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H. Rouse Caffey Rice Research Station News

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Special Dates of Interest:

- H. Rouse Caffey Rice Research Station Annual Field Day
  Tentative: July 1, 2020
  * *Waiting on confirmation that it can be held live.*

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Planning Your 2020 Fungicide Program

The primary diseases we use fungicides for include sheath blight, blast, Cercospora, and the grain smuts. Fungicide trials have been conducted at the H. Rouse Caffey Rice Research Station since the early 1980s. Various fungicides and fungicide combinations were applied at different growth stages, ranging from seven days after panicle differentiation to 50 to 70 percent heading. Varieties selected were susceptible to sheath blight, blast, or Cercospora and were managed to favor disease, i.e. inoculated, fertilized with high N rates, planted late, and/or planted in high disease pressure fields.

The studies demonstrated that fungicide selection was important in sheath blight, blast, and Cercospora control. Effective fungicide use must be based on the presence of the most damaging disease in a field. This is determined by knowing the varietal susceptibility, field disease history, weather conditions in your area, and, most importantly, by scouting for disease in the field multiple times during the growing season.

Propiconazole- and Difenoconazole-containing fungicides – Tilt, PropiMax, Bumper, Stratego, Quilt, Quilt Xcel, and Amistar Top – were most effective against Cercospora. But Tilt, PropiMax, and Bumper were very weak against sheath blight and had no activity against blast when used alone (See Table 1). The strobilurin fungicides had activity against both sheath blight and blast.

Azoxystrobin-containing fungicides – Quadris, Quilt, Quilt Xcel, and Amistar Top – were more effective against the wild type sheath blight than the Trifloxystrobin-containing fungicides, Gem and Stratego. But, the Trifloxystrobin-containing fungicides were somewhat more effective against blast.

If the strobilurin-resistant *Rhizoctonia solani* is present in the field, Elegia, Sercadis, and Amistar Top must be used to control sheath blight; however, Group 7 fungicides have no activity against blast.

Based on research from Arkansas, propiconazole is most effective against kernel smut and some activity against false smut. **Application at mid-boot is most effective.**

Multiple fungicide applications may be necessary to manage multiple diseases in a field because of selective activity, disease severity, and label restrictions. There are limitations on fungicide application timings. You must read and follow the label. Also, check fungicide prices to determine the most cost-effective program. For additional information and current disease control options, contact your local Cooperative Extension agent.

False smut.

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This project was partially supported by USDA National Institute of Food and Agriculture and the Louisiana Rice Research Board.

Table 1. Rice fungicides.

Class and Mode of Action Group[1]	Active Ingredient	Product(s)[2]	Rate[3] (fl oz)	Blast	Sheath Blight	Qol Resistant-Sheath Blight	Cercospora	Kernel Smut
QoI Strobilurins Group 11	Azoxystrobin	Quadris 2.08 SC Equation 2.08 SC Others	9-15.5	G	VG	P	P	P
	Trifloxystrobin	Gem 500 SC	3.1-4.7	VG	G	P	P	P
Carboxamides Group 7	Flutolanil	Elegia 3.8 F	16-32	NL	G	G	NL	NL
	Fluxapyroxad	Sercadis 2.47 SC	4.5-6.8	NL	G	G	NL	NL
Demethylation Inhibitors (DMI) Group 3	Propiconazole	Tilt 3.6 EC Bumper PropiMax Others	6-10 6-10 6-10	NL	F	F	G	G
Mixed[4]	Azoxystrobin, Propiconazole	Quilt 200 SC	14-34.5	G	VG	P	G	G
	Azoxystrobin, Propiconazole	Quilt Xcel 2.2 SE	15.8-27	G	VG	P	G	G
	Trifloxystrobin, Propiconazole	Stratego 250 EC	16-19	VG	G	P	G	G
	Azoxystrobin, Difenoconazole	Amistar Top	10-15	G	VG	G	G	G

[1] Mode of action groups are determined by the Fungicide Resistance Action Committee (FRAC). [2] Reference to commercial or trade names is made with the understanding that no discrimination is intended, nor endorsement of a particular product, by LSU or the LSU AgCenter is implied. Many products have specific use restrictions about the amount of active ingredient that can be applied within a period of time or the amount of sequential applications that can occur. Please read and follow all specific use restrictions prior to fungicide use. This information is provided only as a guide. It is the responsibility of the pesticide applicator by law to read and follow all current label directions. Members or participants in the CDWG assume no liability resulting from the use of these products. [3] Rates are the amount of formulation (product) per acre unless otherwise indicated. [4] Refer to product label for the fungicide class and mode of action group.

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Is the Single Preflood Nitrogen Application the Most Efficient?

The official LSU AgCenter recommendation for nitrogen (N) fertilizer application in rice is to apply approximately two-thirds of a variety's seasonal need just before flooding on dry soil, followed by flooding as soon as possible. A second split application is recommended midseason.

The midseason N application window is between panicle initiation and panicle differentiation. Panicle initiation can be estimated by splitting a stem and looking for green ring development, while panicle differentiation can be estimated by visual observation of the panicle or approximately one-half internode elongation. During this window, the remaining one-third of the seasonal N fertilizer need is applied. While this 2-way split N application method is the recommended method, it is not actually the most efficient way N fertilizer can be applied.

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Applying N in a single preflood (SPF) application on a dry soil and flooding immediately is the most efficient method of applying N fertilizer in rice. When ammonium N fertilizer (ammonium sulfate) or ammonium N forming fertilizer (urea) is applied on a dry soil, the flood incorporates the N deeper into the soil. The flooded field causes the soil to convert to an anaerobic (without oxygen) state which stabilizes the N in the ammonium N form where it will remain available for plant uptake as the rice needs it. If the SPF N fertilizer application is the most efficient application method, you may wonder why it is not the official recommended method in Louisiana. The answer is because the application method has more risks associated with it.

The first risk is that once the flood is established, it must remain on the field for a minimum of 3 weeks without ever losing the flood. Remember, floods from a rice field can be lost in many ways, including the inability to keep a flood on the field due to low pumping capacity and dry weather or blown out levees due to excessive rain, animals, or pests. If the flood is lost within the first 3 weeks and oxygen is reintroduced in the soil, the ammonium N will begin to convert to nitrate N. The nitrate N is stable while the flood is off of the field. However, when the flood is reestablished and the soil goes anaerobic, the nitrate N will be lost as a gas (nitric oxide, nitrous oxide, or dinitrogen gas) very quickly through a process called denitrification. Therefore, more N fertilizer will need to be applied to compensate for the expected loss of N once it is reflooded. The end result is that more total N fertilizer will be applied using the SPF as compared to the recommended split-N application method by season's end. Currently, we do not have a mechanism for predicting the amount of N you will need to replace, but you should expect to have to apply more when the flood is lost during the first week as opposed to the third week.

The second risk associated with the SPF method is the inability to apply the large amount of N evenly across the field. If the N application is overlapped during the application, you will have applied twice the recommended N rate. This overlapped area will be a prime candidate for lodging at the end of the season, especially for lodge-prone varieties and hybrids. In addition, the overlap areas will also have an increased potential for disease. Both issues will cause yield loss at the end of the season. Skips in fertilizer can also happen during application. The skip areas can be cleaned up during midseason applications when using the 2-way split method. However, additional N applications when using the SPF method may cause excessive N application in the areas just outside of the initial skipped areas and should be avoided. While fertilizer overlaps and skips are risky when applying SPF applications, it should be mentioned that advances in some fertilizer applicators have made these applications more precise over the last several years.

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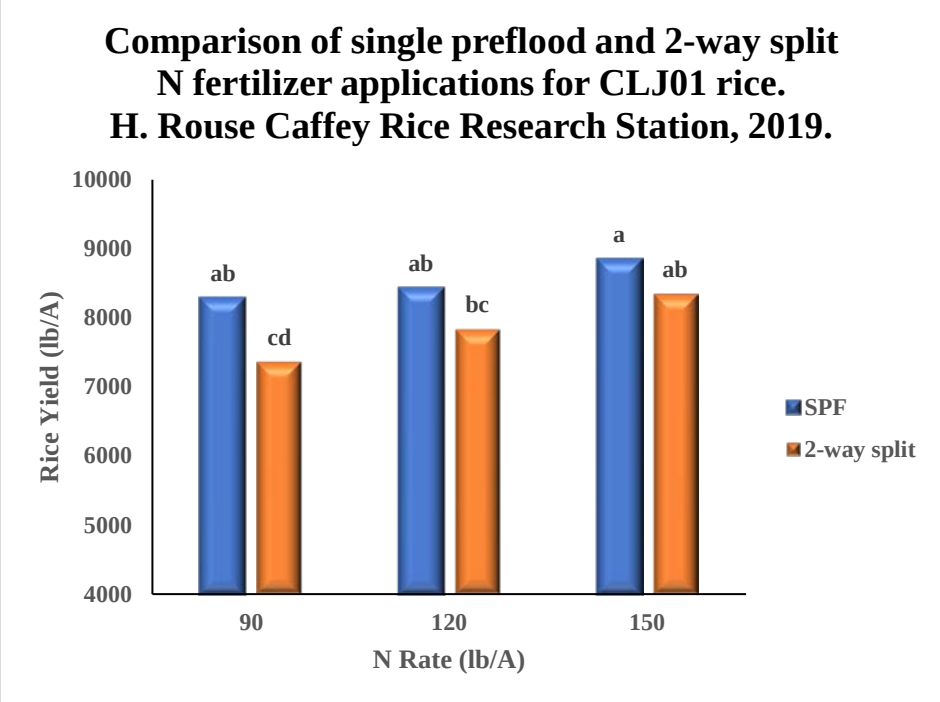

First Report of Apple Snails Attacking Rice

Apple snails have decimated seedling stand in a water-seeded rice field south of Rayne, LA, and believed to be the first report of snails attacking the crop in the United States.

The discovery of apple snails in Louisiana rice and crawfish ponds in 2018 raised major concerns because the snails are economically important rice pests in many parts of the world. Fortunately, apple snails have been present in high numbers in Texas rice fields for more than 10 years without causing serious damage. The widespread adoption of drill seeding and delaying flood is the primary factor limiting the snails' pest potential. The situation may be different in Louisiana where water seeding still accounts for approximately 23% of the acreage.

Extremely high snail populations were observed in rice and crawfish ponds near the Vermilion and Mermentau rivers in 2018 and 2019. The infestations in several ponds got so severe that crawfishing stopped early, and fields were drained. Despite this, impacts to rice, both dry- and water-seeded, were not reported. The first damage from snails in rice was documented in late March of this year.

Apple snails destroyed a field of newly water-seeded rice, with 100% stand reductions throughout most of the 50-acre cut. Only a small ridge where water depth was shallow was spared. Snail infestations in this cut were severe at the time of planting. Visual estimates indicated there were about two snails per square foot. Nearby fields with lower levels of apple snails were water seeded the same day and did not have severe stand losses. It is not clear what lead to the population explosion prior to planting, but infestations had likely been building throughout the winter while the field remained flooded.

Farmers who have heavy infestations of apple snails in fields or irrigation canals should drill seed wherever possible. If water seeding, consider applying copper sulfate to achieve 2-3 parts per million (rate per acre varies with water depth) prior to or at planting to protect against snail damage.

Contact AgCenter extension agents with questions or to report new infestations of apple snails.

Figure 1. Apple snail in a field devoid of rice.

Figure 2. Mature apple snail in rice field.

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Focus

Hayden Dugas

Hayden Dugas started working as a Research Farm Specialist at the H. Rouse Caffey Rice Research Station on June 24, 2019.

Dugas graduated from the University of Louisiana at Lafayette with a bachelor's degree in geology.

In his previous job, he worked at a physician's office entering data for statistical analysis.

He currently works in the rice variety development project with Drs. Herry Utomo and Ida Wenefrida growing experimental lines of rice. He also works on Utomo's coastal plants project to help develop new lines of bulrush.

Utomo said Dugas' work requires him to be highly detailed. "Grain protein analyses require meticulous preparations and data managements. Hayden has the capability to perform these tasks."

Wenefrida said Dugas is dependable and detail-oriented and works consistently. "He manages greenhouse plants very well. He is very good in tackling tedious and complicated lab work and always consults with his supervisors in every crucial step in the process. He is a great asset to our projects."

Dugas said he enjoys the work at the research station. "I like everything about it. It allows me to be outside and not sit at a desk all day. I do a lot of greenhouse work, and I spend time in the rice fields."

He said he gets satisfaction from growing plants and being involved in projects that could benefit farmers and coastal restoration.

He said meeting farmers at last year's field day was rewarding, knowing that they could benefit from his work, "even if it was just my third day on the job."

Dugas grew up in Lafayette, but he has relatives in the Roberts Cove and Rayne areas.

In his spare time, Dugas enjoys spending time with his dog and walking near a neighborhood pond.

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