

Entom

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12. Investigator Name(s) (Last Name and Initials) Reagan, T. E.				
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Outputs: <p>Seven refereed research journal papers; one PhD dissertation; one MS thesis; and nine non-refereed documents, including one pesticide evaluation paper; one trade journal article; two field workshop booklets; and five commodity group reports were published. Entomological research on resistance to sugarcane stalk borers was used in development of the recently released commercial cultivar HoCP 04-838, showing substantial resistance to the SCB but high susceptibility to MRB, a variety now used as a MRB susceptible research standard. Results from research activities were communicated at three county agent training sessions; sugarcane field days at St. Gabriel (LA), Beaumont, and Weslaco (TX); numerous sugarcane grower meetings in Louisiana and Texas, invited university presentations in South Carolina and South Dakota, and numerous presentations at U.S.-EPA Office of Pesticide Programs (OPP), USDA-NIFA, and USDA Office of Pest Management Policy in Washington, D.C. Hands-on field workshops in Beaumont trained county agents, ag consultants, and chemical industry reps on sugarcane and rice insect pests; and USDA RAMP Stored Grain Insects project workshops were conducted in Crowley (LA), Beaumont (TX), and Jonesboro (AR). Additionally, invited lectures were delivered to sugarcane growers at Bayer Crop Science meetings in Louisiana and Texas to implement new insect pest management technology. Mexican rice borer pheromone traps were distributed to sugarcane growers in the LRGV to assist with scouting and timing of insecticide applications. Pheromone traps and collaborative assistance were provided to La. Dept. of Ag and Forestry personnel and LSU AgCenter county agents. This research was presented at professional Entomological Society of America national and branch meetings.</p>				
Outcomes/Impacts: <p>After expanding its range through the Texas rice belt, the Mexican rice borer (MRB) was detected for the first time in Louisiana during 2008 has now infested 44 sites throughout Calcasieu, Cameron, Beauregard and part of Jefferson Davis Parishes. Published economic projections of annual revenue losses resulting from MRB establishment in LA show the potential to approach \$220 mil for sugarcane and \$45 mil for rice. Varietal assessment provides MRB and sugarcane borer (SCB) susceptibility rankings among experimental and commercial sugarcane in addition to bioenergy cultivars. A newly released commercial cultivar, L 01-299, and experimental line, shows high MRB resistance. Greenhouse studies revealed the duration of MRB larval exposure on sugarcane plant surfaces to be less than 1-wk. Duration of exposure was longer on resistant cultivar HoCP 85-845 than on HoCP 00-950 (susc. An extensive pheromone trapping program has demonstrated that the MRB has continued to expand its range 12-15 km/yr eastward into LA. Pheromone traps are now being used to assist MRB monitoring with an action threshold of >20 moths/trap/wk to initiate larval scouting for treatable infestations. A 2-yr aerial application insecticide trial was completed in the Lower Rio Grande Valley TX. Results showed significantly lower MRB injury in novaluron-treated plots, and a 14% increase in sugar production. A small plot evaluation of seven insecticides for SCB control revealed two applications of reduced-risk chemistries reduced SCB injury and adult emergence. A mixture of chlorantraniliprole and λ-cyhalothrin provided the best control with less than 0.1% bored internodes (20.3% untreated check). Applications of flubendiamide provided the greatest reduction in MRB injury in an evaluation of insecticides for sugarcane stalkborer control. Three insecticide treatments were evaluated for control of wireworms in a L 99-226 field in LA. Chlorantraniliprole applied at 0.01 l/ha reduced wireworm deadhearts vs. non-treated checks. The study of MRB and SCB feeding on non-sugarcane hosts has continued to improve stem borer ecological knowledge in areas where multiple crop and non-crop hosts occur. Relative to SCB, more MRB are located above 20 cm from the soil surface in rice plants. Therefore, lowering harvest cutting height from 40 to 20 cm reduces MRB infestations, but not SCB infestations. The role of available MRB hosts during the winter has been underestimated because high numbers of moths are active year-round. In addition to rice stubble, perennial weedy grasses like vaseygrass offer living plant material as overwintering habitat. This project</p>				

is the first to document that management programs must involve the interactive role of MRB and SCB non-crop hosts in addition sugarcane and rice to reduce area-wide populations.

Publications:

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- Beuzelin, J.M., A. Meszaros, T.E. Reagan, L.T. Wilson, M.O. Way, D.C. Blouin, A.T. Showler. 2011. Seasonal infestations of two stem borers (Lepidoptera: Crambidae) in non-crop grasses of Gulf Coast rice agroecosystems. *Environmental Entomology* 40: 1036-1050.
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- Reagan, T.E.; M.O. Way, J.M. Beuzelin, B.E. Wilson. M.T. VanWeelden. 2011. Beaumont site visit: mexican rice borer and sugarcane borer sugarcane and rice research. LSU AgCenter Publication (cooperative with Texas A&M Beaumont Research Center). September 28, 2011, Beaumont, TX. 52 pp.
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- Wilson, B.E., J.M. Beuzelin, T.E. Reagan, and A.T. Showler. 2011. Aerial insecticidal control of the Mexican rice borer in sugarcane, 2010. *Arthropod Management Tests* 36: F95
- Reagan, T.E. and W.H. White. 2011. Interim report for ASCL grant support for the entomology project "Mexican rice borer varietal resistance and management for Louisiana sugarcane". *The Sugar Bulletin* 90(2): 19-20.
- Way, M.O., T.E. Reagan, M.S. Nunez, R.A. Pearson, J.M. Beuzelin, B.E. Wilson. 2011. Small plot assessment of insecticidal control of sugarcane stalk borers, 2010. LSU AgCenter Sugarcane Research Annual Progress Report. p. 109.
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Participants:

T.E. Reagan (PI), B. Wilson, and J. Bezelini, LSU AgCenter; A.T. Showler and W.H. White, USDA-ARS; M.O. Way, Texas Agrilife Research; T. Hardy, Louisiana Dept. of Agriculture and Forestry.

Target Audiences:

Nothing significant to report during this reporting period.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date
		