Survey of Exotic Rice Pests in Arkansas, 2010


ABSTRACT

A survey of exotic rice pests was conducted in Arkansas in cooperation with the Arkansas Plant Health Inspection Service (APHIS-PPQ), and Arkansas State Plant Board. Pests included in the survey were: Asiatic Rice Borer (*Chilo suppressalis*), Mexican Rice Borer (*Eoreuma loftini*), South American Rice Miner (*Hydrellia wirthi*), Rice Stem Nematode (*Ditylenchus angustus*), and White Tip Nematode (*Aphelenchoides besseyi*). Early detection of these exotic pests of rice will greatly enhance the ability of state and federal plant and health regulatory officials to eradicate initial infestations. It also will provide pest distribution data potentially useful in supporting establishment of pest free areas to enhance export of southern rice. To date, none of these exotic pests have been established in Arkansas; however, a very low population level of white tip nematodes was found in four counties.

INTRODUCTION

As the largest rice-producing state in the U.S., it is very important that the regulatory and state agencies of Arkansas work together to monitor and prevent the introduction and establishment of exotic rice pests. Several rice pests, either exotic or introduced to the U.S., have been identified as having the potential to cause significant economic damage to southern rice. Asiatic rice borer and rice stem borer are among the exotics ranking 17th and 15th, respectively, on the Analytical Hierarchy Process Prioritized Pest List for fiscal year 2010. Mexican rice borer and South American rice miner have been introduced into the country and are now reported in the neighboring states of Louisiana and Texas (Castro et al., 2007; Reay-Jones, 2001) The white tip
The nematode occurs in Arkansas and most other rice-producing areas of the U.S. While yield losses may occur in susceptible cultivars, the nematode is of most concern among growers because it is a regulated pest in many major foreign markets, so it is of export significance. The rice stem nematode can be a serious production limitation particularly in deep-water rice production systems. This nematode has not been reported in rice from the U.S. to date.

MATERIALS AND METHODS

The Asiatic rice borer was surveyed using Pherocon IC wing traps baited with pheromone lures. One trap was placed in each of three fields throughout ten counties, totaling 30 traps. Counties in Arkansas surveyed included: Arkansas, Clay, Craighead, Cross, Greene, Jackson, Lawrence, Lonoke, Poinsett, and Prairie. The Mexican rice borer was surveyed using Universal bucket traps baited with pheromone lures. One trap was placed in five fields in each of five counties bordering Louisiana, totaling 25 traps. Counties in Arkansas surveyed included: Ashley, Chicot, Desha, Drew, and Lincoln. For both of these surveys, traps were placed at the edge of the field just above the canopy and adjusted throughout the season to maintain this position. Traps were checked once every two weeks and pheromones were changed once every 30 days. For the South American rice miner, fifteen fields in each of eight counties for a total of 120 fields were visually checked for signs and symptoms of the miners and/or damage. The Arkansas counties bordering Louisiana that were selected included: Ashley, Chicot, Desha, Drew, Jefferson, Lincoln, Miller, and Lafayette. The white tip nematode and the rice stem nematode surveys were conducted by taking samples from 23 Arkansas counties, which included the ten counties listed above for the Asiatic rice borer survey plus: Crittenden, Mississippi, Monroe, Lee, St Francis, and White, as well as 54 samples from the University of Arkansas Division of Agriculture Rice Research and Extension Center (RREC) in Stuttgart. Each sample contained approximately 24 complete grain heads. Samples were delivered to the Arkansas Nematode Diagnostic Clinic in ice chests and stored there in a walk-in cooler at 12 °C until they were evaluated in the laboratory.

RESULTS AND DISCUSSION

There were no positive findings of the Asiatic rice borer, Mexican rice borer, or the South American rice miner. Rice stem nematode was not detected in any sample. White tip nematode was detected at a very low population level in five of the 218 producer samples, and in 11 of 54 samples from RREC. The increased rate of infestation at RREC is largely due to the fact that the seed at a research facility tends to be produced in various locations outside of Arkansas and there are also numerous rice lines with varying degrees of susceptibility.
SIGNIFICANCE OF FINDINGS

These types of surveys are essential to prevent and detect the spread of exotic pests before they have a negative economic impact in Arkansas. Early detection is key in avoidance, control, or removal of such pests. By taking these measures, we can document that Arkansas does not have these pests in our rice exports.

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LITERATURE CITED
