International Year of Plant Health

Systems Approach for the Management of Fruit fly *Bactrocera dorsalis* for Kenya Mango Export

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Introduction

- **Mango (Mangifera indica L.)** is the second most important fruit crop in Kenya after banana
- Despite its potential economic contribution, one major challenge to the mango production is damage by **fruit flies,** affecting both the local and export market. Fruit fly is a quarantine pest in the EU
- Kenya experienced high interceptions of mango exports to the EU and made a decision to do a self-ban in the year 2014

Introduction Cont'd

- This was to give Kenya time to work out on the best pest management option and achieve the desired Acceptable Level of Protection (ALOP) and a sustained market access.
- Systems approach is considered to be less restrictive than single measures, address the food safety concerns and is more sustainable
- Single chemical treatments options are becoming less available and are often very expensive and sometimes make business not feasible leading to market inaccessibility. On the other hand investing in pest free area may be unrealistic.

Systems Approach as a management strategy

- SA is pest risk management option that integrates different measures, at least two of which act independently, with cumulative effect
- Each step in the system demonstrate risk reduction along the continuum of the production chain.
- The measures are a combination that are equivalent to but less restrictive than other measures
- It is based on Pest risk analysis (PRA), ISPM 14 and GAP

Kenya Mango Systems Approach

- Objectives were set to be achieved through risk reduction measures at three levels of production chain.
  - Pre – season
  - Production
  - Post harvest
- Risk reduction measures are proposed for each of the set of the objectives.
- The integrated measures reduce the risk at each of the three levels while each step in the system demonstrate risk reduction along the continuum of the production chain.

Objectives to be achieved at the Pre season

- Traceability of orchards approved for export
- Useful to determine the origin of a consignment in the event of a significant non-compliance
- Enhances information sharing and disclosure, proof of compliance with phytosanitary requirements and builds trust
- Measure : Registration of orchards designated for export, codes Kenya NPPO (KEPHIS) play the oversight role

Objectives to be achieved at the Pre season Cont'

- Geographical Isolation.
- There are buffer zones in areas marked for mango export
- Orchard sanitation
- Critical in addressing pest population
- Awareness and sensitization on pest management
- Critical for area wide management, support and enforcement of maintaining the ALPP

Objectives to be achieved at the Production/farm level

- Reduce fruitfly pest challenge through the following measures
- Creating and maintaining area of low pest prevalence (ALPP)
- Application of the IPM technology through both eradication and suppression strategies (Use of pheromone traps, food/ protein baits
- Orchard Sanitation (Reduces the build up of pest)
- Awareness and sensitization on pest management

Objectives to be achieved at the Production/farm level Cont'

- Verification of the system.
- Monitoring, Surveillance, Trapping,

Objectives to be achieved at the Post Harvest level

- Prevent Packhouse Re-infestation. Achieved through

- Integrity of the consignment and inspection at the pack house,
  - Audits,
  - SOPs
- Sanitation at the packhouse.

Objectives to be achieved at the Post – Harvest level Cont'

- Prevent Pest Re-infestation
- Fruit safeguarded from contamination, no other fruit in packhouse/closed transport

- Eliminate infestation
- Hot water treatment

Objectives to be achieved at the Post Harvest level Cont'

- Evidence of implementation performance
- Inspection
- Correction of areas flagged up in the System
- Destruction of infected fruits
- Traceability
- Registration & packing house approved for export, code

Objectives to be achieved at the Post – Harvest level Cont'

- Evidence Measure implementation
- Phytosanitary certificate
- Correct declaration for EU Import
- Name of code no. of approved orchard and shipping container

The Role of Stakeholders

- Include farmers, traders, county governments and importing country, Service providers etc

- Critical role in the establishment of the ALPP and its maintenance

- Must take part in the System design of the systems approach

Designing the Systems Approach System

- Recommends the use of Global compliance tools (BC toolkit) Clarity in the setting up. (beyond.compliance@imperial.ac.uk.)
- It has two parts
- Production Chain (PC) tool
- a road map that helps navigate the process from production to export, describes measures and objectives on stages in a production chain

Designing the Systems Approach System

- Decision Support for Systems Approach (DSSA) tool.
- allows expert stakeholders to give their opinion on the performance of each measure in 6 different indicators

Conclusion

- Systems approach is more sustainable option for pest management
- Some measures such as awareness creation, sanitation and pest exclusion are found to be applicable at all levels across the production chain
- The cumulative effect of the different integrated measures at the three levels along the production chain are sufficient to negotiate with trading partners in search for acceptable levels of protection

Recommendation

- Systems Approach is recommended for pest management of fruitfly.
- Use of Global compliance tools (BC toolkit) is recommended in the implementation of SA (beyond.compliance@imperial.ac.uk.)
- Implement a strong communication system among the stakeholders for effective implementation of a systems approach

Acknowledgements

Theme: *"Enhancing Phytosanitary Systems for Healthy Plants, Safe & Sustainable Trade"*
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