Plantwise: A global alliance led by CABI for plant health and sustainable agriculture

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CABI works on behalf of 48 member countries

* UK Overseas Territories. **Associate Member
CABI’s mission

CABI is a not-for-profit international organization that improves people’s lives by providing information and applying scientific expertise to solve problems in agriculture and the environment.
CABI’s capacity to build knowledge and capability

Communicating Science to Build Knowledge & Capability

- Animal Health
- Human Health (Nutrition)
- Plant Health
- Pests & Disease
- Seed Health
- Soil Health
- Environmental Health

Print | Electronic | Mobile | Video | Clinics | FFS | Personal
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.
What is Plantwise?

Plantwise is a global programme, led by CABI, to improve farmers’ access to practical knowledge at local level and help them increase food security and food safety.
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.
Linkages

- Innovative linkages between key stakeholders in a plant health system, catalysed by plant clinics embedded in existing structures.

- In addition to public sector services, it is important to link with private sector entities for increased impact and sustainability.
Process

Farmer visits plant clinic

Plant doctor consults knowledge bank

Knowledge bank shares data with institutions

Plant doctor provides management advice

Knowledge bank helps diagnosis and recommendations

Institutions issue pest alerts & best practice guides
# Reference materials for plant doctors

## PEST MANAGEMENT DECISION GUIDE: GREEN AND YELLOW LIST

**Tuta absoluta (tomato leaf miner) on Tomato**

<table>
<thead>
<tr>
<th>Prevention</th>
<th>Monitoring</th>
<th>Direct Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Rotate with non-host crops such as maize, beans and cabbages</td>
<td>- Look for: insect pest damage on leaves, stems and fruits</td>
<td>- Remove infested leaves</td>
</tr>
<tr>
<td>- Remove and destroy wild host plants around the farm such as Sodom apple</td>
<td>- Look out for burnt leaves with irregular mines that have black deposits (frass)</td>
<td>- Mass trap using water traps with pheromones e.g. (Theris at 4 packets per acre supplied by Koppert Biological Systems Kenya. Turland found at Kenya Biologicals)</td>
</tr>
<tr>
<td>- Remove from the farm and burn all infected crop residues</td>
<td>- Look out for black trass on the stem and holes on the fruit surface leading to tunnels in the fruit</td>
<td>- Burying deep (50-100 cm) of infested fruits and foliage</td>
</tr>
<tr>
<td>- Plant clean seedlings free from all stages of the moth</td>
<td>- Scout for moths in the field/ greenhouse walls.</td>
<td>- Use black sticky traps (at 24 pcs/acre supplied by Koppert Biological Systems) placed at 15-25 cm above the ground to capture the adults</td>
</tr>
<tr>
<td>- Clean all equipment used in transportation of tomatoes such as boxes, crates and trucks using soap and water</td>
<td>- Start control once you notice 1-3 moths or larvae per week</td>
<td>- Use screen vents in roofs and on the sides of the greenhouse to reduce insect pest migration</td>
</tr>
</tbody>
</table>

### Adult Tuta
(Source: Maria van der Stroet, NWPA Plant Protection Service, Bugwood.org)

### Tuta larvae on tomato leaf
(Source: Maria van der Stroet, NWPA Plant Protection Service, Bugwood.org)

### Bumt leaf and mined fruit infested by Tuta larvae
(Source: Maureen Kavuma)

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**Kenya**

*Created/updated: August 2014*

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**Edited by:** Plantwise

Plantwise is a CABI-led global initiative [www.plantwise.org](http://www.plantwise.org)
Digital technologies for plant doctors

- Tablets improve data collection at plant clinics

5x faster

105 days
20 days

Delivery of plant clinic data

4x more

101
404

Number of plant clinic prescriptions delivered (in Sri Lanka during July–November 2015)
Digital technologies for plant doctors

- Tablets improve data collection at plant clinics

- Plant Doctor Simulator reinforces basic principles of field diagnosis while capturing data to assess decision making performance (available in Google Play Store)

- 5x faster
  - Delivery of plant clinic data
  - 105 days to 20 days

- 4x more
  - Number of plant clinic prescriptions delivered (in Sri Lanka during July–November 2015)
  - 101 to 404
Why record data?

- Understand farmers’ problems, perceptions and knowledge
- Monitor advisory service quality
- Identify new and emerging pests (vigilance - invasives)
- Identify research needs
- Shape extension priorities based on information obtained directly from farmers at local level
Open versus restricted data

- The Plantwise Online Management System now holds 200,000 plant clinic entries from 30 countries
- 21 countries have signed data sharing agreements with CABI, 12 of which are for open-access sharing
Plant clinic data into use – Example 1

- Validation of diagnoses and recommendations given to farmers
  - Process developed centrally, then transferred to in-country partners

- Recommendations of most (ca. 65%) plant clinics better in 2014 than in 2013

- Such analysis identifies, e.g.:
  - Plant doctors that require additional training
  - Plant doctors that improved exceptionally well
Plant clinic data into use – Example 2

- Analysis of pesticide recommendations: Year-to-year comparisons showed a reduction in recommendations of a hazardous pesticide (WHO Class 1) in some East African countries against maize lethal necrosis disease (MLND)
Plant clinic data into use – Example 3

- Comparison of public and private sector plant clinic services, especially when the latter mixes giving advice to selling inputs (conflict of interest)

- China offers an opportunity to study agro-input dealer involvement in plant clinic operations

- Preliminary results show no significant differences between public and private sector-run plant clinics, in terms of number and gender of farmers served, quality of diagnoses and recommendations, IPM-based advice, etc.

Plantwise is being piloted in Beijing area, Guangxi and Sichuan, with currently 43 plant clinics run by 98 plant doctors.
Plant clinic data into use – Example 4

- Analysis of gender-disaggregated data shows clinic usage patterns

- Female plant doctors in Bolivia and Peru are more likely to recommend monitoring and cultural controls, instead of pesticides, than their male counterparts
Scale

34 countries

**The Americas**
- Barbados
- Bolivia
- Brazil
- Costa Rica
- Grenada
- Honduras
- Jamaica
- Nicaragua
- Peru
- Trinidad & Tobago

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

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

LOSE LESS, FEED MORE
Scale

1,800 plant clinics
We've helped establish networks of plant clinics in 34 countries

5,000 plant doctors
We've trained thousands of experts to advise farmers

4.5 million farmers
We've reached millions of smallholder farmers and their families through plant clinics and complementary extension methods (e.g., ICTs)
Outcomes and impact

94% Farmers satisfied with plant clinics

92% Farmers satisfied with advice given

89% Farmers applied the advice given

79% Farmers saw crop yield increased after plant clinic visit
“Plantwise is cost-effective and is gaining the kind of in-country financial leverage that most development projects can only dream of”
(external evaluation report, 2015)

**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)
Awards

Winner
NEF Innovation Award 2013

短列
The Queen’s Award for Enterprise 2014

Winner
Open Data Award for Social Impact 2014

短列
Olam Prize for Innovation in Food Security 2015

Winner
OECD DAC Prize 2015

2013 2014 2015 2016
Thank you

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