International Year of Plant Health

BIOSECURITY THREAT POSED BY EVOLVING PEST INCURSIONS IN KENYAN

I Macharia[1], **T Kosiom**[1], F Koome[1], F Munguti[1], B Mukoye[1], E Kimani[1], JW Kimenju[2]

Presented by:

Thomas Kosiom

Introduction

- 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’

- 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

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

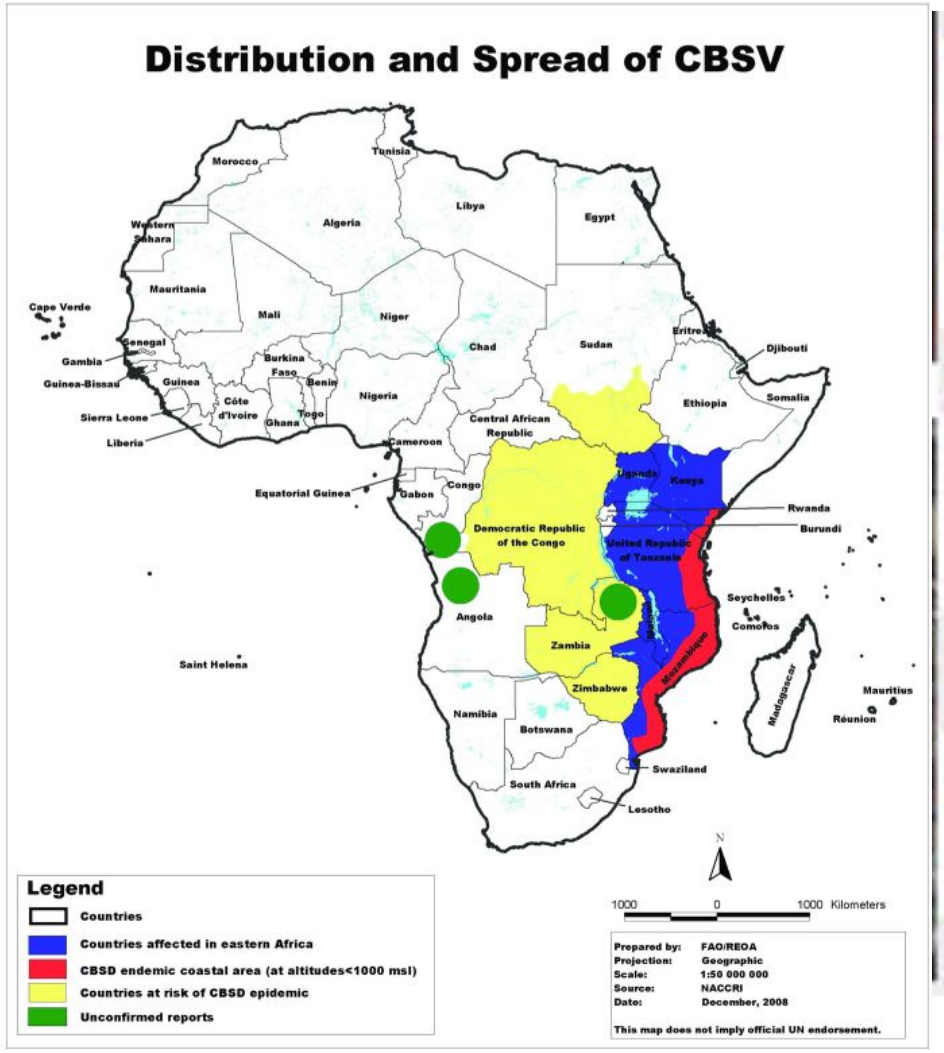
- Reported in Kenya in 2015 in potato production areas

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 100% yield losses
- It has been reported in all tomato production areas
- The pest is still a challenge
- Use of pheromone trap and chemical have reduce the damage

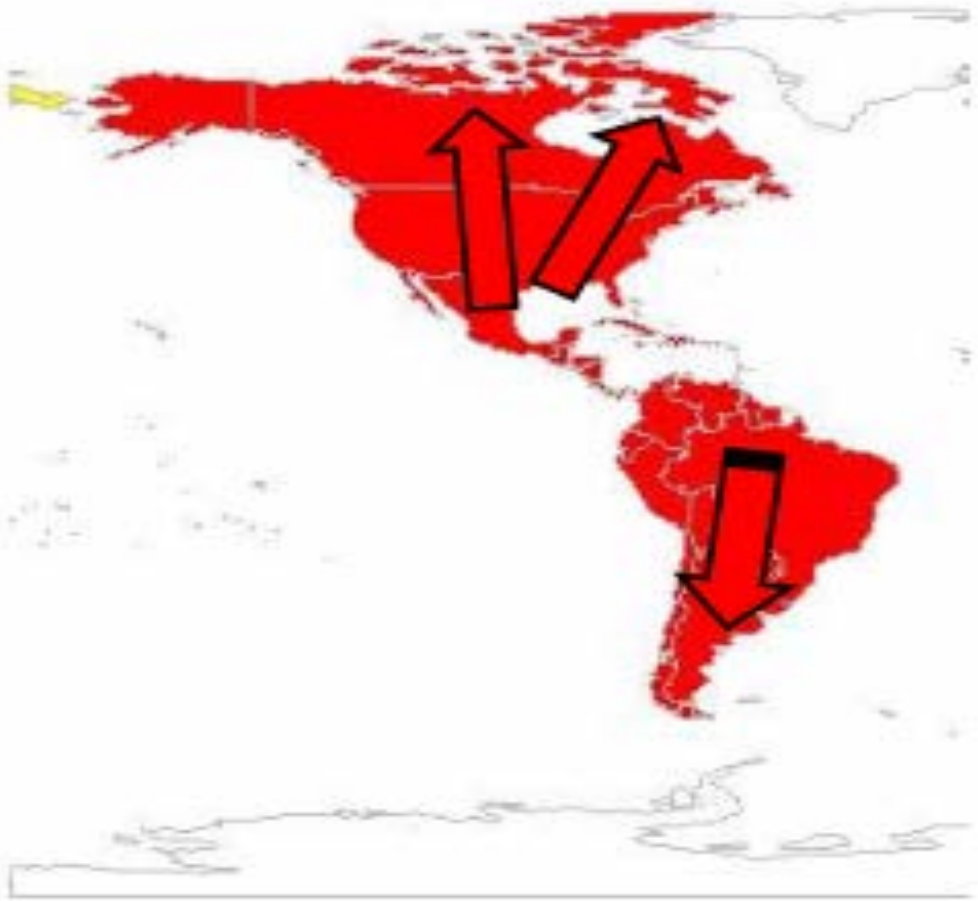
FALL ARMY WORM (Spodoptera frugiperda)

- 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

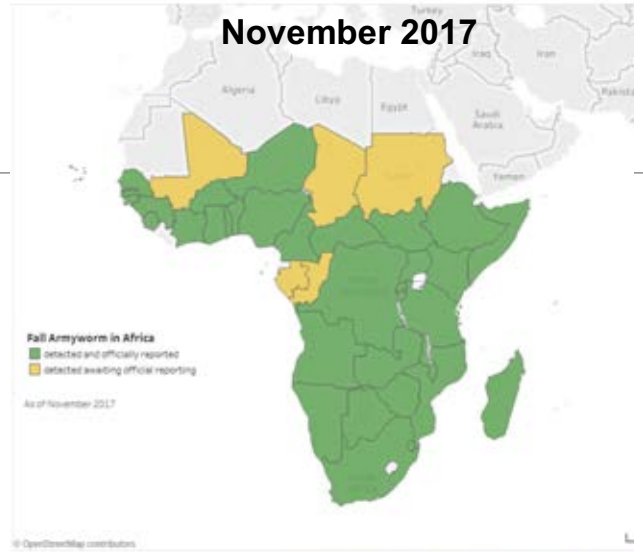
Global distribution of fall armyworm

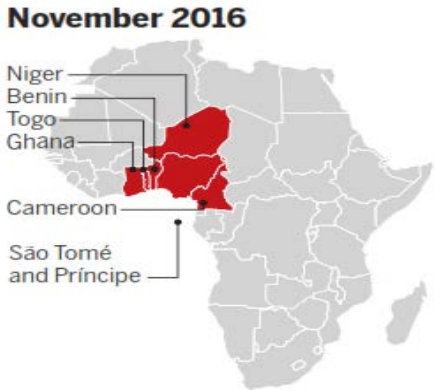
Until 2016, it was largely restricted to the Americas

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





Increase in infested areas

Source: FAO

Conclusion

- 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, Safe & Sustainable Trade"*
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