



Plantwise – Contribution of Plant Health Knowledge Resources to Support Pest Surveillance and Reduce Crop Losses

Washington Otieno
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LOSE LESS, FEED MORE

What is Plantwise?

- A **global programme** led by CABI that aims to contribute to food security by **reducing crop losses**
- Strengthening systems for **managing plant health**
- Operates through
 - Networks of **plant clinics (PCs)**
 - **Plantwise knowledge bank (KB)**
 - **Systematic M&E**: builds in lessons learnt for continual improvement

Plantwise components

Plant Clinics



Knowledge Bank

Plantwise Knowledge Bank

Knowledge Bank home | Change location | Select Language

Welcome to the Plantwise Knowledge Bank

Choose your **Country** **Region**

The Plantwise Knowledge Bank is a global resource to help combat plant health problems. Select a location from the menu above to view country- or region-specific plant health information.

- Use the **diagnostic tool** to find out what problem might be affecting your crop.
- Use the **site search** to find information on management of pests and diseases.
- Use the **map** to view the distribution of up to three pest or crop species at a time.

IDENTIFY A PEST PROBLEM

Enter pest problem or crop

Go to diagnostic tool...

FIND A FACTS

Enter pest problem or crop

Go to facts...

PEST ALERTS PLANT HEALTH

Monitoring & Evaluation

Performance criterion	Monitoring method
1. Quality of diagnosis	1. Monitoring visits to plant clinics 2. Analyses of plant clinic records 3. Follow-up meetings 4. Feedback from farmers 5. Visits to farmers' fields
2. Quality of advice	1; 2; 3; 4; 5.
3. Staff attitude, communication	1; 4.
4. Organization	1; 2; 3; 4.
5. Material, equipment	1; 3; 4.
6. Backstopping, networking	1; 3.
7. Timeliness, regularity	1; 2; 4.
8. Coverage, access	1; 2; 4 (e.g. causes of non-attendance)



How Plantwise works

- An **agro-advisory** initiative
- Delivers advice to small holder farmers **through national partner institutions.**
- Deliberate effort to create **linkages among institutions** with mandates over **plant health**
- **Plant health stakeholders** working together



The initiative

- Together with partners
 - CABI has supported the establishment of 2,100 PCs
- Documented plant health problems brought by farmer and the advice to manage them
- Developed **Plantwise Online Management System (POMS)**
 - open access or restricted access

Stakeholder Linkages

- Promoted to realize functioning '**integrated plant health systems**' in which the NPPOs lead in validation and administration of plant clinic data
- Access to and use of PC data by stakeholders (regulators, producers, traders, researchers, etc.) inform some key IPPC functions, notably:
 - surveillance
 - pest reporting (also guarding against the risk of irresponsible use of pest records to issue alerts)

Plant clinics

- Situated at **locations easily accessed** by farmers
- Run on **regular basis** (time & place) by ‘**plant doctors**’
- Farmers take ‘**sick**’ plants to **PCs** & receive practical advice in a **prescription form**
 - paper or electronic

Knowledge Bank



Pest information resource - (online & offline)

- Pest diagnostic support
- Pest management decision guides
- Repository for PC data (**POMS**)

Users

- Extension services, farmers, plant health regulators, agricultural research organizations, academia, agro-input suppliers, etc.

Visit www.plantwise.org/KnowledgeBank


Data capture & use

Prescription form

- Paper version
- E-version
 - Use of tablets & SMS messaging
 - Link with other E-Systems in extension

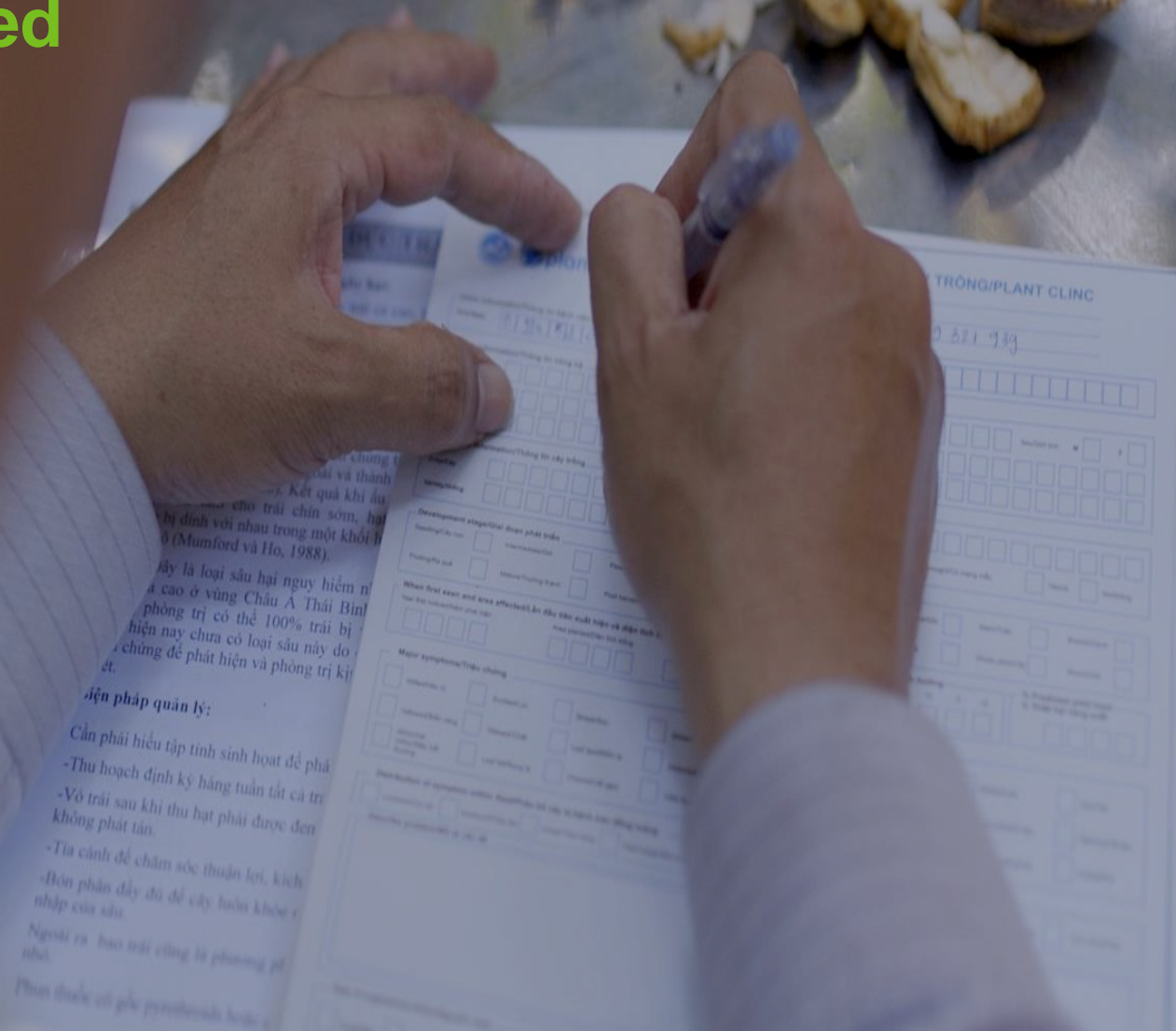
Vision i.e. forward plan

- Scale up & sustainability
 - Country support & update
 - Justification: uses of pest data – surveillance, pest listing, pest reporting
 - Opportunity – EWS

Prescription and record sheet										v7.11E
CLINIC INFORMATION										
Date	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	D	M	M	Y	Y	Y	Y	Y	Y	Y
Code	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Plant doctor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
FARMER INFORMATION										
Name	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sex	<input type="checkbox"/> Male	<input type="checkbox"/> Female								
Country	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Location	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Village	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Tel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
SAMPLE INFORMATION										
Crop	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Variety	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sample brought	<input type="checkbox"/> Yes	<input type="checkbox"/> No								
DEVELOPMENT STAGE					PART AFFECTED					
<input type="checkbox"/> Seedling	<input type="checkbox"/> Intermediate	<input type="checkbox"/> Flowering	<input type="checkbox"/> Seed	<input type="checkbox"/> Root	<input type="checkbox"/> Stem base	<input type="checkbox"/> Stem	<input type="checkbox"/> Twig/Branch			
<input type="checkbox"/> Fruiting	<input type="checkbox"/> Mature	<input type="checkbox"/> Post harvest	<input type="checkbox"/> Leaves	<input type="checkbox"/> Flower	<input type="checkbox"/> Fruit/Grain	<input type="checkbox"/> Whole Plant	<input type="checkbox"/> Shoot			
WHEN FIRST SEEN AND AREA AFFECTED					% CROP AFFECTED			PREDICTED YIELD		
Year first noticed	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> 100%	<input type="checkbox"/> 50%	<input type="checkbox"/> 25%	<input type="checkbox"/> < 25%	<input type="checkbox"/> % yield loss	
Area planted	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> Acres	<input type="checkbox"/> Hectares	<input type="checkbox"/> Number					
Y	Y	Y	Y							
MAJOR SYMPTOMS										
<input type="checkbox"/> Wilted	<input type="checkbox"/> Stunted	<input type="checkbox"/> Streak	<input type="checkbox"/> Blistered	<input type="checkbox"/> Leaf blight / mosaic	<input type="checkbox"/> Witches broom	<input type="checkbox"/> Cankers (stem lesions)	<input type="checkbox"/> Rots			
<input type="checkbox"/> Yellowed	<input type="checkbox"/> Dieback	<input type="checkbox"/> Leaf spot	<input type="checkbox"/> Distorted	<input type="checkbox"/> Leaf edge scorch	<input type="checkbox"/> Surface growth	<input type="checkbox"/> Bore holes (stem / fruit)	<input type="checkbox"/> Shrivelling			
<input type="checkbox"/> Abnormal colour	<input type="checkbox"/> Leaf fall	<input type="checkbox"/> Chewed	<input type="checkbox"/> Little leaves	<input type="checkbox"/> Insect / mite seen	<input type="checkbox"/> Fruit drop	<input type="checkbox"/> Galls / swellings	<input type="checkbox"/> Drying			
DISTRIBUTION OF SYMPTOMS WITHIN FIELD										
<input type="checkbox"/> Localised	<input type="checkbox"/> Scattered	<input type="checkbox"/> Linear	<input type="checkbox"/> Field margin	<input type="checkbox"/> Even	<input type="checkbox"/> Certain varieties	<input type="checkbox"/> Individual plants	<input type="checkbox"/> High areas	<input type="checkbox"/> Low areas		
DESCRIPTION OF PROBLEM										
(Additional information - include key observed symptoms, plant parts affected, etc.)										
TYPE OF ORGANISM: BIOTIC					TYPE OF PROBLEM: ABIOTIC					
<input type="checkbox"/> Fung	<input type="checkbox"/> Bacteria	<input type="checkbox"/> Insect/Mite	<input type="checkbox"/> Nematode	<input type="checkbox"/> Virus	<input type="checkbox"/> Phytoplasma	<input type="checkbox"/> Weed	<input type="checkbox"/> Unknown	<input type="checkbox"/> Nutrient	<input type="checkbox"/> Environment	<input type="checkbox"/> Unknown
DIAGNOSIS (start a new sheet for each new problem)										
<input type="text"/>										
<input type="text"/>										
<input type="text"/>										
CURRENT CONTROL										
<input type="text"/>										
<input type="text"/>										
<input type="text"/>										
RECOMMENDATIONS FOR MANAGEMENT										
<input type="checkbox"/> Monitor problem	<input type="checkbox"/> Cultural	<input type="checkbox"/> Biological	<input type="checkbox"/> Host resistance	<input type="checkbox"/> Fungicides	<input type="checkbox"/> Insecticides	<input type="checkbox"/> Acaricides	<input type="checkbox"/> Nematicides	<input type="checkbox"/> Herbicides		
FOLLOW UP ACTIVITIES:										
Sample sent to lab	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Field visit given	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Field visit arranged	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
Barcode: 										

Data collection and information sharing

Paper-based





Tablet computer-based

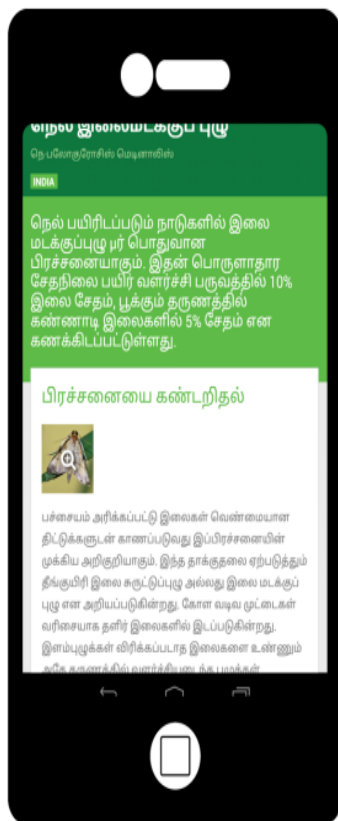
Plantwise Online Management System

- Repository for plant clinic data
- A good resource to support surveillance
- Caution!: use of the data requires recognition of key provisions for pest reporting in the IPPC

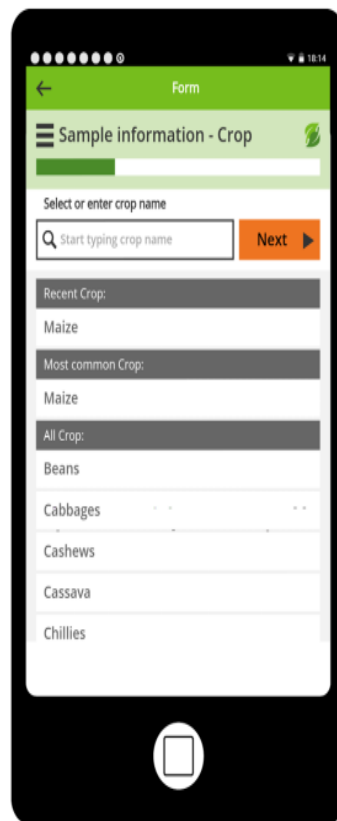
ICT Tools in Plantwise

- PW has constructed an ICT structure with tools for collecting, sharing & delivering data - an effective inter-link among **actors in plant health**
- SIM-equipped android tablet computers enable
 - real time capture of pest data
 - instant access to diagnostic support & advice
 -
- The tools enable '*plant doctors*' to:
 - use the Factsheet Library app
 - communicate via instant messaging services.
 - log relevant data online.

Tablets deliver information



Tablets collect data



“It is not even comparable with the paper one... wherever you go this one is in the pocket.”

Kenyan plant doctor

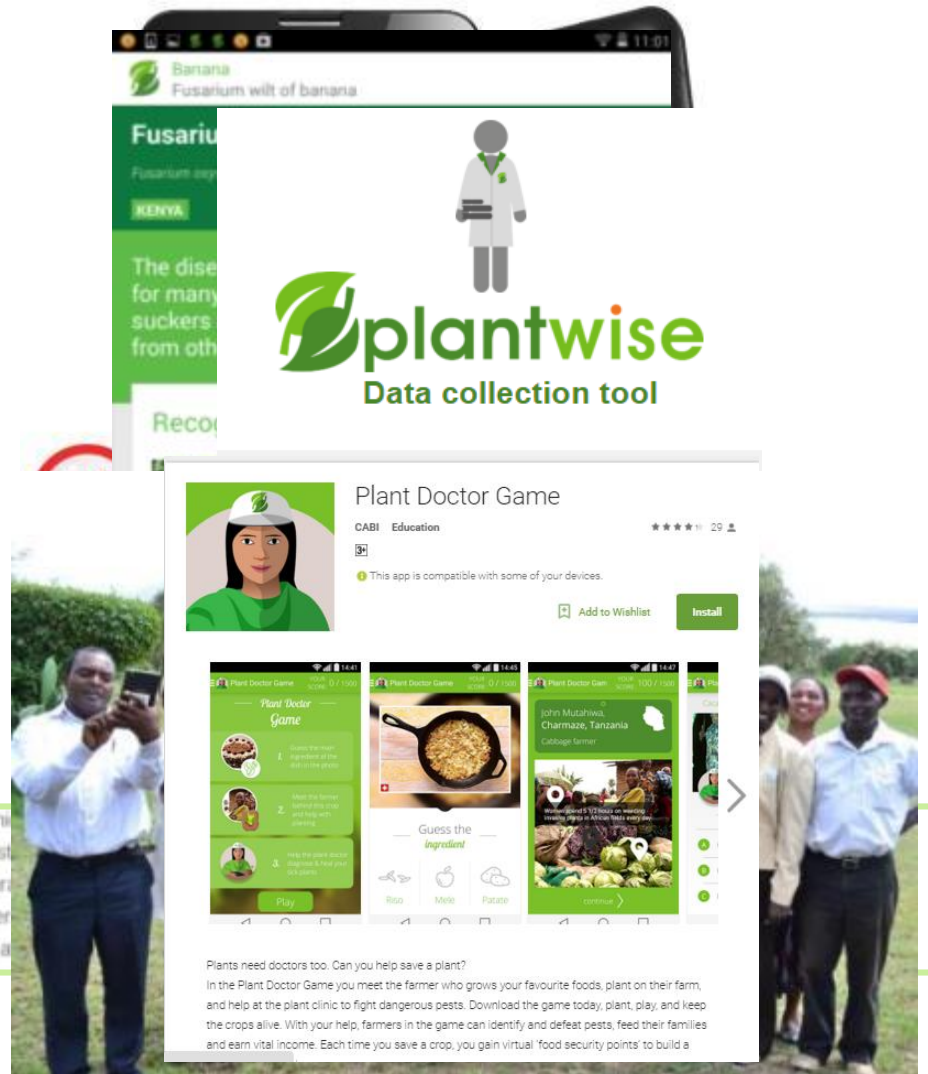
ICT Tools in Plantwise/2

- Extends the reach of plant health information to many users who do not necessarily attend plant clinics
- Provides real-time interlink of plant health problems with expert advice
- Opportunity to support early warning systems and trigger mitigation



E-plant clinics

- Currently used by 252 plant doctors at 163 plant clinics in 9 countries)
- App to deliver info.
- App to collect data
- SMS messaging to farmers
- Network of plant doctors & experts improving diagnostic capacity



Opportunities

- Prompt online diagnostic support
- Instant access to pest information
- Real time data capture - enabling EWS & emergency action
- Dynamic platform - use pest information & act to mitigate pest risks
- Easy link with other tools – e.g. PestPoint
- Excellent for effective pest monitoring



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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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