Import controls and Export certification in phytosanitary systems

PHYTOSANITARY CONCERN OF FUMIGATION

GAPS IN INTERNATIONAL TRADE IN GRAINS

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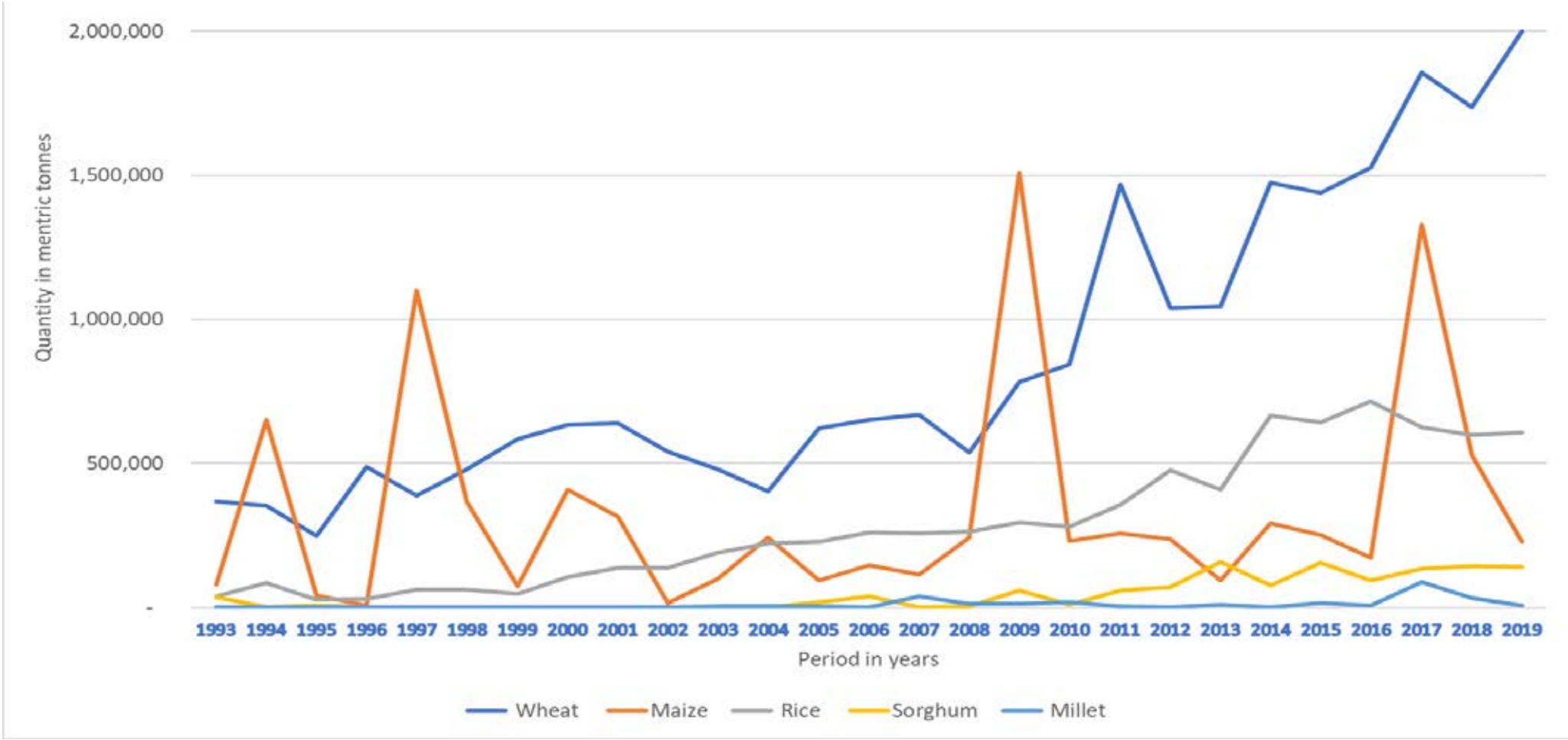
Introduction

- Global trade in grains has increased tremendously
- Growing demands for human consumption, animal feed or further processing
- Grains movement have increased pressure of quarantine pest introductions

Trend of grain imports to Kenya

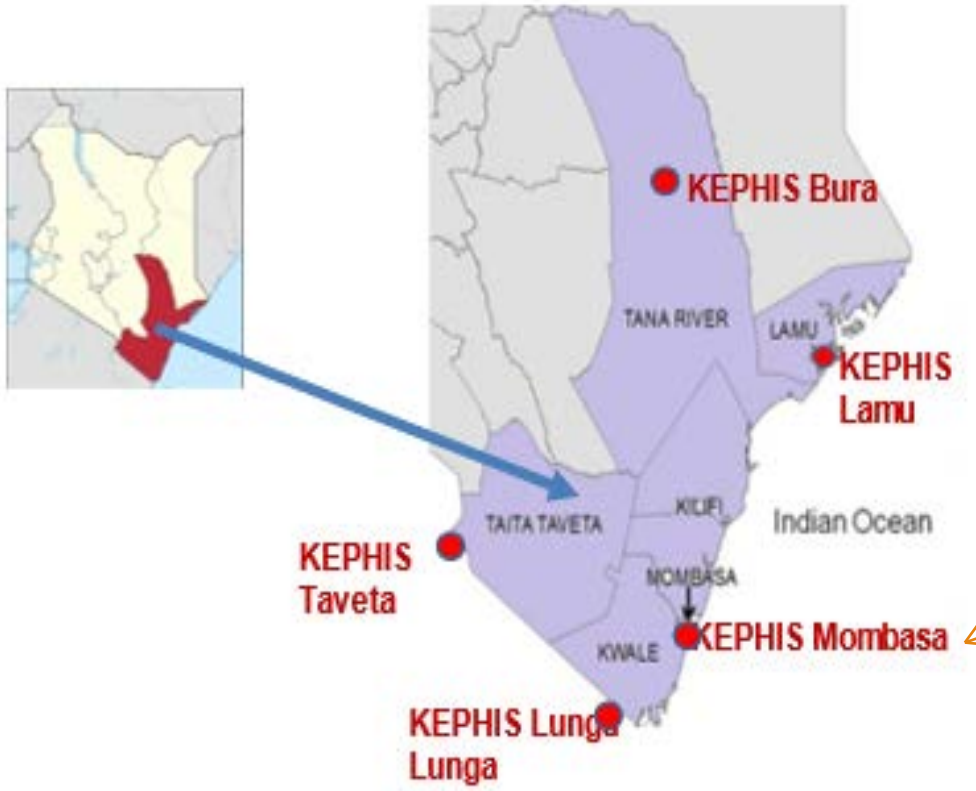


Quantities of grain (MT) imported between 2016 and 2019

Grain	2016	2017	2018	2019	Totals
Wheat	1,526,753	1,854,954	1,736,730	1,998,802	**7,117,239**
Rice	713,804	625,055	599,193	607,227	**2,545,279**
Maize	171,186	1,327,970	529,558	227,531	**2,256,245**
Sorghum	94,680	133,265	142,811	141,609	**512,365**
Millet	6,868	87,424	31,366	5,592	**131,250**
Totals	**2,513,291**	**4,028,668**	**3,039,658**	**2,980,761**	**12,562,378**

Data source: (FAOSTAT, 2021)

Major port of grain entry in Kenya



Grain inspection

General requirements

- All grains coming into Kenya must be free from live pests, both quarantine and non-quarantine
- Fumigation is recommended as a phytosanitary measure against all pests
- NPPO of the exporting country undertakes phytosanitary certification to ensure compliance to Kenya's import conditions

Additional declarations for some grains

Commodity	Import conditions
Wheat	i) The grains were produced in an area free from Urocystis agropyri, Karnal bunt, Anguina tritici, Sclerophthora macrospora, Xanthomonas tritici ii) Free from storage pests and noxious weed seeds. iii) The commodity was fumigated with appropriate chemical before dispatch (NB/ Details to be stated on Phytosanitary Certificate)
Rice	i) The rice was inspected according to appropriate procedures and is considered to be free from Quarantine pests ii) The commodity was fumigated with appropriate chemical before dispatch iii) Moisture content should not exceed 13.5% NB: Details to be stated on Phytosanitary certificate
Sorghum	i) Sorghum was inspected according to appropriate procedures and considered to be free from quarantine pests. ii) ii) Grain was fumigated using appropriate fumigant before dispatch iii) iii) Grain must be fit for human consumption. NB: Details to be stated on phytosanitary certificate.

Problem Statement

- Pests have been intercepted at Kenya's ports of entry despite prior fumigation at origin
- Pests of concern including Indian meal moth (*Plodia interpunctella*) and Saw-toothed grain beetle (*Oryzaephilus surinamensis*) have been intercepted
- Cases of pesticide resistance has been reported on *Tribolium castaneum, Sitophilus zeamais* and *Oryzaephilus surinamensis* in parts of the world (eg Brazil, Pakistan)
- Hence fumigation as a mitigation measure does not guarantee freedom from quarantine pests

Justification

- Kenya has continued intercepting consignments at its port of entry despite proof of fumigation of consignments at country of export.
- Inadequate guidelines for fumigation requirements.

Objectives

- Examine correlation of pests of concern to fumigation treatments
- It focused on the fumigation details obtained from phytosanitary and fumigation certificates supplied by the exporting countries.
- Review fumigation details provided by trading partners.
- Collect information on pests detected

Methodology

- A review of records of consignments imported into Kenya
- Analyze fumigation details provided
- Analyze pest interception records, including quarantine pest detections
- Compare fumigation details against pest interception data

Gaps in fumigation of grains

Commodity Type	Country of origin	Weight (Tons)	Name of Fumigant	Dosage	Temp	Exposure Duration
Wheat	Luthuania	6,000	Aluminium Phosphide	1.5g/m^3	13°C	21 days
	Argentina	54,695	Aluminium Phosphide	2 tablets/ton	Not indicated	20 days
	Argentina	38,320.00	Aluminium Phosphide	1 tablet/ton	Not indicated	10 days
	Argentina	37,516	Aluminium Phosphide	3 tablets/ton	Not indicated	Not indicated
	Argentina	34,942	Aluminium Phosphide	3 tablets /ton	Not indicated	10 days
	Canada	23,050	Not specified	Not specified	Not indicated	10 days
	Australia	39,000	No treatment certified	Not specified	Not indicated	Not indicated
	Russia	45,000	Aluminium Phosphide	1.2g/m^3	8°C	15 days
Rice	India	13,661	Methyl Bromide	48g/m^3	15°C	24 hours

Pests detected at ports of entry June 2020 to July 2021

Pests	Commodity	Country	Frequency
Almond moth (Cadra cautella)	Rice	Pakistan	25
Almond moth (Cadra cautella)	Rice	India	20
Almond moth (Cadra cautella)	Rice	Thailand	1
Almond moth (Cadra cautella)	Sorghum	USA	1
Angoumois grain moth (Sitotroga cerealella)	Wheat	Russia	1
Flat grain beetle (Cryptolestes pusillus)	Wheat	Argentina	5
*Indian meal moth (Plodia interpunctella)	Rice	Pakistan	2
Rice weevil (Sitophilus oryzae)	Rice	India	8
Rice weevil (Sitophilus oryzae)	Rice	Pakistan	2
*Saw-toothed grain beetle (Oryzaephilus surinamensis)	Rice	India	1
Sitophilus spp	Sorghum	India	5
Red flour beetle (Tribolium castaneum)	Rice	India	2
*Saw toothed grain beetle (Oryzaephilus surinamensis)	Maize	Mexico	3

Pests detected at ports of entry June 2020 to July 2021

Commodity	Prior treatments	Pests detected at port of entry
Sorghum	Aluminium phosphide	Almond moth (*Cadra cautella*), *Sitophilus spp*
Wheat	Aluminium phosphide	Angoumois grain moth (*Sitotroga cerealella*), Flat grain beetle (*Cryptolestes pusillus*)
Rice	Methyl bromide	Rice weevil (Sitophilus oryzae)
Rice	Aluminium phosphide	Saw-toothed grain beetle (*Oryzaephilus surinamensis*), Indian meal moth (*Plodia interpunctella*)
Maize	Aluminium phosphide	Saw toothed grain beetle (*Oryzaephilus surinamensis*)

Conclusion

- There is significant fumigation gaps that are exposing Kenya to possible quarantine pest introductions and spread.
- Fumigation failures resulting from pesticide resistance and even do not respond to certain types of fumigants
- Pests of concern are at high risks of introduction: khapra beetle, other storage pests and nematodes that do not respond to phosphide gas.
- Fumigation upon pest detection at entry point does not guarantee pest elimination

Recommendations

- Develop fumigation protocol that clearly outline and explain the minimum fumigation requirements protocols that will apply to fumigation treatments carried out to meet the phytosanitary regulatory requirements for imports
- To provide information on the quarantine requirements so that trading partners can effectively treat consignments destined for Kenya
- Protocol to also facilitate pest-free exports from Kenya

Acknowledgements

Theme: *"Enhancing Phytosanitary Systems for Healthy Plants, Safe & Sustainable Trade"*
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For more information, please contact:

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