

# **CARDI Jamaica**

## **Work Programme Highlights for 2005 - 2007**

CARDI successfully completed a consultancy project for the Government of Jamaica which provided entomological services for the country's Citrus Replanting Project (CRP). The results and recommendations included scouting guidelines, the identification of key factors affecting the brown citrus aphid (*Toxoptera citricida* Kirkaldy), a list of key natural enemies and suggestions for their conservation, mass rearing protocols for parasitoids and environmentally friendly pesticide options.

The development of the sweet potato industry is one of the major activities at CARDI Jamaica. A pictorial chart describing the physical characteristics of the 10 most popular export varieties of sweet potato (*Ipomoea batatas*) was developed for use by farmers and exporters of the commodity.

CARDI Jamaica participated in the project for characterising, for value added products, sweet potato varieties from Barbados, Jamaica, St Kitts/Nevis, St Vincent and the Grenadines and Trinidad and Tobago, and funded under the CARICOM/Japan Friendship Agreement Programme. One variety from Jamaica, 'Eustace' was found to be suitable for flour. Extended work also showed that the chemical characteristics of sweet potato could vary with the location of cultivation. For example, the average moisture content of ten varieties of sweet potato grown in Ebony Park, Clarendon was 65.4% compared to 58.3% for those grown in Clairmont, St Ann. The average carbohydrate content for the two locations was 31.0% and 38.6% for Ebony Park and Clairmont, respectively. Similarly, a significant interaction has been established between varietal yields and the location of cultivation. All these suggest that varieties need to be matched with conditions that are most suitable for their growth and development.

The Amaranthus vegetable, callaloo has become an important non-traditional agricultural export crop for Jamaica. In the late 1990s, the export of the crop to the United States (US) declined considerably because of the interception of the exports as a result of pest infestation. The commodity was, therefore, removed from the preclearance list of exports to the US. The CARDI/IPM CRSP (Integrated Pest Management Collaborative Research Support Program) based at CARDI Jamaica worked assiduously during 2001-2005 with its collaborators, especially the Rural Agricultural Development Authority (RADA) to promote IPM tactics to farmers to facilitate the reduction of pest infestation. Because of these efforts the rate of interception of the export crop at the US ports declined from 30% in 1997 to 2.5% in 2005. Consequently, USDA APHIS partnered with CARDI Jamaica and RADA to mount an extensive preparatory training programme for callaloo export interests that led to the successful reinstatement of the commodity on the preclearance list of exports to the US in 2007.

The IPM technologies (use of exclusion systems and threshold-based pesticide application, especially using environmentally friendly pesticides) developed and promoted for callaloo production in Jamaica were successfully transferred to Trinidad and Tobago to enhance cabbage production capacity. A validation trial, concluded at the end of 2007, confirmed that threshold-

based application of biorational pesticides resulted in low diamond back moth numbers and high marketable heads of cabbage, than the farmer practice of almost weekly spraying.

The Government of Jamaica has also decided to evaluate the feasibility of using the IPM technologies mentioned above for producing callaloo on a large scale as part of the promotion of undercover / protected agriculture strategy in Jamaica. In this regard, CARDI is currently engaged in a joint programme with the Ministry of Agriculture, Jamaica to conduct field trials.

CARDI Jamaica supports hot pepper production in the country with the supply of seeds and the provision of IPM services to farmers.

Integrated agricultural production technologies are being developed for the fragile reclaimed bauxite lands, with the support of the Alumina Partners of Jamaica (ALPART). The components of the technologies include, enhanced soil health through compost, mulching and structured crop rotation, as well as forages and small ruminant production.

The development of forage-based feeding systems for small ruminants is stressed in the CARDI Jamaica work programme. Our findings point to 'Mulato' grass (*Brachiaria* sp), 'Mombasa' Guinea grass (*Panicum maximum*), alfalfa (*Medicago sativa*) and exotic clitoria (*Clitoria ternatea*) as promising forages for small ruminant production on reclaimed bauxite lands.

A pilot facility was commissioned to commercialise CARDI's research findings on the use of agro and industrial by-product rations for livestock feed. Small ruminant farmers in the parishes of Clarendon, Manchester and St Elizabeth who used the 16%-crude protein ration have expressed satisfaction with the resulting gains in animal productivity.

We are also validating the technology of oestrus synchronisation and hormonal treatment with the view to shortening the breeding season and the kidding intervals. Preliminary results indicate that does treated with the hormone, on average, completed kidding some 25 days earlier than the untreated ones.

A project funded by the ACP-EU Technical Centre for Agriculture and Rural Cooperation (CTA) for the documentation of the innovations of Jamaican farmers was successfully completed in 2006.

CARDI scientists also assessed and provided recommendations to address the problem of mole crickets (*Scapteriscus* sp.) experienced at the Sabina Park Cricket grounds on behalf of Jamaica Cricket 2007 Ltd., in the preparation of the grounds for the International Cricket Council World Cup staged in 2007.