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Cooperative Research Centre for Sustainable Rice Production

... of growing importance

Media Release

20 September, 2004

BLOODWORM CONTROL, GOOD, BETTER, BEST

Dr Mark Stevens (NSW Department of Primary Industries) reckons that newer alternatives to chlorpyrifos for bloodworm control are good news for the rice industry. Less of the alternative chemicals Cosmos® and Dominex Duo® are needed for the job, and they bond rapidly to the soil, reducing the risk of off-site movement.

Better yet would be a move to the 'natural' insecticide Vectobac®, this, he believes, could give the industry an unrivaled marketing edge. Best of all would be a treatment to stop bloodworm infestations in the first place. It is possible but it depends on getting to know the enemy.

With the backing of the Rice CRC and RIRDC, Dr Stevens is working at the Yanco Agricultural Institute to get inside *Chironomus tepperi*, the villain of the bloodworm family.

"There are as many as 16 different species of bloodworms that turn up in an untreated site,' he says, " and, rather than eat the rice at least some of these eat other bloodworms, they're on our side, but current chemical treatments kill everything indiscriminately."

It's not possible to differentiate between the species in the paddock and Dr Stevens believes that in many cases the second, 'insurance' treatment applied by growers when they see large numbers of bloodworms is a waste of resources. Working with small test plots he says that *C. tepperi* produces only one generation a year and is easily killed by current treatments. He suggests that in many cases the bloodworms developing after the initial kill are harmless although, he acknowledges that sometimes, secondary, damaging infestations do occur. These he believes are caused by another, harder to kill, species. It's why he thinks it's vital to know more about the enemy.

" We've identified three common species of bloodworms from our fields. Other than *C. tepperi*, the most common in establishing crops is a predator that feeds on small invertebrates, including other bloodworms. Another, *Polypedilum nubiferum*, is harder to kill but we're not sure whether it attacks rice. Determining that is the task of trials we're undertaking at present and when we have that information the expectation is that we'll be able to develop environmentally softer bloodworm treatments."

Dr Stevens believes that a move to Vectobac® with the 'natural bacterial insecticide BTI as its active ingredient would be a valuable first step.

" While it is more expensive, we're still to determine the optimal rate of use and that may reduce cost a little but if we switched to its use many of our rice growers would be producing the crop without any synthetic insecticides. No other rice producing country in the world can claim that and we'd have a significant marketing advantage."

The Rice CRC is sponsored by the Australian Government's Cooperative Research Centres Program. The Centre coordinates the research activities of teams from Charles Sturt University, NSW Department of Primary Industries, CSIRO, Department of Infrastructure, Planning & Natural Resources, University of Sydney, SunRice and the Rural Industries Research & Development Corporation.

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Even more exciting is the prospect of a treatment that simply prevents *C. tepperi* infesting the bays in the first place.

“*C. tepperi* only lays eggs in the first two or three days after flooding. The female midges recognise when someone else has beaten them to an area and they don't lay their eggs there. We think that bloodworms release a chemical signal that warns any latecomer that the site has already been taken and they move on. If we could find the chemical signal responsible we may be able to mimic it and treat newly flooded bays so that the female *C. tepperi* never lays there at all. Really smart control means we have to know more about the enemy.”

- ENDS -

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