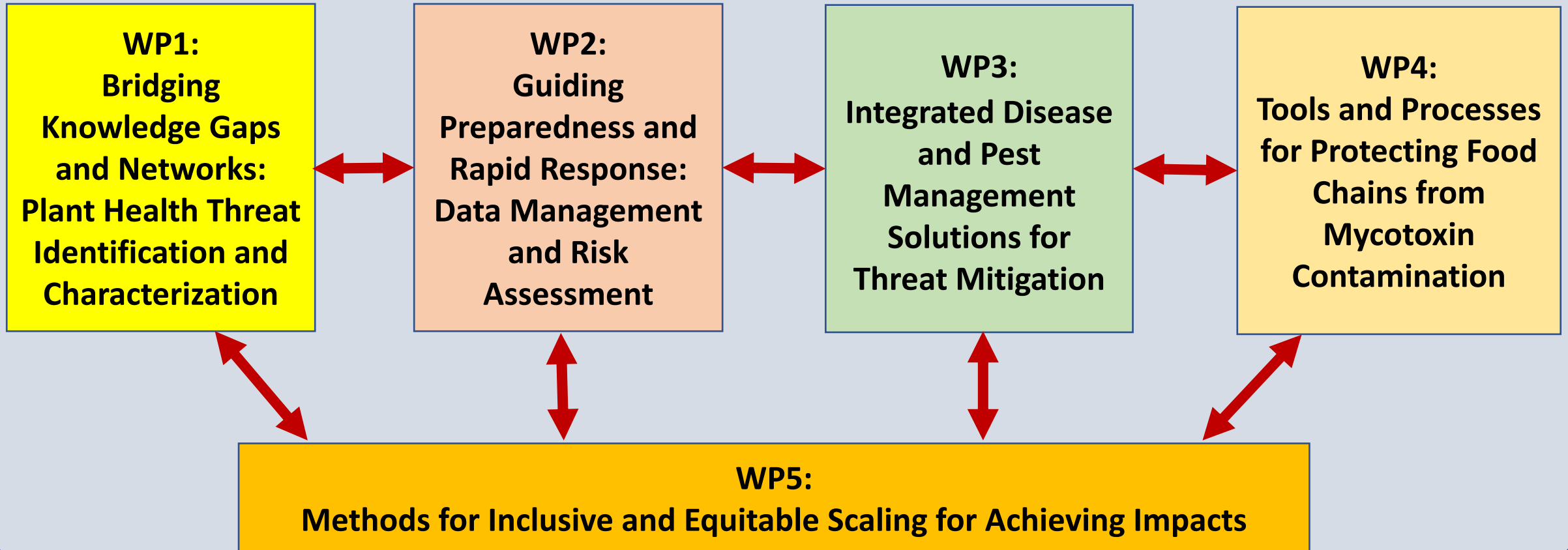


OneCGIAR Initiative Plant Health and Rapid Response to Protect Food and Livelihood Security



Plus Demand, Innovation and Scaling Partners Globally...

PHI Work Packages



Plant Health Threat Identification, Characterization & Risk Assessment

Work Packages	Focus Area	Target Crops & Priorities	Regions & Focus Countries	ESA	WCA	CWANA	S Asia	SE Asia	LatAm
WP1	Global diagnostic network leveraging existing CGIAR-GHU laboratories in key regions to strengthen partners' capacity on cost-effective P&D detection and surveillance	A broad range of P&D for Food legumes (Beans, Faba bean, Chickpea, Lentil, Grass pea, Soybean, Cowpea), Cereals (Wheat, Barley, Rice, Maize), Cassava, Yam, Plantain/Banana, Potato, Sweetpotato, Groundnut, Pearl millet, Pigeonpea, Sorghum, Finger millet, Forages, etc.	ESA: Ethiopia WCA: Nigeria, Ivory Coast CWANA: Lebanon SE Asia: Philippines LatAm: Colombia, Peru, Mexico						
	Global Surveillance Network	Rice: Bacterial leaf blight; Rice blast	ESA: Uganda WCA: Senegal, Ivory Coast S Asia: Bangladesh, India, SE Asia: Vietnam, Philippines						
		Wheat: Wheat rust; Wheat blast	ESA: Ethiopia, Kenya, Uganda (Rust) CWANA: Morocco, Egypt, Lebanon (Rust) S Asia: Bangladesh (Blast) LatAm: Mexico (Rust)						
		Maize: Maize lethal necrosis (MLN)	ESA: Ethiopia, Kenya, Uganda, Tanzania, Rwanda, Zimbabwe, Zambia, Malawi WCA: Nigeria						
		Maize, Sorghum: Fall Armyworm (FAW)	ESA: Ethiopia, Kenya, Malawi, Tanzania, Rwanda, Uganda, Zambia WCA: Ghana, Nigeria S Asia: Bangladesh, India, Nepal, SE Asia: Philippines, Vietnam						
		Banana: Fusarium wilt TR4; Banana bunchy top disease	ESA: Malawi, Tanzania, Uganda WCA: Ghana, Nigeria SE Asia: Vietnam LatAm: Colombia, Peru, Ecuador						
		Potato: Late blight; Potato purple top disease	ESA: Kenya, Uganda, Rwanda WCA: Nigeria S Asia: India LatAm: Bolivia, Colombia, Ecuador, Peru						
		Cassava: Cassava mosaic disease; Cassava brown streak disease	ESA: Tanzania, Zambia SE Asia: Vietnam						
WP2	Risk assessment, prediction & preparedness	Cross-cutting, covering the target P&Ds listed under WP1, WP3 & WP4 + prediction and preparedness for other potential invasive risks (e.g., Tar spot complex in maize; post-flowering stalk rots in maize; Witches broom of cassava, etc.)	Global, with specific focus on PHI priority countries listed especially under WP1, WP3 & WP4.						

WP3: Integrated Pest and Disease Management

S. No	Target Pest/Disease	Crop(s)
1	Stem borer; Brown plant hopper	Rice
2	Fusarium head blight; Wheat blast	Wheat
3	Maize lethal necrosis	Maize
4	Fall armyworm	Maize, Sorghum, Millets
5	Striga witch weeds	Maize, Sorghum
6	<i>Alectra vogelii</i> , <i>Orobanche</i> spp	Cowpea (Food Legume)
7	Bean flower thrips; Legume aphids; Pod borers	Food Legumes
8	Fusarium wilt TR4; Banana Bunchy Top Disease; Xanthomonas Wilt & other bacterial wilts	Banana
9	Cassava Brown Streak Disease (CBSD); Whiteflies	Cassava
10	Potato Late Blight; Root knot nematodes/Cyst nematodes	Potato
11	Sweet Potato Weevil; White flies	Sweet Potato
12	Yam mosaic virus	Yam
13	South American tomato pinworm (<i>Tuta absoluta</i>); Tomato fruit worm (<i>Helicoverpa armigera</i>); Aphids & aphid-transmitted potyviruses; Whieflies & whitefly-transmitted viruses	Vegetables

Work Packages	Focus Area	Target Crops & Priorities	Regions & Focus Countries	ESA	WCA	CWANA	S Asia	SE Asia	LatAm
WP3	Agroecological protection of rice and rice-based cropping systems from pests and diseases	Rice: Brown plant hoppers, stemborers, thrips	ESA: Kenya WCA: Nigeria, Benin, Ghana, Cote d'Ivoire, Senegal, Burkina Faso, Mali S Asia: Bangladesh SE Asia: Cambodia, Vietnam						
	A toolbox for integrated disease management of necrotrophic and hemi-biotrophic pathogens of wheat	Wheat: Fusarium head blight	ESA: Ethiopia, Zambia LatAm: Mexico						
		Wheat: Wheat Blast	ESA: Zambia Asia: Bangladesh						
	Integrated disease management of maize lethal necrosis (MLN) in sub-Saharan Africa	Maize: Maize lethal necrosis (MLN)	ESA: Uganda, Kenya, Ethiopia, Rwanda						
	Integrated pest management (IPM) of Fall Armyworm in Africa and Asia	Maize, Sorghum & Millets: Fall Armyworm	ESA: Kenya, Uganda, Ethiopia, Tanzania, Zambia, WCA: Nigeria, Ghana, Benin, Burundi, Cameroon, DRC, Ghana, Mali, Nigeria, Niger S Asia: Bangladesh, India, Nepal SE Asia: Philippines						
	Integrated management of parasitic weeds of cereals and food legumes	Maize & Food Legumes (Cowpea, Fababean, Lentil): Parasitic weeds of maize (<i>Striga</i> spp.) and food legumes (<i>Alectra vogelii</i> , <i>Orobanche</i> spp.)	ESA: Kenya, Uganda, Tanzania, Mozambique, Ethiopia WCA: Nigeria, Niger, Ghana CWANA: Sudan, Egypt, Morocco, Tunisia						
	Integrated management of banana diseases	Banana: Fusarium wilt TR4	ESA: Tanzania, Uganda, Malawi, Mozambique S Asia: India SE Asia: Vietnam LatAm: Peru						
		Banana: Banana Bunchy Top Disease	ESA: Malawi, Uganda, Rwanda, Burundi, Tanzania WCA: Nigeria, Benin, Cameroon, DRC SE Asia: Vietnam						
		Banana: Xanthomonas Wilt and other Wilts of Banana	ESA: Uganda, Rwanda, Burundi WCA: DR Congo						
	Integrated management of potato diseases	Potato: Late Blight	ESA: Kenya, Uganda S Asia: India LatAm: Peru						
		Potato: Potato purple top disease	LatAm: Ecuador, Colombia, Peru						
		Potato: Soil-borne diseases, including nematodes (Root knot nematodes/Cyst nematodes)	ESA: Kenya, Uganda, Tanzania, Rwanda						
	Integrated management of whiteflies in Sweetpotato and Cassava	Sweet Potato, Cassava: Whitefly <i>Bemisia tabacci</i> (vector for begomoviruses, Ipomoviruses and criniviruses)	ESA: Tanzania LatAm: Peru						
Disease management in Cassava	Cassava: Cassava Brown Streak Disease (CBSD)	ESA: Kenya, Tanzania, Uganda, Burundi, Rwanda, Zambia WCA: DR Congo							
Disease management in Yam	Yam: Yam mosaic virus (YMV)	WCA: Nigeria, Benin, Ghana							
IPM for controlling pests and diseases of global and traditional vegetables	Food legumes (Cowpea, Chickpea, Lentil): Pod borers (<i>Maruca vitrata</i> , <i>Helicoverpa armigera</i>)	ESA: Ethiopia WCA: Benin, Ghana, Mali, Nigeria, Niger, Burkina Faso CWANA: Morocco, Sudan, Tunisia S Asia: India SE Asia: Philippines							
	Vegetables (Green beans, Yard-long bean, French bean, Cowpea, Onion, Cucurbits): Aphids, Thrips and Fruit flies	ESA: Kenya, Uganda, Tanzania, WCA: Benin, Ghana, Mali, Nigeria, Niger, Burkina Faso S Asia: India SE Asia: Philippines							
	Tomato: South American tomato pinworm (<i>Tuta absoluta</i>) & Fruit worm (<i>Helicoverpa armigera</i>)	ESA: Kenya, Uganda; Tanzania S Asia: India SE Asia: Philippines							

PHI-WP4 & WP5: Geographic Mapping

Work Packages	Focus Area	Target Crops & Priorities	Regions & Focus Countries	ESA	WCA	CWANA	S Asia	SE Asia	LatAm
WP4	Integrated mycotoxin management (e.g., resistant germplasm, biocontrol, post-harvest processing)	Maize, Wheat & Rice	ESA: Kenya, Zambia, Tanzania, Mozambique WCA: Ghana, Cote d'Ivoire, Nigeria, Burkina Faso, Mali LatAm: Mexico						
	Aflasafe as a bioprotectant to mitigate mycotoxin contamination	Maize, Groundnut	ESA: Kenya, Uganda, Tanzania, Mozambique, Malawi WCA: Nigeria, Senegal, Mali, Burkina Faso, CWANA: Sudan LatAm: Mexico						
WP5	Qualitative impact assesment (WP1 & WP2)	All stakeholders	Global: Online survey ESA: Kenya (interviews) SE Asia: Philippines (interviews)						
	Knowledge gaps in P&D diagnostic & surveillance	Rice: Bacterial leaf blight; Rice blast Cassava: Cassava mosaic disease; Cassava brown streak disease Banana: Fusarium wilt TR4; Banana bunchy top disease Maize: Maize lethal necrosis (MLN) Wheat: Wheat rust; Wheat blast	Global: Online survey ESA: Kenya SA: India SE Asia: Philippines LatAm: Colombia						
	Promoting gender-smart IPDM innovations with women and youth consultation (qualitative case studies)	Banana: Xanthomonas wilt and other wilts of Banana Maize & Sorghum: Fall Armyworm Sweet Potato, Cassava: Whitefy	ESA: Tanzania (Sweetpotato, Cassava) WCA: DR Congo (Banana) Asia: To be decided (FAW)						
	Quantitative Impact Assessment (WP3 & WP4)	Maize, Groundnut: Aflasafe Rice: Brown plant hopper, Stemborers Maize: Maize lethal necrosis (MLN); Fall Armyworm	WCA: Nigeria (Aflasafe) Asia: To be decided (Rice) ESA: Uganda, Kenya (MLN) ESA: To be decided (FAW)						
	Digital platform and communications	All stakeholders	Global						

Potential Interface between SI-MFS and PHI

- **SI-MFS WP1 and PHI-WP1 & WP2:** Regional and global dynamics of existing and emerging plant health threats in MFS; risk assessment and forecasting.
- **SI-MFS WP3 & PHI-WP3 & WP4: Participatory design and co-implementation of innovations** (e.g., PHI-WP3 on Integrated Pest and Disease Management & PHI-WP4 on Integrated Mycotoxin Management) in targeted mixed-farming systems in SSA, Asia and Latin America.
- **SI-MFS WP4 & PHI-WP5: Enabling environment** for scaling of technical and institutional arrangements for SI of MFS.
- **SI-MFS WP4 & PHI-WP5: Capacity building** of MFS actors in socio-technical, inclusive, participatory, and gender-transformative approaches.