

Mexican Bromeliad Weevil Biological Control Report

April 14, 2007

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The colony of *Lixadmontia franki* at the Panamerican School of Agriculture in Honduras continues to be healthy and productive, but at this time of year production is not as high as during the months of July to December. Therefore, shipments occur once every three weeks rather than every two weeks. We received five shipments containing a total of 360 puparia from the Honduran rearing facility. One shipment in February was delayed in delivery due to problems with the FedEx plane leaving Honduras, so the consignment sat at suboptimal conditions and the result was 0% emergence of adults. Emergence of adults from the other four shipments was 70-86%.

The fly colony at the Biological Control Research & Containment Laboratory (BCRCL) in Ft. Pierce is well established. A larger cage was constructed to accommodate a larger fly population and a greater number of weevil larvae exposed. The fly population ranged from 40 to 120 adults. Production of puparia increased from an average of 3 per week in January to an average of 26 per week (maximum of 41 in one week) during March. Emergence of adults from these puparia has improved from 45% to 90% since the puparia are now held in an environmental chamber set at 20°C (rather than the fly room in the greenhouse where sunlight on cups can elevate ambient temperature).

Research during the January-March trimester revealed the following observations:

- 1) Parasitism of hosts in an artificial diet made of chopped Spanish moss is equal to parasitism of hosts in pineapple cores. Therefore, Spanish moss diet will serve as a satisfactory alternate resource when pineapples are scarce.
- 2) Experimentation continues on optimal exposure time of weevil larvae (in Spanish moss diet) that produces a high rate of parasitism but minimizes excessive superparasitism resulting in premature death of the host, but preliminary results indicate 12 days is best.
- 3) When pineapple tops are in adequate supply, we can place three weevil larvae in an "artichoke" form and obtain nearly 100% parasitism with a 3-day exposure time and excess superparasitism is not a problem.

Research at the BCRCL will continue to enhance production of *L. franki*. Teresa Cooper, a graduate student in Gainesville, will be conducting research on fly biology and establishment of fly populations in the field once releases are initiated.

The laboratory colony of the Florida bromeliad weevil, *Metamasius mosieri*, is very strong. When sufficient flies are available for experiments, we will be conducting host preference studies with *M. mosieri* and *M. callizona*. In the meantime, we are placing small *Tillandsia* plants infested with *M. mosieri* in the fly cage to determine if parasitism will occur with this more natural microhabitat.

The petition submitted to the Florida Department of Agriculture and Consumer Services and the Florida Department of Environmental Protection for release of *L. franki* from quarantine has been approved by both agencies. The field release petition is still

being assessed by the USDA Animal and Plant Health Inspection Service (APHIS). The US Fish and Wildlife Service has been presented the petition and has stated that it will abide by the decision of APHIS.

Talks on the Mexican bromeliad weevil biological control project were presented at the Grassy Waters Preserve in West Palm Beach and to the Treasure Coast Bromeliad Society in Ft. Pierce.



Puparia of five *Lixadmontia franki* maggots that emerged from a single host grub.



Fly cage in quarantine at the Biological Control Research & Containment Laboratory