

RICE



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RESEARCH & EXTENSION
University of Arkansas System

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I N F O R M A T I O N

2021

Rice Management Guide



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2021 Recommended Rice Cultivars for Arkansas

Based on multiple years of advanced yield testing, below are the recommended rice cultivars for planting in 2021. Just because a cultivar is not listed does not mean it cannot be grown successfully, but testing indicates the cultivars listed to be the highest and most consistent performers in grain yield and milling yield across a wide range of environmental and management conditions.

Conventional Long Grain Varieties	Conventional Long Grain Hybrids	Clearfield Long Grain Varieties	FullPage Long Grain Hybrids	Provisia Long Grain Varieties
Diamond	RT XP753	CLL15	RT 7521 FP	PVL02
ProGold1	RT 7501	CLL16	RT 7321 FP	
Jewel	RT 7301	CLL17		
ProGold2				
DG263L [†]				

Conventional Medium Grain Varieties	Clearfield Medium Grain Varieties
Lynx [‡]	CLM04
Titan	
Jupiter	

[†] DG263L has been tested in limited trials in 2019-2020, but it has been the highest yielding long-grain pureline variety in those trials.

[‡] Lynx has not received full market approval. However, it has been the highest yielding medium-grain cultivar in performance testing. Consider establishing a buyer prior to growing Lynx.



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2021 Rice Cultivar Characteristics (Long-Grain Varieties)

Cultivar	CLL15	CLL16	CLL17	DG263L	Diamond	Jewel	ProGold1	ProGold2	PVL02
Agronomic Characteristics									
Technology	CL	CL	CL	—	—	—	—	—	PV
Grain Type ¹	LG	LG	LG	LG	LG	LG	LG	LG	LG
Avg. Yield ²	197	206	183	229	203	190	199	198	152
Days to 50% Hdg ³	84	87	84	83	85	86	87	86	82
Days to Maturity ⁴	119	122	119	118	120	121	122	121	117
Height (in)	38	37	35	34	37	38	36	37	36
Lodging	MR	MS	S	MS	MS	MS	MS	MS	VS
Nitrogen Management ⁵ (Rates in lb N/acre; loam soil following soybean; add 30 lb N/acre to preflood on clay soil)									
Preflood N	105	105	90	90	105	105	105	105	90
Midseason N	45	45	45	45	45	45	45	45	45
Boot N	0	0	0	0	0	0	0	0	0
Total N	150	150	135	135	150	150	150	150	135
Disease Characteristics ⁵ (VS=V. Susceptible; S=Susceptible.; MS=Mod. Susceptible; MR=Mod. Resistant; R=Resistant)									
Blast	MS	MS	MS	MS	S	MS	MS	MS	S
Sheath Blight	S	S	S	S	S	MS	S	MS	S
Straighthead	MS	—	—	—	MS	S	MS	MS	—
Kernel Smut	S	—	—	—	S	—	—	—	—
False Smut	S	MS	—	S	VS	MS	S	MS	S
Bacterial Panicle Blight	S	S	—	—	MS	MR	S	S	S

¹ Grain type: LG = long-grain, MG = medium-grain.

² Avg. yield refers to 2020 results from Commercial Rice Trials (CRT) small-plot research.

³ Days to 50% Hdg as measured in DD50 planting date studies.

⁴ Days to maturity calculated by adding 35 days for long-grain or 40 days for medium-grain to 50% Hdg values.

⁵ See pages 15-17 for more information on N management; see pages 23-24 for more on disease management.



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2021 Rice Cultivar Characteristics (Long-Grain Hybrids)

Cultivar	RT 7301	RT 7401	RT 7501	RT 7801	RT XP753	RT 7321 FP	RT 7521 FP
Agronomic Characteristics							
Technology	—	—	—	—	—	FP	FP
Grain Type ¹	LG	LG	LG	LG	LG	LG	LG
Avg. Yield ²	229	236	239	226	237	224	218
Days to 50% Hdg ³	83	85	86	88	83	82	86
Days to Maturity ⁴	118	120	121	123	118	117	121
Height (in)	37	37	36	38	38	40	39
Lodging	MS	MS	MS	MS	MR	MS	S
Nitrogen Management ⁵ (Rates in lb N/acre; loam soil following soybean; add 30 lb N/acre to preflood on clay soil)							
Preflood N	120	120	120	120	120	120	120
Midseason N	0	0	0	0	0	0	0
Boot N	30	30	30	30	30	30	30
Total N	150	150	150	150	150	150	150
Disease Characteristics ⁵ (VS=V. Susceptible; S=Susceptible.; MS=Mod. Susceptible; MR=Mod. Resistant; R=Resistant)							
Blast	MR	MR	MR	MR	R	R	R
Sheath Blight	MS	MS	S	MS	MS	MS	S
Straighthead	R	—	MS	—	MS	MR	R
Kernel Smut	—	—	S	MS	MS	S	MS
False Smut	MS	MS	S	VS	S	MS	VS
Bacterial Panicle Blight	MR	—	—	—	MR	—	—

¹ Grain type: LG = long-grain, MG = medium-grain.

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2021 Rice Cultivar Characteristics (Medium-Grain Varieties)

Cultivar	CLM04	Jupiter	Lynx	Titan
Agronomic Characteristics				
Technology	CL	—	—	—
Grain Type ¹	MG	MG	MG	MG
Avg. Yield ²	194	196	203	201
Days to 50% Hdg ³	87	87	86	82
Days to Maturity ⁴	127	127	126	122
Height (in)	37	34	36	34
Lodging	S	S	S	MS
Nitrogen Management ⁵ (Rates in lb N/acre; loam soil following soybean; add 30 lb N/acre to preflood on clay soil)				
Preflood N	105	105	90	105
Midseason N	45	45	45	45
Boot N	0	0	0	0
Total N	150	150	135	150
Disease Characteristics ⁵ (VS=V. Susceptible; S=Susceptible.; MS=Mod. Susceptible; MR=Mod. Resistant; R=Resistant)				
Blast	S	S	MS	MS
Sheath Blight	MS	S	S	S
Straighthead	MS	MS	MS	MS
Kernel Smut	—	MS	—	MS
False Smut	S	MS	MS	MS
Bacterial Panicle Blight	S	MR	S	MS

¹ Grain type: LG = long-grain, MG = medium-grain.

² Avg. yield refers to 2020 results from Commercial Rice Trials (CRT) small-plot research.

³ Days to 50% Hdg as measured in DD50 planting date studies.

⁴ Days to maturity calculated by adding 35 days for long-grain or 40 days for medium-grain to 50% Hdg values.

⁵ See pages 15-17 for more information on N management; see pages 23-24 for more on disease management.



Soil Testing Recommendations

Soil sample depth for phosphorus (P), potassium (K), and zinc (Zn) recommendations is 0 to 4 inches.

Phosphorus (P₂O₅) recommendation

pH	Mehlich-3 Soil Test P (ppm)			
	< 9	9-16	17-25	26-50
	_____ lbs of P ₂ O ₅ per acre _____			
≥ 6.5	70	60	50	0
≤ 6.5	50	40	30	0

Potassium (K₂O) recommendation

Mehlich-3 Soil Test K (ppm)			
< 61	61-90	91-130	> 130
_____ lbs of K ₂ O per acre _____			
120	90	60	0

Zinc (Zn) recommendation

- Zn deficiency normally occurs on silt or sandy loam soils or on precision graded fields.
- On these soils when soil-test Zn is < 4.1 ppm and pH is > 6.0, apply 10 lbs of actual Zn per acre as a granular fertilizer before rice emergence.
- Apply Zn seed treatments to supply 0.25 to 0.5 pounds of Zn per cwt of seed.
- For salvage of Zn deficiency, apply 1 pound actual Zn per acre as EDTA chelate to drained soil, fertilize with 100 lbs ammonium sulfate (AMS), and re-flood.



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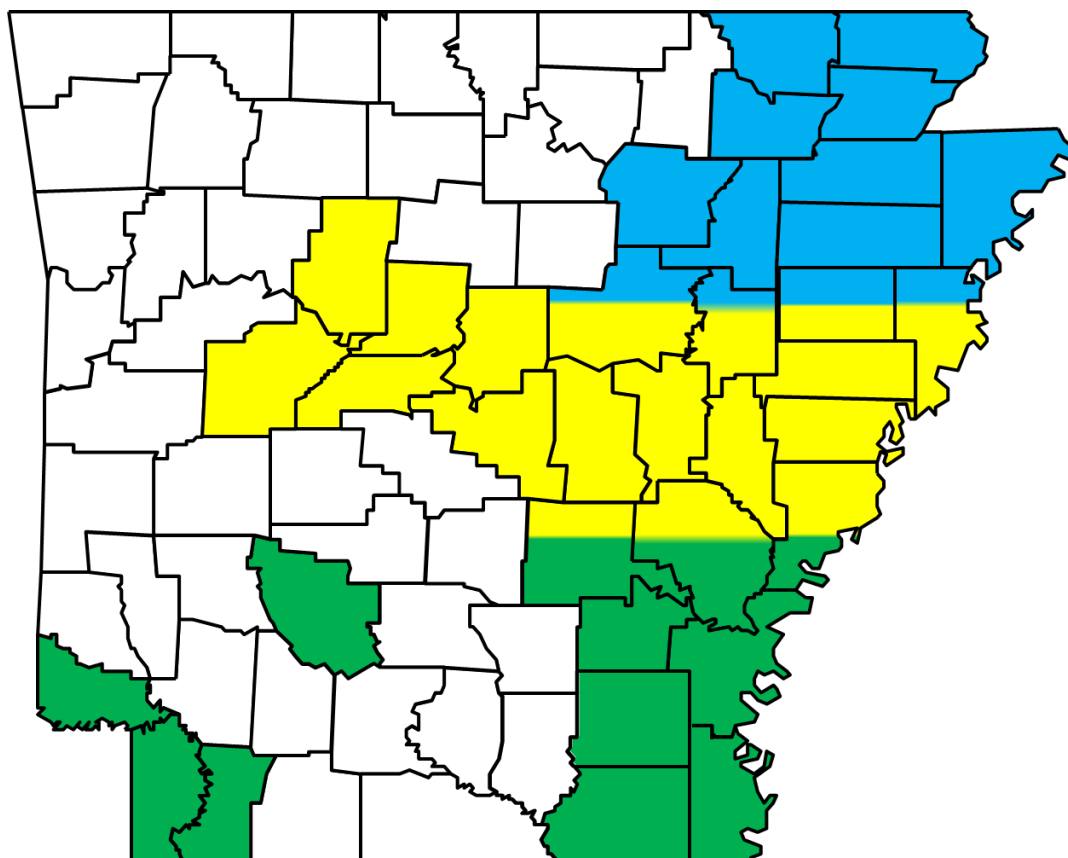
Recommended Optimum Seeding Date for Rice by Geography

General optimum and absolute recommended seeding dates by geographic region in Arkansas are based on yield potential and management considerations.

Geographic Region	Optimum ¹		Recommended Absolute ²	
	Begin	Cut-off	Begin	Cut-off
North	April 10	May 10	April 1	June 5
Central	April 1	May 15	March 25	June 10
South	March 28	May 20	March 20	June 15

¹ Seeding during the optimum time frame does NOT guarantee high yields or suggest that crop failure cannot occur when rice is seeded during these times.

² Recommended absolute does NOT mean that a successful rice crop cannot be grown if seeded outside of the dates listed. Success may be evaluated and/or interpreted using various parameters (i.e. cropping system, cash flow, field reclamation, etc.) and may differ among specific cultivars.

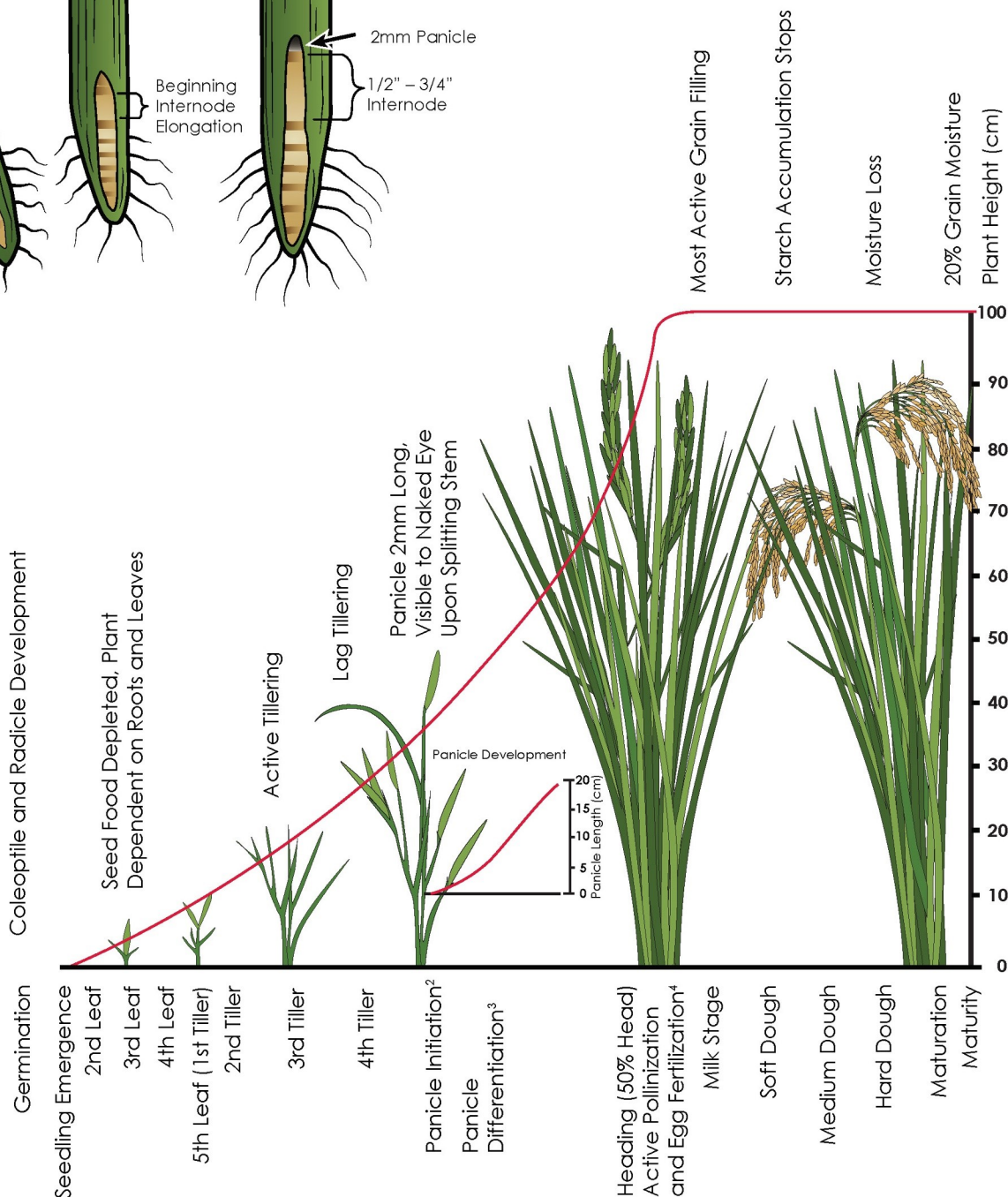
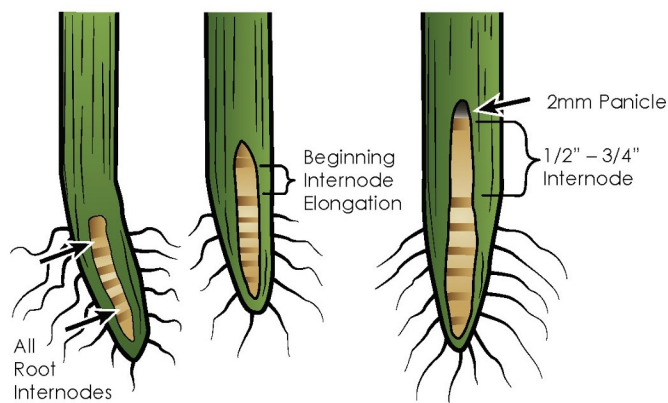


North	
Central	
South	



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INTERNODE ELONGATION



5-20 Days ¹	15 to 25 Days ¹	24 to 42 Days ¹	Variable ⁴	3-5 Days	19 to 25 Days ¹	30 to 45 Days ¹
STAGE I VEGETATIVE				STAGE II REPRODUCTIVE		STAGE III GRAIN FILLING & MATURATION

¹ Under warm conditions use the lesser number of days and under cool conditions use the greater number of days.

² The reproductive stage begins with panicle initiation.

³ Stage III begins when 50% of the florets are pollinated.

⁴ Variable time – 0 to 25 days (dependent upon cultivar).



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Seeding, Emergence, & Plant Stands

Seeding:

- Ideally, plant when soil is at least 60°F @ 4 in. depth.
- Good seed-to-soil contact is required.
- Seed depth should be ¼ - 1 ½ in.
- Under favorable conditions, drilled seeding rate should be ~30 seeds per square foot (ft²) for conventional, non-hybrid cultivars and ~11 seeds per ft² for hybrids.
- Seeding methods include: dry seeded-drilled, dry seeded-broadcast and water seeded-broadcast.
- Recommended drill row widths are 4 to 10 inches; 7.5-inch drill-row widths are most common.
- In furrow-irrigated rice, consider increasing seeding rate by 10% to achieve faster canopy closure.

Determining Emergence & Final Plant Stands:

- DD50 Emergence – date when 10 plants per ft² have emerged above soil surface (4-5 plants per ft² for hybrids). <http://dd50.uaex.edu>
- Count the number of plants in one ft² in at least 10 random locations in the field.
- Desired stand is 12 to 18 plants per ft² for conventional, non-hybrid cultivars and 6 to 10 plants per ft² for hybrids.
- Stand uniformity is as important as stand count.

Converting seed counts between seed per square foot and seed per row foot.

Seed per square foot Varieties	Drill Row Width			Seed per square foot Hybrids	Drill Row Width		
	6"	7.5"	8"		6"	7.5"	8"
	Seed per row foot				Seed per row foot		
24	12.0	15.0	16.0	8	4.0	5.0	5.3
30	15.0	18.8	20.0	9	4.5	5.6	6.0
36	18.0	22.5	24.0	10	5.0	6.3	6.7
42	21.0	26.3	28.0	11	5.5	6.9	7.3
48	24.0	30.0	32.0	12	6.0	7.5	8.0



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2021 Recommended Seeding Rates & Adjustments for Rice Cultivars in Arkansas

Pounds seed per acre at various seed densities for selected rice cultivars.

Cultivar	Seed per lb	Seeding Rate (seed/ft ²)							
		10	12	14	25 ¹	30	35	40	45
		lbs / acre							
ARoma 17	19,463	—	—	—	56	67	78	90	101
CL111	18,515	—	—	—	59	71	82	94	106
CL151	19,346	—	—	—	56	68	79	90	101
CL153	19,146	—	—	—	57	68	80	91	102
CLL15	19,102	—	—	—	57	68	80	91	103
CLL16	18,493	—	—	—	59	71	82	94	106
CLM04	18,880	—	—	—	58	69	81	92	104
DG263L	19,410	—	—	—	56	67	79	90	101
Diamond	18,843	—	—	—	58	69	81	92	104
Jazzman-2	20,497	—	—	—	53	64	74	85	96
Jewel	20,138	—	—	—	54	65	76	87	97
Jupiter	17,584	—	—	—	62	74	87	99	111
LaKast	18,283	—	—	—	60	71	83	95	107
Lynx	16,645	—	—	—	65	79	92	105	118
ProGold1	18,614	—	—	—	59	70	82	94	105
ProGold2	18,729	—	—	—	58	70	81	93	105
PVL02	20,816	—	—	—	52	63	73	84	94
Titan	16,470	—	—	—	66	79	93	106	119
RT 7301	19,899	22	26	31	—	—	—	—	—
RT 7321 FP	18,579	23	28	33	—	—	—	—	—
RT 7401	19,443	22	27	31	—	—	—	—	—
RT 7501	20,500	21	25	30	—	—	—	—	—
RT 7521 FP	18,498	24	28	33	—	—	—	—	—
RT XP753	19,647	22	27	31	—	—	—	—	—

¹ Only recommended under optimum conditions² with addition of an insecticide/fungicide seed treatment.

² Assumes good seedbed, drill-seeded, silt loam, optimum planting date, and conventional tillage.

Additive factors increasing optimum seeding rate.

Variable	% Added	Variable	% Added
Seeding Method		Seedbed Preparation	
Dry seeded-drilled	0	Good	0
Dry seeded-broadcast	20	Fair	10
Water seeded-broadcast	30	Poor	20
Soil Texture		Seeding Date	
Sand	0	Early (before April 15)	10
Silt	0	Optimum	0
Clay	20	Late (after June 1)	20

Factors additive to a max of 50% above optimum.

Visit the **Seeding Rate Calculator** program (<https://riceadvisor.uaex.edu/srate/>) to calculate appropriate seeding rates.



Rice Drill Calibration Worksheet

Number of Cups (5 recommended per section) (A) _____

Drive wheel

Circumference (inches/12) (B) _____ feet

Number of turns (minimum of 15) (C) _____

Distance covered (D) _____ feet
(A x B x C)

Calibration by Weight

Weight of seed caught (grams/454) (E) _____ lbs

Seeds/lb of lot used (indicated on seed bag) (F) _____

Row width (inches/12) (G) _____ feet

Number of seeds per:

Foot of Row (E x F) / D _____

Square Foot (E x F) / (D x G) _____

Calibration by Seed Count

Number of seeds caught (H) _____

Number of seed/row foot (H / D) _____



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Plant Populations for Various Row Spacing

Optimum plant populations (stand) for various row spacings.

Plants per row ft	6" drill	7" drill	7.5" drill	8" drill	9" drill	10" drill
	Plants per square foot					
1	2.0	1.7	1.6	1.5	1.3	1.2
2	4.0	3.4	3.2	3.0	2.7	2.4
3	6.0	5.1	4.8	4.5	4.0	3.6
4	8.0	6.9	6.4	6.0	5.3	4.8
5	10.0	8.6	8.0	7.5	6.7	6.0
6	12.0	10.3	9.6	9.0	8.0	7.2
7	14.0	12.0	11.2	10.5	9.3	8.4
8	16.0	13.7	12.8	12.0	10.7	9.6
9	18.0	15.4	14.4	13.5	12.0	10.8
10	20.0	17.1	16.0	15.0	13.3	12.0
11	22.0	18.9	17.6	16.5	14.7	13.2
12	24.0	20.6	19.2	18.0	16.0	14.4
13	26.0	22.3	20.8	19.5	17.3	15.6
14	28.0	24.0	22.4	21.0	18.7	16.8
15	30.0	25.7	24.0	22.5	20.0	18.0
16	32.0	27.4	25.6	24.0	21.3	19.2
17	34.0	29.1	27.2	25.5	22.7	20.4
18	36.0	30.9	28.8	27.0	24.0	21.6
19	38.0	32.6	30.4	28.5	25.3	22.8
20	40.0	34.3	32.0	30.0	26.7	24.0

Suggested hybrid final stand

Suggested variety final stand

Research suggests final plant stands in the highlighted ranges are needed to regularly achieve optimum grain yields. However, failure to achieve these stand densities does not mean that a profitable crop cannot be produced at stands less than or greater than these described.

Stand densities less than 3 plants/ft² for hybrids and less than 5 plants/ft² for varieties may not result in a profitable net return. These situations need to be evaluated on a case-by-case basis to determine the profitability of keeping the existing crop versus replanting.



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Insecticide Seed Treatments for Rice

Insecticide seed treatments are strongly recommended for rice. Research has shown a positive return 80% of the time when using an insecticide seed treatment. Select the appropriate product based on cost and insect control needs. However, grain yield, stand, and vigor benefits have been repeatedly noted even in the absence of insect pressure. Insect control benefits from CruiserMaxx and NipsIt diminish 35+ days after planting.

Insecticide seed treatments for rice insect management.

Insecticide	Rate (fl oz) per 100 lbs seed	Active Ingredients	Notes
CruiserMaxx Rice	7.0	thiamethoxam Also contains the Fungicides: azoxystrobin fludioxonil mefenoxam	<ul style="list-style-type: none"> • DO NOT plant or sow Cruiser-treated seed by aerial application. • Cruiser is NOT labeled for use in water-seeded rice. • DO NOT use treated fields for aquaculture of edible fish or crustaceans. • DO NOT exceed 120 lb seed per acre.
Dermacor X-100	1.5 - 6.0 (see label)	chlorantraniliprole	<ul style="list-style-type: none"> • Can be used on dry-seeded rice. • Seed treated with Dermacor CANNOT be soaked or pre-germinated before planting.
Fortenza	3.47	cyantraniliprole	<ul style="list-style-type: none"> • Use only on dry-seeded rice. DO NOT use treated fields for aquaculture of edible fish
NipsIt INSIDE	1.92	clothianidin	<ul style="list-style-type: none"> • Use only on dry-seeded rice. • DO NOT spray crop with another neonicotinoid insecticide after using NipsIt INSIDE. • DO NOT use near fish or crawfish farms.

Rice insecticide seed treatment performance ratings.

Insecticide	Chinch Bug	True Armyworm	Rice Water Weevil (adult)	Rice Water Weevil (larva)	Rice Stalk Borer	Grape Colaspis
CruiserMaxx Rice	6	2	6	7	—	8
Dermacor X-100	1	8	1	8	8	2
Fortenza	—	—	—	8	—	—
NipsIt INSIDE	6	—	6	7	—	8

Read and follow all label directions when using these products.



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Fungicide Seed Treatments for Rice

Fungicide seed treatments are strongly recommended to manage the seedling disease complex in rice. Treatments provide ~14 days of plant protection. Prolonged cool, wet conditions may allow seedling disease to overcome the seed treatments.

Fungicide seed treatments for rice seedling disease management.

Insecticide	Rate (fl oz) per 100 lbs seed	Active Ingredients	Notes
<u>Pythium diseases</u>			
Allegiance FL	0.75 - 1.5	metalaxyl	
Apron XL	0.32 - 0.64	mefenoxam	• Use higher rates for early planting or other severe disease situations.
<u>Rhizoctonia seedling diseases, general seed rots</u>			
RTU-Vitavax-Thiram	6.8	carboxin + thiram	• May use as a pour-on hopper-box treatment.
Vitavax 200	4.0		
Maxim 4 FS	0.02 - 0.08	fludioxinil	• Use higher rates for severe disease situations.
Vibrance	0.03 - 0.12	sedaxane	• 0.0002-0.002 mg ai/seed for control of Rhizoctonia seedling diseases.
Vibrance RST	1.7	azoxystrobin + fludioxonil + mefenoxam + sedaxane	
<u>Pythium, Rhizoctonia, general seed rots</u>			
Vitavax 200 + Allegiance FL	4.0 + 0.375	carboxin + thiram + metalaxyl	
Apron XL LS + Maxim 4 FS	0.32 - 0.64 + 0.02 - 0.08	mefenoxam + fludioxinil	• Use higher rates for early planting or severe disease situations.
Dynasty	0.153 - 1.53	azoxystrobin	• Usually sold with Apron XL and Maxim on rice to improve seedling disease control.
Trilex 2000	1.0 - 2.0	trifloxystrobin + metalaxyl	• See label.
EverGol Energy	1.0	prothioconazole + penflufen + metalaxyl	
CruiserMaxx Rice	7.0	azoxystrobin + fludioxonil + mefenoxam + thiamethoxam (insecticide)	• See insecticide seed treatment table for additional information.

All are commercial seed treatment only.

Read and follow all label directions when using these products.



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2021 Recommended Nitrogen Rates & Distribution for Rice Cultivars in Arkansas

Cultivars	Single Preflood N Rate ^z	Rates and Distribution for 2-way Split Application			
		Total N Rate	Preflood N Rate ^y	Midseason N Rate ^x	Late Boot N Rate ^w
		lbs N / Acre			
CL151 ^v	100	120	75	45	—
CLL17, Della-2, DG263L, Jazzman-2, Lynx, PVL02	115	135	90	45	—
ARoma 17, CLL15, CLL16, CLM04, Diamond, Jewel, Jupiter, ProGold1, ProGold2, Titan	130	150	105	45	—
RT 7301, RT 7321 FP, RT 7401, RT 7501, RT 7521 FP, RT 7801, RT XP753	—	150	120	—	30

^z Conditions required for use of optimum single preflood N rate: 1) field can be flooded timely (<7 days); 2) preflood urea is treated with a recommended urease inhibitor that includes NBPT; or ammonium sulfate is used as the N source; 3) can maintain a 2- to 4-inch flood depth for at least 3 weeks following flood establishment, and 4) the pre-flood N must be applied uniformly across the field (no streaking).

^y N rate for rice on silt loam soils following soybean in rotation. Rates may need adjustment based on factors below.

^x Apply midseason N in one application a minimum of 3 weeks after the preflood N application AND internode elongation has started; both conditions must be met to receive maximum benefit from the midseason N.

^w Hybrids receive additional N at late boot rather than midseason. Refer to DD50 for proper timing of this application.

^v Total of 120 but may be split 75-45 or 90-30.

Additional Notes: AWD irrigation does not change N fertilizer recommendations.
See Furrow-Irrigated Rice Handbook for detailed notes on N management.

Early N Rate Adjustments

INCREASE 30 lbs N/A on CLAY SOIL	DECREASE 10 lbs N/A following FALLOW
INCREASE 20 lbs N/A following RICE Or stand <10 plants/ft ² for varieties or <3 plants/ft ² for hybrids	OMIT early N rate following FISH, LONG-TERM PASTURE, or FIRST YEAR AFTER CLEARING
INCREASE 10 lbs N/A following SORGHUM, WHEAT, CORN, COTTON	

Nitrogen Conversions: Urea needed (lbs) = [lbs N recommended x 100] / 46



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2020 Recommended Urease Inhibitors for Rice in Arkansas

List of tested and recommended NBPT-containing urease inhibitors and suggested application rates for urea in rice.

Product Name	Recommended Volume qt per ton urea	NBPT Concentration %	Weight lb per gallon	Manufacturer
Agrotain Advanced	2.0	30.0	8.87	Koch Fertilizer, LLC
Agrotain Ultra	3.0	26.7	8.84	Koch Fertilizer, LLC
ANVOL [¶]	1.5	16.0	9.26	Koch Fertilizer, LLC
Arborite AG-NT	3.0	24.0	9.15	Weyerhaeuser NR Co.†
Contain [‡]	4.0	unknown [‡]	8.50	AgXplore
Factor	3.25	24.5	9.09	Rosen's, Inc.
Limus	3.0	16.88 [#]	9.06	BASF
N-Fixx PF	3.0 - 4.0	unknown [‡]	8.50	Helena Chemical
Nitrain	3.0	26.7	8.93	Loveland Products
Nitrain Express	3.0	24.8	8.99	Loveland Products
N-Veil	3.0 - 4.0	26.7	8.92	Invictus Crop Care, LLC
PinnitMax	1.5	50.0	9.26	Corteva Agriscience

† Arborite AG-NT (Nitrolock Technology) distributed by Gavilon Fertilizer.

‡ Unknown, the product label does not specify the concentration of NBPT in the product.

¶ ANVOL contains 16% NBPT and 27% duromide which has also been shown to reduce ammonia volatilization loss.

Limus contains 16.88% NBPT and 5.63% NPPT, which is a proprietary inhibitor owned by BASF.

N-STaR or Nitrogen Soil Test for Rice

- N-STaR provides field-specific N rates for silt loam and clay soils.
- Silt loam soils (CEC less than 25) should be sampled to a depth of 18 inches.
- Clay soils (CEC greater than 25) should be sampled to a depth of 12 inches.
- Depth of sampling is extremely important - samples deeper or shallower than the prescribed depth can affect N recommendations.
- 10 samples are recommended per field, but a single sample should represent no more than 10 acres (e.g. a 50 acre field will need ten samples, but a 150 acre field should have at least 15 samples).
- Each individual sample is kept separate - do not aggregate!
- Cost is \$10 per sample for analysis.
- For more information: nstarlab@uark.edu

N-STaR
Nitrogen Soil Test for Rice



Determining Rice Midseason N Needs Using Trimble® GreenSeeker® Handheld

Guide to rice midseason N applications using GreenSeeker (GS).

Reference Plot GS Average	Apply Midseason N if Field GS Reading <u>Less</u> Than
0.80	0.70
0.75	0.65
0.70	0.61
0.65	0.56

Application recommendation based on greater than 50% chance of response to midseason nitrogen application. Valid for both varieties and hybrids.

Using GreenSeeker allows for making objective decisions on midseason N management in rice. Follow these steps to successfully use GreenSeeker in Rice:

- A **Reference Plot** (minimum 5' x 5' area) must be present in EVERY INDIVIDUAL FIELD. This **Reference Plot** should have 50-100 units of N more than the producer's pre-flood N rate (only 30-60 grams needed or 1/4 - 1/3 of a standard measuring cup). The **Reference Plot** allows for a GreenSeeker reading to be taken in an area with maximum fertilizer N uptake. The larger the field, the more **Reference Plots** needed - i.e., one **Reference Plot** per 50 acres.
- GreenSeeker readings should be taken after Green Ring AND no earlier than 3 weeks following pre-flood N incorporation.
- GreenSeeker readings should be taken throughout the field – preferably a minimum of 10 readings – with each reading being an average of 10 steps (depress trigger while walking the 10 steps - resulting number will be an average of area covered).
- GreenSeeker readings are no longer valid once plants reach the late boot stage (flag leaf fully exerted).
- The average GreenSeeker reading from the **Reference Plot** is then divided by the average readings from the field. If the resulting value is greater than 1.15 then there is more than a 50% chance of a response to midseason N.

Example – a **Reference Plot** value of 0.8 divided by a field average value of 0.69 = 1.16. Since 1.16 is greater than 1.15, a response to midseason N will occur more than 50% of the time. The higher the ratio, the greater the chance of a response to midseason N applications.

Note: GreenSeeker responses may vary in furrow-irrigated rice due to different plant growth habit and changes in N fertilization strategies.



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Irrigation Recommendations

Recommended pumping rates for different soil textural groups

Soil Textural Group	Gallons per Minute (GPM) per Acre	
	Minimum	Desired
Silt loam - with pan	10	10
Sandy loam	15	25
Silt loam - no pan	10	15
Clay and silty clay	15	20

Apply permanent flood ~ the 5th leaf or 1st tiller stage.

Multiple Inlet Rice Irrigation (MIRI)

- MIRI reduces cold water effect and time and energy cost to flood up on precision and contour fields.
- Use 2.5" adjustable blue gates to flood all levees evenly. Flow rate is 75 GPM per fully open blue gate.
- Measure flow with a meter or plumb bob:
 - Divide GPM by number of acres; then multiply by number of levees per acre; then divide by 75 GPM to determine number of blue gates needed in each levee.
 - Ex. 1200 GPM / 42 A = 28 x 6 A per levee = 168 GPM needed / 75 GPM = 2.2 blue gates.
- To design MIRI use the mobile app (Rice Irrigation) or use Pipe Planner (www.pipeplanner.com).
- Use 9 mil or 10 mil pipe. Flow < 1200 GPM use 12-inch, Flow 1200 - 2200 GPM use 15-inch, Flow >2200 GPM use 18-inch.
- Use a wire to punch holes in pipe to prevent air entrapment. Set levee gates with 1-2 inch freeboard.
- Use 4" pipe about 3 feet long in bar ditches for multiple inlet (no pipe needed for side inlet).
- Do not overbuild levees where poly pipe will cross, pressure drop will prevent water from getting to end.

Alternate Wetting & Drying (AWD / Intermittent Flooding) Recommendations

- Establish permanent flood as normal and maintain for 21 days.
- Keep soil wet or damp at top of paddy and bottom of paddy still flooded.
- Ensure adequate moisture at (1) internode elongation and (2) flowering and grain fill.

Furrow-Irrigated Rice (FIR) or Row Rice Recommendations

- Construct a shallow bed, tall beds may require excessive irrigation. Prefer that space between furrows not exceed 30 inches for loam soils or 38 inches for clay soils.
- Begin irrigation and fertilization at the 5-leaf stage.
- End blocking can reduce water use and management time, but keep flooding shallow relative to rice height and increase as appropriate. This can be done by shutting off irrigation sets earlier.
- Soil moisture monitoring has been used successfully to assist in scheduling FIR irrigation. Place sensors shallow (4" or 6", 8", 12" and 18" in depth. A 30% allowable depletion, up to 12"-18" effective rooting depth can be used to schedule irrigations using the soil sensor mobile app in FIR using hybrids.
- Without sensors, research and producers generally have been successful with 3-5 day intervals and even up to 7-10 days without significant yield penalty. Verify sensor info with crop observations.



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Plant-Back Recommendations for Burndown Herbicides

Herbicide	Rice	Soybean	Corn	Wheat
2,4-D	21d ¹	14d	7d	7d
Dicamba ²	22d	14d	I	22d
Elevore	14d	14d	14d	14d
FirstShot	I	7d	14d	I
Goal	10m	7d	30d	10m
Glyphosate	I	I	I	I
Glufosinate	I	I	I	I
Harmony GT	I	I	I	I
LeadOff	10m	30d	I	3m
Python	6m	I	I	4m
Sharpen	I	1m	I	I
Valor/Afforia	30d	I	30d	30d
Verdict	FY	I-4m	I	4m
Zidua SC (3.25 oz)	12m	I	I	30d

¹ I = immediately; d = days; m = months; and FY = following year.

² Plant-back days are rate dependent, days presented are for the lowest label rate. The burndown and row crop cutoff date for dicamba applications is May 25. Check the Arkansas State Plant Board website (www.aad.arkansas.gov) for updated regulations on dicamba.

Rainfall-free Periods for Postemergence Rice Herbicides

Herbicide	Time Before Rainfall	Herbicide	Time Before Rainfall
2,4-D	6 hrs	Newpath / Preface	4 hrs
Aim	1 hr	Permit / Permit Plus	4 hrs
Basagran / Broadloom	8 hrs	Propanil	6 hrs
Beyond / Postscript	4 hrs	Provisia	1 hr
Bolero	Nothing on label	Regiment	8 hrs
Clincher	1 hr	Ricestar HT	1 hr
Facet	Nothing on label	Sharpen	1 hr
Grasp	1 hr	Storm	8 hrs
League	6 hrs	Strada	6 hrs
Loyant	2 hrs	Ultra Blazer	4 hrs



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Preemergence Herbicides Weed Response Ratings (0= no control, 10 = 100% control)

Herbicides	Herbicide MOA	Grasses								Broadleaf Weeds															Sedges				
		Barnyardgrass ¹	Broadleaf signalgrass	Crabgrass	Fall panicum	Red rice	Rice cutgrass	Sprangletop (loosehead)	Sprangletop (tighthead)	Ammannia (red stem)	Dayflower	Ducksalad	Eclipta	False Pimpernel	Gooseweed	Groundcherry	Hemp sesbania	Indian jointvetch	Northern jointvetch	Palmleaf morningglory	Pigweed, Palmer	Pitted Morningglory	Smartweed	Texasweed	Water hyssop	Flatsedges	Spikerush	Umbrella sedge	Yellow nutsedge
League	2	0	0	0	0	0	0	0	0	7	-	5	-	-	-	-	9	8	8	2	0	2	7	8	-	8	-	0	8
Prowl ²	3	8	6	8	7	0	0	6	6	0	0	4	0	0	0	-	0	0	0	0	6	0	0	0	0	0	0	0	0
Facet ⁴	4	9	9	9	9	0	0	0	0	3	5	3	8	3	3	8	6	7	7	7	4	7	0	0	6	5	-	0	0
Facet+Prowl ²	4,3	9	9	9	9	0	0	7	7	3	5	3	8	3	3	-	7	7	7	8	6	8	0	0	6	5	-	0	0
Facet +Bolero ²	4,8	9	9	9	9	0	0	8	8	6	7	7	9	7	5	-	8	8	8	8	5	8	5	-	6	8	7	4	0
Command + Facet	13,4	10	10	10	10	0	0	9	9	3	6	3	8	3	4	8	7	8	8	8	4	8	6	0	6	5	7	-	0
Bolero ²	8	7	5	7	7	0	0	7	7	7	8	7	8	8	6	-	5	5	5	5	-	5	5	-	7	7	7	4	4
Bolero ³	8	8	7	7	-	8*	0	8	8	3	6	6	-	5	6	-	-	-	-	-	-	-	-	-	5	7	5	3	3
Command ⁴	13	9	9	9	9	0	0	9	9	0	3	3	3	-	0	-	2	3	3	4	0	3	2	0	0	0	0	0	0

¹ Some biotypes of barnyardgrass are resistant to Command, propanil, Facet, Newpath, Grasp, Regiment, Clincher, Ricestar, & Loyant.

Best barnyardgrass control is achieved through a program approach with overlapped residuals at the front of the season.

² Delayed PRE. ³ Water seeded. ⁴ PRE/delayed PRE. * Water seed pinpoint flood culture.

The above ratings are assuming activation by rainfall with no weeds emerged at time of application.

Read and follow all label directions when using these products.

Midseason Herbicides Weed Response Ratings (0= no control, 10 = 100% control)

Herbicides	Herbicide MOA	Grasses								Broadleaf Weeds															Sedges				
		Barnyardgrass †	Broadleaf signalgrass	Crabgrass	Fall panicum	Red rice	Rice cutgrass	Sprangletop (bearded)	Sprangletop (Amazon)	Ammannia (red stem)	Dayflower	Ducksalad	Eclipta	False Pimpernel	Gooseweed	Groundcherry	Hemp sesbania	Indian jointvetch	Northern jointvetch	Palmleaf morningglory	Pigweed, Palmer	Pitted Morningglory	Smartweed	Texasweed	Water hyssop	Flatsedges	Spikerush	Umbrella sedge	Yellow nutsedge
2,4-D	4	0	0	0	0	0	0	0	0	9	9	9	9	9	6	5	9	5	5	9	8	9	6	0	9	8	8	3	5
Grandstand + propanil	4,7	4	4	4	4	0	0	0	0	9	-	6	6	8	7	3	9	8	9	9	7	9	5	0	8	5	8	5	3
Propanil	7	4	4	4	4	0	0	0	0	4	0	3	4	4	0	4	8	5	5	3	6	0	3	0	8	5	7	5	3
Propanil + Ultra Blazer	7, 14	5	5	5	5	0	0	0	0	5	2	4	5	5	2	5	9	6	6	7	7	8	7	0	8	6	7	5	4
Ultra Blazer	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	0	0	3	6	3	6	0	0	0	0	0	0

¹ Some biotypes of barnyardgrass are resistant to Command, propanil, Facet, Newpath, Grasp, Regiment, Clincher, Ricestar, & Loyant.

Read and follow all label directions when using these products.



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Early Postemergence Herbicides Weed Response Ratings (0= no control, 10 = 100% control)

Herbicides	Herbicide MOA	Grasses								Broadleaf Weeds																Sedges			
		Barryardgrass ¹	Broadleaf signalgrass	Crabgrass	Fall panicum	Red rice	Rice cutgrass	Sprangletop (bearded)	Sprangletop (Amazon)	Ammania (red stem)	Dayflower	Ducksalad	Ecilpta	False Pimpernel	Gooseweed	Groundcherry	Hemp sesbania	Indian jointvetch	Northern jointvetch (curly indigo)	Palmleaf morningglory	Pigweed, Palmer	Pitted Morningglory	Smartweed	Texasweed	Water hyssop	Flatsedges	Spikerush	Umbrella sedge	Yellow nutsedge
Clincher	1	8	9	5	9	0	2	9	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Provisia fb Provisia	1	10	10	10	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ricestar HT	1	9	9	8	7	0	2	9	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grasp	2	8	0	0	0	0	6	0	0	7	8	9	8	-	-	8	8	8	8	4	0	5	7	7	8	9	8	0	6
Londax	2	0	0	0	0	0	0	0	0	9	7	9	8	9	9	0	6	6	6	5	0	5	6	0	9	8	8	0	6
Newpath fb Newpath	2	9	9	9	9	9.5	9	8	7	8	5	7	0	0	5	9	0	0	0	5	0	7	9	5	0	9	9	0	8
Permit	2	0	0	0	0	0	0	0	0	5	8	3	5	-	4	6	9	3	6	0	0	4	4	5	-	8	-	0	9
Permit Plus	2	0	0	0	0	0	0	0	0	8	9	7	7	-	4	8	9	5	7	3	0	5	8	5	-	8	-	0	9
Gambit	2	0	0	0	0	0	-	0	0	9	9	8	8	-	4	8	9	9	7	3	0	6	8	7	-	8	-	0	9
Regiment	2	8	0	0	0	0	7	3	2	6	9	9	7	-	0	-	8	7	7	4	0	5	10	7	6	8	-	3	5
Strada	2	0	0	0	0	0	0	0	0	8	7	6	7	-	-	4	9	8	9	3	0	4	5	6	-	9	-	0	7
Facet	4	8	9	7	6	0	2	0	0	3	3	3	9	3	3	8	8	8	8	8	4	8	0	0	3	5	-	0	0
Loyant	4	7	8	0	-	0	-	6	6	10	10	10	10	10	9	0	10	10	10	5	9	8	6	-	8	10	-	10	7
Grandstand + Permit	4,2	0	0	0	0	0	0	0	0	8	8	4	5	-	-	4	8	9	9	9	4	9	7	9	-	9	-	3	9
Facet + propanil	4,7	9	9	7	9	0	2	4	5	6	5	6	9	7	5	8	9	9	9	8	8	8	6	6	8	9	9	3	5
Grandstand + propanil	4,7	9	9	7	9	0	0	4	5	9	5	8	9	8	8	4	9	9	9	9	9	9	7	8	8	9	9	3	5
Basagran	6	0	0	0	0	0	0	0	0	8	9	6	8	7	7	0	3	3	3	8	0	3	7	0	8	8	8	7	6
Basagran + propanil	6,7	9	9	7	9	0	2	4	5	9	9	7	9	8	7	4	9	9	9	8	7	5	8	6	9	9	9	8	7
Propanil	7	9	9	7	9	0	1	4	5	6	5	7	8	7	5	-	9	9	9	4	7	4	6	6	8	9	9	5	4
Propanil fb propanil	7	9	9	7	9	0	2	7	8	6	6	7	9	7	5	-	9	9	9	5	9	5	8	6	8	9	9	6	6
Propanil + Londax	7,2	9	9	7	9	0	2	4	5	9	8	7	9	8	9	0	9	9	9	9	7	9	8	5	8	9	9	6	8
Propanil + Permit	7,2	9	9	7	9	0	1	4	5	6	9	7	8	7	5	6	10	9	9	4	7	4	6	5	8	9	9	3	9
Propanil + Prowl	7,3	9	9	7	9	0	1	9	9	7	5	7	9	7	6	-	9†	9†	9†	5	7	5	6	4	7	9	7	3	5
Propanil + Bolero	7,8	9	9	7	9	0	2	9	9	8	8	8	9	9	6	-	9†	9†	9†	5	0	5	6	4	9	9	9	8	5
Aim	14	0	0	0	0	0	0	0	0	6	7	5	7	-	-	8	9	6	6	10	6	10	9	3	7	-	0	3	0
Sharpen	14	0	0	0	0	0	0	0	0	8	7	5	9	-	7	8	9	9	9	9	9	10	-	8	8	8	-	6	6
Ultra Blazer + propanil	14, 7	8	8	7	8	0	1	4	5	6	5	7	8	7	5	8	9	6	9	8	9	8	7	3	8	8	8	2	5

¹ Some biotypes of barnyardgrass are resistant to Command, propanil, Facet, Newpath, Grasp, Regiment, Clincher, Ricestar, & Loyant.

† Postemergence control only.

Read and follow all label directions when using these products.



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Application Rate Range and Notes for Common Rice Herbicides

Herbicide	Rate per Acre	Notes
Basagran / Broadloom	1.5 - 2.0 pt/A	If not mixing with propanil, add 1% v/v COC. Do not apply more than 4 pt/A per season.
Beyond 1 AS	5 oz/A	Surfactant or crop oil required. Cutoff: PI+14 days for CL varieties.
Bolero 8E	4 pt/A	Delayed PRE. Rice seed must have imbibed its germination water prior to application.
Clearpath	0.5 lb/A	Add 1% v/v crop oil concentrate.
Clincher 2.38 EC	15 oz/A	Add 1 qt/A COC. Excellent soil moisture needed for good activity.
Command 3 ME	0.8 - 1.6 pt/A (12.8 - 25.6 oz/A)	Injury may increase with low seeding rates. 0.8 to 1.1 pt/A on silt loam and 1.3 to 1.6 pt/A on clay soils.
Facet L	22 - 43 oz/A	Rice seed exposed to spray may be severely injured. Tomatoes & cotton extremely sensitive. Do not apply after PI.
Gambit 79 WDG	1 - 2 oz/A	Add 1% COC or MSO.
Grasp 2 EC	2 - 2.3 oz/A	Add 1 qt/A COC or MSO.
League	6.4 oz/A	May carry over to soybean on very high pH soils.
Loyant	8 - 16 oz/A	Add MSO. No more than 7 days prior to flooding. Avoid soybean. Best in program with multiple residual herbicides. Injury has been observed on some cultivars. Risk for injury increases when sequential applications are made. Increased injury observed on hybrids when following PRE or early POST applications of quinclorac.
Newpath 2 AS	4.0 - 6.0 oz/A	Do not exceed 6 oz/A per application on CL varieties.
Permit 75 WG	1 oz/A	Add NIS or COC.
Permit Plus 75 WG	0.75 oz/A	Add 1% COC or MSO.
Postscript	5 oz/A	Surfactant or COC required. Use only on FullPage hybrids. Cutoff: PI+14 days for FullPage hybrids.
Preface	4.0 - 6.0 oz/A	Add 0.25% v/v NIS. Use only on FullPage hybrids.
Propanil (4 lb form.)	3 - 4 qt/A	Two applications 5-7 days apart for hard-to-kill weeds.
Provisia 0.88 EC	15.5 oz/A followed by 15.5 oz/A	Add 1% v/v COC. Sequential program: 1-2 leaf FB 4-5 leaf (preflood). Use residual program at planting. Broadleaf tank mixes with 1st application, avoid tank mixes with 2nd application. Do not mix with propanil or Grandstand. Avoid drift to non-PV rice, corn, sorghum.
Prowl H ₂ O 3.8 CS	2.1 pt/A	Delayed PRE. Rice seed must have imbibed its germination water prior to application.
Regiment 80 WP	0.4 - 0.63 oz/A	From 4-leaf rice to joint movement. Use proper adjuvants.
RiceBeaux 6 SC	4 qt/A	Apply to sealed soil. Rice must have imbibed germination water.
Ricestar HT 0.58 EC	24 oz/A	Excellent soil moisture critical for good activity. Tank mixing with broadleaf & sedge herbicides can cause loss of grass activity.
Sharpen	2-3 oz/A (PRE) 1 oz/A (POST)	PRE: prior to rice emergence; if existing vegetation, add 1% v/v MSO. Add 1% v/v COC. 2-3 leaf rice. Up to PI. Do not apply before 2-leaf.



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Fungicide Rates & Timings for Disease Management in Arkansas Rice

Fungicides for sheath blight management.

Fungicide	Rate per Acre fl oz	Active Ingredients	Notes
Quadris	8.5 – 12.5	azoxystrobin	<ul style="list-style-type: none"> • Apply fungicides when scouting indicates more than 35% positive stops in cultivars rated S or VS; or when more than 50% positive stops in cultivars rated MS. • Scout between panicle differentiation and early heading. • Maximum benefit from a single fungicide application achieved when made before the disease has damaged the upper 3 leaves of the canopy.
Stratego	16.0 – 19.0	trifloxystrobin + propiconazole	
Frontier	3.8 – 4.7	trifloxystrobin	
Quilt Xcel	14.0 – 27.0	azoxystrobin + propiconazole	
Elegia	32.0	flutolanil	
Amistar Top	10.0 – 15.0	azoxystrobin + difenconazole	

Fungicides for prevention of kernel smut and false smut.

Fungicide	Rate per Acre fl oz	Active Ingredients	Notes
Tilt 3.6 EC	6.0	propiconazole	<ul style="list-style-type: none"> • Apply at early to late boot but before heading begins to SUPPRESS kernel smut and/or false smut. • Applications made after heading starts will be INEFFECTIVE. • Fields most likely to benefit will be those planted to a susceptible cultivar and using excessive nitrogen. • Fungicides may not give desired suppression of false smut in late-planted rice.
Propimax	6.0	propiconazole	
Stratego	19.0	trifloxystrobin + propiconazole	
Quilt Xcel	15.75 - 27.0	azoxystrobin + propiconazole	
Amistar Top	10.0 - 15.0	azoxystrobin + difenconazole	

Fungicides for prevention of neck blast.

Fungicide	Rate per Acre fl oz	Active Ingredients	Notes
Quadris	12.5	azoxystrobin	<ul style="list-style-type: none"> • Keep flood depth at least 4 inches to suppress early leaf blast & neck blast. • Fungicides for prevention of neck blast work best if applied twice: <ul style="list-style-type: none"> ◇ First application at late boot ◇ Second application when panicles of main tillers are 50-75% emerged but the neck is still in the boot.
Frontier	3.1 – 4.7	trifloxystrobin	
Stratego	19.0	trifloxystrobin + propiconazole	
Quilt Xcel	21.0 – 27.0	azoxystrobin + propiconazole	
Amistar Top	10.0 - 15.0	azoxystrobin + difenconazole	

Read and follow all label directions when using these products.



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Arkansas Rice Cultivar Reactions to Common Diseases and Lodging

Cultivar	Sheath Blight	Blast	Straight-head	Bacterial Panicle Blight	Cercospora	Kernel Smut	False Smut	Lodging
ARoma 17	MS	MS	S	MS	—	S	S	MR
CL111	VS	MS	S	VS	S	S	S	MS
CL151	S	VS	VS	VS	S	S	S	S
CL153	S	MS	MS	MS	S	S	S	MR
CLL15	S	MS	MS	S	S	S	S	MR
CLL16	S	MS	—	S	MR	—	MS	MS
CLL17*	S	MS	—	—	—	—	—	S
CLM04	MS	S	MS	S	MS	—	S	S
Della-2	S	R	VS	MS	MS	—	—	—
DG263L*	S	MS	—	—	S	—	S	MS
Diamond	S	S	MS	MS	MS	S	VS	MS
Jazzman-2	S	MS	S	VS	S	S	S	MS
Jewel	MS	MS	S	MR	MS	—	MS	MS
Jupiter	S	S	MS	MR	S	MS	MS	S
LaKast	MS	S	MS	MS	MS	S	S	MS
Lynx	S	MS	MS	S	MR	—	MS	S
ProGold1	S	MS	MS	S	MS	—	S	MS
ProGold2	MS	MS	MS	S	MS	—	MS	MS
PVL02	S	S	—	S	S	—	S	VS
Roy J	MS	S	MS	S	R	VS	S	MR
RT 7301	MS	MR	R	MR	MS	—	MS	MS
RT 7321 FP	MS	R	MR	—	MS	S	MS	MS
RT 7401*	MS	MR	—	—	—	—	MS	MS
RT 7501	S	MR	MS	—	MS	S	S	MS
RT 7521 FP	S	R	R	—	MS	MS	VS	S
RT 7801	MS	MR	—	—	MS	MS	VS	MS
RT XP753	MS	R	MS	MR	MR	MS	S	MR
Titan	S	MS	MS	MS	MS	MS	MS	MS

* Ratings based on limited data.

Reaction: R = Resistant; MR = Moderately Resistant; MS = Moderately Susceptible; S = Susceptible; VS = Very Susceptible

Cells with no values indicate no definitive Arkansas disease rating information is available at this time. Reactions were determined based on historical and recent observations from test plots and grower fields across Arkansas and other rice states in southern USA. In general, these ratings represent expected cultivar reactions to disease under conditions that most favor severe disease development.



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Insecticide Rates & Thresholds for Insect Management in Arkansas Rice

Insecticides for rice stink bug management.

Insecticide	Min-Max Rate	Active Ingredients	Notes
Sevin 80 S	1.25 - 1.875 lb	Carbaryl	<ul style="list-style-type: none"> • Check infestation levels weekly following 75% panicle emergence using a 15-inch diameter sweep net. • Treat when 5 or more stink bugs per 10 sweeps are present during the first 2 weeks after fields reach 75% panicle emergence; or when 10 stink bugs per 10 sweeps are present thereafter. • Sampling stink bugs should be conducted between 8-10 a.m. and 6-8 p.m. to get the best estimate of the population. Repeat treatment as necessary to maintain control. • Acephate is not labeled in rice. Use of acephate in rice jeopardizes the whole rice industry.
Sevin XLR or 4 F	2 - 3 pt	Carbaryl	
Tenchu 20 SG	7.5 - 10.5 oz	Dinotefuran	
Malathion 57% EC	1 - 1.5 pt	Malathion	
Declare 1.25 CS	1.28 - 2.05 oz	Gamma-cyhalothrin	
Proaxis 0.5 CS	3.2 - 5.12 oz	Gamma-cyhalothrin	
Warrior II 2.08 CS	1.6 - 2.56 oz	Lambda-cyhalothrin	
Mustang Maxx, Respect	2.64 - 4.0 oz	Zeta-cypermethrin	

Thresholds for additional insect pests of rice.

Insect	Threshold	Scouting Procedure
Chinch Bug	Treat when bugs are causing stand reduction	<ul style="list-style-type: none"> • Check seedling rice, particularly fields bordering wheat.
Fall Armyworm, True Armyworm	No treatment for rice between seedling & 2-3 tiller, unless feeding on growing point. For May & June plantings, treat when defoliation exceeds 40% at 5-6 tiller and 20% at green ring. Late season treat when head cutting occurs.	<ul style="list-style-type: none"> • Early season watch rice bordering wheat for migration of true armyworms into field (damage can occur quickly when armyworms move in).
Grasshopper	Treat when damage is evident.	<ul style="list-style-type: none"> • Watch field borders, particularly near grassy areas.
Greenbug	2 to 3 greenbugs per plant on 1- to 2-leaf stage rice.	<ul style="list-style-type: none"> • General visual observation.
Rice Water Weevil	See MP144 for details.	<ul style="list-style-type: none"> • Inspect the youngest leaf on 40 rice plants at each stop for adult feeding scars. Avoid areas with thin stand. DO NOT count older leaves with scars.



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Drain Timing and Harvest

Drain Timing Recommendations

Drain rice based on two conditions, time AND maturity:

- Rice crop should be 25-30 days past 50% heading (25 days for long-grain, 30 days for medium grain).
- AND on silt loam soils panicles should have 2/3 straw-colored kernels; or on clay soils panicles should have 1/3 straw-colored kernels prior to draining.

Harvest Aids

Use harvest aids on rice when:

Varieties between 25 and 18% grain moisture.

Hybrids between 23 and 18% grain moisture.

Additional tips:

- Apply sodium chlorate at 3-6 lb a.i. per acre.
- Harvest within 5 days after application.
- Used to desiccate foliage but also reduces grain moisture.
- When used properly, does not reduce head rice yields.
- When applications are made within recommended moisture range and harvested in less than 5 days, generally no grain yield or milling yield losses are observed.

Harvest Timing and Grain Moisture

- Optimal harvest grain moisture for Long Grain Cultivars is 19 to 21 percent.
- Optimal harvest grain moisture for Medium Grain Cultivars is 22 to 24 percent.

Estimated Drying Costs Based on Grain Moisture Content

Moisture Content (%)	Cost (\$ per bushel)
< 13.5	0.30
13.6 - 18.9	0.36
19.0 - 21.9	0.43
> 22.0	0.60



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Calibration and Conversion Factors

GPM = gallons per minute

GPA = gallons per acre

mph = miles per hour

W = nozzle spacing (in.) for broadcast spraying

= spray width (in.) for single nozzle, banded or boomless spraying

= row spacing (in.) divided by nozzles per row for directed spray

Formulas:

$$\text{GPM (per nozzle)} = \frac{\text{GPA} \times \text{mph} \times \text{W}}{5,940}$$

$$\text{GPA} = \frac{5,940 \times \text{GPM (per nozzle)}}{\text{Mph} \times \text{W}}$$

Conversion Factors

1 g = 0.0022 lb	1 ha = 2.471 A
1 kg = 2.2 lb	1 kg/ha = 0.893 lb/A
2.54 cm = 1 in	1 bu/A = 45 lb/A
1 L = 0.265 gal	g/L = Parts per thousand
1 gal = 4 qt / 8 pt / 128 fl oz	mg/kg = Parts per million

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For more information please visit the Extension rice page at <http://uaex.edu/rice>.

Additional information on topics throughout this publication may be found in:

MP192 - Arkansas Rice Production Handbook,
Arkansas Furrow-Irrigated Rice Handbook,
MP44 - Recommended Chemicals for Weed and Brush Control,
MP144 - Insecticide Recommendations for Arkansas, and
MP154 - Arkansas Plant Disease Control Products Guide.

The information given herein is supplied with the understanding that no discrimination is intended and no endorsement by the University of Arkansas System Division of Agriculture is implied. The agrichemical recommendations herein are consistent with current federal and state pesticide labeling as of the date of this publication. Revisions in labels can occur at any time. For your safety before using any recommended product, ALWAYS READ THE PRODUCT LABEL.

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