

# Rice Research Tops Topics At Arkansas Rice Expo 2012

**FAYETTEVILLE, ARK.**

University of Arkansas System Division of Agriculture scientists are testing products that can reduce loss of nitrogen from fertilizers applied to rice when irrigation or flooding are delayed.

If not quickly incorporated into soil, urea fertilizer will lose nitrogen because urease, a naturally occurring enzyme, converts urea to ammonia gas, a volatile chemical that evaporates readily, said Rick Norman, professor of soil science for the Division of Agriculture. He said as much as 40 percent of the nitrogen can be lost via ammonia volatilization from urea, the most commonly used nitrogen fertilizer in rice and other crops.

Norman presented his research on ammonia volatilization of nitrogen fertilizers during a tour of the Division of Agriculture's Rice Research and Extension Center near Stuttgart. The tour was one of the activities of the 2012 Rice Expo, held by the U of A System Division of Agriculture at the Grand Prairie Center at Stuttgart. Some 1,100 people came to see the division's research and extension programs related to rice, hear guest speakers, including Arkansas Gov. Mike Beebe, and participate in family-oriented activities.

Research projects highlighted during the RREC tour included rice breeding, disease and pest management, alternative irrigation strategies, weed control and other management practices.

"If you can get irrigation or flood on the field, to incorporate the urea into the soil, within two days on silt loam or seven days on clay soils, you'll be OK," Norman said. "But if flooding or irrigation are delayed, a urease inhibitor will help minimize ammonia volatilization loss from urea."

The most effective urease inhibitor in division tests, Norman said is NBPT, a chemical that was introduced under the trade name Agrotain in 2000. It is now available in other products, including Arborite, one of the products tested in Norman's research.

In tests where flooding was delayed five to six

days on silt loams, Norman said products containing NBPT reduced nitrogen loss from an average of 25 percent to an average of less than 5 percent. Similar results were obtained on clay soils, though loss occurs more slowly and less extensively on clay soils.

Norman said muddy soils posed special problems with nitrogen loss. After applying urea to muddy soils, flood and irrigation water will not carry nitrogen down into the soil.

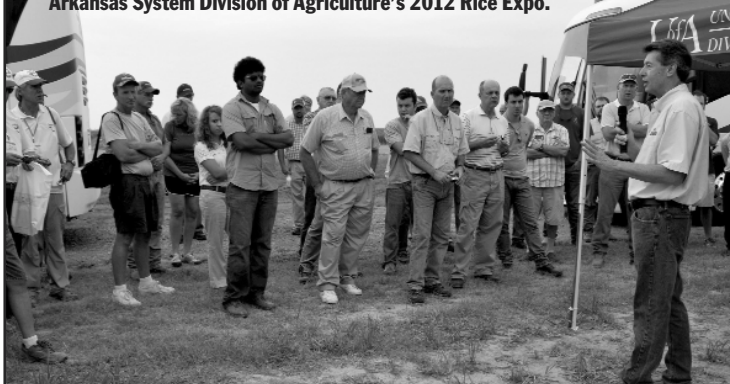
"On muddy soils," Norman said, "use NBPT to prevent nitrogen loss, but don't flood or irrigate until the soil dries. We can lose nitrogen very quickly if we apply urea on muddy soil."

Right now, Norman said the division is recommending only the NBPT-containing products Agrotain and Arborite to reduce ammonia

**Plant pathologist Yeshi Yamishe describes research on sheath blight and other rice diseases during a tour of the Rice Research and Extension Station.**



**Soil scientist Rick Norman describes research on nitrogen stabilization in a tour of the Rice Research and Extension Center during the University of Arkansas System Division of Agriculture's 2012 Rice Expo.**



volatilization loss, though more products may be recommended after recent test results are obtained in a few months. Δ