2021 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

DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

2020 Facts:

- 75,000 acres harvested
- 55 bushel per acre state average
- Average dates in 2019-20 WRVP
  - Planting: October 16
  - Emergence: October 26
  - Harvest: June 14
- 60 lbs = 1 bu, 13.5% moisture is dry

Growth and Development:

Description of Vegetative Stages		
Stage	Feekes GS #	Description
Germination and seedling	1	Emergence through 3-leaf stage.
Tillering	2 – 4	Tillering begins. 4th leaf is on first tiller.
	5	Tillering ends, plants start upright growth.
Jointing	6	First node visible at base of stem.
	7	Second node visible
	8	Flag leaf visible, still rolled up. Spike beginning to swell.
Description of Reproductive Stages		
Stage	Feekes GS #	Description
Boot	9	Ligule of flag leaf just visible.
	10	Flag leaf sheath completely out. Spike swollen but not visible (full boot).
Heading	10.1 – 10.5	First spikes just visible to all spikes out of sheath (full heading).
	10.5.1	Beginning of flowering.
	10.5.4	Flowering over, kernel watery ripe.
Ripening	11.1 – 11.3	Grain progresses from milk to soft dough to hard dough.
	11.4	Ripe for cutting, straw dead.

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

	-----Seeds per Square Foot-----			
Seeds/lb	25	30	35	40
	-----Pounds of Seed/Acre-----			
10,000 (large seed)	109	131	152	174
12,000	91	109	127	145
14,000 (average size)	78	93	109	124
16,000	68	82	95	109
18,000	61	73	85	97
20,000 (small seed)	54	65	76	87

Grain Drill Calibration - Seeds per foot of row

Grain Drill Row Width	-----Seeds per Square Foot-----			
	25	30	35	40
	-----Seeds per Drill Row Foot Needed-----			
6 inches	13	15	18	20
7.5 inches	16	19	22	25
8 inches	17	20	23	27
10 inches	21	25	29	33

Recommended Planting Dates for Arkansas

Region	**Planting Date**
North Arkansas	October 1 – November 1
Central Arkansas	October 10 – November 10
South Arkansas	October 15 – November 20

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 fallowing without allowing seed production will typically reduce soil seed bank 95%.
- Refer to MP 44 for latest herbicide recommendations.

Timing for Common Wheat Herbicides

Herbicide	**Timing**	**Remarks**
Finesse 75 DF	Immediately after planting for ryegrass	Only follow with STS soybeans.
Axiom 68 DF	Spike to 2-leaf wheat.	Apply to metribuzin tolerant variety. Seed wheat 1 inch deep or more. No aerial applications.
Axial XL 0.42 EC	2-leaf wheat to pre-boot. 1-leaf to 2-tiller ryegrass.	60 day PHI. Do not tank mix with 2,4-D.
Osprey 4.5 WDG	Emergence to jointing on wheat. 4-leaf to 2-tiller ryegrass.	See label for N restrictions.
Prowl H_2O 3.8 CS	1-leaf wheat to 4 tillers.	Plant seed 0.5 to 1.0 inch deep.
PowerFlex HL 13 DG	3-leaf wheat to jointing.	See label for N restrictions.
2,4-D amine or LV esters	In spring between tiller completion and jointing stage.	Apply when temperatures are above 60°F and no rain for 12 hours.
Harmony Extra 50 SG	2-leaf to prior to flag leaf emergence.	Wild garlic 6"-12" tall.
Zidua 4.17 SC/ Anthem Flex 4.0 SE	Delayed PRE to 4 tiller wheat.	Seed wheat >0.5 inch deep; must be germinated.
Quelex 20 DF	2 leaf to flag leaf emergence.	60 day PHI. Only 1 application per year.

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 10.5.1
- Leaf rust, stripe rust, septoria tritici blotch, stagnospora 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.

Timing for Common Wheat Fungicides

Fungicide	Timing	Rating*		
		SR	LR	Scab
Tilt, Propimax, Bumper	Not after Feekes GS 10.5	VG	VG	P
Caramba	30 day PHI. Early flowering for head blight suppression	E	E	G
Aproach Prima	45 day PHI	E	VG	NR
Preemptor	Not after Feekes GS 10.5 and 40 days PHI	E	VG	NL
Quilt Xcel	Not after Feekes GS 10.5.4	E	E	NL
Stratego YLD	Not after Feekes GS 10.5 and 30 day PHI	VG	VG	NL
Prosaro	30 day PHI. Early flowering for scab	E	E	G
Absolute Maxx SC	35 day PHI	VG	E	NL
Tebuconazole	30 day PHI	E	E	F
Priaxor	Not after Feekes GS 10.5	VG	VG	NL
Trivapro	Not after Feekes GS 10.5.4. 14 day PHI	E	E	NL
Miravis Ace	Not after Feekes 10.5.4	VG	VG	G

Efficacy ratings; NL=Not Labeled; NR=Not Recommended; P=Poor; F=Fair; G=Good; VG=Very Good; E=Excellent.

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:

Soil Texture	Previous crop	Fall-N rate	Late-winter N rate[1]	Total-N rate
		--------- lb N/acre ---------		
Silt and sandy loams	Fallow	0	90	90
	Rice	45	120	165
	All other[2]	0	120	120
Clay and Clay loams	Fallow	0	140	140
	Rice	45	140	185
	All other[2]	0	140	140

[1]Topdress late-winter N in one or two (3-4 weeks after first application) split applications beginning in early to mid-February.

[2] All other crops include corn, cotton, grain sorghum and soybeans.

Pre-plant N Considerations:

Fall seeded wheat generally does not require N fertilizer for establishment. However, there are situations where fall applied N should be considered:

1. Late-planted wheat – consider 30 lb N/acre regardless of previous crop if planted after;
   • November 1 for northern Arkansas (north of Hwy 64).
   • November 10 for central Arkansas.
   • November 20 for southern Arkansas (south of Pine Bluff).
2. Wheat following flood-irrigated rice – Should receive 45 lb N/acre pre-plant or shortly after planting or crop emergence.

Phosphorus (P) and Potassium (K) commendations:

Nutrient	Soil Test Level	Soil Test Value	Production System	
			Winter Wheat	Wheat and Double-Crop Soybean*
		ppm P	-------- lb P_2O_5/acre -------	
Phosphorus	Very Low	≤15	100	120
	Low	16–25	70	90
	Medium	26–35	50	50
	Optimum	36–50	0	0
	Above Optimum	≥51	0	0
		ppm K	-------- lb K_2O/acre --------	
Potassium	Very Low	≤60	140	180
	Low	61–90	90	120
	Medium	91 - 130	60	80
	Optimum	131-175	0	60
	Above Optimum	≥176	0	0

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

Sulfur (S):

If a field has a history of S deficiency, 20 lbs S/ac 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/verification
http://www.arkansascrops.com