

Bio-Control: Plants vs. Insects

In addition to his work on invasive weeds, Dr. Reddy is assisting local farmers in developing an integrated pest management (IPM) system for managing insect pests on cabbage and other cruciferous crops in an effort to eliminate the application of toxic insecticides to control the pests. IPM approaches to insect control seek to minimize environmental impact and optimize benefits to farmers.

Dr. Reddy and his research team are conducting comparative experiments at the UOG Agricultural Experiment Stations in Inarajan and Yigo using an insecticide that has been developed from a chemical extracted from the Neem tree (Neem Azal). According to Dr. Reddy, "In addition to being environmentally friendly, the advantage of using the neem-based insecticide is that it is relatively non-toxic to beneficial insects as well as insect pollinators."

The results of Dr. Reddy's research will be shared with farmers in the Micronesia/Pacific region and practical IPM training will be given to local farmers on demonstration plots at the Agricultural Experiment Station in Yigo.

University of Guam scientists continue to make important contributions to the island's farmers through their work in the field, in laboratories and on experiment station farms.



Dr. Reddy and his research team.

WPTRC Inventor

UOG entomologist Dr. Aubrey Moore has invented a photosensor that records signals made by flying insects. The sensor uses a miniature solar cell to capture waveforms consisting of patterns made by small flashes of light reflected from the insects' wings. Moore's research has shown that the waveforms can be used as signatures for identifying different species of insects. Dr. Ross Miller, another UOG entomologist, used Moore's equipment to automatically identify five species of aphids commonly found on Guam. The sensor has also been used in Kenya to count malaria mosquitoes flying in and out of native huts.

Moore has teamed up with Dr. Eric Wan, an engineer at the Oregon Health and Sciences University, and Philipp Kirsch of APTIV Inc., a small research and development company that specializes in insect traps and monitoring devices. This team is working under a \$600,000 National Science Foundation grant to develop an instrumentation package which uses the photosensor for automated monitoring of insect populations. Their goal is to perfect a device that can be used like a remote weather station. Except in this case, insects are monitored instead of weather. If they are successful, networks of Moore's sensors could be used to detect and count changes in the numbers of flying insects in different habitats, whether they are crop pests, malaria mosquitoes, honeybees, or newly arrived invasive species.



An early prototype of Moore's photosensor connected to a solid state digital recorder. This set up is used for field recordings of flying insects.