This research is looking for ways to control straighthead disease in rice genetically, thus conserving water resources and saving Arkansas rice farmers money.

Genetic Straighthead Control Can Conserve Water and Money

Who cares and why?

Arkansas farmers spend more than $7 million annually and use 74 million cubic meters of water (one cubic meter equals 264.2 gallons) to prevent straighthead, a physiological disease of rice that dramatically reduces rice yields. University of Arkansas at Pine Bluff researchers are working to control this disease genetically, thus conserving water resources and saving Arkansas farmers money.

What has the project done so far?

All previous studies on straighthead have been on MSMA (an arsenic based herbicide ‘monosodium methanearsonate’) amended soil at Stuttgart, Arkansas. Environmental contamination has been a concern with MSMA soils. Natural soils where straighthead occurs have recently been identified at Pine Bluff and Newport, Arkansasrk. In 2013, 100 rice accessions selected from the USDA germplasm collection were evaluated for straighthead in the MSMA amended Stuttgart soil and natural soils of UAPB, Pine Bluff and Newport.

Impact Statement

Numerous accessions of international germplasm have been identified that are highly resistant to straighthead in both the MSMA amended soil of Stuttgart and the natural soil at UAPB. Germplasm response to straighthead in the MSMA soil is highly correlated with it in the natural soil, thus studying this disease in the natural soil could benefit the environment and save Arkansas farmers money. Researchers are using the resistant germplasm for cultivar improvement to control the disease genetically.

What research is needed?

UAPB researchers are looking for factors that cause the straighthead problem and are conducting experiments based on those factors. For example, a Calcium-experiment in the greenhouse shows that Calcium can help reduce straighthead symptoms. That experiment will be extended to a field experiment.

Want to know more?

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Strategic Priority - Agricultural Systems

Additional Links - http://www.umes.edu/ard/Default.aspx?id=46285

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