

2015 Arkansas Rice Quick Facts

Dr. Jarrod Hardke – Rice Extension Agronomist
 Ralph Mazzanti – Program Associate, Rice Verification
 Ron Baker – Program Associate, Rice Verification



2014 Rice Facts:

- 1,470,000 acres harvested
- 167 bu/acre (7,530 lbs/acre) state average yield
- Average dates in 2014
 - Rice Research Verification Program (RRVP)
 - Planting: April 28
 - Emergence: May 10
 - Harvest: September 17
- 45 lbs = 1 bu; 100 lbs = 1 cwt; 1 cwt = 2.2 bu
- 12% grain moisture is dry

Growth and Development:

Vegetative stages – Germination to panicle initiation

- Germination – occurs when seed is exposed to moisture, oxygen, and temperatures above 50°F.
- Emergence – occurs in 5 - 28 days depending on the environment.
- Pre-tillering (1st to 4th leaf stage) – rice generally puts on one leaf per week, can occur in 15 - 25 days.
- Tillering (1st to 4th tiller) – can occur in 24 - 42 days.

Reproductive stages – Panicle initiation to maturity

- Panicle initiation (PI) – sometimes referred to as “green ring” or beginning internode elongation (IE).
- Panicle differentiation (PD) – ½ inch to ¾ inch IE.
- 50% heading – time when 50% of panicles begin to exert from the boot.
- Grain fill to maturity – can occur in 30 - 45 days.
- Maturity – approximately 20% grain moisture.

Seeding:

- Ideally, plant when soil is 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 ~12 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.

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 (6 to 10 plants per ft² for hybrids).
- Stand uniformity is as important as stand count.

General Suggested Recommended Seeding Dates

Geographic Region	Optimum ¹		Absolute ²	
	Begin	Cut-off	Begin	Cut-off
South	Apr 1	May 20	Mar 20	June 15
Central	Apr 10	May 15	Mar 25	June 10
North	Apr 15	May 10	Mar 25	June 5

¹ Seeding during optimum time frame does not guarantee high yields or suggest crop failure cannot occur.

² Recommended absolute does NOT mean a successful rice crop cannot be grown if seeded outside of the dates listed.

Additive Factors Increasing Optimum Seeding Rate¹

Variable	% Added
Seeding Method	
Dry seeded-drilled	0
Dry seeded-broadcast	20
Water seeded-broadcast	30
Soil Texture	
Sand	0
Silt	0
Clay	20
Seedbed Condition	
Good	0
Fair	10
Poor	20
Seeding Date	
Early (Before April 5 – South, April 10 – Central, April 15 – North)	10
Optimum	0
Late (After June 1)	30

¹ Use of fungicide and/or insecticide seed treatments can increase plant stand.

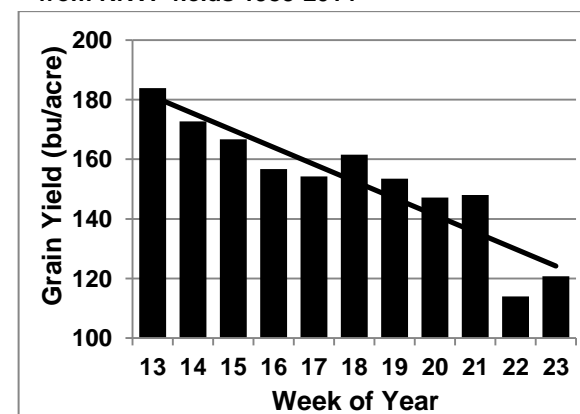
Seeds Per Row Foot (Pureline Varieties)

Seeds per square foot	Row Spacing in Inches		
	6	7.5	8
24	12.0	15.0	16.0
27	13.5	16.9	18.0
30	15.0	18.8	20.0
33	16.5	20.6	22.0
36	18.0	22.5	24.0
39	19.5	24.4	26.0
42	21.0	26.3	28.0
45	22.5	28.1	30.0
48	24.0	30.0	32.0

Seeds Per Row Foot (Hybrids)

Seeds per square foot	Row Spacing in Inches		
	6	7.5	8
8	4.0	5.0	5.3
9	4.5	5.6	6.0
10	5.0	6.3	6.7
11	5.5	6.9	7.3
12	6.0	7.5	8.0

Average Grain Yield by Planting Date (Week of Year) – from RRVP fields 1983-2014¹



¹ Grain yield data from 414 RRVP fields.

² Week 13 is typically the last week of March/first week of April while Week 23 is typically the second week of June.

Fertilization:

Nitrogen (N):

- Rice cultivars differ in the amount of nitrogen (N) fertilizer required to produce optimum grain yields.
- Refer to 'Recommended N Rates & Distribution Amounts' for specific cultivar recommendations.
- Two N application options:
 - Single pre-flood: 100% N applied pre-flood on dry soil (must maintain timely & seasonal flood).
 - Two-way split: About 70% of N applied pre-flood on dry soil with remainder (45 lbs N/acre) applied as a single mid-season application.
- Treat pre-flood urea with NBPT-containing urease inhibitor if timely flood establishment is a concern (less than 2 days for silt loam soils, less than 7 days for clay soils) or use ammonium sulfate.
- N-STaR or Nitrogen Soil Test for Rice provides field-specific N rates for silt loam (18-inch sample depth) and clay soils (12-inch sample depth). For more information: nstarlab@uark.edu.
- Nitrogen sources:
 - Urea (46-0-0) & Ammonium Sulfate (21-0-0-24).

Soil Sample depth for phosphorus (P), potassium (K), & Zinc (Zn) recommendations is 0 to 4 inches.

Phosphorus (P₂O₅) recommendation

pH	Mehlich-3 Soil Test P (ppm)			
	<16	16-25	26-35	>36
----- lbs of P ₂ O ₅ per acre -----				
≥ 6.5	90	60	50	0
< 6.5	50	30	0	0

Potassium (K₂O) recommendation

Mehlich-3 Soil Test K (ppm)			
<61	61-90	91-130	> 131
----- lbs of K ₂ O per acre -----			
120	90	60	0

Sulfur (S):

- Rice does not normally require sulfur fertilizer to produce high yields in Arkansas.
- Sulfur is most likely to be needed on sandy soils.
- Sulfur may be needed when the SO₄-S soil test value is <5 ppm or past deficiency has occurred.
- 100 lbs of ammonium sulfate provides 24 lbs of plant available S.

Zinc (Zn):

- Zinc deficiency normally occurs on silt and sandy loam soils or on precision graded fields.
- Apply 10 lbs of Zn as a granular fertilizer before emergence on silt and sandy loam soils when soil-test Zn is <4.1 ppm and pH is >6.0.
- Apply liquid Zn sources at a rate to deliver at least 1 pound of actual Zn per acre.
- Apply Zn to the seed at a rate of 0.25 to 0.5 pounds of Zn per hundredweight of seed.

Irrigation:

Typical water amounts applied by irrigation system:

Irrigation System	Irrigation Applied (acre-inches/acre)
Zero grade	19
Precision grade	32
Non-precision grade	32
Multiple inlet	24
Sprinkler/center-pivot	19
State Average	30

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

Draining – general recommendations:

- Long-grain rice cultivars can safely be drained 25 days past 50% heading; medium-grain cultivars can be drained 30 days past 50% heading.

Diseases:

- Rice disease development is governed by three factors over time: susceptible variety, virulent pathogen, and favorable environment.
- Proper scouting along with field history and environmental conditions are factors that determine if treatment is necessary.
- Fungicides for sheath blight control: Apply when scouting indicates >35% positive stops in Very Susceptible (VS) or Susceptible (S) cultivars or >50% positive stops in Moderately Susceptible (MS) cultivars from PD to early heading.
- Over the past three years, 40% of RRVP fields were treated with a fungicide.
- Refer to 'MP154 Arkansas Plant Disease Control Products Guide' for the latest fungicide recommendations.

Insects:

- Over the past three years 28% of RRVP fields were treated with an insecticide.
- Insecticide seed treatments are available for rice water weevil and grape colaspis management.
- Following 75% heading, rice stink bug (RSB) treatment threshold for the first two weeks is ≥5 RSB per 10 sweeps using a 15 inch sweep net. Treatment threshold after the first two weeks until maturity is ≥10 RSB per 10 sweeps.
- Refer to 'MP144 Insecticide Recommendations for Arkansas' for the latest insecticide recommendations.

Weed Control:

- Barnyardgrass with multiple resistance to Newpath, Facet, and Propanil has been identified. Control options include Command PRE, Prowl + Bolero Delayed PRE, and Ricestar or Clincher POST.
- Rice flatsedge and Smallflower umbrella sedge resistant to Permit have been identified. Control options include Basagran or Storm plus Propanil.
- Rice should be at least 2 leaf prior to Sharpen POST application. Rate POST should not exceed 1 oz/A with 1% crop oil concentrate.
- Do not plant conventional rice the year following Newpath applications.
- Refer to 'MP44 Recommended Chemicals for Weed and Brush Control' for the latest herbicide recommendations.

For more information visit our web sites:

<http://www.uaex.edu/>
<http://dd50.uaex.edu/>
<http://riceseed.uaex.edu/>
<http://www.uaex.edu/farm-ranch/crops-commercial-horticulture/rice/>
<http://www.arkansasvarietytesting.com>
<http://www.arkansas-crops.com>


DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System