Plantwise: A global alliance
to avoid food losses before they arise

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Mandate to develop Plantwise

- In 2009, the member countries gave CABI a mandate to develop a global programme to address the challenge of **feeding a growing population**

- Approximately 800 million people have **inadequate access to food**

- In 2011, the Plantwise programme was launched to help countries **lose less and feed more**, contributing to SDGs 1, 2, 12, 15 and 17

- **Reducing crop losses** by just 1% would feed millions more

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*Associate member

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What is Plantwise?

Plantwise is a global programme, led by **CABI**, to increase food security and improve rural livelihoods by reducing crop losses

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A need for Plantwise

- A significant proportion of the food grown worldwide is **lost to crop pests**

- International trade, intensified production and climate change are exacerbating the problem by altering and **accelerating the spread of plant pests**

- Therefore, the Plantwise plan is to **give farmers better access to practical and research based knowledge** at local level to help them **enhance productivity** by reducing crop losses to pests

BBC NEWS

Science & Environment

Fall armyworm 'threatens African farmers' livelihoods'

By Helen Briggs
BBC News

6 February 2017 | Science & Environment

Crop losses to pests – The most recent example

- **Fall armyworm** has spread since 2016 across much of sub-Saharan Africa

- Climatic analysis show that FAW is **likely to build permanent populations** in West, Central, and Southern Africa

- Costs of losses on maize, sorghum, rice and sugarcane across Africa could be as high as **$13.3 billion** (20% crop loss for maize, 8% for Sorghum)

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Partnerships

- The success of Plantwise is dependent on **national, regional and global** partnerships

- Plantwise **strengthens plant health systems** and **facilitates institutional change** through linkages with national entities (extension, research & education, regulation, agro-input supply, etc.) as well as international organisations (FAO, IPPC, CGIAR, AIRCA, etc.)

- Plantwise policies align with relevant international conventions and standards

Plantwise Components

- **National networks of plant clinics** to give regular advice to farmers and facilitate pest surveillance

- A **knowledge bank** developed with information tools on pest diagnosis, management and distribution

- Innovative **linkages between key stakeholders** in a plant health system

Process

Farmer visits plant clinic

Plant doctor consults knowledge bank

Knowledge bank shares data with institutions

Open access

Restricted access

Plant doctor provides management advice

Knowledge bank helps diagnosis and recommendations

Institutions issue pest alerts & best practice guides

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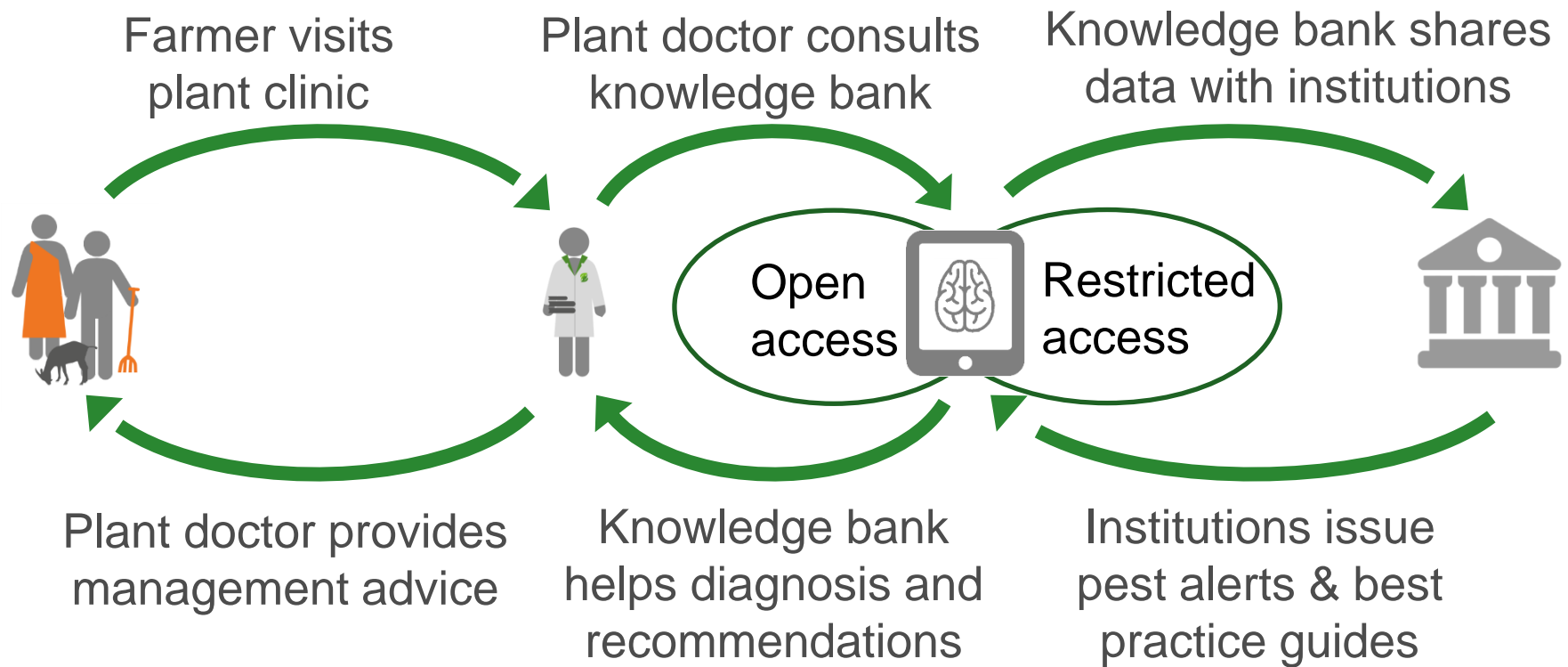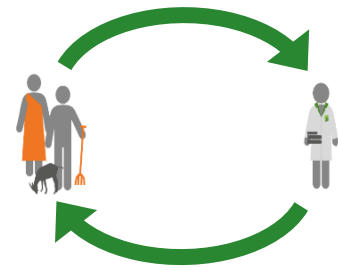
Plant clinics

- Work like human health clinics (doctors, linked to pharmacies, diagnostic services and other expert groups)

- Demand-driven, owned by local partners (extension providers)

- Plant doctors record data about the farmer, the problem, and the advice they give

- Advice follows IPM principles
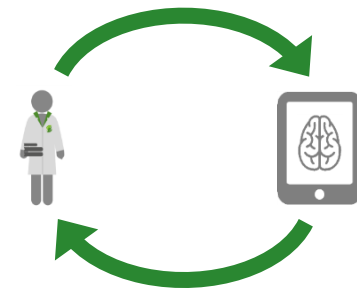
Knowledge bank

- Over one million visitors to open access online knowledge bank (http://www.plantwise.org/KnowledgeBank/)

- Over 190,000 factsheets views on the Factsheet App

- Over 12,500 factsheets available in the knowledge bank

Plantwise Online Management System (POMS)
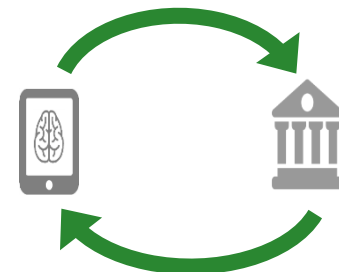
- 293,000 plant clinic records from 30 countries

- Information on partner organisations, plant clinics, etc.

- Available in English, French, Spanish

- Most Plantwise countries using POMS – some with over 50 active accounts

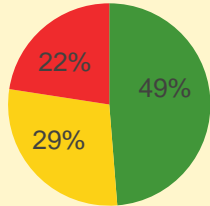- Data analysis used in an increasing number of ways
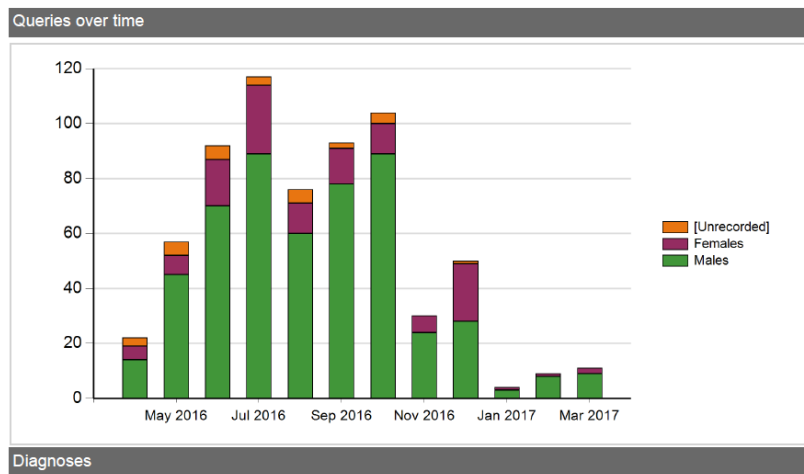
Why record data?

- Map distribution of known pests as well as detect and monitor new and emerging pests (surveillance/vigilance)

- Understand farmers' problems, perceptions and knowledge

- Monitor advisory service quality

- Identify research needs

- Shape extension priorities based on information obtained directly from farmers at village level
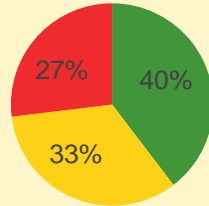
Clinic data into use – Monitor advisory service quality

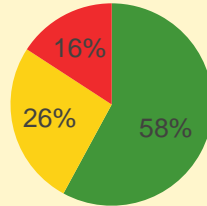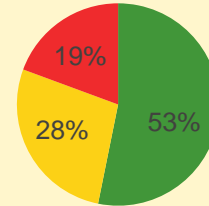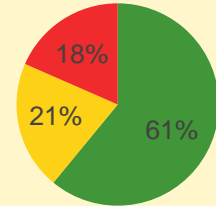## Validation of diagnosis given to farmers – Global level

Afghanistan — Accept 49%, Caution 29%, Reject 22%
Bangladesh — Accept 40%, Caution 33%, Reject 27%
Barbados — Accept 58%, Caution 26%, Reject 16%
Cambodia — Accept 53%, Caution 28%, Reject 19%
Ghana — Accept 61%, Caution 21%, Reject 18%
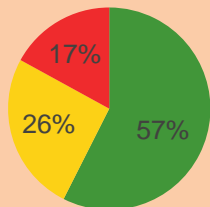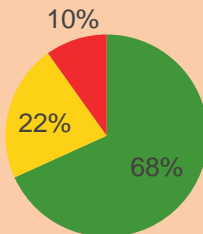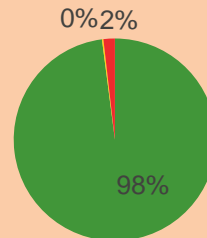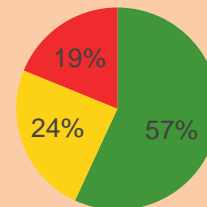
Grenada — Accept 57%, Caution 26%, Reject 17%
Malawi — Accept 68%, Caution 22%, Reject 10%
Myanmar — Accept 98%, Caution 0%, Reject 2%
Nepal — Accept 57%, Caution 24%, Reject 19%
Rwanda — Accept 44%, Caution 27%, Reject 29%

Sri Lanka — Accept 35%, Caution 23%, Reject 42%
Thailand — Accept 68%, Caution 23%, Reject 9%
Trinidad — Accept 35%, Caution 23%, Reject 42%
Vietnam — Accept 47%, Caution 30%, Reject 23%

Legend: Accept, Caution, Reject

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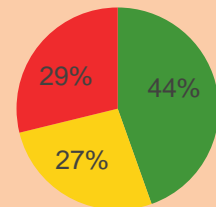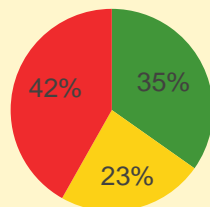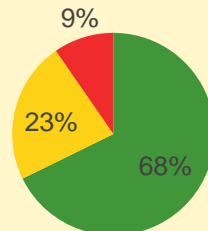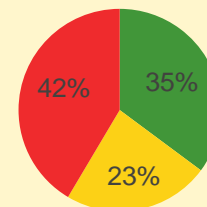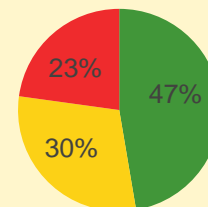
Clinic data into use – Monitor advisory service quality

Validation of diagnosis given to farmers - Ghana

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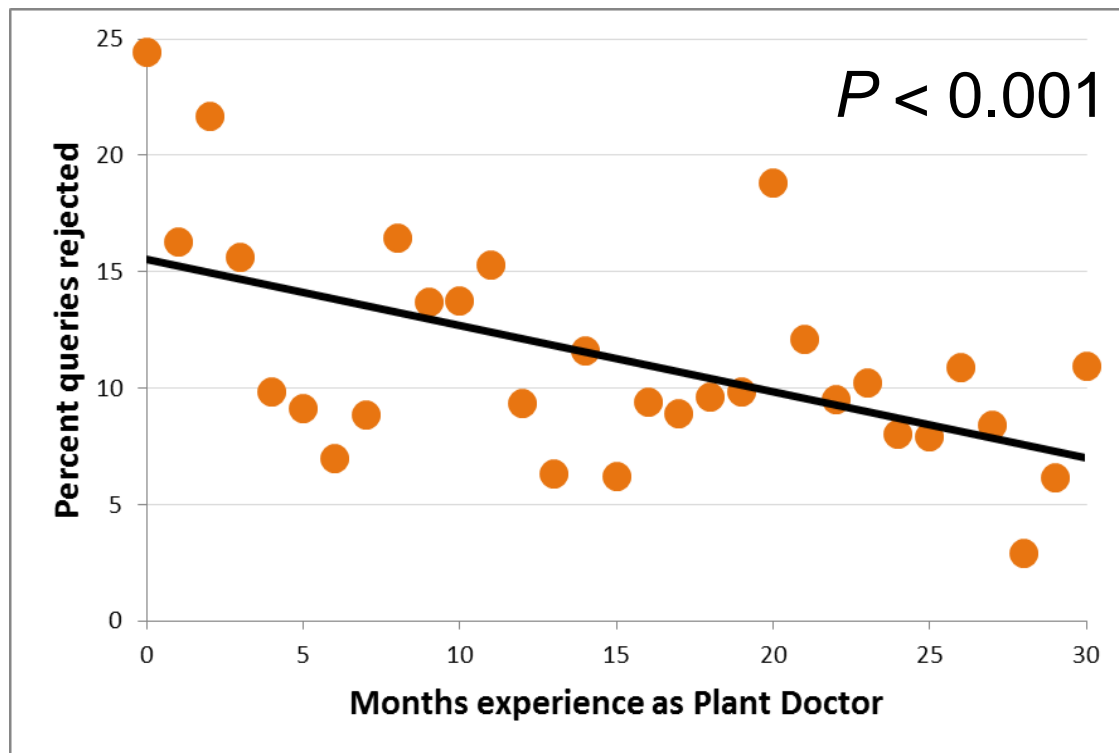
Based on ca. 5,000 validated queries from 92 plant doctors over three years

Percentage of diagnoses "rejected" decreases over time;
i.e., more experienced plant doctors tend to provide better evidence that their diagnoses fit with the symptoms

Clinic data into use – Tracking pest outbreaks

Data key

- ⊙ Plant clinic
- Crop growing area
- ✚ Pest reported at clinic
- Pest reported in Scientific Literature
- Pest alert by NPPO/IPPC
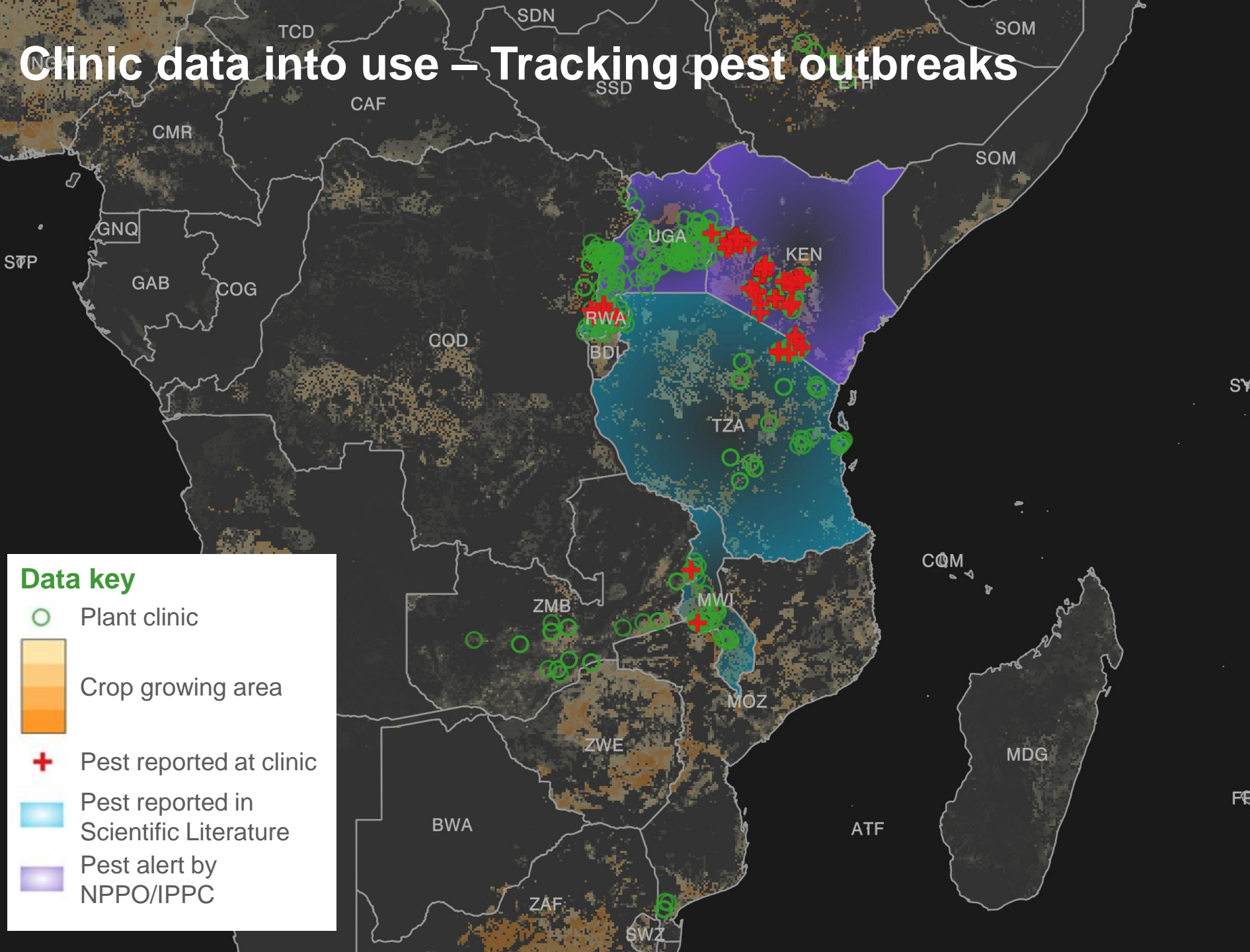
Scale (by end of 2016)

2,292 plant clinics
We've helped establish networks of plant clinics in 34 countries

6,789 plant doctors
We've trained thousands of experts to advise farmers

9.8 million farmers
We've reached millions of smallholder farmers and their families through plant clinics and complementary extension activities (e.g. ICTs)

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Radio

TV

Mobile services

Plant Health Rallies

Plant Clinics

FFS, Demonstration

Regular on-farm Consultation

Reach

Impact

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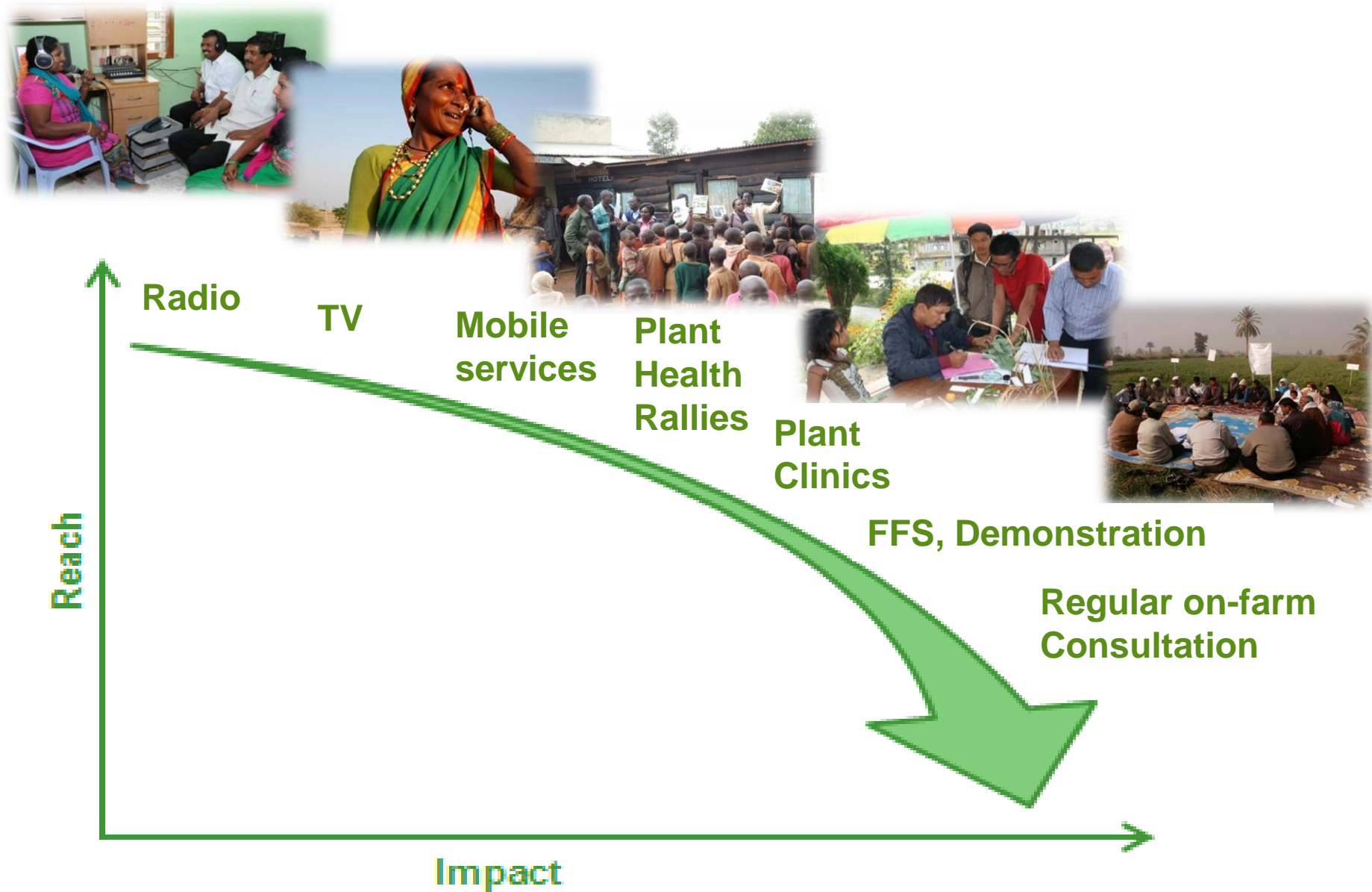
Scale (by end of 2016)
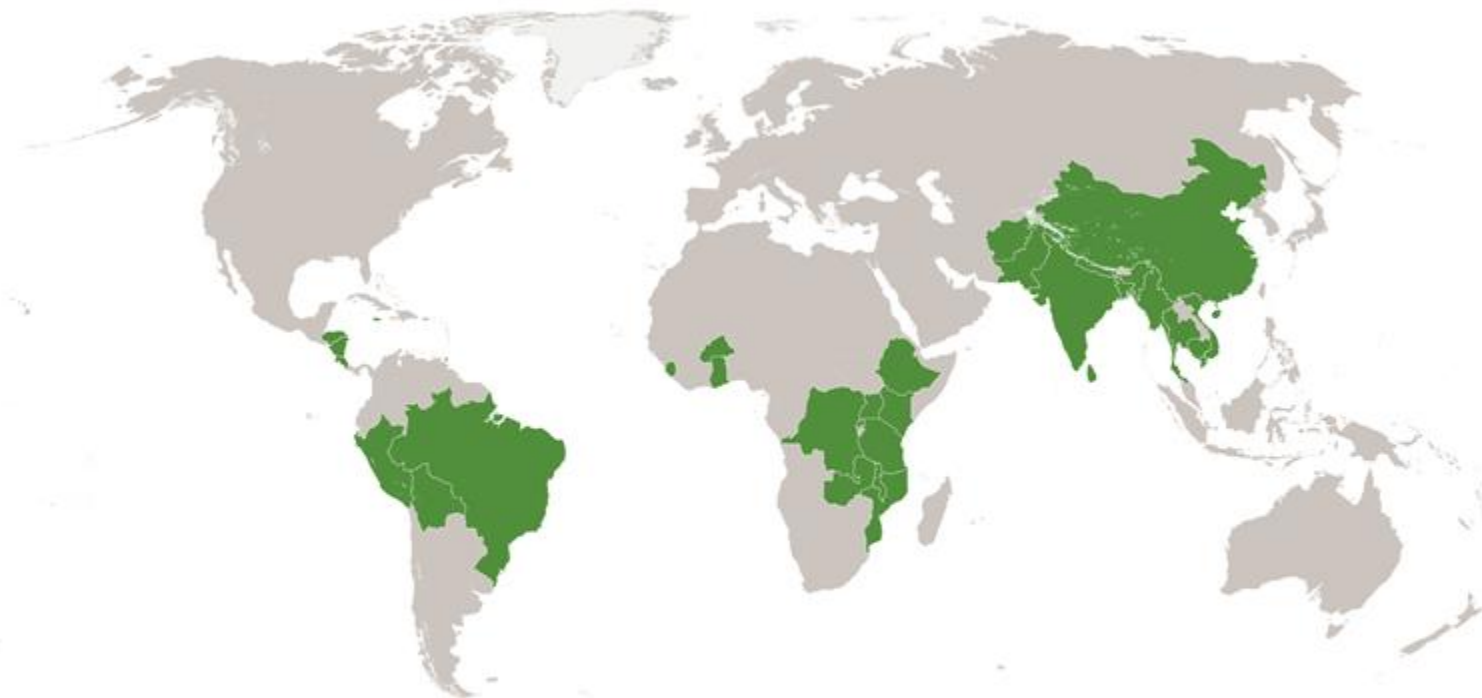
The Americas
Barbados	Jamaica
Bolivia	Nicaragua
Brazil	Peru
Costa Rica	Trinidad &
Grenada	Tobago
Honduras	

Africa
Burkina Faso	Mozambique
DR Congo	Rwanda
Ethiopia	Sierra Leone
Ghana	Tanzania
Kenya	Uganda
Malawi	Zambia

Asia
Afghanistan	Nepal
Bangladesh	Pakistan
Cambodia	Sri Lanka
China	Thailand
India	Vietnam
Myanmar	

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Outcomes and impact

- Impact data for agricultural development initiatives are key for answering one of the key M&E questions: **Are we doing the right thing?**

- Experiences from Plantwise have shown:
  - 79% of farmers reported **yield increase** after visiting a plant clinic
  - 70% of farmers reported their **income increased** after visiting a plant clinics
  - Over half of plant clinic prescriptions recommended **non-chemical inputs**
  - 25% of Plantwise plant doctors are **female**
  - Plantwise has linked with 70 **private sector organizations**

Outcome and Impact

- Comparison of yields between users and non-users of clinics in Rwanda for a variety of crops
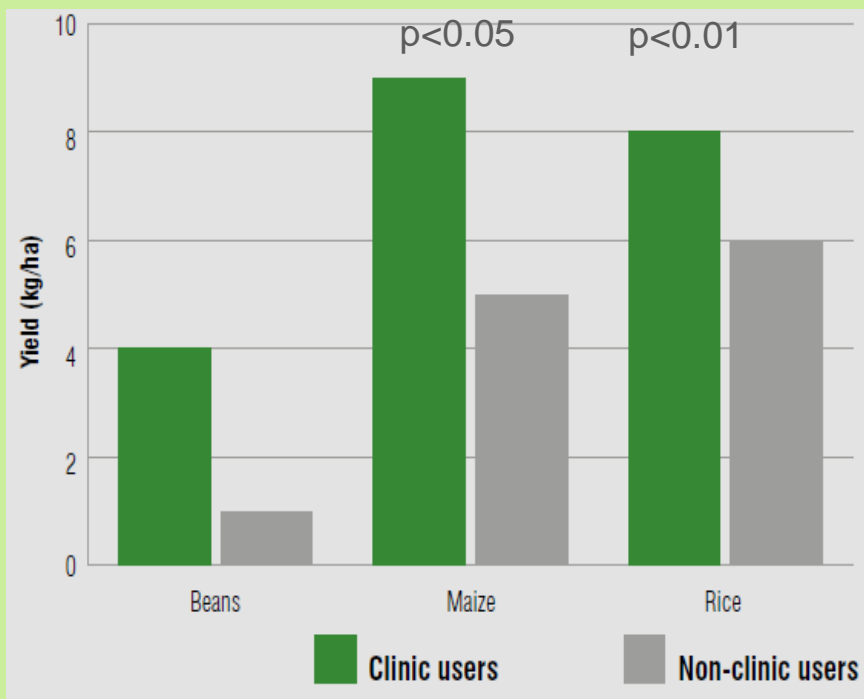
- Comparison of pesticide use before and after the introduction of Plantwise in Cambodia

| PARAMETERS	PRE-PW	POST PW	
Indicator 1: Use of pesticides and non-pesticide measures			
Mean number of pesticide sprays	3.6	**3.1**	⬇
Average spend on pesticide treatments (in USD)	$30.54	**$14.71**	⬇
Farmers using other non-pesticide measures	56%	**99%**	⬆
Indicator 2: Crop loss and yield (in rice)			
Rice crop losses per season	18%	**12%**	⬇
Rice yield per hectare	3.2 tons	**3.9 tons**	⬆

Kenya impact assessment: Randomized Control Trial
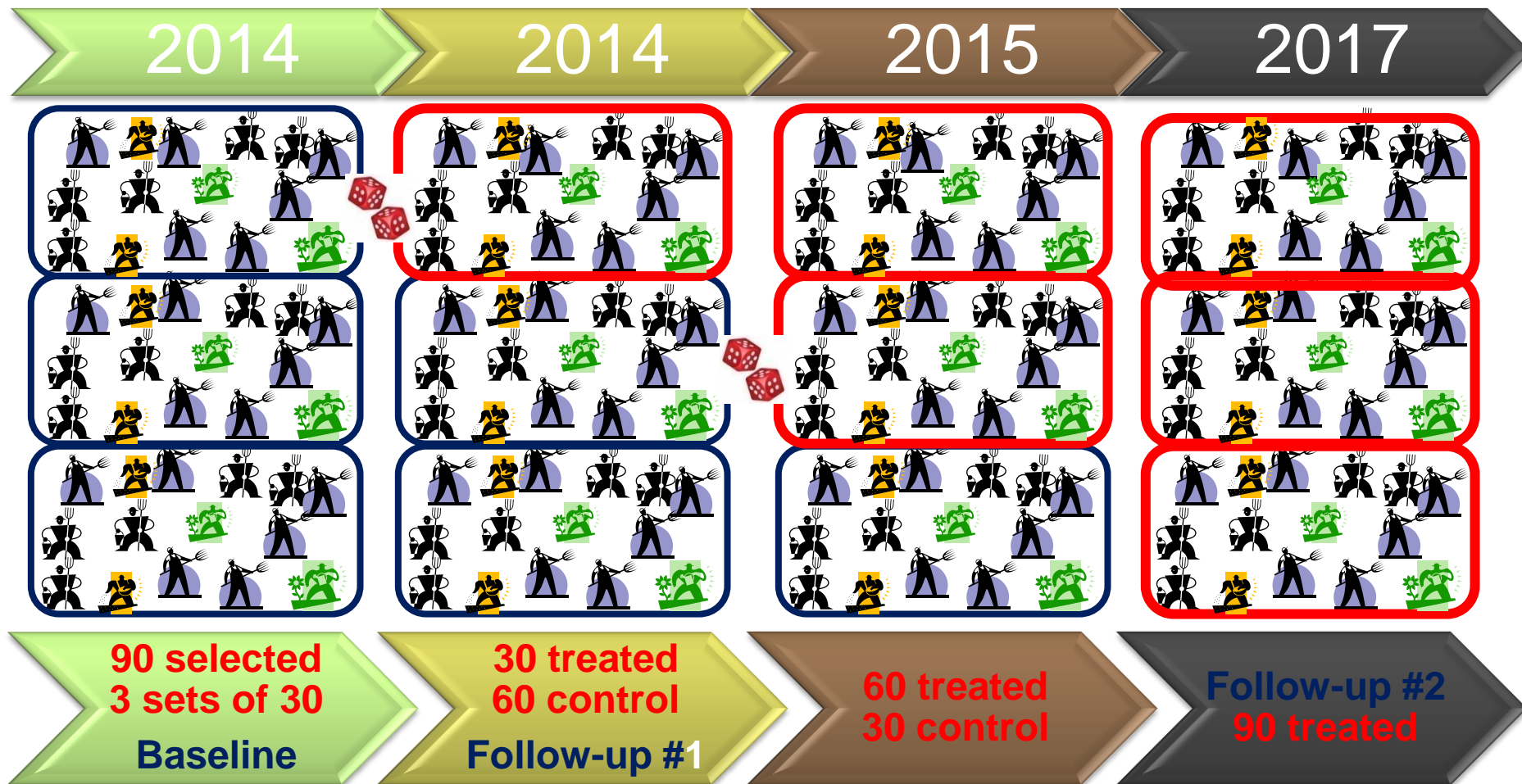
Evaluation Questions: Assessing Plant Health System Change / Evaluating the Implementation of Plantwise-Kenya / Identifying Farm-Level Impact / Cost Analysis

"Plantwise's promising partnership model is exactly the sort of innovation we need to reduce plant loss and combat hunger around the world"

(Raj Kumar, WEF Humanitarian Council Chair, 2016)

Signs of sustainability

- Responsibilities internalised within partner organisations (e.g., plant doctors, data managers, coordinators)

- Commitment of national/local funds for plant clinic operations (e.g., China, Pakistan, Malawi, Sri Lanka)

- National steering committees show increasing ownership (e.g., Rwanda, Ghana, Afghanistan)

- Integration of Plantwise training content into university and agro-input dealer curricula (e.g., Uganda, Nicaragua, Kenya)

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Lessons learned

- There is **no one-size fits all solution**; a combination of proven (but locally adapted) and innovative approaches to knowledge creation and transfer are needed

- Rate of adoption of Plantwise approach and progress is **highly variable** among and within countries

- Engaging with **private sector stakeholders** (upstream and downstream) has been slow due to sensitivities and potential conflict of interests

- **Embedding M&E concepts** and establishing sustainable data validation systems will require simplification of the processes

- Plantwise must obtain **yield impact** data through more targeted evaluation activities

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External Evaluations

- "Plantwise is **highly relevant** and has a **positive impact** on farmers' livelihoods"

- "Plantwise is **cost-effective** and is gaining the kind of in-country **financial leverage** that most development projects can only dream of"

- "Preliminary evidence that Plantwise training has a **large and significant effect on plant health knowledge**"

- "The Plantwise programme has a **flexible approach that is effective** for finding pragmatic and incremental solutions to local needs and requirements"

Awards

Winner
NEF Innovation
Award 2013

Winner
Open Data Award for
Social Impact 2014

Winner
OECD DAC
Prize 2015

Winner
Bond
International
Development
Award

2013   2014   2015   2016   2017

Shortlisted
The Queen's Award
for Enterprise 2014

Shortlisted
Olam Prize for Innovation
in Food Security 2015

Winner
St. Andrews
Prize for the
Environment

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Conclusions and way forward

- A key role in putting information, skills, and tools into farmers' hands is played by **national extension systems (public and private)**

- A combination of **complementary extension approaches** is necessary in order to overcome limited reach, adoption and impact

- Impact at scale is only possible with **considerable private sector involvement** to innovate sustainable information delivery systems

- **ICTs and open/big data** will have a transformative power in the developing world, but will often require coordination between a variety of stakeholders

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Thank you

We wish to acknowledge the support of our donors, as well as our national and international partners, who make Plantwise possible

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