

**FALL ARMYWORM (*SPODOPTERA*
FRUGIPERDA J.E. SMITH)
[LEPIDOPTERA: NOCTUIDAE]**

IMPACT and UPDATE

OUTLINE OF PRESENTATION

Introduction

Outbreak of *S. frugiperda* (J.E. Smith)

Survey report

Brief biology and identification of FAW

Possible control measures

FAO Update

Way forward

WHAT ARE PESTS?

- In a general term, pests are organisms (either plants/animals) that are harmful to our health, crops and animals
- Based on morphological difference we have the following;
 - Insect pests
 - Micro-organisms (pathogens)
 - Vertebrate pests
 - Nematodes
 - Weeds and others

FALL ARMYWORM (*SPODOPTERA FRUGIPERDA*) [LEPIDOPTERA: NOCTUIDAE]



Adult fall Armyworm

- It is an insect pest native to tropical and sub tropical America
- The insect larva is the destructive phase
- Prefer maize, but capable of feeding on more than 100 crop species
- It is a trans-boundary pest
- Nocturnal in action
- It was detected in Nigeria in early 2016



Fall Armyworm Caterpillars

TABLE 1. PERCENTAGE OF MAIZE FIELD INFESTED BY FALL ARMYWORM IN THE STATES SURVEYED

States	No of farms visited	Infested field (%)
Ogun	13	92.3
Oyo	23	87.0
Osun	16	75.0
Ondo	8	87.5
Ekiti	12	66.7
Kwara	2	50.0

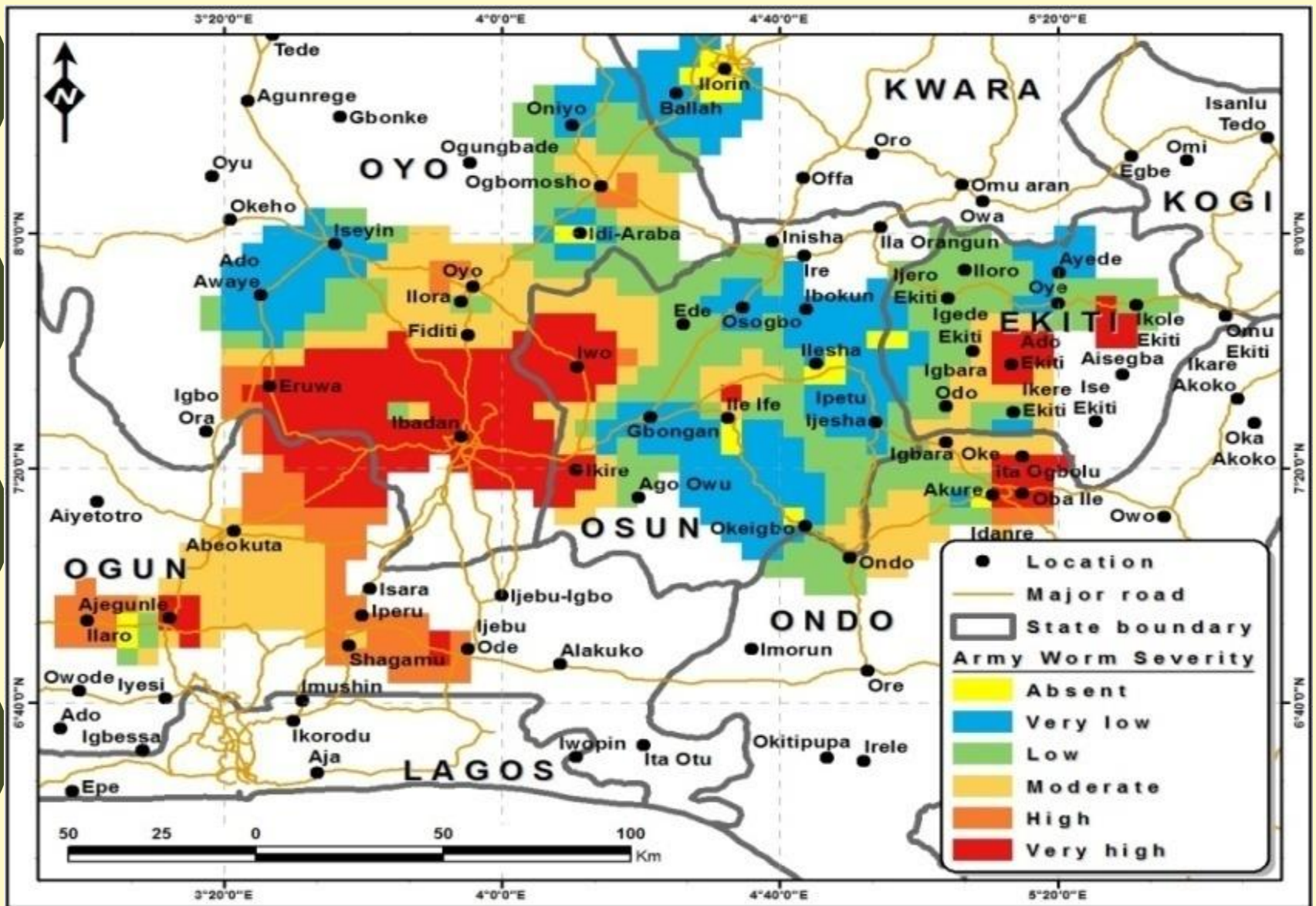


Figure 1: Survey fields, damage severity due to armyworm.

FINDINGS OF THE SURVEY

- The survey revealed that the pest is deleterious to all growth stages of maize, with damage (leaf tattering) more prominent between two to four weeks after planting
- The severity of damage varied from location to location, while most farms had moderate to very high damage
- All the states visited had not less than 50% infested fields (Table I)
- Several hectares of maize fields destroyed by the pest were re-ploughed, leading to great economic loss to farmers

FINDINGS OF THE SURVEY

- Some of the farmers left their farms unattended to (not weeded), while some resulted to irrational use of arrays of insecticides and herbicides to tackle the menace
- Some farmers believed it was God's wrath as a result of human sin, therefore made no attempt to control the pest.
- Many of the insecticides used were reported to be ineffective.

FALL ARMYWORM (*SPODOPTERA FRUGIPERDA*) [LEPIDOPTERA: NOCTUIDAE]

Map of areas affected by Fall Armyworms (June 2017)

Africa



FALL ARMYWORM (*SPODOPTERA FRUGIPERDA*) [LEPIDOPTERA: NOCTUIDAE]

Map of areas affected by Fall armyworm (February 2018)



ADULT *SPODOPTERA FRUGIPERDA* (J.E. SMITH



Male



Female

- Possess white and brown transverse marking lines and contrasting colours on the forewing
- Wing span is about 1.5 inches
- Markings are more distinct in male than in female
- Reniform spot indistinct, partly outlined in black with a small sideways v-shaped marking
- Row of small, black, hour glassy shaped marking near apical margin of the wing



Adult *Spodoptera frugiperda*

Fall Armyworm Identification



Broad, pale band along top of body, contrasted by dark striping at the sides

Eighth abdominal segment with four dark spots

Head with dark net-like pattern and upside-down, white "Y" marking

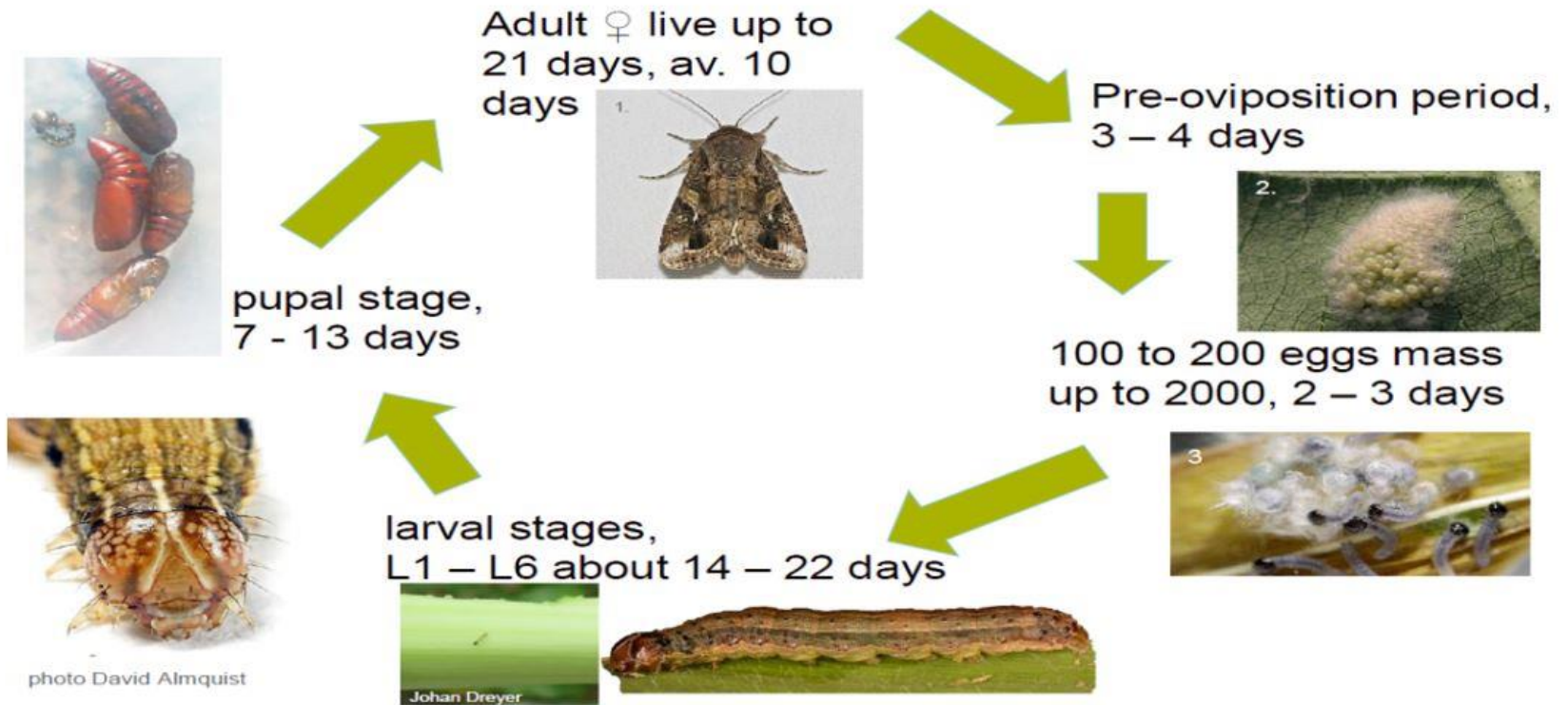


- Prominent inverted white "Y" marking on the front of the head
- Pale band along the body, contrasted by dark striping at the side
- Four tubercles arranged in square on the eight abdominal segment

FALL ARMYWORM (*SPODOPTERA FRUGIPERDA*) [LEPIDOPTERA: NOCTUIDAE]

FAW life-cycle: summary (pertinent to spread/ control)

Life cycle, 24 - 40 days



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

TYPICAL DAMAGE CAUSED BY FALL ARMYWORM



TYPICAL DAMAGE CAUSED BY FALL ARMYWORM





12 HECTARES OF MAIZE FIELD DAMAGED AT ILE-OGBO, OSUN STATE, NIGERIA

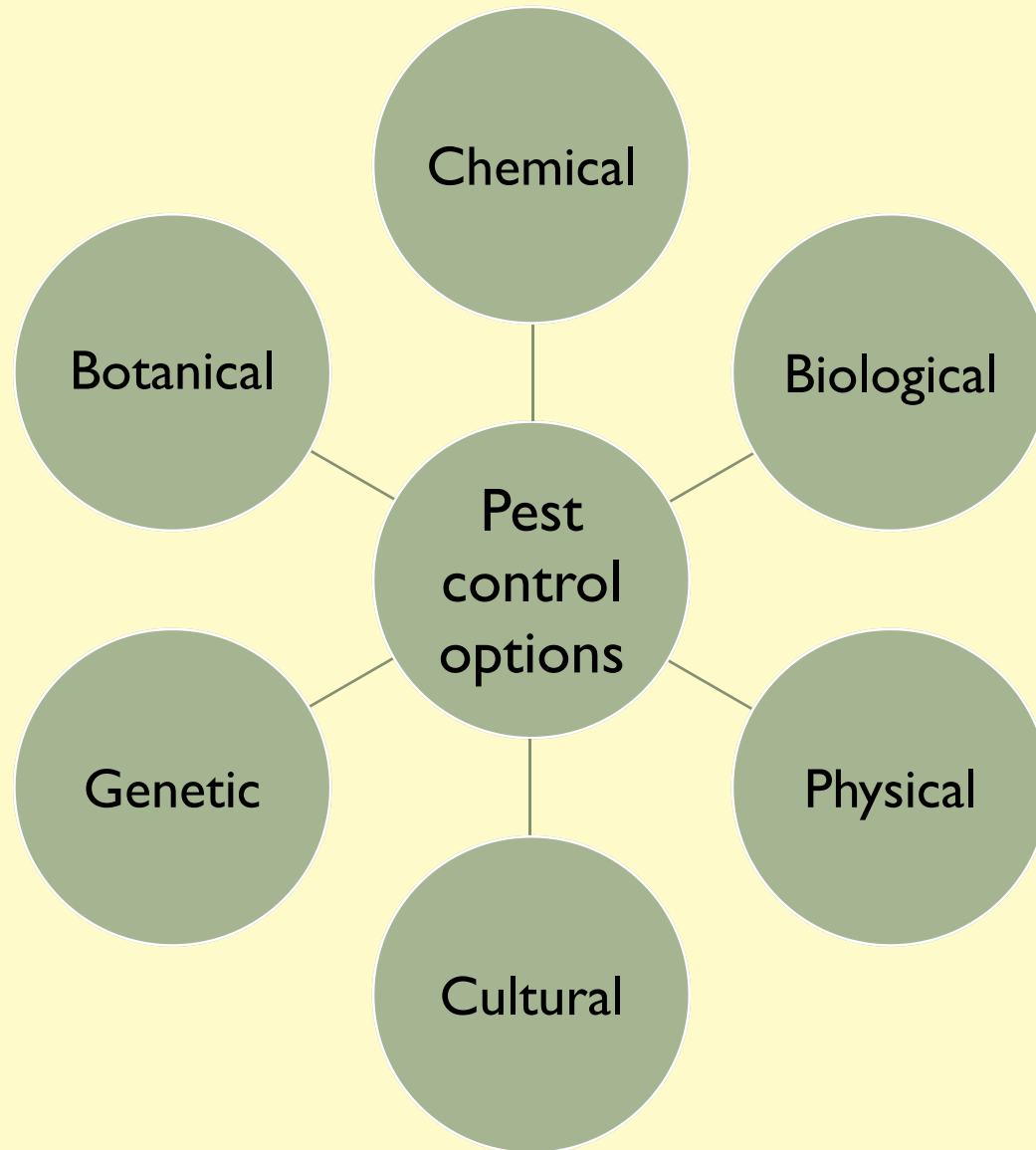
TYPICAL DAMAGE CAUSED BY FALL ARMYWORM



AFRICAN ARMYWORM DAMAGED FIELD



POSSIBLE CONTROL OPTIONS



FAW IMPACT

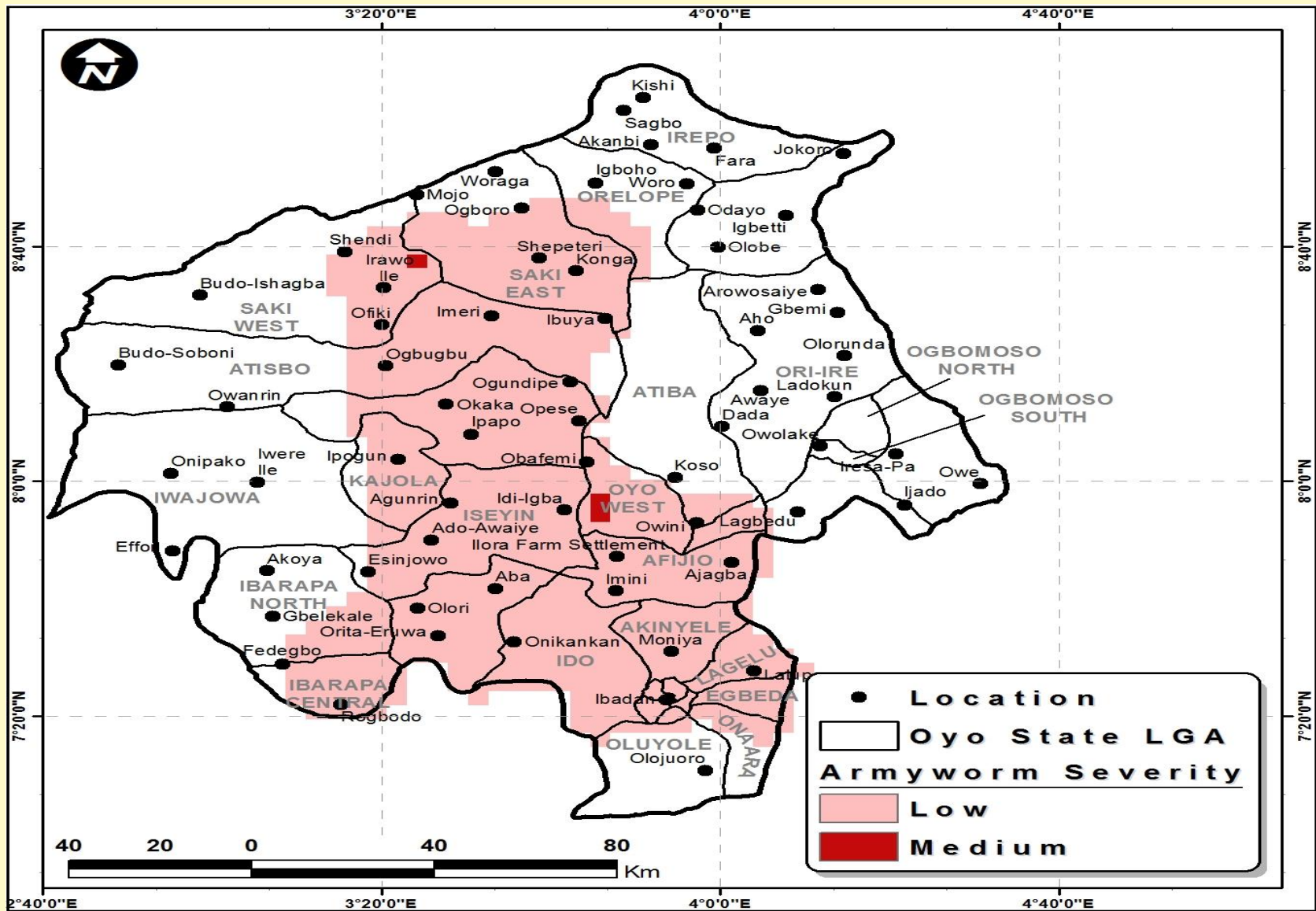
- Threat to the food security and livelihood of the nation/Sub-Saharan African
- Several hectares of maize field under destruction across Sub- Saharan Africa
- Highly migratory pest
- Polyphagous :Possibility of switching host

FAW IMPACT

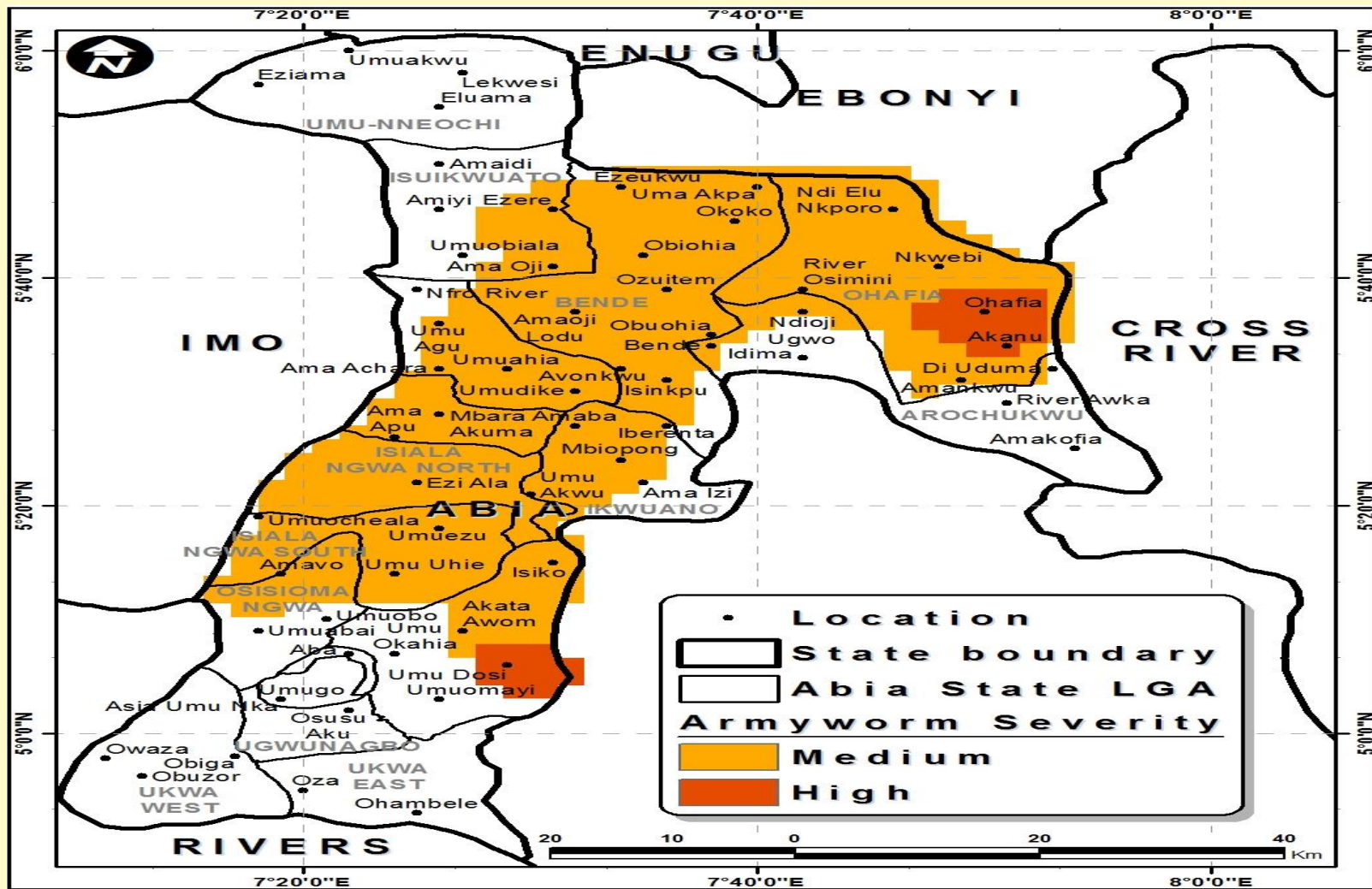
- Threat to the agro-industries
- Human and Environmental safety –excessive use of insecticides and use of hazardous insecticides
- Natural Enemies destroyed



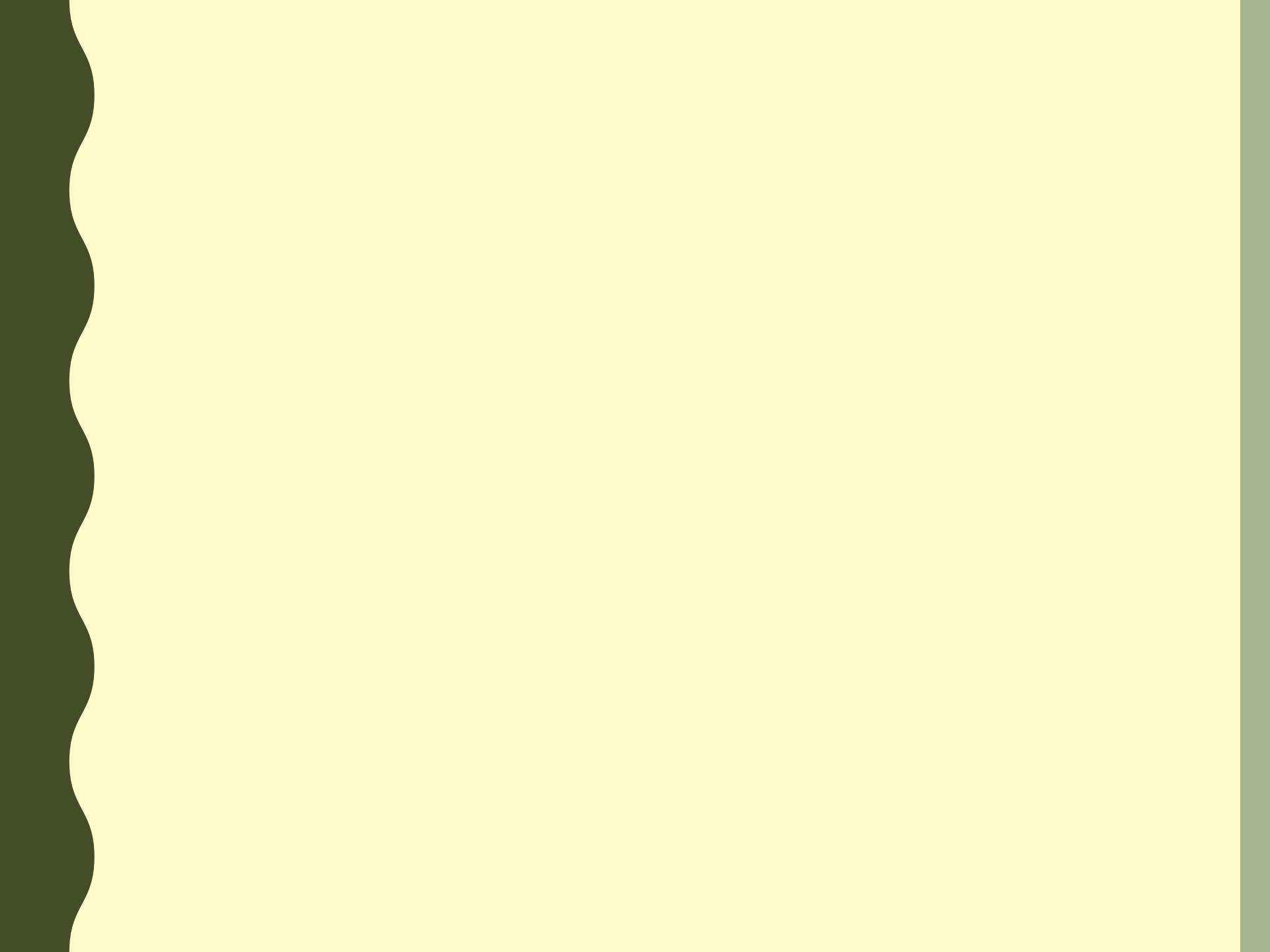
- **Brief Update on Fall Armyworm**
August 2018



Map of maize fields surveyed in Oyo state (July 2018)



Map of maize fields surveyed in Abia state (July 2018)



FAO'S ACTIONS AND SUPPORT

- **FAO** has mobilized almost **US\$12 million** for **FAW** response:
 - US\$800 000 from Regular Programme in 2017.
 - Thirty-one **TCP projects** (9 TCP Facility and 22 fully-fledged TCP). Total funding US\$7.26 million.
 - Extra-Budgetary contributions. Total funding US\$2.44 Million:
 - **OFDA** (Office of Foreign Disaster Assistance)-**USAID** funded project of US\$944 000 is being implemented in East African countries.

FAO'S ACTIONS AND SUPPORT

- **Ireland** supporting Kenya and Ethiopia with US\$500 000.
- **Japan** supporting FAW control in South Sudan with US\$1 million.
- Projects in pipeline of US\$1.5 million:
 - **Japan** planned support to Zimbabwe with US\$500 000.
 - African Development Bank planned support with US\$1 million
- **South-South Cooperation:**
 - FAW Technical Experts' Meeting in Ghana in July 2017
 - Brazil (EMBRAPA) visit (26-29 March 2018)

PESTICIDES

- Many countries and donors have responded to FAW infestations by procuring and giving-out pesticides. While the appropriate use of pesticides may provide some short-term control, it is not a sustainable solution
- FAO provides technical and policy advice on pesticide use and management and monitoring the use of chemical insecticides

FAW EARLY WARNING SYSTEM

- FAO has developed and deployed a mobile App “*Fall Armyworm Monitoring & Early Warning System (FAMEWS)*” for farmers, community focal persons and extension agents to collect data when inspecting fields and checking pheromone traps
- Data collected by the app will be used to assess the current FAW situation in Africa and monitor changes in its distribution. It will provide feedback to farmers and farmer groups locally who will be provided with management options and ideas

FAW EARLY WARNING SYSTEM

- The app works on any Android v5 or higher smartphone, many of which are under procurement within TCP projects
- Pheromone traps are being purchased for distribution in most countries.
- Training is being provided through FAO's Farmer Field School

FAW EARLY WARNING SYSTEM

Farmers Field Schools (FFS) and training of rural advisory services and farmers: FFS field [Guide on Integrated Pest Management for FAW in Maize](#) was prepared, validated and published in English and French

- Two regional training of FFS Master Trainers have taken place in Cameroon and Kenya (April 2018)
- Fall Armyworm Training Manual was published

UPDATE ON FAO-NG INTERVENTION



Public Awareness Campaign

Develop and test FAW management strategies for short to medium term action;

Field training of farmers and extension agents on fall armyworm identification and management in through integrated pest management system (IPM)

Restore productive capacity and enhance livelihood of the farmers .

FAW UPDATE IN NIGERIA

- **Capacity building** of different stakeholders on the management and control of FAW
 - 100 extension officers
 - 50 researchers
 - >1000 farmers
- **Inputs distribution:** To boost maize production farmers were provided with the following: certified maize seed, insecticide against fall armyworm (total crop protection), herbicides, fertilizer, knapsack sprayer, protective materials

FAW UPDATE IN NIGERIA

- **Public Awareness Creation:** We are using mass media, social media, posters, pamphlets to create awareness and disseminate information about FAW and its management to the farmers and stakeholders
- **FAMEWS:** Extension officers were trained on how to collect data of the affected farms using FAO FAMEWS mobile app.
- **The National Task Force** formation has been initiated and will be inaugurated very soon

FAW UPDATE IN NIGERIA

- **Survey:** LoA signed with Institute of Agricultural Research and Training to conduct survey on socio-economic impact of FAW
- **Whatsapp platform created**

STAKEHOLDERS AND TARGETED



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States Ministries of Agriculture

- ADPs of selected states
- National Quarantine Services
- Agriculture Research Institutes



Commodity Association

- Farmers
- Maize producers Association
- All Farmers Association of Nigeria
- Agro dealers

PROJECT SCOPE

The project has been implemented in twelve states of the federation



Abia, Kaduna, Kano, Ekiti, Ogun,
Ondo, Osun, Oyo, Katsina, Jigawa, **Borno**, Kwara and
FCT



IMPLEMENTATION ARRANGEMENT

Budget
Holder
FAOR

Project Task Force (PTF):

- **Budget Holder**
- **LTO**
- **Funding Liaison officer**
- **AGPM**

Project Steering Committee;

Director, FDA

Director, Planning,
Policy and
Coordination,
FMARD

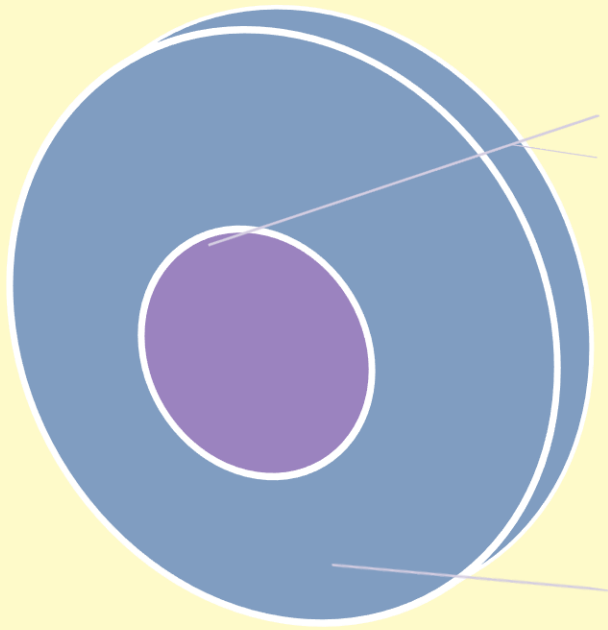
Director, Plant
Quarantine

Executive Director,
IAR&T

National Project
Coordinator

Representative of
NGO

FAO Representative,
Nigeria



Built Capacities of extension workers, researchers and farmers to detect, monitor and control the fall armyworm infestation in maize production

Inputs distribution to farmers

ACKNOWLEDGEMENTS

• All resources consulted

• FAO

• CIMMYT

• FEED the FUTURE

• ARC, South Africa

• Nuru International



THANK YOU