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PROCEEDINGS
OF THE
42nd ANNUAL MEETING

Caribbean Food Crops Society
42nd Annual Meeting
July 9-15, 2006

Intercontinental Resort and Casino
Carolina, Puerto Rico

“Food Safety and Value Added Production and Marketing of Tropical Crops”.

United States Department of Agriculture,
T-STAR Sponsored Invasive Species Symposium

OPERATIONALIZING CRISIS AS A REGIONAL INVASIVE SPECIES SAFEGUARDING
MODEL: EXPLORING MULTIPLE PLATFORM INITIATIVES

Special Workshop Edition
Edited
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Published by the Caribbean Food Crops Society

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REGULATORY/COORDINATION CONSIDERATIONS FACING THE IMPLEMENTATION OF A CARIBBEAN INVASIVE SPECIES STRATEGY FROM A MINISTRY OF AGRICULTURE PERSPECTIVE

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ABSTRACT: Invasive alien species (IAS) continue to threaten Trinidad and Tobago. The country cannot manage this problem alone, so collaboration with countries in the Greater Caribbean Region as part of a Regional Strategy is imperative to exclude those pests that have not yet entered the country and to manage those that have transcended national boundaries. The Caribbean Invasive Species Surveillance and Information Programme (CISSIP) as a major component of such Strategy is very relevant and timely to address many of the issues associated with IAS. For such an approach to succeed, however, there must be various considerations at the national level. Among these are (i) the legislative and regulatory framework; (ii) long term funding for sustainability; (iii) adequate staffing, (iv) linkages and networking with other stakeholders, (v) compatibility with the Ministry of Agriculture work programme and (vi) security. This paper discusses Regulatory/Coordinating considerations of a Caribbean Invasive Species Strategy in relation to implementation of a project such as the CISSIP project.

KEY WORDS: Invasive alien species, CISSIP project; regulatory framework, networking, human resources

INTRODUCTION

During the last two decades Trinidad and Tobago has had to focus critically on the rapid diagnosis /identification and management of numerous plant pests and diseases that have entered the country. These invasive alien species (IAS) include the mango seed weevil, *Sternochetus mangiferae* (Fabricius), pink hibiscus mealybug, *Maconellicoccus hirsutus* (Green), citrus blackfly, *Aleurocanthus woglumi* Ashby, citrus leafminer, *Phyllocnistis citrella* Stainton, chili thrips, *Scirtothrips dorsalis* Hood, palm thrips, *Thrips palmi* Karny, ficus thrips, *Gynaikothrips uzeli* Zimmerman, black sigatoka disease, *Mycosphaerella fijiensis* Morelet, coconut moth, *Batrachedra nuciferae* Hodges, imported red/fire ant, *Solenopsis invicta* Santshi, the plant hopper vector, *Myndus crudus* Van Duzee, the sweet potato whitefly, *Bemisia tabaci* Gennadius, red palm mite, *Raoiella indica* Hurst, and the varroa mite, *Varroa jacobsonii* Oudemans. The above named pests have also invaded several other countries in the Region.

Trinidad and Tobago is ever mindful that a number of other potential invasive pests that are present in the wider Caribbean Region have so far not entered the country and that every effort should be made to continue to keep them out. Some of these pests are recent invasives while others have been long established. Among some of the most important are the giant African snail, *Achatina fulica* Ferussac; Sloane's slug, *Veronicella sloanei* Cuvier; papaya mealybug, *Paracoccus marginatus* Williams and Granara de Willink; cycad scale, *Aulacaspis yatsumatsui* Takagi; avocado lacebug, *Pseudacysta perseae* Heidemann; pigeon pea podfly,

Melanagromyza obtusa (Malloch); coffee berry borer, *Hypothenemus hampei* Ferran; carambola fruitfly, *Bactrocera carambolae* Drew and Hancock; lime swallowtail butterfly, *Papilio demoleus* L.; lethal yellowing of coconuts; citrus greening, *Liberobacter asiaticus*; and citrus canker, *Xanthomonas axonopodis* pv. *citri*.

Invasive pests and diseases are undoubtedly associated with a liberalized trading environment, increase in the movement of goods and services, movement of people and a general increase in travel and movement of vessels such as aircraft, boats and ships. In the Region invasive pests have impacted negatively on trade, biodiversity and the environment. Invasive pests have also been very costly to manage and control.

Experience has taught us that these potentially invasive pests can be excluded from a country only by an integrated approach. Exotic pests that have already entered the country can also be best managed in a similar manner. The integrated or systems approach includes a number of mechanisms among which are (i) appropriate legislation that must be enforced, (ii) application of harmonized standards, (iii) capacity building - training of personnel and infrastructural development and strengthening, (iv) public awareness, (v) surveillance, (vi) rapid pest diagnosis/identification and (vii) an emergency action plan. There are very few examples of successful eradication of invasive pests in Trinidad and Tobago therefore it may be more appropriate to focus on exclusion of pests or effective management when they have entered the country.

The Caribbean Invasive Species Surveillance and Information Project proposal (CISSIP) as part of a regional strategy is indeed very timely. The fact that this project has been developed to assist the Wider Caribbean Region to strengthen its ability to prevent the entry of and manage invasive species comes at a time when the Region is grappling with the urgent need to prevent such pests from entering the Region generally and individual countries in particular. Trinidad and Tobago recognizes the need for such a Regional approach to combat exotic pests and shares the vision of the CISSIP project to develop mechanisms to mitigate against invasive alien species through a series of measures namely:

- (i) Development of a web-based distance diagnostic and identification system (Caribbean Regional Diagnostic Network)
- (ii) An invasive species Information System and
- (iii) Pest Survey and Inspection (Surveillance) Programme.

While the CISSIP project is laudable, from a Ministry of Agriculture's perspective, Trinidad and Tobago needs to consider the requirements for successful implementation of the project as a proposed Phase 1 country and a Centre of Excellence.

GENERAL OVERVIEW

As stated above, the CISSIP project proposal comes at a time when the Ministry of Agriculture, Land and Marine Resources recognizes that information is key to management of all aspects of an invasive species programme. Some of the real challenges the Ministry faces in its efforts to implement its invasive species work programme are timely information on potential threats, the best strategies to exclude IAS, early pest detection/identification as part of an intervention strategy to eradicate or manage IAS and appropriate and timely budgetary allocations. Our human resources are never quite adequate to undertake all the necessary activities; and staff is invariably expected to multitask and go the extra mile to get the work

done. There is always need for capacity building to tackle the many aspects of an IAS programme. Training must be continuous to strengthen our overall capability and to prepare new recruits and/or replacements to handle the tasks of those who leave the programme for any number of reasons such as transfers, promotions, better opportunities, resignations or retirement. Staff attrition is perhaps one of the most exacting issues the Ministry faces in its efforts to surmount the many challenges associated with implementing an IAS exclusion and management programme. Attractive remuneration packages and good working conditions are therefore imperative for the success of the CISSIP project.

In addition an enabling environment is also needed for sustainability of the IAS project, including overall commitment of the host countries in terms of policy, regulatory framework, and harmonization of a regional approach.

REGULATORY FRAMEWORK.

An up to date regulatory framework along with an effective enforcement mechanism are crucial for exclusion, interception, rapid identification and restriction of movement of invasive pests within a country. Many of our national laws that should protect the country from invasive species are currently under review for compliance with the various Agreements and Conventions to which Trinidad and Tobago is a signatory. Among these are the Plant Protection Act of 1975 and Animal Health Legislation. The Plant Protection Legislation, for example, would be amended for compliance with the World Trade Organization – Sanitary and Phytosanitary Agreement (WTO-SPS), using the Draft Model Legislation developed by FAO as the basis. This is being done with the knowledge that under the SPS Agreement members have rights to protect their agricultural and human health and the environment using a scientific basis, and taking into account risk assessment techniques developed by appropriate relevant international organizations (Article 5 of the Agreement). This is best carried out through harmonization of international, regional and agricultural health standards.

The WTO recognizes the International Plant Protection Convention (IPPC) Secretariat of the FAO as the institution for developing these International Standards for Phytosanitary Measures (ISPMs). Trinidad and Tobago as a signatory to the IPPC recognizes and implements these standards even though such implementation is voluntary. One example of the use of the Standards is the implementation of ISPM No. 15, a standard that describes measures to reduce the risk of introduction and/or spread of quarantine pests associated with wood packaging materials. Implementation of ISPM 15 has been included in the Regulations under the Plant Protection Act for export purposes; regulations for imports are currently being addressed.

Under the Plant Protection Act, an Import Permit is required for import of all agricultural commodities. Pest risk assessments (PRAs) are usually done when requests are received to import new commodities or commodities from non-traditional sources, using international guidelines. This is intended to mitigate against risks of introduction of invasive pests while trading in agricultural commodities. In addition, establishment of an SPS Enquiry Point and a National Notification Authority form part of our compliance mechanism under the Transparency clause (Article 7) of the SPS Agreement. This allows Trinidad and Tobago to notify the WTO and other member countries of any intended measures to protect its agriculture and the environment from invasive pests.

The 1997 IICA Survey on compliance of countries in the Region with the WTO-SPS Agreement showed very low compliance levels. Since then compliance by Trinidad and Tobago

has advanced - delegates attend WTO-SPS meetings; notifications of SPS measures have been posted; an Enquiry Point has been established and pest risk assessments are conducted routinely. Trinidad and Tobago has also participated in discussions and submitted comments on draft International Standards for Phytosanitary Measures. We recognized the need for legislation and implementation of Standards to help safeguard against IAS, but the process is lengthy and can be quite costly.

Enforcement of the Plant Protection Act is the purview of the Plant Quarantine Unit of the Crop Protection sub-division in the Research Division of the Ministry of Agriculture, Land and Marine Resources. The number of invasives that have entered and become established in the country in recent times is indicative of the need to strengthen the national plant quarantine service, in terms of personnel, training and equipment needed for early detection of invasive alien species. The CISSIP project would provide support for plant quarantine by offering training, equipment and an early diagnosis/identification service for invasive pests.

OTHER CONSIDERATIONS

1. Human Resource Capability. Some human resource capability to diagnose and manage IAS resides in Trinidad and Tobago. There are the plant quarantine staff (30), Entomologists (3), Plant Pathologists (3), Agricultural Officers (8) and other technical support staff within the Ministry of Agriculture. In addition the Ministry receives much support from allied institutions. Staff is provided with basic training in monitoring surveillance and early detection, pest recognition/identification; as well as intervention for eradication and/or management. In addition institutions such as CariPestNet currently provide a fairly accurate, rapid diagnostic/identification service at reasonable cost, which greatly enhances the efforts of the Ministry.

Staff already finds it challenging to grapple with all the current demands that are being made in terms of plant health, plant quarantine IAS management and general crop protection. The proposals for additional training under various areas of the project are indeed very welcome. However, if the MALMR is to assume additional responsibilities for an 'Expert Laboratory' and as a Center of Excellence in the Region, then there would be the need for more staff to undertake the additional work. Otherwise either the CISSIP project or the Ministry's work programme or both could be seriously compromised.

2. Infrastructure. Some infrastructure already exists in Trinidad and Tobago to undertake diagnostic work. These include equipped entomology laboratories, a newly refurbished plant pathology laboratory with new equipment that is being prepared for commissioning and accreditation. The equipment proposed for the Standard Diagnostic Laboratory and the Expert Laboratory would complement those that already exist. Equipment such as those for serological and PCR work would greatly enhance the diagnostic capability of the Plant Pathology Laboratory.

3. Information and Communication Network. The telecommunications system in Trinidad and Tobago is quite good for both local and external communications. Within the Ministry there is an Information Technology Unit headed by an Information Technology (IT) Manager. There is also a communications manager in charge of public relations, who also assists with public awareness programmes mounted by the Ministry. Together these Units coordinate all matters

related to information management and ensure that the computers and Internet facility are always in good working order and that there is effective networking where and when required. The IT unit also manages the Ministry's web-site. In addition, various Divisions of the Ministry that could impact on IAS work have been provided with basic infrastructure which can support rapid communication of information internally and externally. There are direct lines for telephones and fax machines, reliable Internet connection, scanners, and digital cameras. These facilities for networking would need to be enhanced and upgraded for rapid, effective and efficient tracking and delivery of information; more so, as this must be achieved in a secure environment as required by the project.

4. Ministry's Work Programme. Although the Ministry of Agriculture does not now have a dedicated invasive alien species work programme various aspects of the current and future work programmes address IAS issues. These include:

- Island wide (Trinidad and Tobago) detection surveys and surveillance to determine the population dynamics movement and distribution and host range of black sigatoka disease, red palm mite, coconut moth, red fire ant, ficus thrips, Asian (chilli) thrips, giant African snail
- Fruitfly detection survey – island wide fruitfly trapping to detect Mediterranean fruitfly and other invasive fruitflies of economic and quarantine significance
- Detection and identification of strains of citrus tristeza virus using serological techniques
- Studies on the economic impact of recent incursions of invasive species
- Public awareness - materials for black sigatoka disease have already been developed and are currently being developed for the red palm mite using infomercials, news paper advertisements, factsheets, posters and flyers;
- Public awareness programme on plant quarantine
- Field trials to develop management strategies for black sigatoka, red palm mite and imported red fire ant

Other emerging issues for which surveillance programmes would be developed are: papaya mealybug, frosty pod in cocoa, citrus canker, citrus greening, bunchy top in bananas, lethal yellowing in coconut.

5. Financial support. In Trinidad and Tobago currently most activities that are related to interception and/or diagnosis and management of invasive species are funded within the Ministry usually under Public Sector Initiative Programme (PSIP). There are three Votes under which activities related to IAS that affect plant health are currently funded. These are:

- (i) H522: 'Development of Integrated Pest Management Strategies for Improved Crop Protection' under which most of the work on IAS is funded. This Vote currently supports work on black sigatoka disease, red palm mite, giant African snail, red fire ant, coconut moth and Asian thrips
- (ii) H542: Expansion of Sanitary, Phytosanitary and Food Safety Capability in Trinidad and Tobago. Under this Vote a Curator has been hired (on contract) to assist with development of a pest reference collection, development of a pest data base and fact sheets for Trinidad and Tobago. Establishment of a Surveillance Unit according to international standards, purchase of a vehicle for surveillance work, as well as information for pest risk analyses would be supported under this vote.

(iii)H540: ‘Establishment of a Mandatory Citrus Quality Programme’ in collaboration with FAO, supports construction of a facility for early detection and eradication of pests and diseases in citrus and the production of pest and disease free citrus plants for sale and distribution.

Public awareness would be funded under H522 and H542. In addition, some routine IAS activities are covered under Recurrent Expenditure. Aspects of the CISSIP Project that compliments the Ministry’s work programme on IAS, for example, would undoubtedly receive some budgetary support from the Ministry. However, fiscal support from the Government can be quite variable from year to year and does not necessarily reflect the budget proposals and/or justifications submitted in the annual estimates. To avoid delays the Government must be approached early with proposals, since Trinidad and Tobago might be expected to contribute funds to both national and regional programmes.

6. Linkages with Other Ministries and Other Stakeholders. Trinidad and Tobago has a good track record of collaboration with its strategic partners on matters related to IAS. For example, Trinidad and Tobago worked well with CARDI, CABI, IICA, FAO, UWI and other Ministries of Agriculture in the Region to bring the scourge of the pink hibiscus mealybug under control, and to ensure that the menace of that IAS was efficiently and effectively managed. Nationally several Ministries/Agencies have responsibilities for IAS; among them are:

- Ministry of Agriculture, Land and Marine Resources with responsibility for the regulatory framework for animal and plant health and some environmental issues – plant and animal quarantine, WTO/SPS, IPPC/ISPMs
- Ministry of Health with responsibility for some Animal Health issues and
- Ministry of Public Utilities with responsibility for biodiversity and the environment - CDB.
- Private Sector participation in IAS programmes was minimal in the past but with the success of the programme to manage the pink hibiscus mealybug (PHMB) one can expect keener interest and participation in similar programmes in the future.
- The general public is very important stakeholders and the effectiveness of a public education programme as part of an invasive Species Strategy would impact on the success of any IAS programme. The public awareness programme, however, must be well-designed to reach a wide cross-section of the community. The major constraint to this would be funding since media coverage – television, radio, newspaper-can be quite expensive.

The Ministry of Agriculture, Land and Marine Resources would no doubt continue to collaborate with relevant institutions and stakeholders to implement a regional strategy to safeguard the Region against the threat of IAS. However, there is the added dimension of which Division/Agency/Institution would be mandated to operationalize the Strategy. The possible formation of the new Agricultural Health and Food Safety Division as approved by Cabinet and the possibility that the Research Division would be subsumed under the University of Trinidad and Tobago (UTT) is cause for concern, in this regard. Given the implication of these possible scenarios, these issues should be addressed early.

7. Security of Equipment. The question of the best form of security for its equipment is currently engaging the attention of the Ministry. Theft of computers and other types of equipment from various offices in the Ministry within recent times has been a major cause for concern. In addition to investment in equipment, the CISSIP project and any other intervention approaches that requires investment in equipment, may wish to consider investment in some form of security system as well.

CONCLUSION

A Caribbean Invasive Species Strategy (using an approach such as that outlined in the CISSIP project document) is very timely and relevant as it proposes to address early and rapid intervention to mitigate against the threat of invasive alien species. Success of such a strategy requires the efforts and commitment by Governments of the Wider Caribbean Region to address issues such as policy, legislation, enforcement, resource requirement and management, funding, stakeholder participation and security. Only by addressing the many challenges and honoring their commitments would long term sustainability of a Regional Invasive Species Strategy be assured.