

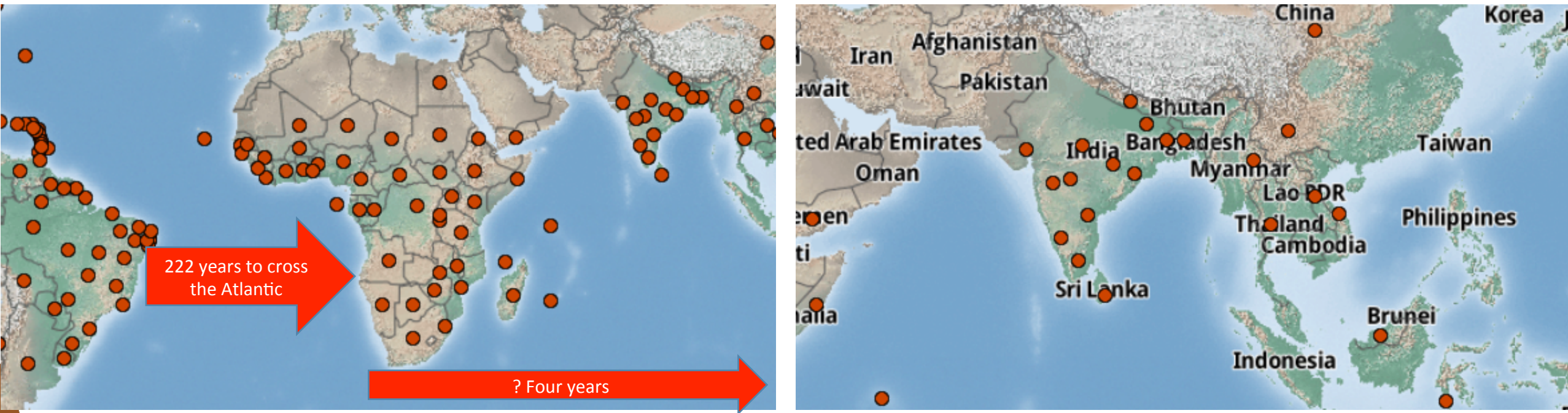


EXPERIENCES WITH THE RECENT INVASION OF FALL ARMYWORM IN AFRICA – A CASE OF UGANDA

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Global distribution of fall armyworm



Source: CABI 2019 <https://www.cabi.org/isc/fallarmyworm>. Accessed on August 15, 2019

Fall armyworm in Uganda

1. First observed in May/June 2016
2. Constituted a National Taskforce with members from MAAIF, NARO, OWC, UNFFE, Crop Life, NEMA & private sector.
3. Developed a National FAW control Strategy and an action plan (NFCSAP) focusing on



HE President of the Republic of Uganda launching FAW control – early 2017



National FAW Control Strategy and an Action Plan

1. Surveillance and Monitoring
2. Awareness creation
3. Capacity building/strengthening to control fall armyworm
4. Support to farmers (pesticides and relevant equipment)
5. Community mobilization for FAW control
6. Research to develop sustainable control measures for FAW



National FAW Control Strategy and an Action Plan

7. Communication and dissemination of information on FAW
8. Monitoring and evaluation of control activities
9. Coordination of fall armyworm control activities



Grain Yield (Kg) of maize under managed and unmanaged scenarios on-farm

	Did no manage the FAW	Managed the FAW	Yield advantage (Kg)	Percent
2016A	1295.2	1924.6	629.4	48
2016B	1619.4	1824.4	205	13
2017A	1157.6	1611.7	454.1	39
2017B	1535.1	1684.5	149.4	10



Measures used by farmers to manage faw in Uganda

Year	Percent of farmers who did control FAW ()			
	2016A (n=102)	2016B (n=138)	2017A (n=308)	2017B (n=217)
Sprayed with insecticide	96	93	90	93
Change in cropping pattern	0	0	0	1
Applied ash	0	1	1	1
Applied cow-dung	2	1	5	1
Applied paraffin	0	0	0	1
Hand picking	0	0	0	0
Applied pepper	1	1	1	1
Applied acaricide	0	1	0	0



Other crops reported to be attacked in Uganda

1. Maize
2. Rice
3. Sorghum
4. Sugarcane
5. Peanut/groundnut
6. Pasture grasses (Napier)

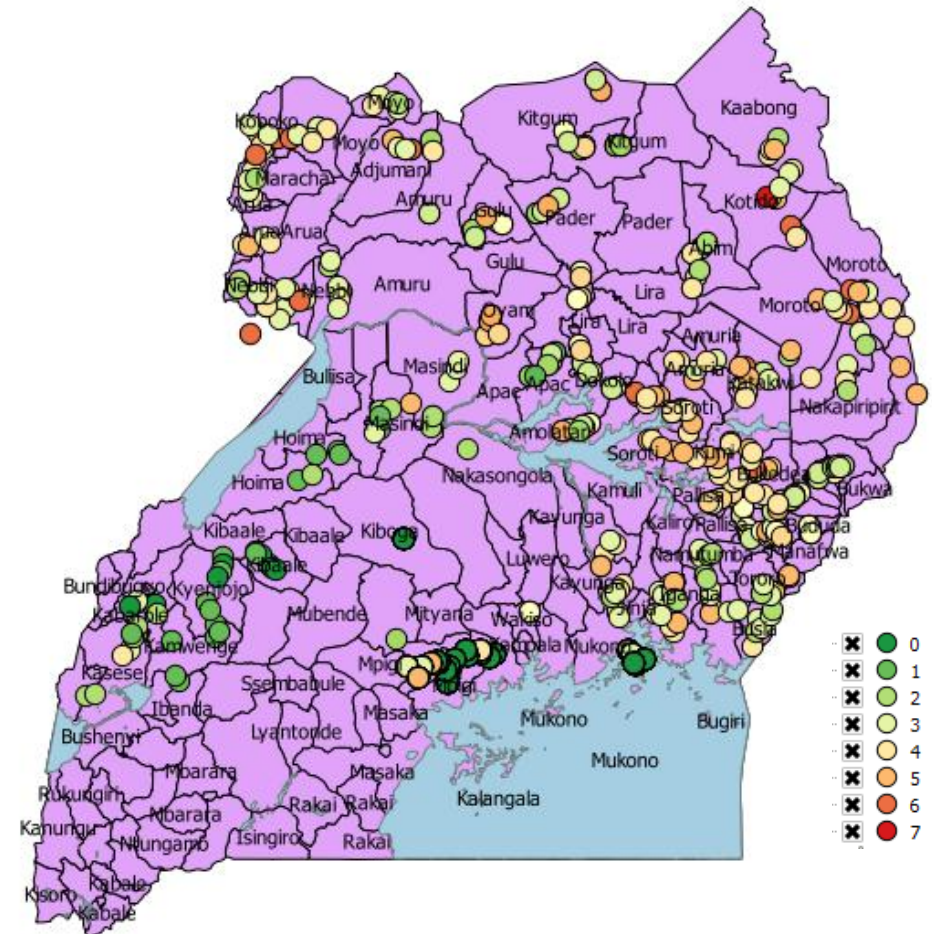
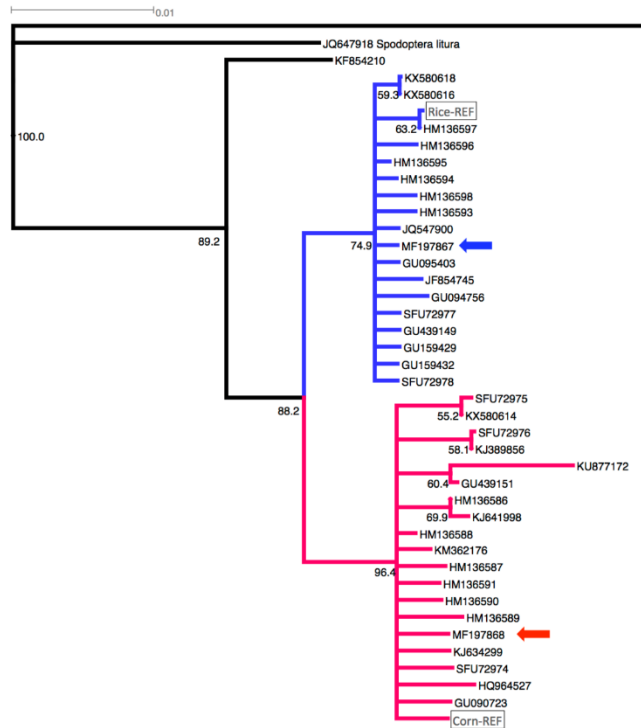


FIG. 1



RESEARCH ARTICLE

Detection of sister-species in invasive populations of the fall armyworm *Spodoptera frugiperda* (Lepidoptera: Noctuidae) from Uganda

Michael H. Otim^{1*}, Wee Tek Tay², Thomas K. Walsh², Dalton Kanyesigye¹, Stella Adumo¹, Joseph Abongosi¹, Stephen Ochen¹, Julius Sserumaga¹, Simon Alibu¹, Grace Abalo¹, Godfrey Asea¹, Ambrose Agona³

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1. Identified maize and rice strains of FAW
2. Identified three maternal lineages based on COIII
3. Due to profile different populations for resistance to organophosphates and Bt protein



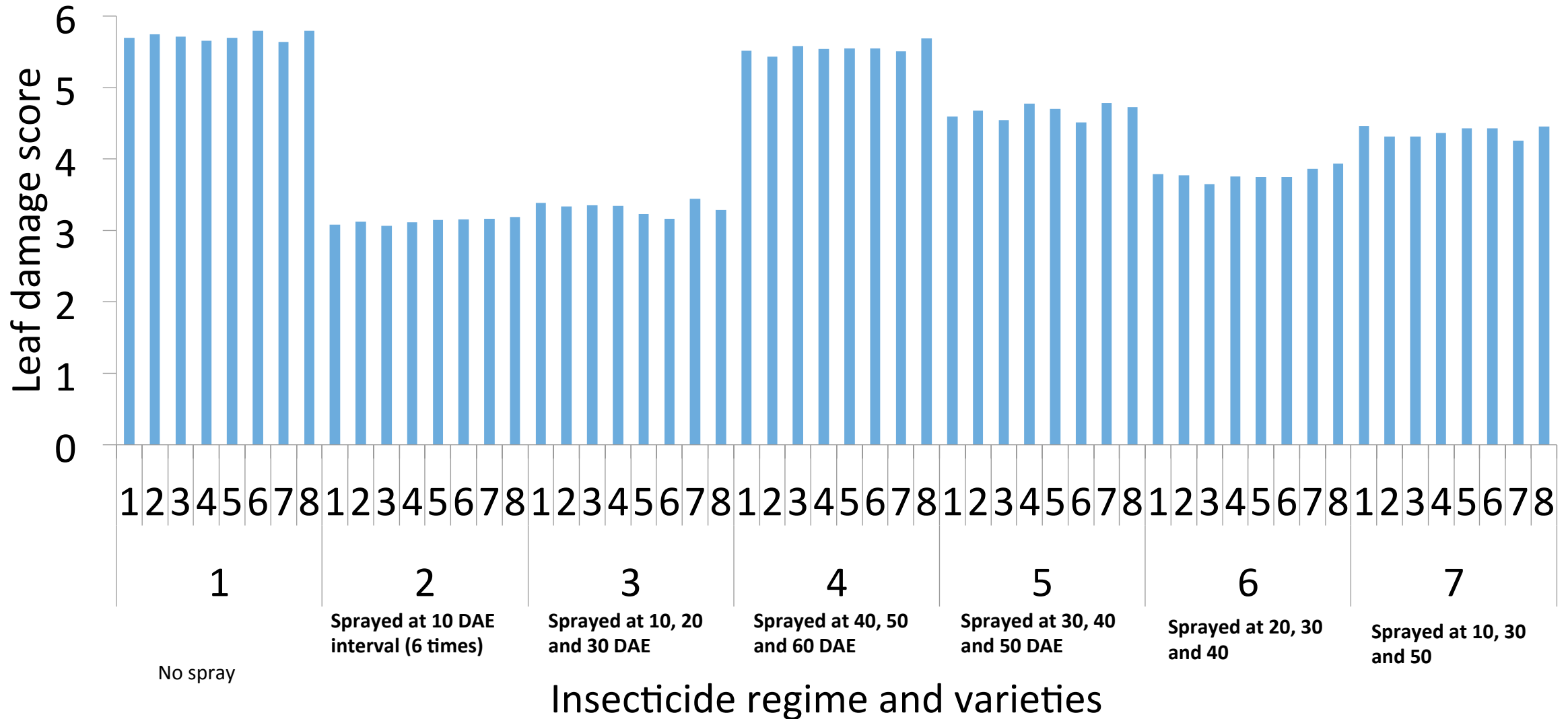
Established experiments to determine losses associated with FAW



Need to ascertain relationship between leaf damage and grain yield



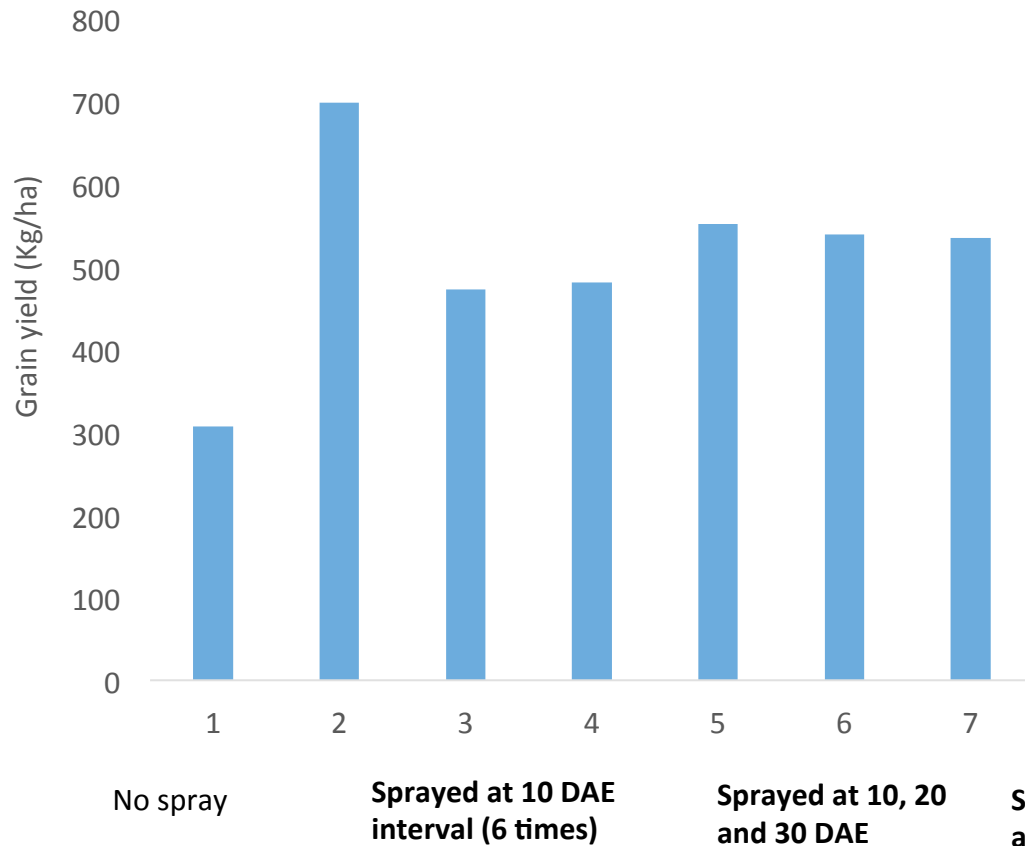
Mean leaf damage score under emamectin benzoate spray regimes



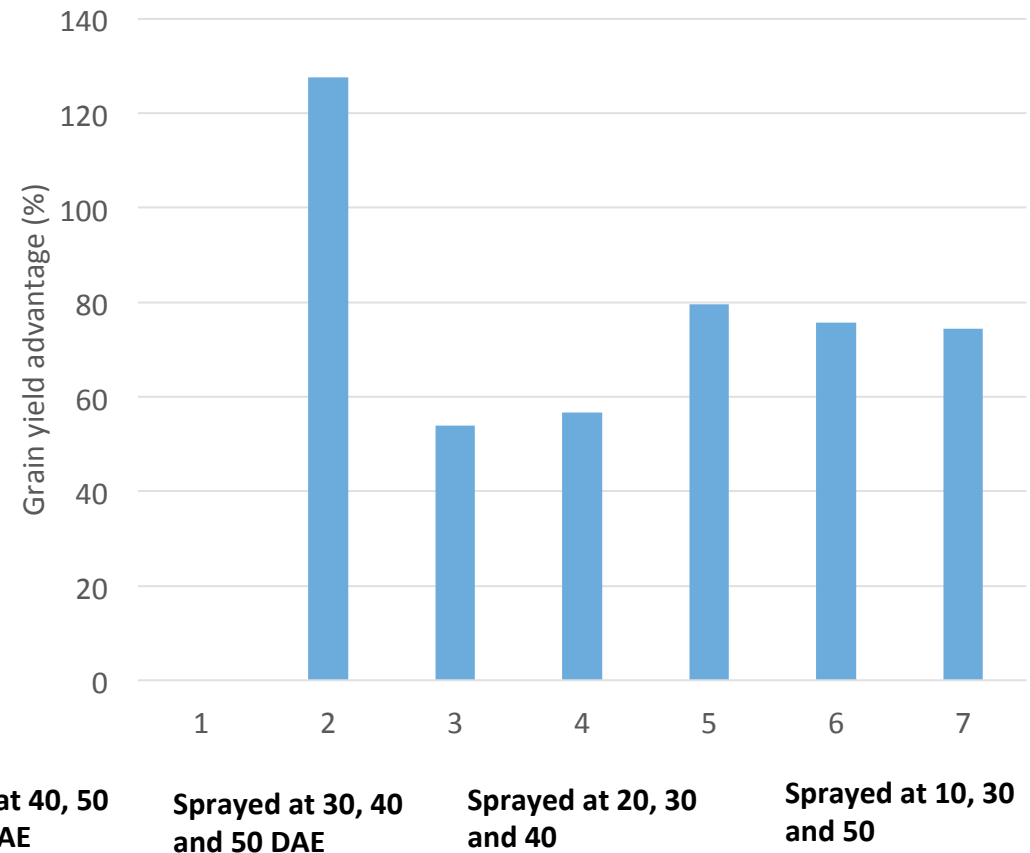


Grain yield and yield advantage of maize at Ngetta, lira

Grain yield (Kg/ha)

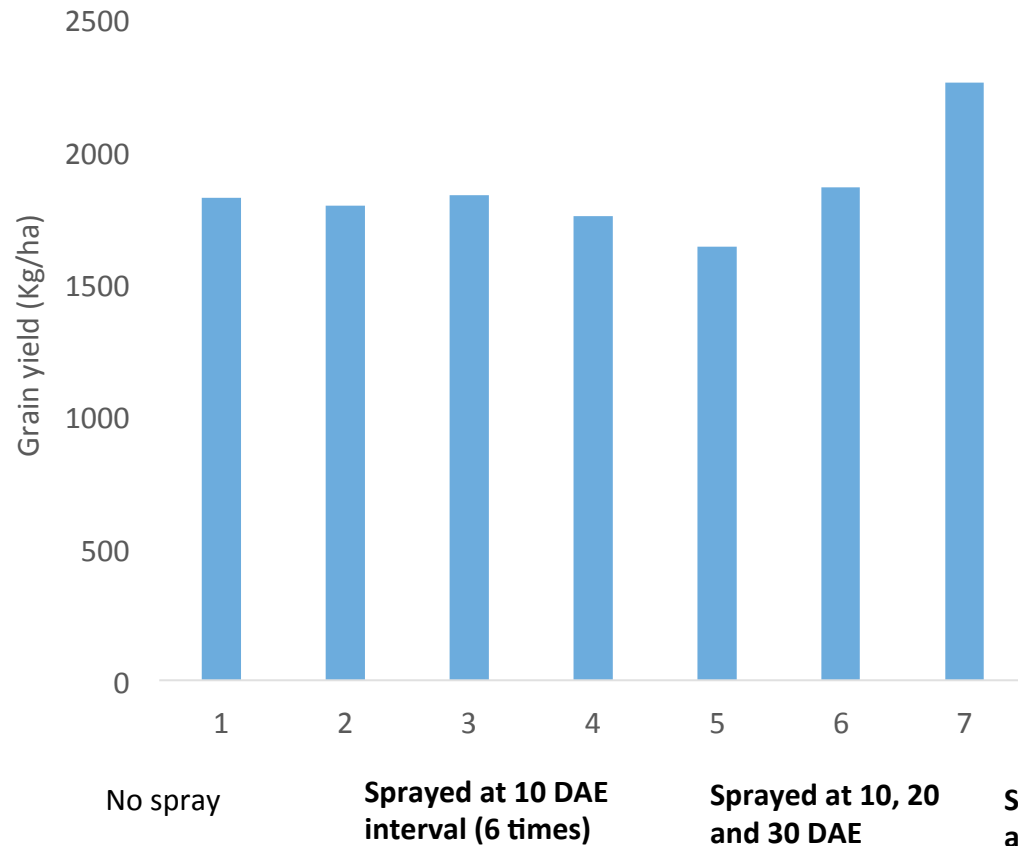


Grain yield advantage (%)

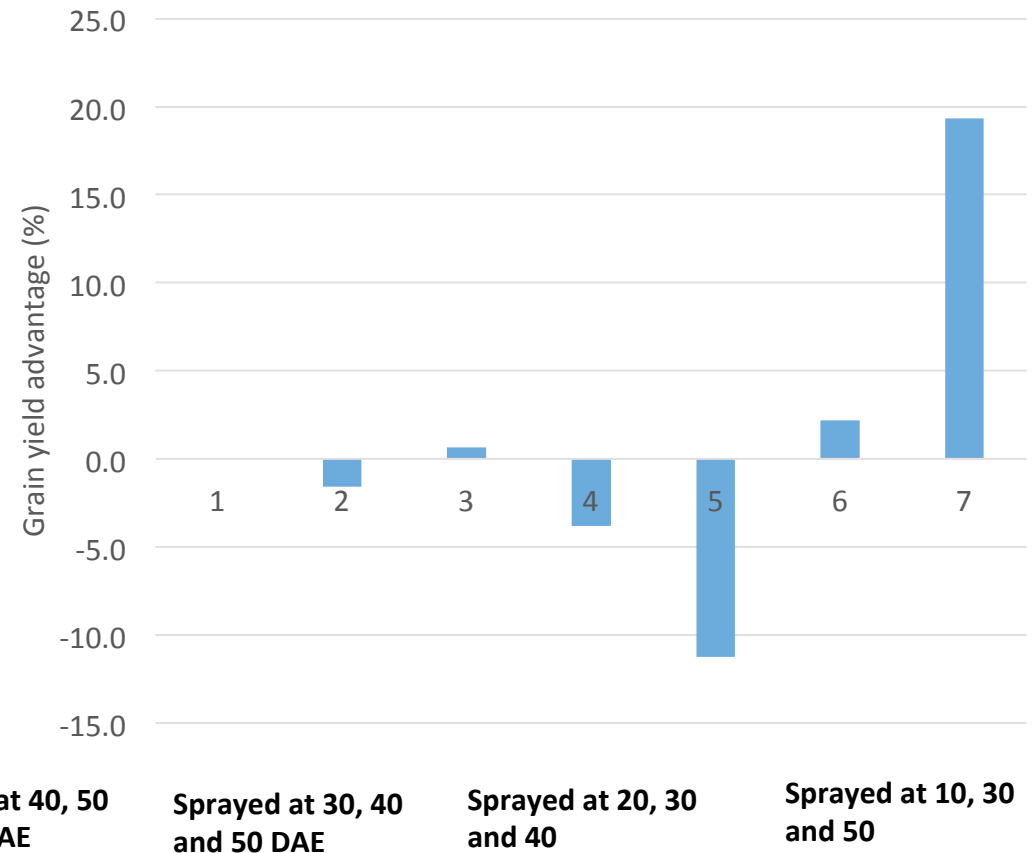


Grain yield and yield advantage of maize at NaCRRI, Wakiso

Grain yield (Kg/ha)

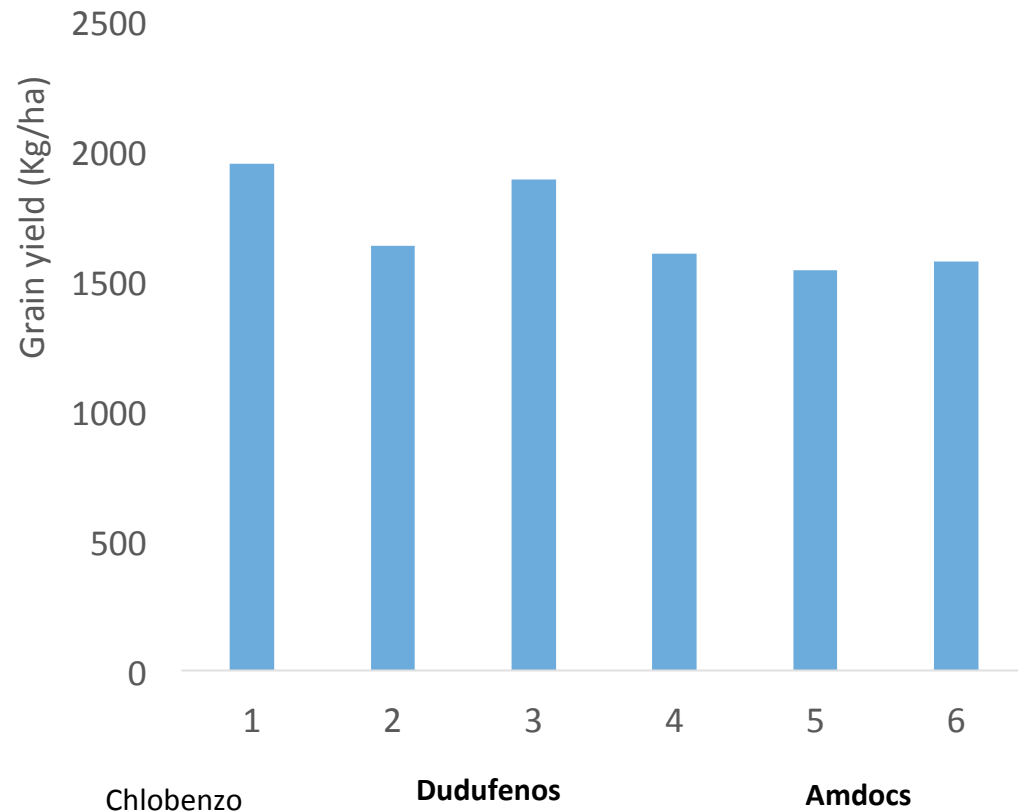


Grain yield advantage

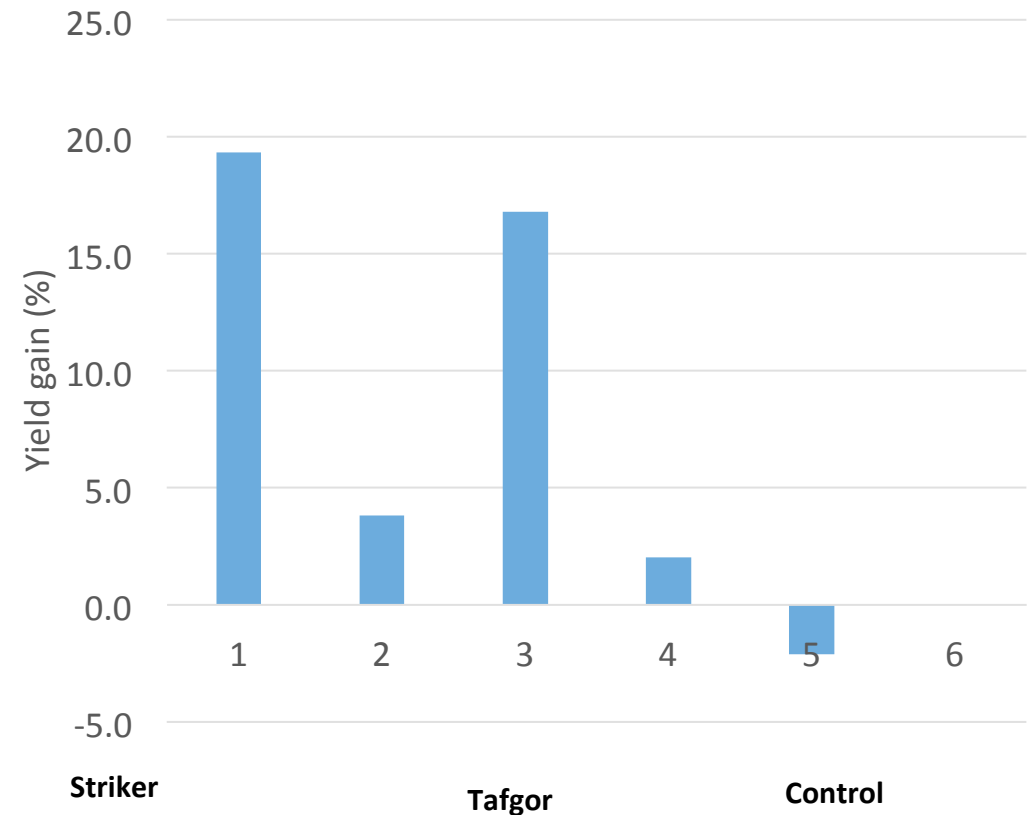


Yield and % yield gain over untreated control at NaCRRI, wakiso

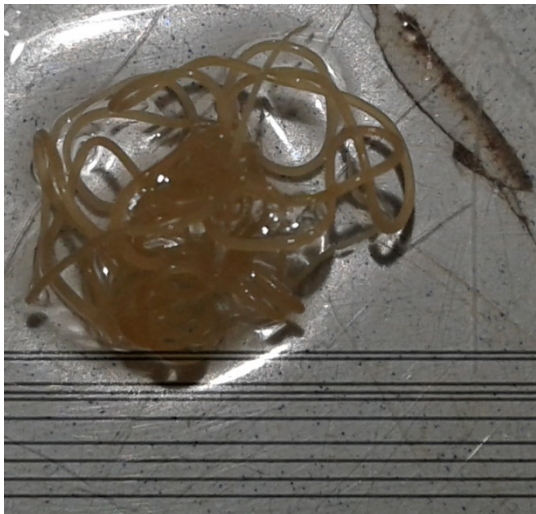
Grain yield (Kg/ha)



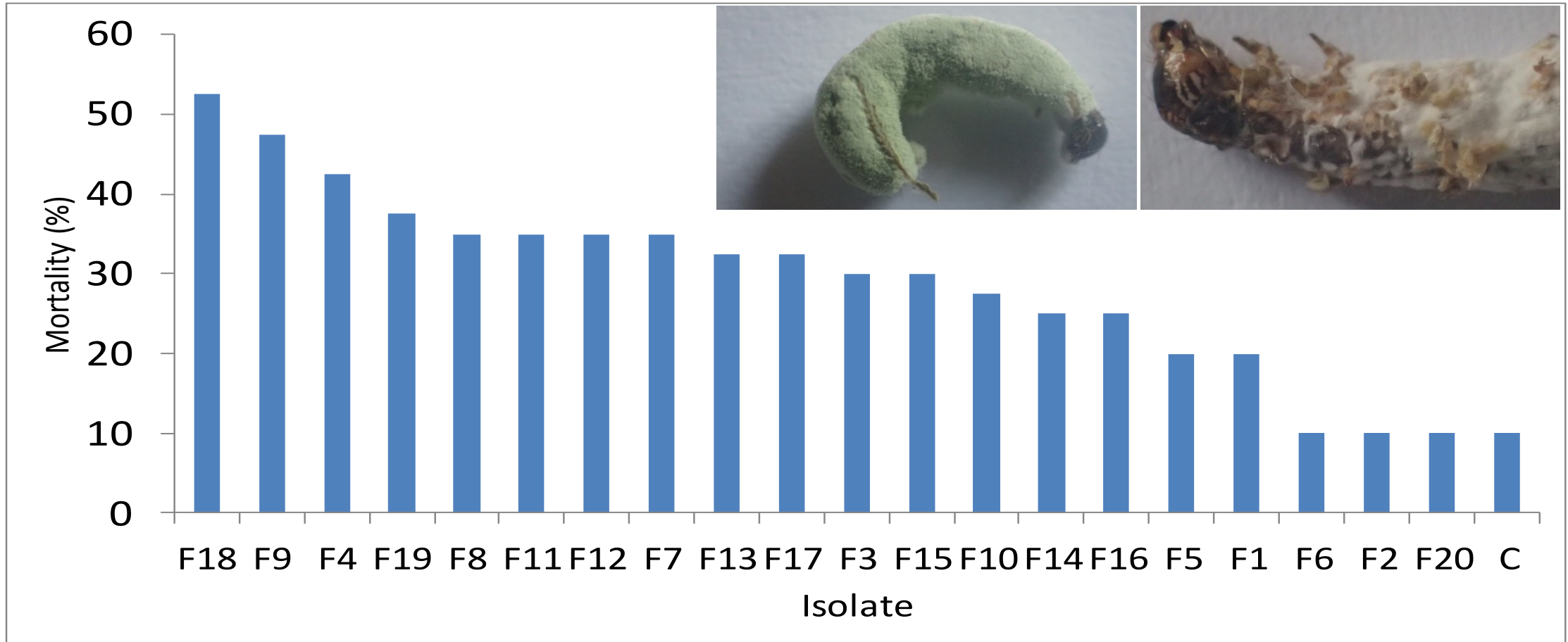
Grain yield advantage



Biological control agents recovered from FAW in Uganda

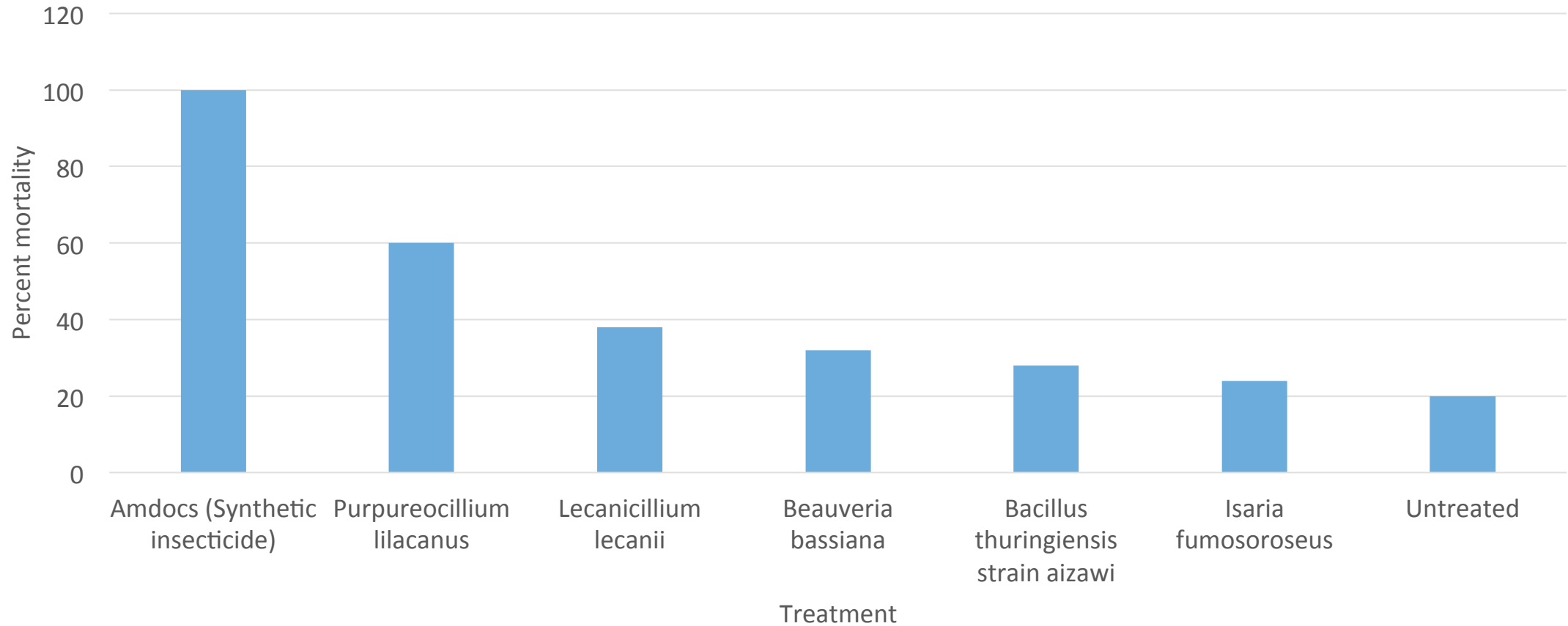


Mortality of third instar larvae of faw caused by different entomopathogen isolates





Mortality (%) of third instar fall armyworm larvae after treatment



Bt maize has a potential to control fall armyworm



Relative performance of bt and non bt maize



Up to 70% yield difference between Bt and local commercial varieties in 2016

Identified insecticides for FAW control

Approved pesticides available for controlling the fall armyworm in Uganda

Trade Name	Active Ingredient (AI)	Mode of action	WHO Classification	Rate of Application	
				15 L Knapsack	20 L Knapsack
AMDOCS	Emamectin, abamectin	IRAC 6	II	25 - 30 mls	30 - 50 mls
ROCKET	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
AGRO-CYPRO	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
SUPA PROFENOFOS	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
HITCELL	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
PROFECRON	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
SOCKET PLUS	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
CYPERCAL	Profenofos, Cypermethrin	IRAC 1B + IRAC 3A	II	15 - 40 mls	20 - 50 mls
STRIKER	Lambda Cyhalothrin, thiomethoxam	IRAC 3A + IRAC 4A	III	15 - 20 mls	20 - 25 mls
ENGEO	Lambda Cyhalothrin, thiomethoxam	IRAC 3A + IRAC 4A	III	15 - 20 mls	20 - 30 mls
CHLOBENZO	Emamectin benzoate	IRAC 6	IV	4 tea spoon (6 g/tea spoon)	5 tea spoons
PROVE (EC)	Emamectin benzoate	IRAC 6	IV	6 - 9 mls	8 - 12 mls
DYNAMO (WG)	Emamectin benzoate	IRAC 6	IV		

World Health Organization Classification and color band

Class	Color Band	Description
I	Red	Extremely hazardous
II	Orange	Highly hazardous
III	Yellow	Moderately hazardous
IV	Green	Slightly hazardous
V	Blue	Unlikely to cause harm if inhaled or swallowed

Mini booklet for farmers

Key considerations

1. Cost effectiveness of insecticide application
2. Integration of insecticides in IPM packages





Impacts of FAW and its management

1. Reduced production
2. Increased cost of production/Reduced profit
3. Increased surveillance/inspection of export products
4. Possible contamination of drinking water
5. Possible negative impact on birds that feed on FAW from sprayed crops, and bees



ACKNOWLEDGEMENT

1. World Bank (ATAAS, ACDP)
2. AGRA
3. FAO
4. MAAIF
5. NARO



THANK YOU