

Pest Management issues in the Caribbean

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Introduction

Development of sustainable pest management strategies is one of the major challenges facing agriculture today. Factors exacerbating pest occurrence such as climate change can only make the challenges more difficult. It is not possible to give an exhaustive account in this short brief but it is anticipated that some of the key issues will be mentioned with a view to provoke further discussion. The instructions requested that this paper cover entomology but many aspects relating to entomology are in actual fact true for pests in general. Against this background, the brief gives a general perspective rather than focusing on insects alone. Three interrelated issues are raised:

- Development of ecological crop production
- Invasive species management
- Agrobiodiversity

Development of ecological pest management

Production of safe healthy food to meet local needs as well as the increasingly stringent export requirements, dictate the need for development of ecological pest management approaches. Such approaches have been variously defined but most will be familiar with integrated pest management (IPM). Intensification of agriculture was associated with many bad practices including over use toxic pesticides. Such an approach is clearly not sustainable but there is still much evidence that farmers in the Caribbean are still very reliant on such pesticides.

- It has become clear that traditional models approaches to extension, research and development have not involved consultation with farmers. As a consequence these approaches have had little positive effect on farming communities. It is clear that a

radical approach involving all stakeholders must be used. The success of participatory approaches such as the farmer field school model in Asia has shown tremendous promise. Clearly participatory R&D and extension is a cross cutting issue which requires attention.

- Development of biologically based pest management technologies for instance biological pesticides. It is important to note that at present, biological pesticides account for much less than 5% of the global market for pesticides, yet the potential for expansion is widely recognized.
- Development of rational pesticide use and application technologies

Invasive species management

Recent years have seen an increased spate of invasive species globally and the Caribbean has not been spared. In the last 5-10 years alone, the region has had to deal with pests such as *Thrips palmi*, the hibiscus mealybug, papaya mealybug, citrus blackfly, citrus leafminer, fire ants and giant African snail. These invertebrate examples belie the fact that invasive species include a wide spectrum of organisms from plants, pathogens to vertebrates. Furthermore all ecosystems are at risk including terrestrial, aquatic and marine systems. This increased occurrence of pests has no doubt been exacerbated by rapid means of transport and, increased movement of people and goods. Humans play a critical role as well. Climate change is also likely to contribute to this problem by increasing the geographical range of some species. Some of the issues which require attention are:

- Survey and documentation of invasive species and their potential risks
- Assist countries develop national strategies and action plans
- Issues of safety of biological control in small island systems

Agrobiodiversity

Loss of natural environments and associated biodiversity is a pressing issue for the Caribbean. Environmental degradation leads to loss of biological resources, soil fertility etc. It also leads to changes in climate which exacerbates the situation. Much recognition has been given to loss of large species but little attention has been given to small organisms which often underpin biological system function and are vital to the continued productivity of agricultural ecosystems. Many of these organisms are not characterized, yet the use of such organisms to manage agricultural pest problems is essential. Against this background, some priority areas with relevance to pest management and other areas include:

- Characterization and utilization of agrobiodiversity.
- There is a need to understand the functional relationship between crop intensification, changing environments and the biodiversity in farmers fields.
- Understand the impact of climate and agronomic change on small organism biodiversity and conservation