Rice growers dodge major resistance – for now

For control of rice water weevil, the major pest that attacks rice in the Mid-South, it’s down to Karate® and Icon® insecticides.

“The majority of rice growers down here will end up treating for rice water weevil, but when they go shopping for an insecticide, they won’t find many choices on the shelf,” says Mike Stout, assistant professor, department of entomology, Louisiana State University at Baton Rouge.

Stout has insecticide resistance on his mind and, while the situation seems to pose no immediate threat, he knows resistance can occur when growers depend too much on too few insecticides.

“The rice water weevil has already shown the capacity to become resistant to insecticides in the past,” Stout says. “Back in the ’60s, resistance developed to Aldrin after a lot of heavy use. That product hasn’t been around for a long time, but we can’t ever let our guard down where resistance is concerned.”

With popular Furadan® forced into retirement by the U.S. Environmental Protection Agency, the job of controlling rice water weevil with insecticides is up to Karate, which is used against adult weevil; and Icon, a seed treatment. A third product may receive registration early next year.

“Rice water weevil typically reduces our yields in southern Louisiana by about 10 percent, but that figure can reach 70 percent. I don’t know how high it might go if resistance developed,” Stout says.
In neighboring Arkansas, no documented cases of water weevil resistance have been reported, according to Johnny Bernhardt, entomologist, Rice Research and Extension Center, University of Arkansas at Stuttgart.

“We don’t have to put as much selection pressure on our rice insects as they do in Louisiana and California, so we think failures at this point are unlikely here. We are very fortunate in that regard,” says Bernhardt.

But insecticide resistance is a reality looming over agriculture around the world, according to the Insecticide Resistance Action Committee, a consortium of the world’s leading agrichemical companies.

Formed in 1984, IRAC is committed to assessing insecticide resistance levels on a global basis, developing solutions and implementing effective strategies for prevention and control.


Composed of leading entomological experts from the industrial sector, IRAC acts through a number of committees representing each major crop and pesticide group where resistance problems occur.

Key commodity committees include rice, cotton, fruit, field crops and vegetables. Other IRAC working units are dealing with stored products, public health and vectors, pyrethroid efficacy and Bt management.

“On a global basis, more than 500 species of insects and other arthropods have already shown resistance to one or more classes of insecticides,” says IRAC chairman Charles Staetz, FMC Corporation, Princeton, N.J.

In the United States alone, Staetz says, insecticide resistance adds $40 million a year to the total insecticide bill in additional treatment costs or alternative controls.
“This organization is taking the lead in turning this situation around through a comprehensive plan of prevention, agrichemical research, combined control strategies and communications,” Staetz says.

The aggressive IRAC initiative to confront the dilemma of pesticide resistance is built on these key activities:

- Identify the scope of resistance problems through surveys;
- Develop methods for detecting and monitoring resistance;
- Discover how resistance occurs;
- Devise programs to counter the loss of pest susceptibility;
- Develop susceptibility management strategies which incorporate all practical pest management methods into the crop management program;
- Disseminate information on management strategies; and
- Interact with regulatory authorities responsible for pesticide registration.

“Insecticide resistance is an issue that is not going to go away, so it’s imperative that growers, agrichemical companies and the land grant universities speak with one voice on this subject,” says Ray McAllister, American Crop Protection Association, Washington, D.C. “The members of IRAC offer a valuable service to U.S. agriculture by investing in new products and helping us defend those already in use.”

Bringing a new agrichemical product from discovery to market requires an investment of almost $80 million and an interval of about 10 years, McAllister notes.

“As rice insecticides continue to be pulled from the shelves by the EPA, tremendous selection pressure is placed on the few new products that are being introduced to our rice growers,” Staetz says. “To prolong product usefulness, we have to use them wisely in combination with IPM-type management. Putting this strategy in place is the IRAC mission.”

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