td>
<td>10.1 – 10.5</td>
<td></td>
<td>First spikes just visible to all spikes out of sheath (full heading). Beginning of flowering. Flowering over, kernel watery ripe.</td>
</tr>
<tr>
<td></td>
<td>10.5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.5.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ripening</td>
<td>11.1 – 11.3</td>
<td></td>
<td>Grain progresses from milk to soft dough to hard dough. Ripen for cutting, straw dead.</td>
</tr>
<tr>
<td></td>
<td>11.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seeding:
- Plant seed between 1 to 1.5 inches deep
- Seeding rate should be 26 seeds per ft² with grain drill under ideal conditions. Increase seeding rate if planting no-till, late, or broadcast.
- 26 seeds per ft² = 1.13 million seeds per acre.

Pounds of Seed Planted – Seed Rate by Seed Size

<table>
<thead>
<tr>
<th>Seeds/lb</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000 (large seed)</td>
<td>109</td>
<td>131</td>
<td>152</td>
<td>174</td>
</tr>
<tr>
<td>12,000</td>
<td>91</td>
<td>109</td>
<td>127</td>
<td>145</td>
</tr>
<tr>
<td>14,000 (average size)</td>
<td>78</td>
<td>93</td>
<td>109</td>
<td>124</td>
</tr>
<tr>
<td>16,000</td>
<td>68</td>
<td>82</td>
<td>95</td>
<td>109</td>
</tr>
<tr>
<td>18,000</td>
<td>61</td>
<td>73</td>
<td>85</td>
<td>97</td>
</tr>
<tr>
<td>20,000 (small seed)</td>
<td>54</td>
<td>65</td>
<td>76</td>
<td>87</td>
</tr>
</tbody>
</table>

Grain Drill Calibration - Seeds per foot of row

<table>
<thead>
<tr>
<th>Grain Drill Row Width</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 inches</td>
<td>13</td>
<td>15</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>7.5 inches</td>
<td>16</td>
<td>19</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>8 inches</td>
<td>17</td>
<td>20</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>10 inches</td>
<td>21</td>
<td>25</td>
<td>29</td>
<td>33</td>
</tr>
</tbody>
</table>

Recommended Planting Dates for Arkansas

<table>
<thead>
<tr>
<th>Region</th>
<th>Planting Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Arkansas</td>
<td>October 1 – November 1</td>
</tr>
<tr>
<td>Central Arkansas</td>
<td>October 10 – November 10</td>
</tr>
<tr>
<td>South Arkansas</td>
<td>October 15 – November 20</td>
</tr>
</tbody>
</table>

Determining Final Plant Stands:
- Count the number of plants in one ft² in at least 10 random locations in the field.
- Desired stand is 26 plants per ft².
- With good tillering and uniform stand, 10 plants per ft² can give optimum yields.

Seed Treatments:
- Systemic seed insecticides for control of Hessian fly and aphids to control Barley Yellow Dwarf Virus are generally not recommended.
- Systemic seed applied fungicides are recommended to control loose smut and seedling pathogens.

Weed Control:
- Resistant ryegrass infestations require a program approach. This may include tillage/herbicide of first “flush” of ryegrass followed by sequential program of Axiom or Axiom + Prowl or Zidua/Anthem Flex in fall followed by Axial in spring. One year following without allowing seed production will typically reduce soil seed bank 95%.
- Refer to MP 44 for latest herbicide recommendations.

Timing for Common Wheat Herbicides

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Timing</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finesse 75 DF</td>
<td>Immediately after planting for ryegrass</td>
<td>Only follow with STS soybeans.</td>
</tr>
<tr>
<td>Axiom 68 DF</td>
<td>Spike to 2-leaf wheat</td>
<td>Apply to metribuzin tolerant variety. Seed wheat 1 inch deep or more. No aerial applications.</td>
</tr>
<tr>
<td>Axial Bold 0.69 EC</td>
<td>2-leaf wheat to pre-boot. 1-leaf to 2-tiller ryegrass.</td>
<td>60 day PHI. Do not tank mix with 2,4-D.</td>
</tr>
<tr>
<td>Osprey 4.5 WDG</td>
<td>Emergence to jointing on wheat. 4-leaf to 2-tiller ryegrass.</td>
<td>See label for N restrictions.</td>
</tr>
<tr>
<td>Prowl H₂O 3.8 CS</td>
<td>1-leaf wheat to 4 tillers</td>
<td>Plant seed 0.5 to 1.0 inch deep.</td>
</tr>
<tr>
<td>PowerFlex HL 13 DG</td>
<td>3-leaf wheat to jointing.</td>
<td>See label for N restrictions.</td>
</tr>
<tr>
<td>2,4-D amine or LV esters</td>
<td>In spring between tiller completion and jointing stage.</td>
<td>Apply when temperatures are above 60°F and no rain for 12 hours.</td>
</tr>
<tr>
<td>Harmony Extra 50 SG</td>
<td>2-leaf to prior to flag leaf emergence</td>
<td>Wild garlic 6-12&quot; tall.</td>
</tr>
<tr>
<td>Zidua 4.17 SC/Anthem Flex 4.0 SE</td>
<td>Delayed PRE to 4 tiller wheat.</td>
<td>Seed wheat &gt;0.5 inch deep; must be germinated.</td>
</tr>
<tr>
<td>Quelex 20 DF</td>
<td>2 leaf to flag leaf emergence</td>
<td>60 day PHI. Only 1 application per year.</td>
</tr>
</tbody>
</table>

Seedling pathogens.

Quick Facts:
- Grain drill under
- Seeding rate should be
- Plant
- 60 lbs = 1 bu
- Average dates in
- 5
- Arkansas
- 8
- bushel per acre state average
- 000
- 5
- State average
- o
- 0
- 0
- Feekes
- 11.1
- 10.1
- 10
- 11.1 – 11.3
- 11.4
- 0.5 to
- 1.0 inch deep.
**Diseases and Disease Control:**
- Fungicides should be applied when disease is present, or weather conditions favor disease development. The most important times for applications are usually between Feekes GS 8 and 10.5.
- Leaf rust, stripe rust, septoria tritici blotch, Stagonospora nodorum blotch, glume blotch, bacterial leaf streak, and fusarium head blight (scab) are diseases commonly found in Arkansas wheat.
- Varieties with resistance to fusarium head blight, leaf rust and stripe rust should be planted.
- Refer to MP 154 Arkansas Plant Disease Control products guide for the latest disease recommendations.
- Refer to [http://www.wheatscab.psu.edu/](http://www.wheatscab.psu.edu/) for estimated scab pressure for your area.

**Timing for Common Wheat Fungicides**

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Timing</th>
<th>Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt, Propimax, Bumper</td>
<td>Not after Feekes GS 10.5</td>
<td>SR LR Scab</td>
</tr>
<tr>
<td>Caramba</td>
<td>30 day PHI, Early flowering for head blight suppression</td>
<td>E E G</td>
</tr>
<tr>
<td>Aproach Prima</td>
<td>45 day PHI</td>
<td>E VR N</td>
</tr>
<tr>
<td>Preemptor</td>
<td>Not after Feekes GS 10.5 and 40 days PHI</td>
<td>E VG NL</td>
</tr>
<tr>
<td>Quilt Xcel</td>
<td>Not after Feekes GS 10.54</td>
<td>E E NL</td>
</tr>
<tr>
<td>Stratego YLD</td>
<td>Not after Feekes GS 10.5 and 30 day PHI</td>
<td>E VG NL</td>
</tr>
<tr>
<td>Prosaro</td>
<td>30 day PHI, Early flowering for scab</td>
<td>E E G</td>
</tr>
<tr>
<td>Absolute Maxx SC</td>
<td>35 day PHI</td>
<td>E E NL</td>
</tr>
<tr>
<td>Tebuconazole</td>
<td>30 day PHI</td>
<td>E E F</td>
</tr>
<tr>
<td>Piriax</td>
<td>Not after Feekes GS 10.5</td>
<td>E VG NL</td>
</tr>
<tr>
<td>Trivapro</td>
<td>Not after Feekes GS 10.5.4 and 14 day PHI</td>
<td>E E NL</td>
</tr>
<tr>
<td>Miravis Ace</td>
<td>Not after Feekes GS 10.5.4</td>
<td>E VG G</td>
</tr>
</tbody>
</table>

**Insect Control:**

**Treatment Levels**
- **Armyworm:**
  - 6/ft² in fall
  - Present and head cutting in spring.
- **Grasshopper – When damage is occurring.**
- **Cereal Leaf Beetle – 1 per stem.**
- **Aphids – Plant height dependent.** Refer to MP 144 Insecticide Recommendations for Arkansas for latest insecticide recommendations and thresholds.

**Drainage:**
- Field surface should be as smooth and uniform as possible.
- Install drain furrows with or at a slight angle to field slope.
- Avoid berm on up-slope side of furrow.
- End furrows at an unrestricted outlet.

**Fertility:**

**Nitrogen (N) Recommendations:**

<table>
<thead>
<tr>
<th>Soil Texture</th>
<th>Previous crop</th>
<th>Fall-N rate</th>
<th>Late-winter N rate</th>
<th>Total-N rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silt and sandy loams</td>
<td>Fallow</td>
<td>0</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Rice</td>
<td>45</td>
<td>120</td>
<td>165</td>
<td></td>
</tr>
<tr>
<td>All other</td>
<td>0</td>
<td>120</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Clay and Clay loams</td>
<td>Fallow</td>
<td>0</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>Rice</td>
<td>45</td>
<td>140</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td>All other</td>
<td>0</td>
<td>140</td>
<td>140</td>
<td></td>
</tr>
</tbody>
</table>

*Double-crop wheat P and K fertilizer recommendations include the recommendations for soybeans. The cumulative fertilizer rate can be applied in the fall.

**Phosphorus (P) and Potassium (K) commendations:**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Soil Test Level</th>
<th>Soil Test Value</th>
<th>Production System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorus</td>
<td>Very Low</td>
<td>&lt;16</td>
<td>90</td>
</tr>
<tr>
<td>Low</td>
<td>16–25</td>
<td>70</td>
<td>90</td>
</tr>
<tr>
<td>Medium</td>
<td>26–35</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Optimum</td>
<td>36–50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Above Optimum</td>
<td>≥51</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| Potassium | Very Low | <61 | 140 | 180 |
| Low | 61–90 | 90 | 120 |
| Medium | 91–130 | 60 | 80 |
| Optimum | 131–175 | 0 | 60 |
| Above Optimum | ≥176 | 0 | 0 |

**Sulfur (S):**
If a field has a history of S deficiency, 20 lbs S/acre should be applied in initial late-winter N application.

**Additional wheat production information and copies of this fact sheet are available at:**
- [http://www.uaex.edu/wheat](http://www.uaex.edu/wheat)
- [http://www.uaex.edu/verification](http://www.uaex.edu/verification)
- [http://www.arkascrops.ua.edu](http://www.arkascrops.ua.edu)

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

*Efficacy ratings: NL=Not Labeled; NR=Not Recommended; P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent. * In situations where varieties are susceptible or very susceptible, fungicides may not provide expected disease control.