Traditional vs New

Nitrogen Research In Rice

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Timing application and rate are both important aspects of applying nitrogen to your rice crop according to Dr. Dustin Harrell, a researcher at the Louisiana State University (LSU) Rice Research Station.

"By conducting variety by nitrogen trials at multiple locations across the state, we are able to see how the different cultivars respond to variable rate nitrogen fertilizer applications on a variety of different soils," said Harrell, "we are looking at both timing of application and nitrogen rate."

Dr. Dustin Harrell, a Researcher at the Louisiana State University (LSU) Rice Research Station says timing application and rate are both important to applying nitrogen.

Photo by John LaRose

According to Harrell, six rice varieties and two potential variety releases are entered into his trials this year. All variety by nitrogen trials are treated with a range from zero to 210 pounds of nitrogen per acre. "All that nitrogen is applied prior to the permanent flood establishment on drill seeded rice," said Harrell.

"We also look at split nitrogen applications. I have four different split nitrogen applications in trial," said Harrell, "the split applications are applied first prior to permanent flood establishment while the second is at mid-season near the panicle differentiation physiological growth stage."

"Total nitrogen applied for these split rate applications add up to 90, 120, 150 and 180 pounds per acre. We do it that way so that the split applications can then be compared to our single pre-flooded treatments and the differences in application timing may be evaluated," said Harrell.

According to Harrell, each variety that the station releases goes through these trials for a minimum of three years at three different locations before an official nitrogen recommendation is determined. "Once we come up with the nitrogen recommendation, we publish it in LSU's Rice Varieties and Management Tips which is available on our website," said Harrell.

"We are also looking at some new ideas with nitrogen research," stated Harrell, "we have several collaborative studies with other universities. Some things that we are looking at include a potential soil test for nitrogen."

"Our goal would be to calibrate a soil test that would increase the accuracy of our pre-flooded nitrogen recommendations for rice," said Harrell.

"We are also starting to look at spectral canopy reflectance measurements to estimate mid-season nitrogen needs in rice," said Harrell, "the idea is if we can correlate the reflectance values with the plants nitrogen needs, we may be able to do real time nitrogen recommendations for the mid-season nitrogen application."

"If this succeeds, it will take the guess work out of determining mid-season application rates," said Harrell. Δ