

Disease Problems at Harvest

Harvest is in full force and several disease problems are associated with this stage of rice production. One of the most important problems is fungi and bacteria infecting and damaging grain in storage. The most important management practice is proper harvest and efficient drying of the harvested grain. Grain should not be harvested too early because excessive moisture can promote microbial growth. Delaying harvest decreases grain quality because the longer grain is left in the field the higher percentage becomes infected with various fungi, bacteria, and other microorganisms that can cause damage in storage. You can see this happen in the field as grain changes from a light golden color to a dingy gray.

In the bins, insects and fungi can start to consume the grain generating respiratory moisture and heat which allows other organisms to grow and cause additional grain damage creating a chain reaction until grain is destroyed. Proper insect control and storage practices are critical to keep grain clean and undamaged. Starting with clean bins also helps maintain grain quality.

An excellent example of a field organism causing damage in stored grain is *Alternaria padwickii* (Figure 1) the causal organism of stackburn or *Alternaria* leaf spot. This fungus is common in rice fields and produces a leaf spot (Figure 2) and commonly infects rice grain. The stackburn name comes from this fungus causing grain rotting in grain bins. This fungus could cause this damage because it could become active at lower moisture concentrations than other fungi. As the fungus digests the grain, moisture is released and other fungi could then become active. As moisture increases, bacteria and yeast could become active and the grain would become rotted and rancid.



Figure 1. *Alternaria* spores.



Figure 2. Stack burn lesions

Typically rice does not have the problems other crops, especially corn, peanuts, cotton seeds, and tree nuts, with aflatoxin produced by the fungus *Aspergillus flavus*. *A. flavus* is a common soil fungus and opportunistic pathogen that can produce aflatoxin, a highly toxic material that can cause death or cancer. Rice is often contaminated with the fungus in the field but with proper drying and storage it does not become a problem. However when rice grain is stored too moist or not promptly dried the *A. flavus* can grow on the rice grain and produce aflatoxin. The problem is increased if rice is stored in bins that previously stored corn that may have been contaminated or infected with *A. flavus*. Once rice is contaminated with aflatoxin there is little that can be done other than dispose of or destroy the grain.

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Special Dates of Interest:

- **H. Rouse Caffey Rice Research Station Annual Field Day
June 26, 2019**

2018 RICE STATION FIELD DAY HIGHLIGHTS



Photos by:
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on Facebook !**

The LSU AgCenter H. Rouse Caffey Rice Research Station is now on Facebook. The page will provide timely updates on research conducted at the station as well as other useful information. The page can be accessed at the link below. Simply go to the page and click on *LIKE*. Updates will then be posted to your Facebook homepage. If you are not currently a user of Facebook, signing up is easy and free.

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Dr. Brijesh Angira

Dr. Brijesh Angira started working for at the H. Rouse Caffey Rice Research Station in February 2017.

He grew up on a farm of about 12 acres where his father raised mustard, soybeans, wheat and cilantro.

Originally from a small town near Kota in northern India, Angira graduated with a bachelor's degree in horticulture from Hyderabad and worked for a year in the potato post-harvest industry. He came to the U.S. in 2008 to obtain his master's degree in plant science at West Texas A&M University in Canyon, Texas, near Amarillo.

Next, he earned his doctorate at Texas A&M in plant breeding.

Brijesh said he enjoys his job as research associate specialist because his work directly benefits Louisiana rice farmers.

He uses DNA markers to identify desired qualitative traits, such as amylose content and blast disease resistance, to improve lines as they are developed into varieties. He also uses the markers to make sure F1 populations are grown from the intended parent lines. In addition, he uses the molecular technology to purify hybrid lines and foundation seed rice.

"The Rice Research Station is a pioneer research station in rice, and this station is very productive," he said. "Whatever we are doing, I see it implemented in the field. If you release a variety, it is in the farmers' fields in the following season."

Brijesh said he wants to be a successful breeder. "My clear future path is to be a breeder and contribute to the farming community."

Dr. Adam Famoso, LSU AgCenter rice breeder, said Brijesh plays a very important role in the variety development efforts by overseeing much of the planning and analysis of the molecular breeding activities.

"He stays very busy year round and contributes to the program through his activities in the lab and greenhouse," Famoso said. "In the field, he is a critical link between the lab and field activities of the breeding program. We are very fortunate to have him in the program and are very grateful for all his hard work."

Brijesh and his wife, Monika, are expecting their first child.

When he is not at work, he enjoys playing tennis and watching movies.



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Focus