



Food and Agriculture Organization  
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# FAO and Biocontrol: Enhancing capacities for sustainable plant protection

Buyung Hadi and Kris Wyckhuys,  
FAO Plant Production and Protection Division (NSP)

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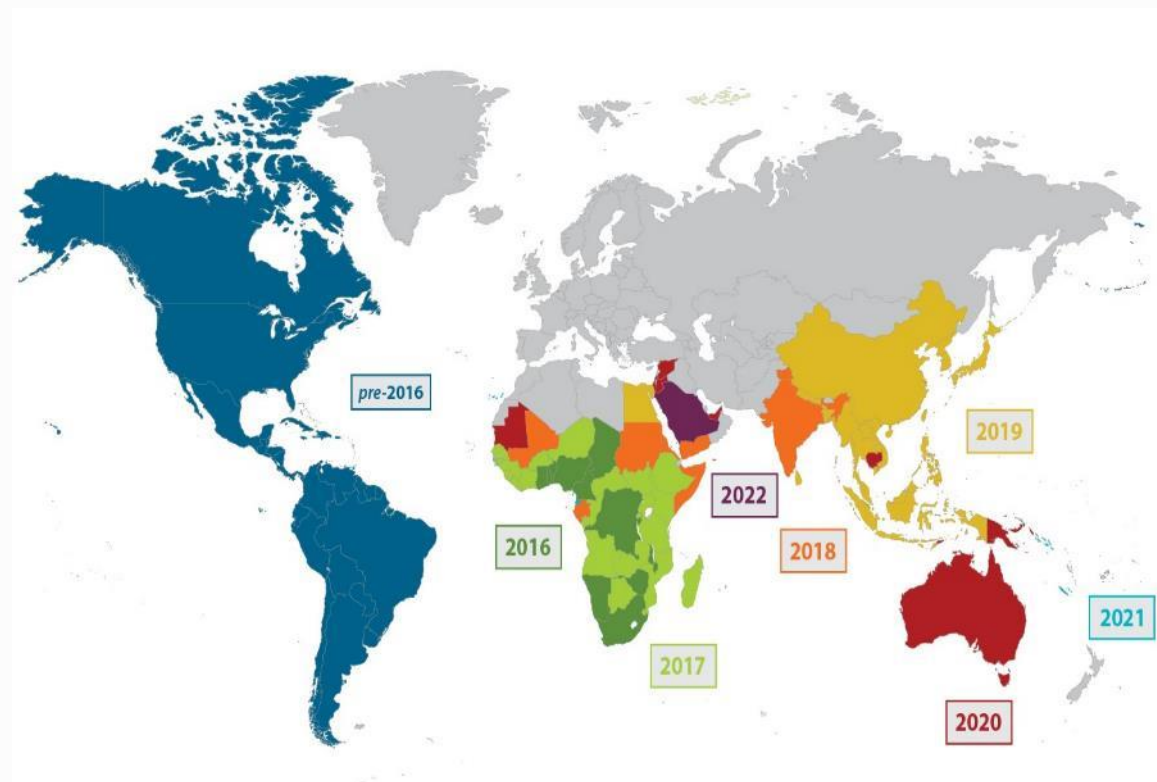
## FAO and Biocontrol

- **Enhancing research and scaling out capacities** - Global Action for Fall Armyworm Control
- **Promoting biocontrol options in public procurement** - Locus Control Campaign
- **Enhancing regulatory capacities for biocontrol options** - Guidelines for the registration of microbial, botanical and semiochemical pest control agents



Pictures: Ken Wilson and icipe

# Global Action (GA) for Fall Armyworm (FAW) Control: Invasion





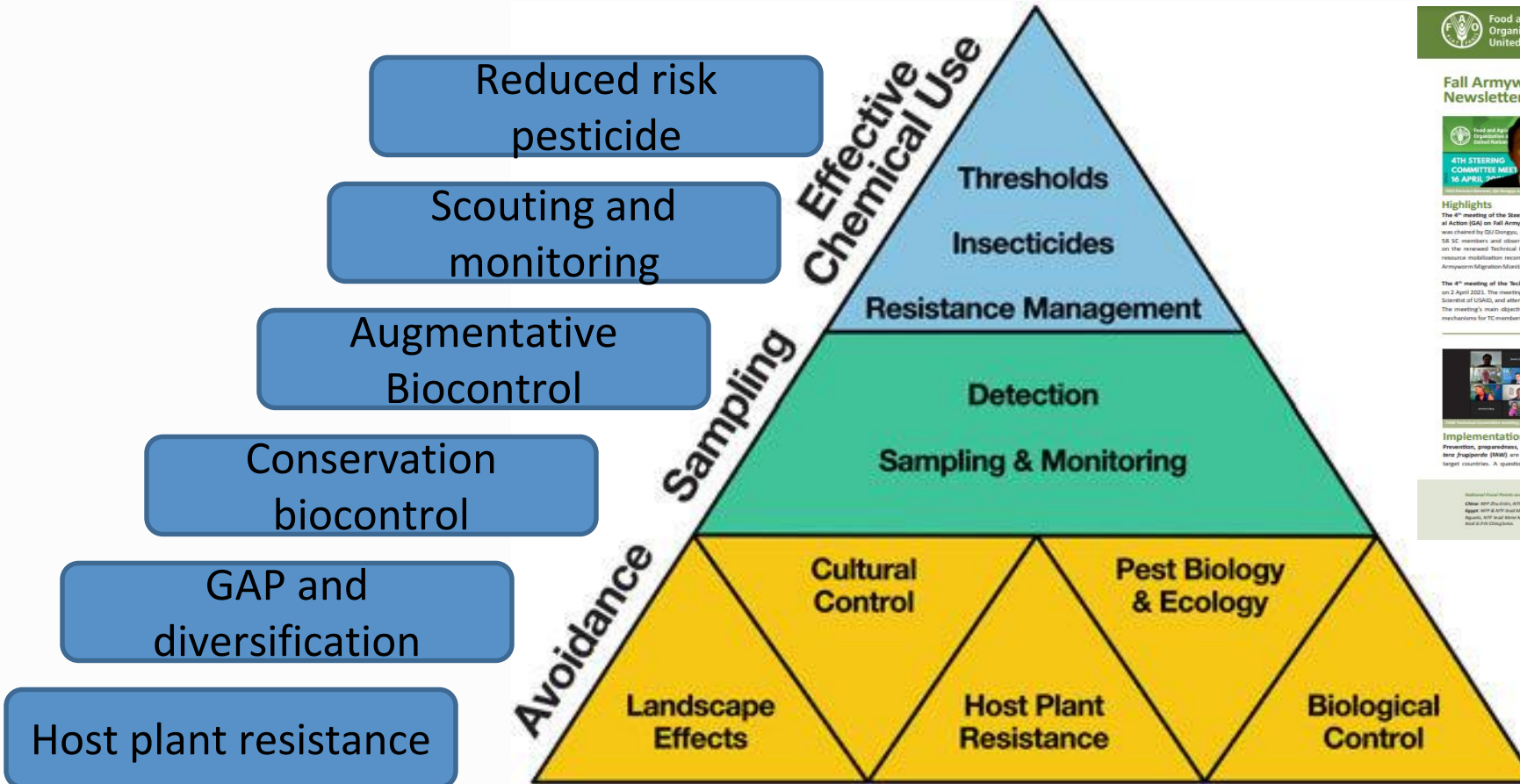
## GA for FAW Control: Goals

- **Reduce Crop yield loss of 5-10%** by applying area-specific IPM strategies in target countries
- **Limit further spread to new areas** by applying phytosanitary measures
- **Conduct a global coordination**





# GA for FAW Control: Strategy



Host plant resistance

Conservation biocontrol

Augmentative Biocontrol

Scouting and monitoring

Reduced risk pesticide



<https://www.fao.org/fall-armyworm/resources/en/>

IPM Pyramid (Naranjo 2011)



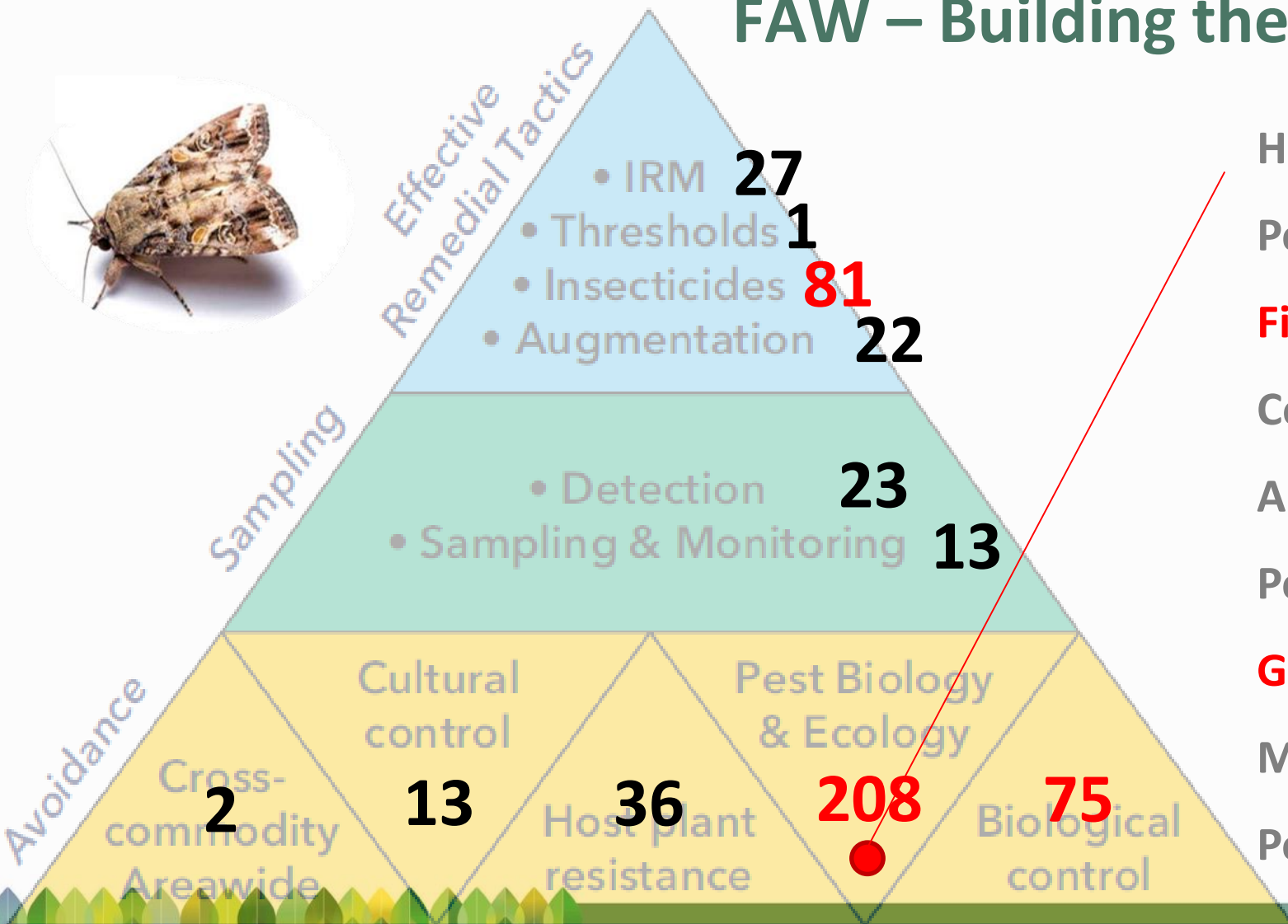
## GA for FAW Control: Research in FAW management in Africa, NENA and Asia

Literature Review on FAW mitigation invaded range (Africa, NENA and Asia) between 2020-2022

~500 papers, parsed through two analytical lenses:

- Structure/composition of IPM pyramid (as per Naranjo et al., 2019)
- Biodiversity to agro-ecological outcomes 'Spiral approach' (as per Gonzalez-Chang et al., 2020)

# FAW – Building the IPM solutions package



Host plant interactions: 26

Pest behavior: 19

**Fine-resolution genetics / physiology: 91**

Community-level interactions: 28

Abiotic determinants: 24

Pest growth / development: 31

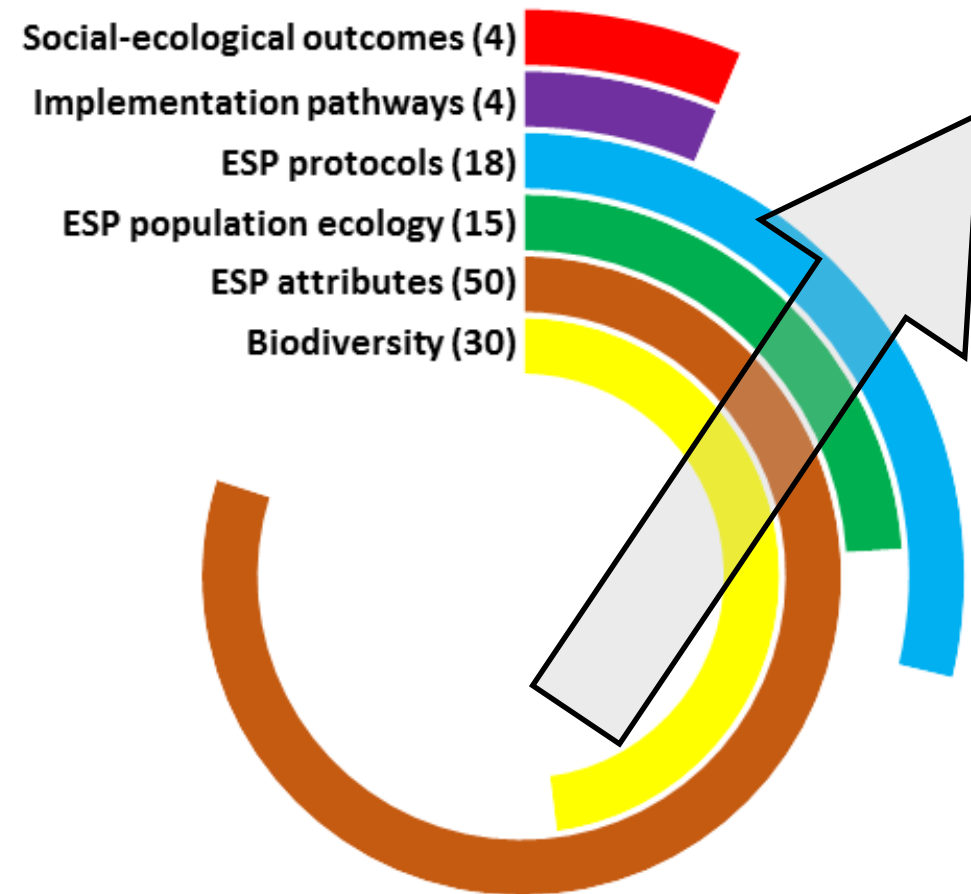
**Geographical distribution: 33**

Morphology: 10

Population phenology: 9

## FAW – Harnessing biodiversity

- 94 studies (**24%**) seek ways to harness biodiversity for pest management
- Relative progress along a **6-step pathway** from biodiversity discovery/description to assessment of its actual social-ecological outcomes
- Majority of studies finds themselves at **initial steps of the pathway**







## FAW research – Regional comparisons

### Africa + NENA

42 out of 203 (21%) FAW-related papers cover Biocontrol

Parasitoids (28 pubs), microbes incl. nematodes (10), predators (7), viruses (2)

BC covered by 18/31 countries that published FAW research

Top-3 countries conducting FAW BC science: Kenya (13 pubs; 32% national output), Benin (5; 31%), Ghana (5; 31%)

### Asia-Pacific

50 out of 320 (16%) FAW-related papers cover Biocontrol

Parasitoids (17 pubs), microbes incl. nematodes (15), viruses (14), predators (9)

BC covered by 7/18 countries that published FAW research

### Merely 2 (!) papers from SE Asia

Top-3 countries conducting BC science: China (25; 13% national output), India (16; 31%), South Korea (3; 23%)





# FAW and Biocontrol – Regional Observations

## Africa

- Botanicals, mostly farmer-made.
- Some interests in mass rearing/ releases of arthropod natural enemies. Large scale pilot in Kenya (*T. remus*), limited scale pilot in Tanzania and Ghana.
- Some interests in commercial biocontrol, limited availability (except for Kenya).

## Near East and North Africa

- Strong interests in mass rearing/ release of arthropod natural enemies. Survey of indigenous NE in many countries. Limitation of public funding.

## Asia and the Pacific

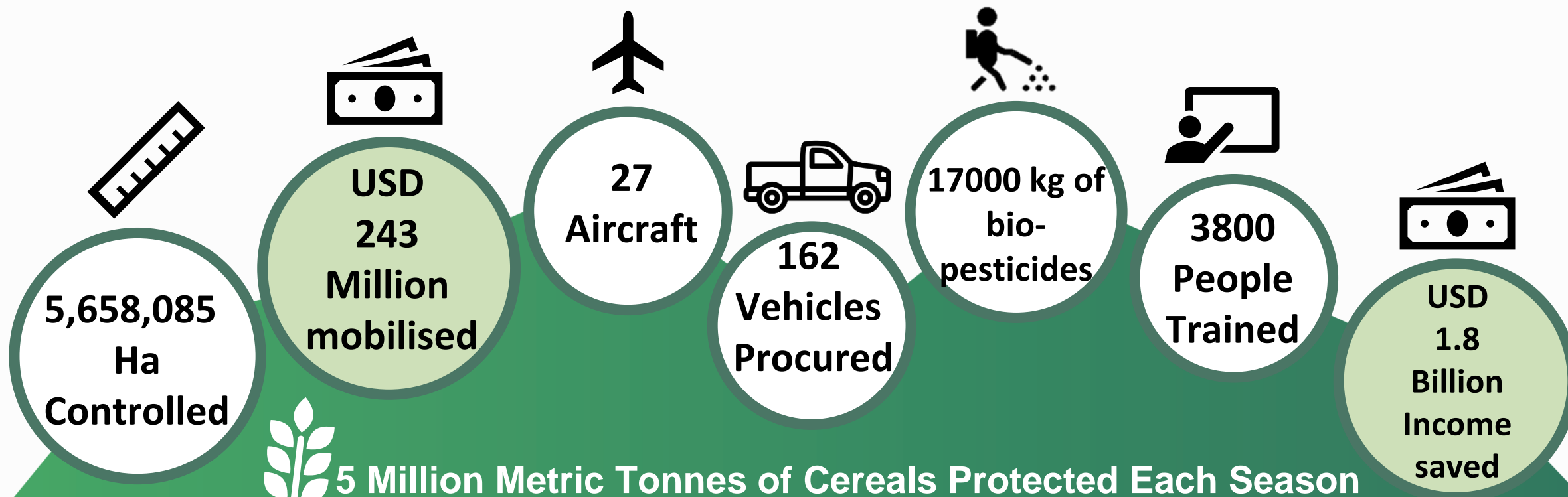
- Strong monitoring and forecasting at the national level in some countries
- Microbials, botanicals and mating disruption using pheromones, both public sector supported and commercial options.



# Locust Control Campaign – Scaling up Biocontrol application

## End of Desert Locust Crisis - 2019-2022

The end of the Desert Locust Crisis in the Horn of Africa and Yemen was announced - FAO's contributions:





# Enhancing Regulatory Capacities for Biocontrol

Elements to be emphasised in guiding countries for fast-tracking registration of biocontrol products:

- 1) Set **rational data requirements** with reduced trials and appropriate testing methods;
- 2) Adopt **appropriate risk assessment** approach and evaluation criteria;
- 3) Have a **separate and short procedure of registration** which should be **different from that of chemicals**;
- 4) Have **specialists on biocontrol products** and **specific country task force** on the fast track registration;
- 5) **Mutual acceptance of data** and recognition of evaluation results from other countries;
- 6) **Joint review** of new biocontrol products
- 7) **Reduced fee** for registration.



International Code of Conduct  
on Pesticide Management

Guidelines for the registration  
of microbial, botanical and semiochemical pest  
control agents for plant protection and  
public health uses





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## FAO Global Conference on Sustainable Plant Production

- Hybrid, 2-4 November 2022
- 7 Thematic sessions, from seeds to policy
- IPM Sessions with Ibrahim Al-Jboory (Arabic Plant Protection Society) and Roma Gwynn (IBMA) as co-chairs and moderators
- 10 Speakers, Challenges and Solutions for Sustainable Plant Protection
- <https://www.fao.org/events/detail/global-conference-on-sustainable-plant-production/en>

## Global Conference on Sustainable Plant Production

INNOVATION, EFFICIENCY AND RESILIENCE

2-4 November 2022



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## *Contact Us*

- ***Plant Production and Protection Division***

[Fall-armyworm@fao.org](mailto:Fall-armyworm@fao.org)

[Buyung.hadi@fao.org](mailto:Buyung.hadi@fao.org)

Website: <https://www.fao.org/fall-armyworm/en/>





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Thank you