Strengthening plant health systems to improve nutrition and livelihoods

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Evolving requirements for a food secure world

Requires farm practices that:

- Increase **crop yields** without using more land
- Reduce **crop loss** pre- and post-harvest
- Reduce **indiscriminate use of hazardous pesticides & harm to the environment**
- Enhance **adaptation** to and **mitigation** of effects of **climate change** among vulnerable rural communities
- Respond to the demands of **growing urban populations**
- **Meet standards** for international trade and food safety
Tropical Agriculture Platform

A global partnership, initiated by the G20, fostering coherence & greater impact of capacity development for innovation in agriculture

CABI has adopted the Common Framework for Capacity Development in Agricultural Innovation Systems (CDAIS)

3 Dimensions of Capacity Development
Improving nutrition and livelihoods

1. Helping farmers grow more and lose less

2. Connecting farmers to markets

3. Developing capacity to support international trade
Improving nutrition and livelihoods

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Think global, act local

Content from CABI and partners

Knowledge Bank

- Data for prevention, identification and management

Public good: trade, knowledge, food security

Plant Clinics

Practical assistance for farmers; global reporting network
Plant clinics

- **SET UP** in local meeting places
  - e.g. at markets, village squares and near human health clinics

- **PROVIDE** diagnosis and treatment advice
  - for any crop and any problem

- **RECORD** data collected about farmers and crops
  - e.g. outbreaks of maize lethal necrosis disease (MLND) and tomato leaf miner (*Tuta absoluta*)
Knowledge Bank

- an **open access** internet resource
- covering **2,500 crop pests** in 80 languages
- over **10,000 factsheets** to provide practical information on pest management
- **thousands of images** to assist with diagnoses
- **interactive maps** showing pest distribution
- **pest alerts** to inform of new pest outbreaks
- **plant health news** from online sources
- **available offline** and via apps

www.plantwise.org/KnowledgeBank
How it works

Farmer visits plant clinic

Plant doctor records

Data shared with and used by partners

Plant doctor provides advice to the farmer

Knowledge Bank helps plant doctor with diagnosis

Partners take action on pests and issue best practice guides
Countries we work in

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
Scale of the programme

2,300 plant clinics established

6,800 plant doctors trained

9.8 million farmers reached
Our impact

- 79% of farmers report yields increased after using advice from plant clinics.
- 70% of farmers report incomes increased after using advice from plant clinics.
- Farmers’ reported use of pesticides decreased by 30%.
- 25% of Plantwise plant doctors are female.
Partnerships for implementation

Plantwise achieves its goals by working with multiple actors to strengthen partnerships among plant health stakeholders such as:

- advisory services
- research institutions/organizations
- national/ and local governments
- diagnostic service providers
- agro-input suppliers
- farmers and farmer-based organisations
- universities and colleges
- NGOs
Plant health systems often have weak, one-way interactions
Plantwise stimulates greater two-way information flow
ICT innovations

**PULL**
- **Data collection** from plant clinics
  - Tablets replacing paper forms
  - [Data collection app](#) for Android

- **Data analysis**
  - Plantwise Online Management System (POMS):
    - Built-in tools facilitate the harmonisation, validation and analysis of data.
    - Access control systems allow only in-country partners to view their own data.
ICT innovations

PUSH

● **Plantwise Knowledge Bank**
  ● available online and offline; e.g. via Factsheet Library app on Android

● Links to mobile mass messaging
  ● e.g. via CABI’s mNutrition and Direct2Farm projects

● Educational apps
  ● e.g. The Plant Doctor Simulator for Android
Improving nutrition and livelihoods

1. Helping farmers grow more and lose less

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The challenges

• Smallholder farmers grow around 70% of the world’s food
• Global food businesses are reshaping food system governance and small-scale agriculture is ill equipped for these changes
• Many smallholders are losing out on opportunities to “step up” as they cannot produce to the required quality, quantity, safety and continuity of supply that the market requires
• **Transformation needed from subsistence to enterprise**
• Barriers to market access need to be broken down to encourage smallholder farmers to move beyond subsistence
Boosting coffee productivity in Kenya and Malawi

- Coffee productivity is low with high production costs
- Challenge is to make improved coffee varieties available to smallholder farmers
- CABI is working with partners to adopt tissue culture-based technologies to rapidly produce high numbers of plants
- Upgrading and modernising facilities and training scientists and technicians
- Co-operatives act as focal points with staff being trained in nursery management and distributing improved materials to farmers
- Plus best practice training
Perking up coffee in Ethiopia, Rwanda and Cameroon

- Farmers get a better return from coffee after learning new processing techniques that improve quality
- High demand for coffees produced by the new approach with premiums of over 30% above the usual prices
- Major constraint to adoption is access to credit
- CABI worked with banks and over 20 co-operatives in each country to improve business skills, financial literacy and marketing
- Participating co-ops have increased productivity and quality resulting in increased incomes and increasing capitalization

Funded by:
- CFC
- World Bank
- Rabobank
Building SPS capacity in cocoa supply chains

- Consumers increasingly aware of food safety
- Policy makers enact consumer legislation to protect us
- Public / private partnership: [www.cocoasafe.org](http://www.cocoasafe.org)
- Training for extension staff, agro-dealers, farmer leaders and warehouse staff in best practice at all stages of the cocoa supply chain
- The project improves farmers’ access to markets by helping them to produce and trade cocoa that meets international food safety and SPS standards
Improving nutrition and livelihoods

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Australia-Africa Plant Biosecurity Partnership (AAPBP)

- Funded by ACIAR, led by PBCRC and CABI
- Focus on capacity development
  - 10 countries in E & S Africa
  - 15 Senior Fellows (NPPOs)
  - 30 Associates (NPPOs, private sector)
  - 6 week study tour in Australia
  - Series of 4 training workshops
  - Mentoring, building networks

Impact pathway

Activities
- Workshops
- Training courses
- Mentoring

Outputs
- More knowledge
- Improved skills
- More “Capacity”

Outcomes
- Using knowledge, skills, capacity
- New measures
- Better P-P cooperation

Impacts
- More trade
- Fewer interceptions
- More productivity
- “Development”
Countries covered by AAPBP

- Burundi
- Ethiopia
- Kenya
- Malawi
- Mozambique
- Rwanda
- Tanzania
- Uganda
- Zambia
- Zimbabwe
Outcomes: Fellows’ personal performance

Self assessment (post AAPBP)

- Taken up other training opportunities
- Gain greater satisfaction from work
- New responsibilities at work
- Secured additional resources to apply new knowledge & skills
- Trained others in the skills learned
- Increased collaboration with organisations in other countries
- Increased collaboration with organisations in the country
- Applied knowledge and skills gained through AAPBP

Percentage of fellows
Individual performance

● “Increased confidence; more aggressive in championing plant biosecurity issues, eg share information whenever opportunities arise”. Mable, Zambia

● “The AAPBP has been of enormous personal and professional benefit to me. For example I have been able to use novel diagnostic technologies learnt in Australia to improve testing of imported plants”. George, Kenya

● “I have built a strong relationship with my mentors back in Australia”. Katemani, Tanzania

● “I have been proud and confident to give my expertise in implementation of a project under TMEA support”. Bellancile, Rwanda
Outcomes: Fellows’ organisations’ performance

Self assessment (post AAPBP)

- Improved links with organisations in other countries
- Improved links with public & private sector in the country
- Attracted more funding (government or elsewhere)
- A more innovative culture in the organisation
- Increased effectiveness in plant biosecurity operations

Percentage of fellows
Impacts

Application of new or improved technologies
- Associate Fellow from the Association of Mango Growers (AMAGRO, Tanzania) reports losses to fruit fly have dropped from 50% to > 5%

Opening up and maintaining markets
- Zambia has secured access to South African markets for grapes and bananas
- Kenya has held negotiations with Australia on import conditions for Kenya’s flowers, and how the appropriate level of protection can be achieved at a lower cost
- Tanzania has reported achieving market access to Oman and Saudi Arabia for mangoes

The future
- COMESA will take sub-regional coordination role
- ACIAR impact assessment in ~5 years’ time
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