New resource for managing the Mexican rice borer

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Mexican rice borer caterpillar. Credit: Entomological Society of America

A moth caterpillar called the Mexican rice borer (*Eoreuma loftini*) has taken a heavy toll on sugar cane and rice crops in Texas, and has moved into Louisiana, Florida, and other Gulf Coast states. Now a new article in the *Journal of Integrated Pest Management* provides information on the biology and life cycle of the pest, and offers suggestions about how to manage them.

The Mexican rice borer was first described in Arizona in 1917, but it drew little attention until it arrived in southern Texas in 1980. Within just a couple of years of its appearance there, it became the primary pest of sugar cane, according to Julien Beuzelin, an assistant professor at Louisiana State University and lead author of the JIPM paper.

Since then, the insect has moved north and east along the Gulf Coast at a rate of about 15 miles per year.

"Out of the blue in 2012, it was detected for the first time in central Florida and is now established there too," Beuzelin said.

The Mexican rice borer causes damage to a variety of grasses, extending beyond sugar cane and rice to sorghum, corn, and non-crop grasses. In fact, it will attack any grasses that have stalks large enough for them to burrow into. The larvae hatch from eggs laid on leaves and stalks, and the caterpillars crawl onto the green parts of the plant and start feeding. After the second or third molt, they burrow into the culm.

Such damage could result in many millions of dollars of crop loss. One study suggested that in a worst-case scenario, the insect could cause more than $40 million a year in rice losses, and more than $200 million losses in sugar cane in Louisiana alone.

Growers mainly rely on a diamide pesticide known as chlorantraniliprole, which works well against both Mexican rice borers and another rice pest called the rice water weevil (Lissorhoptrus oryzophilus), but chlorantraniliprole works in much the same way as another diamide that might have its registration cancelled by the U.S. Environmental Protection Agency.

"Because chlorantraniliprole has the same mode of action, the entomological community is afraid this might happen with chlorantraniliprole as well," Beuzelin said. "We don't expect it to be taken off the market, but we just don't know."

Other control methods beyond pesticides are available, although many need additional study. An example is to grow resistant varieties of crop grasses, which often work well to deter pests.

Growers can also adjust the cutting height from the usual 16 inches to 8 inches, essentially cutting away stems that are infested with larvae.

"This can decrease the number of Mexican rice borers in the stubble," Beuzelin said.

Another control method is to plant early. According to field experiments, later plantings (in mid-May vs. mid-March), as well as ratoon cropping, have increased infestations.

Soil amendments, particularly silicon, may also be helpful.

"This is ongoing work that we are doing, but we think the addition of silicon may be a cheap way to make rice more resistant to rice borers," Beuzelin said.

While he encourages research on control measures beyond pesticides, Beuzelin is also interested in the Mexican rice borer as a model for landscape-wide management.

"Instead of just taking a management approach on a field basis, it might be beneficial to manage this insect over a wider area," Beuzelin said. "I think the Mexican rice borer would be a good model for such landscape-wide management studies. As an entomologist, this makes the Mexican rice borer very interesting."

More information: "Biology and Management of the Mexican Rice Borer (Lepidoptera: Crambidae) in Rice in the United States," dx.doi.org/10.1093/jipm/pmw006

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