



# Scaling Plant Health Innovations

CGIAR week of science and practice of scaling agri-food  
system innovation

23 November 2022

Nairobi, Kenya

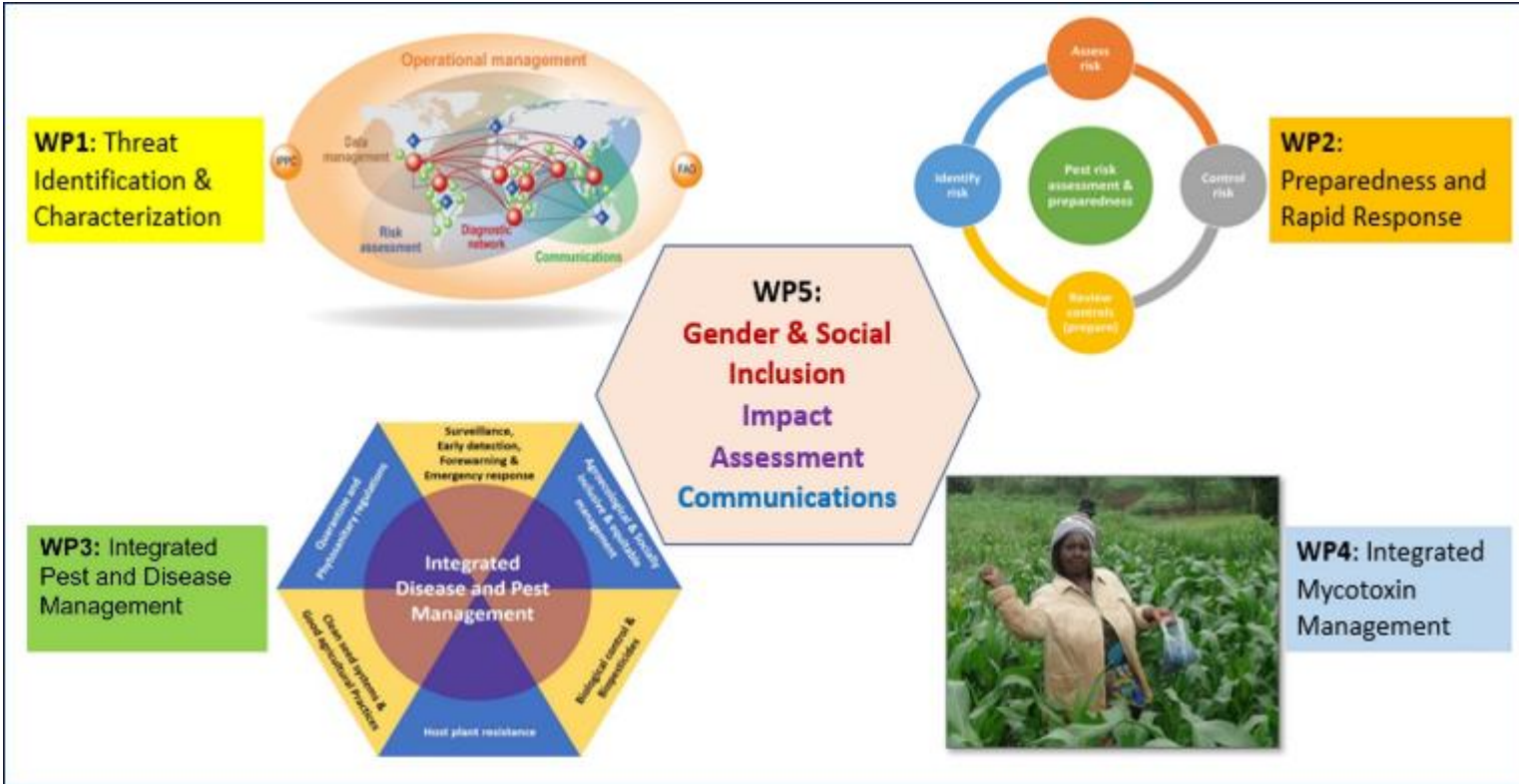
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# OneCGIAR Plant Health Initiative



## Inclusive Partnerships

- **OneCGIAR** (CIMMYT, AfricaRice, Alliance Bioversity-CIAT, CIP, ICARDA, IFPRI, IITA, ILRI, IRRI)
- **IARCs** (CABI, icipe & WorldVeg) & **ARIs**
- **86** non-CG partners (NARES, NPPOs, and development partners) in **40 countries in the Global South**





How can we engage the private sector in effectively scaling  
plant health innovations?

## The case of Aflasafe



- Aflatoxin contamination of crops impacts on health, trade, and income
- Aflasafe is an effective bioprotectant to reduce aflatoxin in crops
- 80 -100% reduction recorded in >15,000 farmers' field trials
- As an input, Aflasafe must be manufactured and marketed at industrial scale

# Scaling of any aflatoxin management technology is complicated...



## Ideal Scenario

Product registered

Commercialization strategies available

Manufacturing and distribution in place

Farmers demanding the product

Industries committed to pay premium prices for safe crops

## Some Factors affecting Implementation

Political stability

Policy support

Infrastructure (e.g., roads)

Crop and market trends

Local or regional conflicts

Initial tech support after licensing

Proper training to manufacturers

Timely production and distribution

Correct training of farmers

Timely reception of manufacturing supplies

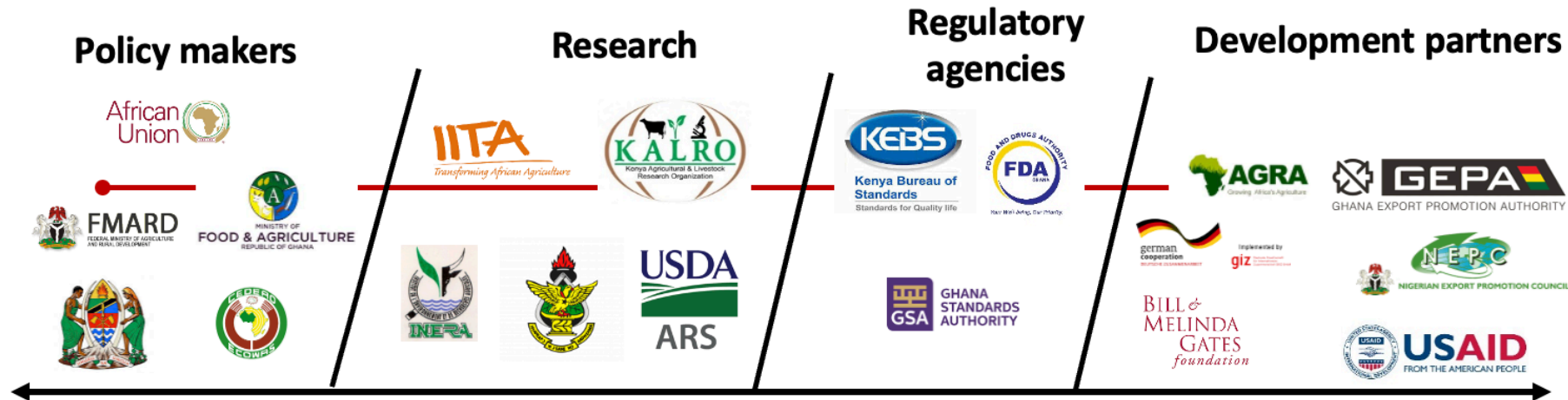
And many other challenges....



# Building an ecosystem to drive scaling of Aflasafe...



Plant Health Initiative



**Aflasafe at a glance**



**Aflasafe** work going on in **21 countries**



**14 Aflasafe** products registered covering **10 countries**



**\$ 9.7 million** invested by **private sector partners**



**4 factories** operational; **4 factories** under construction



**10 companies** manufacture and/or distribute in **16 countries**



**>100** distribution points



**5,100 tons** of Aflasafe produced to protect **>500,000 ha**



**>1 million tons** of **aflatoxin-safe** maize and groundnut produced

# Integrated Pest and Disease Management

## Targeted Pests and Diseases for Phase 1 (2022-2024)



Plant Health Initiative

Crop Pests and Diseases	ESA	WCA	CWANA	S Asia	SE Asia	LAC
<b>Rice:</b> Brown plant hoppers, Stemborers, Thrips	Blue	Blue	White	Orange	Orange	White
<b>Wheat:</b> Fusarium head blight	Blue	White	White	White	White	Yellow
<b>Wheat:</b> Wheat blast	Blue	White	White	Orange	White	White
<b>Maize:</b> Maize lethal necrosis	Blue	White	White	White	White	White
<b>Maize, Sorghum &amp; Millets:</b> Fall armyworm	Blue	Blue	White	Orange	Orange	White
<b>Maize:</b> <i>Striga</i> spp. & <b>Food Legumes</b> (Cowpea, Fababean, Lentil): <i>Alectra vogelii</i> , <i>Orobanche</i> sp.	Blue	Blue	Blue	White	White	White
<b>Banana:</b> Fusarium wilt TR4, Xanthomonas and other Wilts	Blue	Blue	White	Orange	Orange	Yellow
<b>Banana:</b> Bunchy top	Blue	White	White	Orange	White	White
<b>Potato:</b> Late blight; Soil-borne diseases, including nematodes	Blue	White	White	Orange	White	Yellow
<b>Potato:</b> Purple top	Blue	White	White	White	White	Yellow
<b>Sweet Potato &amp; Cassava:</b> White flies	Blue	White	White	White	White	Yellow
<b>Cassava:</b> Cassava brown streak disease	Blue	Blue	White	White	White	White
<b>Yam:</b> Yam mosaic virus	White	Blue	White	White	White	White
<b>Food legumes</b> (Cowpea, Chickpea, Lentil): Pod borers ( <i>Maruca vitrata</i> , <i>Helicoverpa armigera</i> )	Blue	Blue	Blue	Orange	Orange	White
<b>Vegetables:</b> Aphids, Thrips & Fruit flies	Blue	Blue	White	Orange	Orange	White
<b>Tomato:</b> Tomato leaf miner ( <i>Tuta absoluta</i> ) & Fruit worm ( <i>Helicoverpa armigera</i> )	Blue	White	White	Orange	Orange	White

# Plant Health Innovation Platforms



- Bring together innovations from partners, including CGIAR, IARCs, NARES and private sector, to validate IPM packages that are effective and affordable.
- Co-evaluate the IPM packages with farmers and extension workers → Identified IPM packages then potentially scaled in the farmers' fields.



# Plant Health Innovation Platform, Kiboko, Kenya

## Engaging Farmers and Extension Staff (Nov 8, 2022)



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FAW-tolerant hybrids



Agroecological Management



Biological Control



Biopesticides





# SAWBO Videos on IPM

## SAWBO Video on Fall Armyworm Management



SAWBO videos on FAW developed by CIMMYT and USAID in partnership with Michigan State University and IITA; translated in over 20 different languages/dialects in Asia and Africa, reaching several thousand farmers.

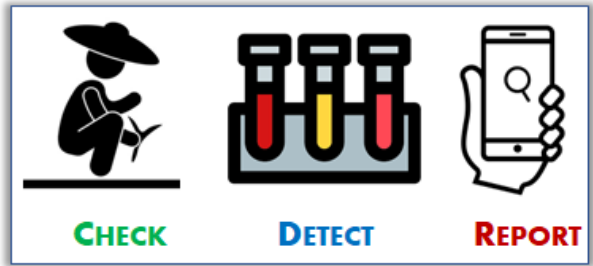
## Neem Tea Bag Video for Control of Cowpea Pests

In collaboration with SAWBO and colleagues in Niger, IITA has co-created the Neem Tea Bag video animation (<https://sawbo-animations.org/1624>) → explains how to harvest, process, package and use neem tea bags as a natural insecticide to increase cowpea yield for smallholder farmers.





# Check-Detect-Report (CDR) System for Banana Bunchy Top Virus Surveillance and control



- CDR is an integrated system for rapid detection of BBTV using point-of-care diagnostics developed based on recombinase polymerase amplification (RPA) and an ODK-based app for real-time surveillance and mapping.
- CDR is validated and piloted in West Africa (Nigeria, Benin, and Togo) and recently introduced in East Africa (Tanzania and Uganda) as part of the emergency response action.
- CDR is useful for the containment and eradication of BBTV in sub-Saharan Africa. This tool is adaptable to other virus diseases. **Challenge:** Requires imported reagents and Android phones for use.

# Gender and Social Considerations in Design and Scaling of Plant Health Innovations



## Technological Innovations

**Fixed Adjusted**



## System Innovations

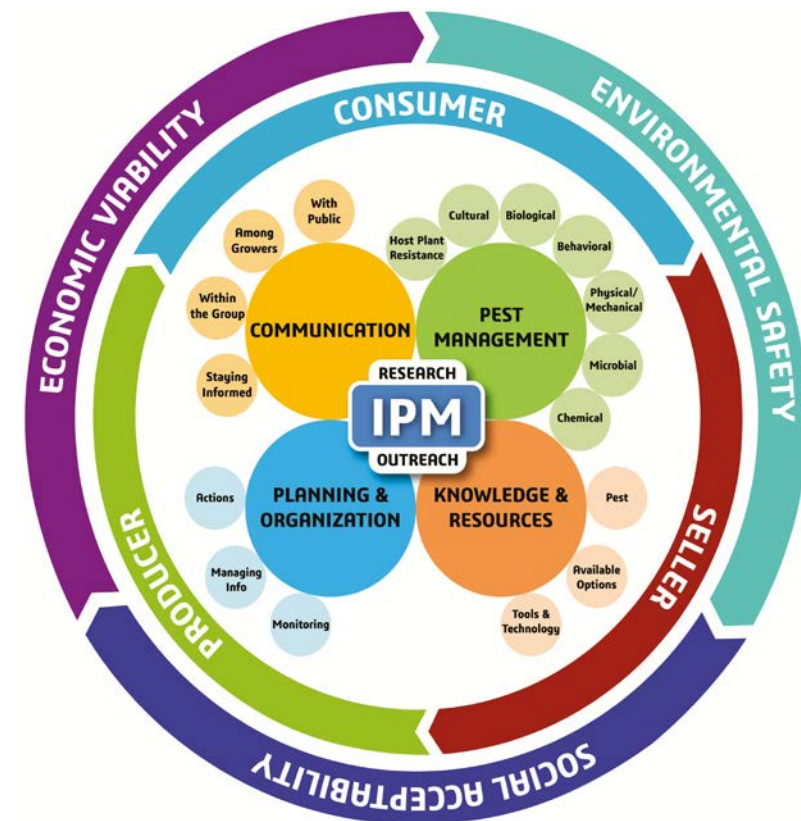


Source: Nozomi Kawarazuka (CIP)

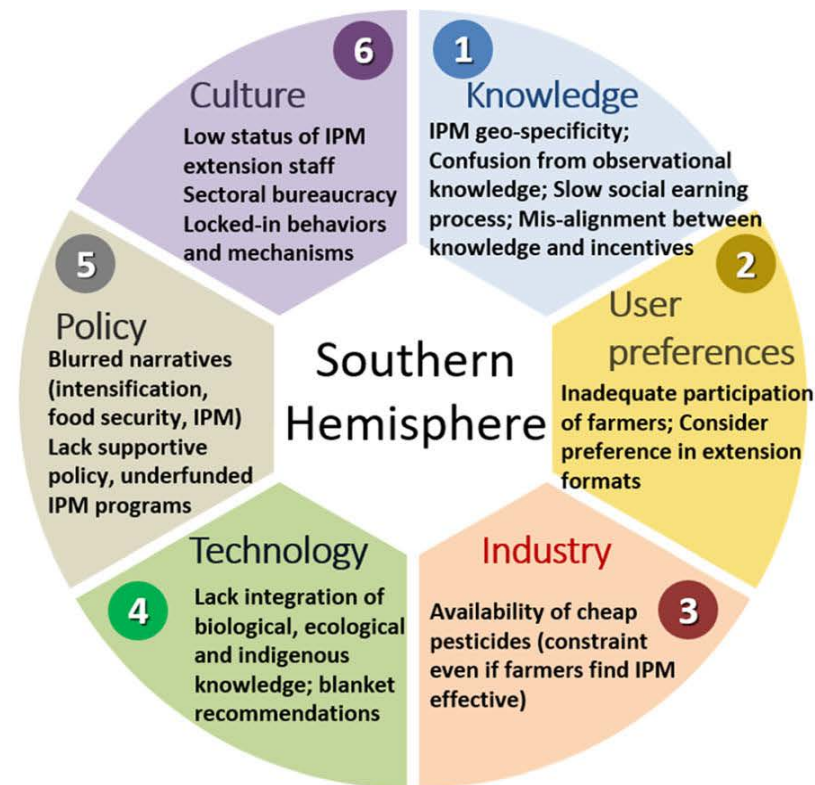
# Scaling IPM in the Global South

## What can we collectively do to improve scaling of plant health innovations:

- Improving the knowledge base of smallholders
- Balanced focus on technical requirements and associated social dynamics surrounding scaling targets, actors involved and their social relations
- Inadequate research/technical support
- PPPs for improving access to scale-appropriate pest management inputs
- Visibility and political “voice” for IPM



Source: Dara (2019)  
*J. Integrated Pest Mgt.*



Source: Deguine et al. (2021)  
*Agronomy for Sustainable Dev.*



