Arkansas Rice Update

Drs. Jarrod Hardke, Trent Roberts, & Tommy Butts

June 21, 2019 No. 2019-17 www.uaex.edu/rice

DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

Crop Progress

"I've been through the desert on a horse with no name, it felt good to get out of the rain." The longest dry spell since September continues for some while others caught some scattered showers.

Unfortunately, many decisions were made last week with the idea that there would be a lot of rain this week. Not so much. This has resulted in missing activation of residual herbicides and difficulty getting water started to flood fields that have been fertilized. Those rains were supposed to help with all of that. Naturally after all the damage the rain has caused for so long, once it has an opportunity to help it doesn't show up. The wheel in the sky keeps on turning.

Comment of the week: "If things were a little bit different, things would be a lot different." A little rain. A little heat. A little less wind. Any one of those happens and it's a different world out there.

Things are heating up now for a few days then it's back to a week full of upper 80s and partly cloudy. I don't know what to believe except to start farming like it's not going to rain again. I would rather be ready and have to shut down than not be ready. Everybody wash your trucks and we'll get a nice shower.

Fig. 1. Sunset before the storm this week.

More on Urea and Ammonium Sulfate Blends Applied Preflood

These comments are in response to questions about 41-0-0-4 sulfur-coated urea in last week's update. It seems many are actually using a blend of urea (5/6) and ammonium sulfate (1/6) to achieve a 41-0-0-4 fertilizer analysis. This is more in line with a preferred option of blending AMS with urea (mentioned in previous update).

However, some claim reduced salt issues despite AMS having the same or greater salt content than urea. Particularly on high pH soils there may be some differences in immediate soil reaction between the two, but the use of NBPT-treated urea should limit the difference in reaction between urea and AMS.

So, use AMS in with your preflood N in some fashion if you think you need the sulfur or just want the more immediate kick. Remember that most of our rice soils do not respond to sulfur so any plant response you get is from the ammonium. However, there has been no research that suggests it is worth paying for ammonium sulfate in place of urea at the preflood timing. Save the money and go with urea in most instances.

If in a system that's working for you, consider changes carefully. But look for those opportunities to save a little expense.

Fig. 2. Dissected rice stems showing internode elongation.

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Midseason Nitrogen Applications for Pureline Cultivars

Nitrogen (N) management in rice is an important component that can't be taken lightly, but can also be just as damaging as it is beneficial when the proper steps aren't taken. The majority of rice has been flooded and we are starting the march toward green ring (PI; panicle initiation) and ½-inch internode elongation (PD; panicle differentiation) and considerations for midseason N applications should be at the forefront of your rice management plan.

Midseason N applications are ONLY recommended for pureline cultivars. If possible, the GreenSeeker reference plot and handheld device should be used to determine the need for additional N.

A few things to consider in regards to midseason N applications:

1) Preflood N, when managed correctly and applied at the proper rate, can be sufficient to produce maximal yields in our modern semi-dwarf and stiff-strawed cultivars.
2) Midseason N only influences one of the three yield components of rice – kernel weight. Tiller number and panicle size are related to preflood N management; therefore, midseason N applications to pureline cultivars influence kernel weight and kernel filling on secondary and tertiary tillers.
3) Applications of midseason N should be made a minimum of three weeks post-flood AND after ½-inch internode elongation has occurred. Recent work has suggested that 4-5 weeks post-flood is the optimal time to apply midseason N applications to pureline rice cultivars. We want to give the rice plant ample time to take up all of the preflood N prior to applying the midseason N. When these two applications overlap (i.e. the plant is still taking up preflood N when the midseason is applied) the ability of the rice plant to use the midseason is greatly diminished.
4) When applying midseason N to flooded rice fields use 45 units of N per acre as untreated urea. There is no need for urea treated with NBPT to be applied into the floodwater at the midseason N timing.
5) Midseason N is taken up very efficiently with the majority being recovered in the rice plant within 4-7 days following application.

If you were not able to get a GreenSeeker reference plot established in your rice then it is best to follow your N management plan and include the midseason N application. That is unless you implemented an optimum preflood N rate that was flooded in a timely manner and maintained for at least 3 weeks.

Most often, midseason N applications will not have a net negative effect on rice yield and performance unless the preflood N rate was excessive. In the future, consider establishing a GreenSeeker reference plot with your preflood N application to help take the guesswork out of midseason N management. Most county agents and some consultatns have access to a handheld GreenSeeker unit that can be used to determine if there will be a benefit (significant increase in rice yield) from the application of midseason nitrogen.

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Scouting and Treating for Sheath Blight in Rice

As various fields pass midseason it's time to scout closely for disease. Conditions seem to be nearly ideal for sheath blight development (**Fig. 3**). For more on the topic: http://www.arkansas-crops.com/2019/06/20/scouting-treating-blight/.

Fig. 3. Sheath blight advancing in reproductive-stage rice.

Potassium Deficiencies Starting to Show

With the wet fall, winter, spring, and early summer, it shouldn't be a huge surprise to find some potassium (K) deficiencies. As we hit midseason, they're bound to show up. One of the most obvious ways is for brown spot lesions to become common (**Fig. 4**). However, remember that cultivars differ in susceptibility to brown spot, so they can have a K deficiency and not have brown spot. Yellow/brown leaf margins may be present and the rice typically doesn't "green up" with midseason N. If K deficiency is suspected it is advised to tissue sample to confirm rather than rush to make a corrective application. Typically, K deficiency can be corrected all the way up to late boot, so confirm with tissue tests before potentially making the wrong correction.

Fig. 4. Brown spot in potassium (K) deficient rice.

Fig. 5. Rice fields promote wildlife diversity!

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Sedge-pocalypse 2019

Sedges have exploded across Arkansas in 2019 throughout different cropping systems. Additionally, a variety of unique sedge species have made themselves known this year, and others have popped up in areas where sedgs have not previously been an issue. These unique sedges are problematic as not all are created equal when it comes to controlling them with different herbicides. Add to that the fact that certain populations are ALS-resistant (**Fig. 6**), and options to control sedges in rice quickly become limited.

If you are having issues with sedges in your rice fields, a proper identification of the sedge species is required to better select herbicides for control. There are a couple of resources available to assist with sedge identification. First, there is a fact sheet (FSA 2173) available at : https://www.uaex.edu/publications/pdf/FSA-2173.pdf. This publication helps identify differences between yellow nutsedge, rice flatsedge, umbrella sedge, and swamp sedge. The second sedge identification resource available is a sedge image database which can be found at: https://plants.uaex.edu/weed_id/display_category.aspx?category=Sedge.

The best course of action to control the sedges present in the rice field will be determined on a situational basis. What specific sedge was identified in the field? Is the population ALS-inhibitor-resistant? Is Loyant an option? These situations will affect the best management strategy. Control of yellow nutsedge is very reliant on ALS-inhibiting chemistries. Newpath in a Clearfield rice system or products containing Permit (Permit, Permit Plus, Gambit) should control yellow nutsedge. Umbrella sedge can be controlled with a tank-mix of Basagran plus propanil, and in situations that allow it, Loyant has shown to provide excellent control. Annual and rice flatsedges have the most control options available. Most ALS-inhibiting chemistries provide control of flatsedges such as Newpath/Beyond in Clearfield systems, products containing Permit, Strada, and Regiment. However, in instances where ALS-inhibitor resistance is possible, other options such as Basagran, propanil, and Loyant provide excellent control of flatsedge. If prior to flood, Sharpen provides POST control of flatsedges and will add some residual activity.

Unique sedges outside of yellow, umbrella, and flatsedge will require some additional effort for control. Our best recommendation is to use a broad-spectrum sedge control program tank-mixing multiple herbicides such as Loyant plus Gambit or Basagran plus propanil plus Gambit. As data is limited on controlling these unique sedges, a tank-mixture program will help to cover all bases. Good luck out there, we can survive the sedge-pocalypse!

Fig. 6. ALS-resistant sedge in a 2019 Arkansas rice field.

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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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