WELCOME

PRESENTATION ON

PEST RISK ANALYSIS:

GHANA’S EXPERIENCES AND CHALLENGES

E. K. J. V. SUGLO
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1.0 Introduction

In recent times, the Government of the Republic of Ghana, has made conscious effort to diversify the agricultural export base of the country from a previously cocoa and timber dependant economy to an expanded agro-based one by encouraging and expanding the export of non-traditional export crops.
• One major problem that confronts the export of above crops in their fresh forms, is the pest risks associated with their importation from the country. For the US market, a Pest Risk Analysis (PRA) is a requirement for these commodities from Ghana.
Destination inspection reports, through the Rapid Alert System for Food and Feed (RASFF), reveal some interceptions of Ghana’s agricultural exports in the European Union (EU) and the US due to presence of pests.
For new crop varieties, that Ghana does not produce sufficient planting materials (especially the vegetative ones) to meet the needs of producers, the growers have to import from ecologically similar environments in different countries. Importation of planting materials from such ecologies is surely a potential pathway for introduction of foreign pests and disease pathogens into Ghana.
2.0 Pest Risk Analysis (PRA)

- The movement of people and commodities across borders brings along with them a certain probability (risk) of the introduction of diseases and pests that are harmful to agriculture. The process of estimating the possibility of negative consequences is termed Pest Risk Analysis (PRA).
Pest Risk Analysis (PRA) cont’d

- Pest Risk Analysis, which is often used as a biological tool in determining risk levels of quarantine significant pests and pathogens was deemed vital in addressing the pest risks associated with these crops in order to enable Ghana expand her non-traditional export market.
Also, the PRA would lead the country to update her import/export rules and regulations and to deploy resources to protect the country’s agriculture. However, the expertise and resources to conduct PRA effectively and efficiently are limited in the country.
Pest Risk Analysis (PRA) cont’d

• The objective of initiating the PRAs was to examine the pest risks associated with export/import of fresh horticultural produce and planting material and to build capacity in the country for conducting PRAs.

• In-country risk assessors developed their PRA capacities through:
  - hands-on training in the US under TCP training provided by Tuskegee University through the USDA/APHIS ATRIP project.
  - working group meetings for development of draft risk assessment reports.
Pest Risk Analysis (PRA) cont’d

2.1 PRA for Exports

- The Ghana Ministry of Food and Agriculture prepared for the Animal and Plant Health Inspection Services of the US Department of Agriculture, Risk Assessment drafts or mango, garden egg and okra.

- The purpose was to examine pest risks associated with the importation of these crops into the U.S.
Pest Risk Analysis (PRA) cont’d

- The RAs are qualitative ones in which risk is expressed as in terms such as high and low rather than in numerical terms such as probabilities or frequencies.
These were commodity based and therefore “pathway initiated”. These were conducted in response to requests for the USDA to authorize the importation of particular commodities presenting potential plant pest risks. The importation of mango, garden egg and okra are potential pathways for the introduction of plant pests.
• 2.2 PRA for imports

• Analysts carried out Pest Risk Analysis (PRA) to determine the likelihood and consequence of introduction of pests and pathogens with the importation of pineapple planting materials from the Central and South American sub-region into the country.
The objectives of the PRA were to:

• Provide information required for making decisions on the phytosanitary measures required for the importation of pineapple planting material.

• Identify appropriate mitigation for the risks associated with the introduction of quarantine pests and pathogens.
3.0 Findings

• The risk assessments revealed that there are quarantine pests that could potentially be introduced into importing countries via this pathway. The quarantine pests likely to follow the pathway are as follows:
Mango Fruits from Ghana to the United States.

The pests were all insects as below:

- *Sternochetus mangiferae* (Coleoptera: Curculionidae)
- *Bactrocera cucurbitae* Coquillett (Diptera: Tephritidae)
- *Bactrocera invadens* (Diptera: Tephritidae)
- *Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae)
- *Ceratitis cosplay* (Diptera: Tephritidae)
Mango Fruits from Ghana to the United States
Cont’d

• *Certatitis rosa* Karsch (Diptera: Tephritidae)
• *Undinia catori* (Green) (Hemiptera: Coccidae)
• *Udinia farquharsoni* (Newstead) (Hemiptera: Coccidae)
• *Udinia pattersoni* Hanford (Hemiptera Coccidae)
• *Icerya seychellarum* (Douglas) (Hemiptera: Margarotididae)
Mango Fruits from Ghana to the United States Cont’d

- *Dysmicoccus neobrevipes* Beardsley (Hemiptera: Pseudococcidae)
- *Maconellicoccus hirsutus* (Green) (Hemiptera: Pseudococcidae)
- *Nipaevcoccus viridis* (Newstead) (Hemiptera: Pseudococcidae)
- *Planococcus minor* (Maskell) (Hemiptera: Psedococcidae)
- *Rastrococcus invadens* Williams (Hemiptera: Psedococcidae)
Mango Fruits from Ghana to the United States Cont’d

- *Nipaecoccus viridis* (Newstead) (Hemipera: Pseudococcidae)
- *Planococcus minor* (Maskell) (Hemipera: Psedococcidae)
- *Rastrococcus invadens* Williams (Hemipera: Psedococcidae)
Garden egg fruits from Ghana to the United States.

Six moths and two fruits flies were identified as below:

- *Cryptophlebia leucotreta* (Meyrick) (Lepidoptera; Tortricidae)
- *Daraba laisalis* (Walker) = *Sceliodes* (Lepidoptera; Pyralidae)
- *Leucinodes orbanalis* Guenee (Lepidoptera; Pyralidae)
- *Helicoverpa armigera* (Hubner) (Lepidoptera: Noctuidae)
Garden egg fruits from Ghana to the United States cont’d

- *Sesamia nonagrioides* (Lefebvre) (Lepidoptera: Noctuidae)
- *Spodoptera littoralis* (Boisduval) (Lepidoptera: Noctuidae)
- *Bactrocera cucurbitae* (Coquillet) (Diptera; Tephritidae)
- *Ceratitus captitata* (Wiedemann) Diphrititaeae (Diptera; Tephritidae)
Okra fruit from Ghana to the United States.

The pests were all lepidopterous insects as below:

- *Cryptophlebia leucotreta* (Meyrick) (Lepidoptera; Tortricidae)
- *Earias biplaga* Walker (Lepidoptera: Noctuidae)
- *Earias insulana* (Boisduval) (Lepidoptera: Noctuidae)
- *Helicoverpa armigera* (Hubner) (Lepidoptera: Noctuidae)
- *Sppdoptera littoralis* (Boisduval) (Lepidoptera: Noctuidae)
- *Leucinodes orbonalis* Guenee (Lepidoptera: Phyalidae)
Pineapple planting material from Central and Southern American sub-region to Ghana.

Four insects and two pathogens were identified as below:

- *Thecla basilides* (Geyer)
- *Castnia icarus* (Cramer)
- *Matamasius ritchie* (Marshall)
- *Paradiosphorus crenatus* (Billberg)
- *Erwinia chrysanthemi* (Burholder *et al*).
- *Fusarium sacchari var subglutinans* (Wollenw & Reinking)
4.0 Risk Management

- The quarantine pests listed above were analyzed qualitatively based on international principles and internal guidelines as described in the PPQ Guidelines for Pathway-Initiated Pest Risk Assessments, Version 5.02 (USDA APHIS, 2000). These documents examined pest biology in the context of Consequences of Introduction and likelihood of Introduction. These elements were used to estimate the Pest Risk Potential. All listed pests pose phytosanitary risks to importing countries’ agriculture.
Risk Management cont’d

• Risk Management involves developing, evaluating and selecting mitigative measures for dealing with the risks. Port of entry inspections, as a sole mitigative measure, is considered insufficient to safeguard importing countries’ agriculture from all these pests, and additional phytosanitary measures are necessary to reduce risks to acceptable levels. These measures need to be developed by importing countries and enforced effectively to achieve the benefit of the risk assessments.
5.0 Experience, Problems & Challenges

• The country has gained some experiences and identified difficulties and challenges by participating directly in the PRA process to prepare risk assessment draft documents on mango, garden egg and okra for the Animal and Plant Health Inspection Service (APHIS) of the U.S Department of Agriculture (USDA) through:
Experience, Problems & Challenges cont’d

- First, a hands-on training provided under an USDA/ICD/APHIS and Ghana PPQ Project (ATRIP Agricultural Grades and Standards Activity (PASA#641-P00-00-0042)
- Second, through a working group meeting of Ghanaian risk analysts, APHIS PPQ analysts and APHIS PPD analysts to develop draft risk assessment reports for USDA.
Experience, Problems & Challenges cont’d

• And a risk assessment on pineapple planting material by the Ghanaian analysts for the Plant Protection and Regulatory Services Directorate (PPRSD) of the Ministry of Food and Agriculture (MoFA) of Ghana.
5.1 Experiences

Experiences gained are summarized below:

- Technical assistance in the form of hands-on training facilitated the preparation of draft risk assessment documents and builds in-country capacity for the PRA process through this training of risk analysts.
For commodities that have not been previously approved for import from a given country into the US, APHIS prepares the pest risk assessments. However, there is a 2-3 year backlog and APHIS allows countries to submit risk assessments according to APHIS guidelines ahead of the backlog. Ghana adopted this approach through hands-on training in the US and working group meetings in Ghana.
Experiences cont’d

• Risk assessment through working group meetings involving experienced expatriate analysts and in-country analysts facilitated the assessments, provided easy access to information and built confidence of local analysts.

• The collaborative approach enabled local analysts to identify difficulties and challenges in the PRA process and also in the risk management options thus developing local human resource capacities for RAs.
It is relevant for developing countries to develop local human resource capacity to enable them collaborate effectively with developed country analysts in preparing risk assessments in order to tap their rich experiences.

Without adequate guidance from experienced analysts, in experience developing country analysts have problems as a result of the interpretation of PRA tools prescribed by developed importing economies.
Problems:

The problems encountered or identified are listed as:

- Incomplete pest records, resulting from weak human and equipment resources for pest surveillance, diagnoses and identification, pose a problem for risk assessments in Ghana.
There is limited expertise and capacities for export inspection and certification and destination inspection.

Lack of proper coordination of risk related activities by researches, risk assessors and risk managers.
Problems cont’d

• Limited research support by government.

• Risk assessments are based primarily on access to information but Ghana has limited or inadequate sources of information such as good libraries, internet and other ICT facilities.
Problems cont’d

• Even if ICT facilities are available, government agencies, such as the NPPO, do not have the financial capacity to subscribe to them.

• One major bottleneck in Ghana is the outmoded and out-dated phytosanitary legislation resulting in inadequate and in appropriate regulatory frameworks.
• Policy makers do not appreciate the relevance of risk assessments in promoting agricultural export trade and hence pay very little attention to them.

• Data generation and documentation is very limited and hence the data base systems are very poor and cannot be fully relied on.
5.3 Challenges

- Risk assessments would normally result in meeting additional phytosanitary measures in order to reduce risks to acceptable levels. Ghana does not have the expertise and capacity to implement such measures. The challenge, therefore, is to build the expertise and capacity otherwise the country stands the risk of being marginalized in international trade sooner or later.
Challenges cont’d

• Ghana has to challenge itself by committing financial resources and equipment resources for pest diagnostics, identification and surveillance.

• There is the need to train more plant pest risk analysts to international standard and resource them adequately to carry out risk assessments for as many export crops as possible.
The country must provide the basic material required for risk assessments including:
- Computer with printer (preferably laser)
  - Photocopier
  - Stationery e.g. diskettes, paper, pen drive etc.
  - Internet access for literature search
  - Books (At least 11)
Challenges cont’d

– Silver platter for Agricola and CABI databases
– CABI distribution maps of plant pests
– CABI Descriptions of Plant Fungi and Bacteria
– CMI/AAB Description of Plant Viruses
– Crop Protection Compendium (latest edition)
Challenges cont’d

• Upgrade her phytosanitary legislation and regulatory frameworks to international standard.

• Build the capacity of the National Plant Protection Organization (NPPO) to international level to enable it operate effectively to facilitate external trade.
Conclusion

• Ghana was able to make progress in developing draft risk assessment documents as a result TCP provided under an USDA/ICP/APHIS and Ghana PPQ Project {ATRIP Agricultural Grades and Standard Activity (PASA # 641-POO-OO-OO-OO42) } that provided hands-on training to prepare the original risk assessment drafts;
Conclusion cont’d

• The ATRIP project (USDA)/APHIS) implemented by Tuskegee University that trained eight (8) Ghanaian scientists to form the core of Ghanaian Pest Risk Analysts; and working group meeting of Ghanaian risk analysts, APHIS PPQ and
Conclusion cont’d

- APHIS PPD analysts sponsored by the PRA advisor to the USAID West Africa Regional Program. Technical Assistance Programmes are considered a sure way of helping developing countries develop capacities for Pest Risk Analysis through practical training.
Thank you for your attention.