Arkansas Rice Update

Dr. Jarrod Hardke, Dr. Trent Roberts,
Dr. Yeshi Wamishe, & Scott Stiles

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Crop Progress

"When I hit the road I was really wheelin', had gravel flyin' and rubber squeelin', and I didn't slow down til I was almost to Arkansas."

The vast majority of the crop is now beyond ½" internode elongation. Heading is just getting started in the state to a very small degree (**Table 1**). We're about another 10-14 days from a larger portion of the crop getting kicked off into heading. Keep in mind that the 50% heading date referred to here and in the DD50 program refers to when 50% of main stem panicles are just beginning to emerge from the boot (basically like your thumb sticking out of the collar).

While we all want to get this crop to the finish line, it may not be the worst thing that we have a little time yet. The extended forecast is full of hot days, and worse, hot nights for the next 10-14 days. We don't need that in the middle of heading, so hopefully by the time we really get into heading we can get some cooler nights working in our favor.

Current projections have the earliest portion of the crop reaching 20% grain moisture the second week of August (**Table 2**). So, we're of course set up to harvest this crop on the later side, but increased heat over the next couple of weeks could move that up for us some.

Most calls have turned toward late-season nitrogen management and disease progression, which we cover later in the update. Hydrogen sulfide toxicity continues to be a hot topic we've written about several times. Most fields should be to a stage where we can simply outrun the problem. Attempting drains at this stage to help correct the problem are near impossible with the temperatures and crop water use. Only extreme situations would warrant making an attempt to correct the problem.

Table 1. Percent of acres reaching 50% heading by week (based on fields in DD50).

Week	Percent of Acres
Beyond 50% heading	0.6%
July 12 to July 18	5.7%
July 19 to July 25	24.4%
July 26 to August 1	38.3%
Aug 2 to Aug 8	22.5%
Aug 9 to Aug 15	4.9%
Aug 16 and later	3.8%

Table 2. Percent of acres reaching 20% grain moisture by week (based on fields in DD50).

Week	Percent of Acres
Aug 10 to Aug 16	0.8%
Aug 17 to Aug 23	6.4%
Aug 24 to Aug 30	27.7%
Aug 31 to Sept 6	35.9%
Sept 7 to Sept 13	20.3%
Sept 14 to Sept 20	5.2%
Sept 21 and later	3.8%

Foliar Versus Soil-Applied Nitrogen Fertilizer in Rice

There are recommendations being made to apply foliar forms of nitrogen (N) in place of urea at the late boot timing on hybrid rice. The explanation has been to save on urea cost to 'piggy-back' the foliar N with a fungicide application. This is not a sound recommendation. Research is lacking to support the use of foliar fertilizers in place of soil-applied.

We recommend for hybrid rice, to apply N at late boot (flag leaf collar visible) to beginning heading at a rate of 30 lb N/acre (65 lb urea). Attempting to supply this rate of N to the plant through foliar applications cannot be achieved. When you consider that nutrients such as N are needed in large quantities, 2-5 lb of N applied to a crop that requires

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>150 lb N/acre can do little to significantly impact yield and are often unprofitable applications.

A foliar N product containing 32% N can only deliver 3.2 lb N per gallon (for a product with a weight of 10 lb/gal). Some comment that "foliar is taken up with a high efficiency," but soil-applied N after midseason is taken up with over 70% efficiency. So, 70% uptake of a 3.2 lb/gal foliar is just 2.2 lb N, versus 70% uptake of 30 lb N as urea is 21 lb N.

There are also charts floating around that suggest 1 lb N applied foliarly is equal to 5-10 lb N applied to soil. This is false – a pound is a pound.

Additional concerns are related to foliar burn of liquid N on plants. If you apply 1-2 gallons of liquid N product in a 3-5 gallon spray volume, that's a high concentration of N and burn can result on leaves and exposed panicles (**Fig. 1**). One way that products avoid the potential for foliar burn when using their products is to use a low concentration of N – which in turn just results in even less N per acre being applied.

Fig. 1. Burn on rice from foliar N application.

These same arguments are made related to midseason N on varieties. Again, a foliar N application cannot compete with the 46 lb N/acre supplied by 100 lb of urea.

Additionally, the cost per unit N in a foliar product can be 5-10 times higher than the cost per unit N in urea. We want to use the cheapest, most beneficial N source option to supply our plant N needs at midseason and late boot for varieties and hybrids.

Rice Growth Stage and Fungicide Timing

From conversations of late, there needs to be some clarification of terminology used to describe reproductive growth stages of rice and how to use them to time fungicide applications.

With that in mind, it's important to note that most current cultivars go from Beginning Internode Elongation (BIE / green ring) to 50% Heading in about 28 days, but can range from 25-35 days depending on cultivar and management. However, we can work off the 28-day idea for simplicity.

Consider the following generalization:

Day 0 is Green Ring;
Day 7 is ½" Internode Elongation;
Day 14 is Mid-Boot (flag leaf 'points');
Day 21 is Late Boot (flag leaf collar visible);
Day 28 is 50% Heading.

**Remember this a generalization and the windows can be 7-9 days, meaning it can be 35 days from Green Ring to 50% Heading.

From this description, the optimum timing to apply fungicides for kernel or false smut suppression is Day 14 to Day 24. Waiting until too close to full boot or boot split and 50% heading reduces fungicide efficacy because time is needed to move the fungicide in the plant where it can protect the kernels.

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Sheath blight scouting and possible treatment should not occur before Day 7 (1/2" IE). Once we reach that stage, if we meet our sheath blight threshold (35% positive stops for VS/S cultivars; 50% positive stops for MS cultivars) AND sheath blight is aggressively moving up to threaten the upper canopy leaves, then we can consider treatment.

Fungicide rate is dependent upon amount of time needed to suppress sheath blight. Generally speaking, previous research has shown 8 oz Quadris to provide suppression for 14 days, 10 oz for 21 days, and 12 oz for 28 days. If you make it to 50% heading and the upper canopy leaves are still clean, then we have successfully outrun the disease and yield will not be improved by making a fungicide application. However, occasionally intense sheath blight pressure at 50% heading may justify a low rate fungicide application to protect stalk integrity and ensure plants remain standing through harvest. But note that you cannot apply Tilt-containing fungicides after heading.

Fungicide applications to prevent neck and panicle blast should not be made before Day 21 (late boot). If making two fungicide applications to VS/S cultivars, the first application should be made from Day 28 on (late boot to beginning heading) and the second application should be made when panicles are about halfway out of the boot but with necks still in the boot. If making a single fungicide application to MS cultivars, split the difference with the application made around Day 35 (50% of the length of the heads out, but neck still in the boot).

Fungicide applications to prevent smuts or neck blast must be made proactively based on cultivar and field experience – no scouting can tell you whether a spray is warranted. For sheath blight, we need to scout and avoid unnecessary applications that way.

Disease Update

Blast: In 2020, we received the first report of leaf blast on Titan from Randolph County. To date, we have received additional reports on leaf blast from Prairie Co. on Jupiter, Woodruff Co. on Diamond, and also in row rice on CLL15 from Woodruff.

With extended cloudy days, weather appears conducive to provide longer dew period to favor spore germination. Moisture on leaves in the form of dew, fog, and frequent rain fuels leaf blast. A 9 to 14 hours moisture on the leaves is enough for spore germination. The disease can start early at tillering and can continue throughout the season enhancing secondary infection that infects the necks and panicles resulting in neck rot and panicle blast. Typical symptoms of leaf blast are shown in **Fig. 2**.

Fig. 2. Lesions that already sporulated form the typical symptom of leaf blast.

Note that neck and panicle blast, if severe, can cause near 100% grain yield loss. If leaf blast is detected early in the season on a susceptible cultivar, neck blast is often predicted and at least a one-time protective fungicide is justified. However, the absence of or inability to detect leaf blast on a susceptible cultivar in a field with a history of blast does not guarantee that neck and/or panicle blast

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won't show up. Note that the pathogen spores that cause blast can be carried by wind and makes blast unpredictable.

Note that neck and panicle blast if severe, can cause near 100 percent grain yield loss. If leaf blast is detected early in the season on a susceptible variety, neck blast is often predicted and at least a one-time protective fungicide is justified. However, the absence of or inability to detect leaf blast on a susceptible variety in a field with a history of blast does not guarantee that neck and/or panicle blast won't show up.

Note that the pathogen spores that cause blast can be carried by wind and makes blast unpredictable.

Protective Actions for fields with a history planted with blast susceptible rice:

1. Increase flood depth to at least 4" depth. Leaf blast often is suppressed by water depth.
2. Keep the water of at least 4" deep permanent until time to drain for harvest.
3. If it is a susceptible row rice or water is limited to raise flood depth, up to three times fungicide application may be required depending on the extent of leaf damage and the factors that favor blast.

Continue **scouting for leaf blast**. No threshold has been established for blast.

Remember blast is managed with strobilurin fungicides containing Azoxystrobin or Trifloxystrobin. Refer to common-questions on blast management for more information.

Sheath blight: Just two weeks from artificial inoculation, sheath blight in our experimental plots has already reached the upper canopy. This is indicative that the weather is warm and humid and very favorable to the disease to progress faster than expected. We have already received fast sheath blight progress in RT Gemini 214 CL (**Fig. 3**) in flooded rice. Row rice planted with Gemini 214 CL also has started showing sheath blight in Arkansas County.

Continue scouting for sheath blight. 35% positive stops is the threshold for VS and S rice; and 50% positive stop for MS rice. For more information go to here.

Fig. 3. Sheath blight active state. Look at the greyish black lesions.

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Rice Market Update

USDA released its' monthly supply/demand report Friday (7/10). Market reaction was bearish as September rice futures turned 22 cents lower following the report. The July WASDE included the 2020 planted and harvested acres from the June NASS *Acreage* survey. Incorporating these acreage adjustments increased 2020 long-grain harvested acreage by 86,000. Using a U.S. average yield of 7,503 pounds, estimated long-grain production increased by 6.3 million to 161.8 million cwt. New crop imports were also increased by 1 million cwt. to record high levels. Adjustments to the old crop (2019/20) balance sheet resulted in a 2 million cwt. reduction in beginning stocks. The net result was a 5.3 million cwt. increase in total supply.

U.S. Long-Grain Supply and Demand				
Unit	**2019/20**	**2020/21**	**2020/21**	**Change**
Million cwt.	**June**	**June**	**July**	**June to July**
Planted Acres	1.778	2.1	2.192	0.092
Harv. Acres	1.73	2.07	2.156	0.086
% Harvested	97.3%	98.6%	98.4%	(-0.2%)
Yield (cwt/ac)	72.61	75.03	75.03	0
Beg. Stocks	32.6	16.2	14.2	(2)
Production	125.6	155.5	161.8	6.3
Imports	28.0	27.0	28.0	1.0
Total Supply	186.2	198.7	204.0	5.3
Domestic Use	105.0	105.0	109.0	4
Exports	67.0	71.0	70.0	(1)
Total Usage	172.0	176.0	179.0	3
Ending Stocks	14.2	22.7	25.0	2.3
Stocks-Use %	8.3%	12.9%	14.0%	
Avg Farm Price ($/cwt)	$ 12.00	$ 11.80	$ 11.60	(0.20)
Avg. Farm Price	$ 5.40	$ 5.31	$ 5.22	(0.09)
Source: USDA WAOB, July 2020.				

Turning to new crop demand, USDA increased domestic usage by 4 million cwt. to 109 million. Exports were reduced by 1 million to 70 million cwt. Increases in demand offset much of the supply-side increases and resulted in a more modest 2.3 million cwt. increase in new crop ending stocks. Ending stocks are currently projected at 25 million cwt. up from last year's 14.2 million. With the outlook for ending stocks becoming more burdensome this month, USDA dialed back price expectations for the 2020 crop year, lowering the average farm price by 20 cents per cwt. to $11.60/cwt. or $5.22 per bushel.

Price Loss Coverage (PLC) Update:

The tables below include the updated season average farm prices and projected PLC payment rates per bushel for 2019 and 2020. The 2019 long-grain average farm price was decreased 5 cents this month to $5.40 per bushel and the southern medium-grain price was unchanged at $5.27 per bushel.

2019 Projected PLC Payment Rates, Rice.

	A	B	C	(A minus higher of B or C)
Unit: $/bu.	**Reference Price**	**Loan Rate**	**Mktg.Year Avg. Price**	**Proj. PLC Pmt. Rate**
Long-Grain	$6.30	$2.925	$5.40	**$.90**
Med.-Grain	$6.30	$2.925	$5.27	**$1.03**
Source: USDA, July 2020.				

The 2020 long-grain average farm price was decreased 9 cents this month to $5.22 per bushel and the southern medium-grain price was decreased 13 cents to $5.18 per bushel. The projected 2020 PLC payment rates are shown in the table below.

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2020 Projected PLC Payment Rates, Rice.

	A	B	C	(A minus higher of B or C)
Unit: $/bu.	Reference Price	Loan Rate	Mktg.Year Avg. Price	Proj. PLC Pmt. Rate
Long-Grain	$6.30	$2.925	$5.22	**$1.08**
Med.-Grain	$6.30	$2.925	$5.18	**$1.12**

Source: USDA, July 2020.

The final 2019 marketing year prices and PLC payment rates for rice are expected to be released October 30, 2020. As a reminder, for ARC and PLC payments, a sequestration percentage will be applied to the payment rate. In recent years the sequestration reduction has been in the range of 6.2 to 6.6 percent. Projected PLC payment rates are updated monthly on the USDA Farm Service Agencies' ARC/PLC website at this link: ARC/PLC Program Data

DD50 Rice Management Program

The DD50 Program is live and fields can still be enrolled for the 2020 season. Log-in and enroll fields here: https://dd50.uaex.edu/. Here's an article on the DD50 program: Use the DD50 Rice Management Program to Say Ahead in 2020. See how to sign up for text & email alerts HERE.

Additional Information

Arkansas Rice Updates are published periodically to provide timely information and recommendations for rice production in Arkansas. If you would like to be added to this email list, please send your request to rice@uaex.edu.

This information will also be posted to the Arkansas Row Crops blog (http://www.arkansas-crops.com/) where additional information from Extension specialists can be found.

More information on rice production, including access to all publications and reports, can be found at http://www.uaex.edu/rice.

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ARKANSAS RICE CHECK-OFF

Specialist	Area	Phone Number	Email
Jarrod Hardke	Rice Extension Agronomist	501-772-1714	jhardke@uaex.edu
Tom Barber	Extension Weed Scientist	501-944-0549	tbarber@uaex.edu
Nick Bateman	Extension Entomologist	870-456-8486	nbateman@uaex.edu
Tommy Butts	Extension Weed Scientist	501-804-7314	tbutts@uaex.edu
Gus Lorenz	Extension Entomologist	501-944-0942	glorenz@uaex.edu
Ralph Mazzanti	Rice Verification Coordinator	870-659-5507	rmazzanti@uaex.edu
Trent Roberts	Extension Soil Fertility	479-935-6546	tlrobert@uark.edu
Scott Stiles	Extension Economist	870-219-8608	sstiles@uaex.edu
Yeshi Wamishe	Extension Rice Pathologist	870-659-6864	ywamishe@uaex.edu

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