



*Enhancing Phytosanitary Systems for Healthy  
Plants, Safe & Sustainable Trade”*



INTERNATIONAL YEAR OF  
**PLANT HEALTH**  
2020

## **International Year of Plant Health**

# **BIOSECURITY THREAT POSED BY EVOLVING PEST INCURSIONS IN KENYAN**

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# Introduction

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- Agriculture is the backbone of the economies of many African countries and contribute over 30% of the GDP in Kenya.
- There is a steady growth resulting from increased crop production and trade.
- International movement of plant and plant product in trade has increased risk of introduction of pests and diseases.
- These pests and diseases have significantly affected production and market access.



# Introduction cont'

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❖ Some plant pathogens, pests or weeds are widely distributed but others are **restricted in their occurrence** due to:

- Unsuitable environmental conditions**

- Lack of the required host plant**

- Lack of opportunity or pathway to reach certain areas**

**Man** has carried many worlds' most serious pests across the borders

# Transportation pathways





# End products as a pathway



Natural dispersal as a pathway





# Pests reported in the last 2 decades



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Name of pest or disease	Year first reported	Status	Current Distribution	Yield loss Potential	References
Golden apple snails	2021	Regulated	Rice production sites in central Kenya	80%	KEPHIS website accessed August 2021
Asian-type of greening disease	2020	Regulated	Coast Region	100%	KEPHIS reports, 2020
Drosophila suzuki	2021	Restricted	Nakuru		Kwadha C., et al 2021
Sugar cane aphid	2019	Widespread	Sugarcane growing areas	50%	Riungu G., 2019
Spodoptera frugiperda (Fall army worm)	2017	Widespread	All maize growing areas in Kenya	73%	CABI, 2018
Diaphorina citri (Asian citrus psyllid).	2016	Restricted	Coast Kenya	100% as vector of greening disease	Rwomushana, et al 2017
Paracoccus marginatus (Papaya mealybug)	2016	Regulated	Coast Kenya	100%	Macharia et al. 2017
Globodera rostochiensis (Potato cyst nematode)	2015	Regulated	Potato production areas	80%	Mwangi et al., 2015
Tuta absoluta (Tomato leaf miner)	2014	Widespread	All tomato producing areas in Kenya	100%	Duressa, 2018
Maize lethal necrosis	2011	Regulated	Maize production areas	90%	Wangai et al., 2012
Parthenium hysterophorus (Parthenium weed)	2010	Noxious weed	Most open farming lands	High	Bulletin OEPP/EPPO Bulletin 2014
Cassava brown streak disease	2006	Restricted	Coastal and Western Kenya	70%	Were et al, 2016
Xanthomonas campestris pv. Musacearum (Banana xanthomonas wilt)	2006	Restricted	Western Kenya	100%	Kwach et al., 2013
Bactrocera (dorsalis) invades(Mango fruit fly)	2003	Invasive	All host crops producing areas in Kenya	70%	Luc et al 2003; Ekesi et al 2011

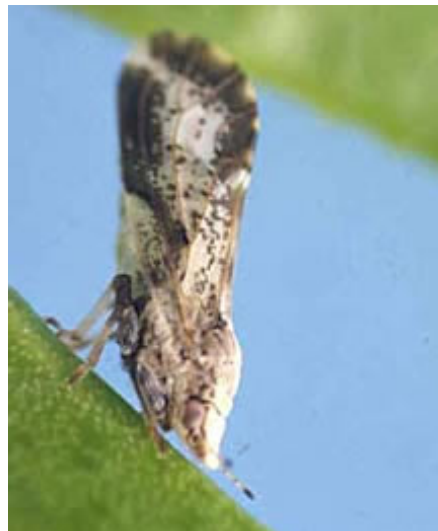


# Recent pest incursions



## Papaya mealybug

- Mexico in 1955
- USA in 1999
- Ghana in 2004
- Tanzania 2015
- Kenya in 2016
- Restricted to Kenya coast



## Asian Citrus Psyllid

- Introduced to Africa from Asia in 2016
- A vector of HLB
- Asian type HLB detected in 2020



## Coconut lethal yellowing disease

- Decimating coconut trees in coast region of eastern Africa



## Maize lethal necrosis disease

- First reported in Bomet, Kenya in 2011
- Causing upto 100% yield losses

# Recent pest incursions cont.



## **Golden apple snail**

- Reported in 2020
- Affects paddy rice production



## ***Drosophila suzukii***

- Detected in 2019
- Restricted to Nakuru county in Kenya



## **Potato cyst nematode**

- Reported in Kenya in 2015 in potato production areas

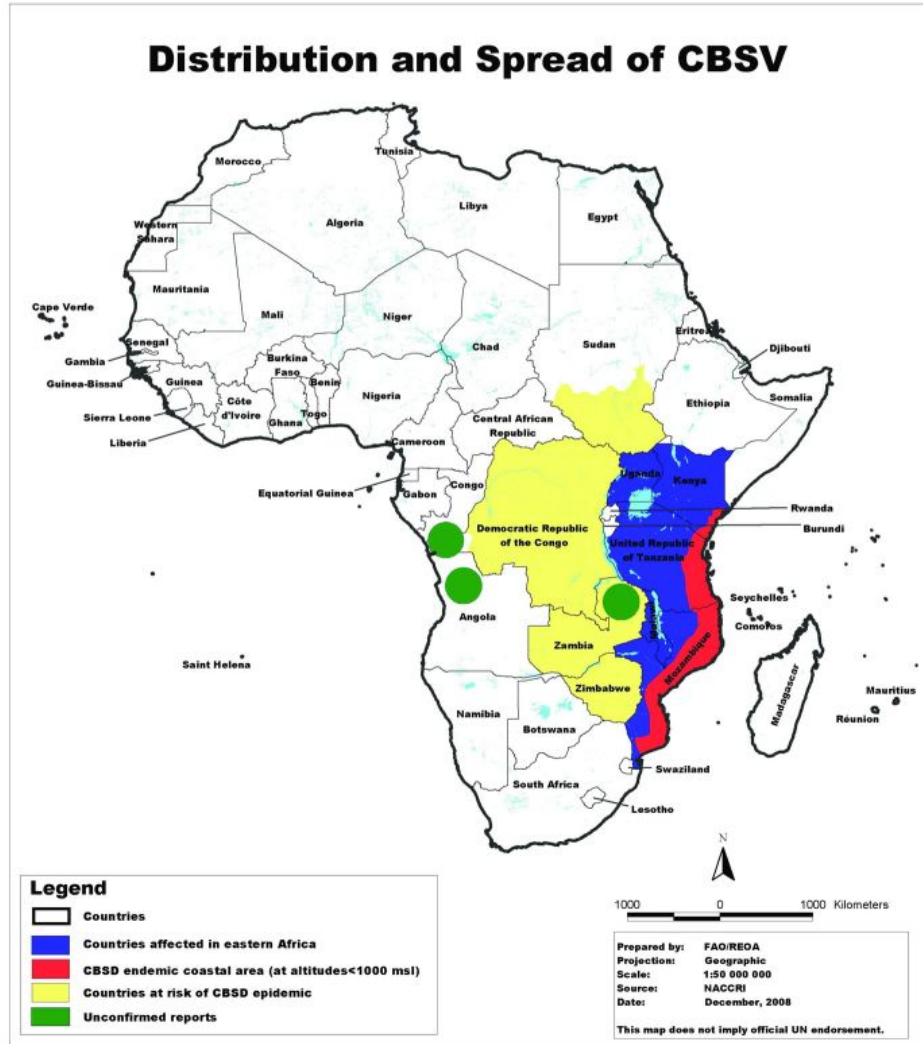


## ***Bactrocera dorsalis***

- Introduced in 2003 from Asia.
- **Lost mango market to EU**  
**Avocado to South Africa, Banana, all fruits to USA etc**



# Cassava brown streak virus



CBSV is a threat to food security in Sub-Saharan Africa

# Tuta absoluta



- Tomato leaf miner, *Tuta absoluta* was reported in Kenya in 2014
- It is reported to cause up to 100% yield losses
- It has been reported in all tomato production areas
- The pest is still a challenge
- Use of pheromone traps and chemicals have reduced the damage



## FALL ARMY WORM (*Spodoptera frugiperda*)



- **Introduced in 2016**
- **A moth that is native to South America**
- **Feeds on a wide host range**
- **It has a voracious appetite**
- **Has a high reproduction capacity (upto 2000 eggs per female)**
- **Strong fliers, can fly 35 - 100km per day**
- **Affect all stages of the crop**



## Global distribution of fall armyworm



Until 2016, it was largely restricted to the Americas



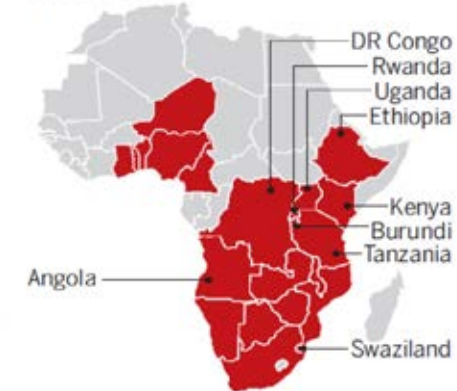
In Brazil, where FAW is endemic, it has been estimated to cost **US\$600 million a year** to control



# Spread of Fall Armyworm in Africa



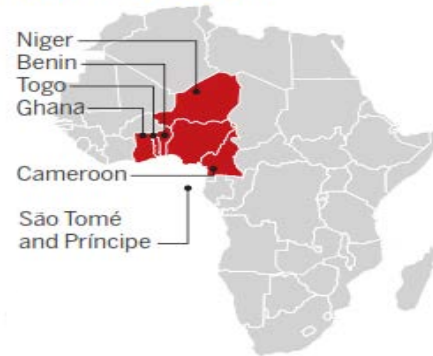
**April 2017**



**February 2017**



**November 2016**



**January 2016**



*Increase in infested areas*

Source: FAO



# Conclusion

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- ❖ Many serious and fast spreading pests have gained entry into the country and are posing as threats to food security and the general well-being of the people.
- ❖ The pests come in the form of plant pathogens, arthropod pests and invasive plant species.
- ❖ There is need to enhance phytosanitary capacity, diagnostic tools and legal framework to guard against pest incursions and outbreaks





# Recommendations



- ❖ There is need to enhance phytosanitary capacity in Kenya
- ❖ There need to invest in diagnostics capacity and infrastructure
- ❖ Increase border surveillance, awareness among farmers, importers and exporters
- ❖ Facilitate phytosanitary research
- ❖ Vigilance on pests of concern including khapra beetle, banana TR4



# Acknowledgements



**Theme:** *"Enhancing Phytosanitary Systems for Healthy Plants,  
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