

NOTE 23: Plant Health Clinics

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The Global Good Practices Initiative aims to facilitate access to information and know-how on agricultural extension for a wide audience of practitioners. It does so by providing Good Practice Notes, which are descriptions of key concepts, approaches, and methods in an easy-to-understand format. They give an overview of the main aspects, best-fit considerations, and sources for further reading. The notes are openly available at www.betterextension.org. To download, use, disseminate, or discuss this note, access it online by scanning the QR code in the bottom right corner. Feedback is highly appreciated.

Introduction

Farmers and extension workers face a constant challenge in managing plant health problems. Biotic causes (pests and diseases) and abiotic causes such as low soil fertility lead to regular and often significant losses in crop production and quality. Diagnosis is made difficult by a diversity of causes and symptoms with multiple possible origins. Choosing the best management options needs careful consideration.

Technical support services are often weak and extension providers struggle to reach all farmers. Plant health clinics (PHCs) are a practical way of enabling plant health specialists to work closely with extension workers in offering farmers advice on how to manage all types of plant health problems.

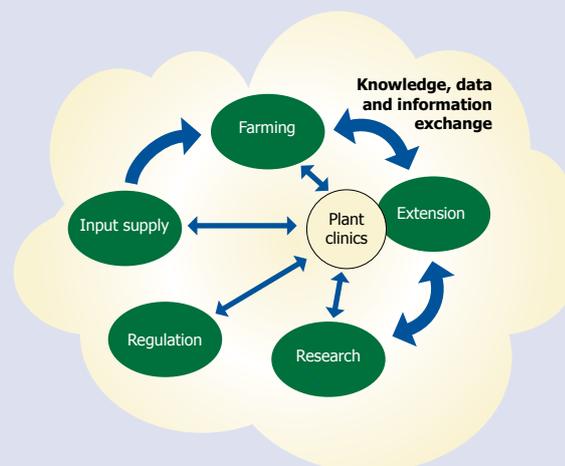
Plant health clinics vary in how they operate and the services they offer. Institute-based plant clinics have laboratory facilities for identifying pests and pathogens, and some offer management advice through extension intermediaries. Most smallholder farmers are unlikely to know of such clinics or are unable to contact them directly.

Extension-based PHCs, the main focus of this note, serve farmers directly. They are run in public places, close to where farmers live and work. Plant health clinics are a demand-led service giving advice as part of everyday extension activities. They work most effectively as part of an overall plant health system¹ approach (Box 1) which seeks to increase access to sources of expertise and knowledge.

In the United States, for example, plant clinics run by Land Grant Universities in 42 states³ link county

BOX 1: PLANT HEALTH SYSTEM APPROACH

Plant health clinics are part of an integrated support system for delivering plant health services to farmers.



Source: Plantwise²

agricultural officers to scientists with joint extension and research duties. An impressive plant health regulatory body⁴ oversees surveillance efforts, while a national network of plant clinics responds quickly to pest and disease outbreaks. But this publicly funded plant health system is an exception. In India, plant clinics based in agricultural universities and farmer training centres also blend extension and research in pockets of excellence, but nationally farmer outreach is low. India also has around 3,000 agri-clinics in 25 states, commercial enterprises that provide ad hoc plant health advice, part or wholly financed through sale of inputs and other services. Here the agri-clinics supplement rather than replace public extension.

¹ Danielsen, S. and Matsiko, F.B. 2016. Using a plant health system framework to assess plant clinic performance in Uganda. *Food Security* 8: 345–359.

² CABI. 2015. *Plantwise strategy 2015–2020*. Wallingford, UK: CABI. Available at: www.plantwise.org/about-plantwise/strategy/

³ National Plant Diagnostic Network: www.npdn.org

⁴ Animal and Plant Health Inspection Service: www.aphis.usda.gov



Philosophy and principles

The main aim of PHCs is to give farmers advice on plant health problems. The key features are described below.

Target audience: Plant health clinics are open to all farmers, and aim to provide equal access to men and women from all social and ethnic groups. They accept any crop and any type of problem.

Location: A PHC should be accessible, visible, and held at times that are convenient to farmers. Good publicity is essential for all venues, such as markets, community centres, and other places that farmers regularly visit. Offices in extension and agricultural department buildings tend to work less well without mobilisation of farmers.

Frequency: Once every two weeks for around two to three hours is recommended, but this is subject to availability of staff and funds. When demand is low, for example during the dry season when few crops are grown, PHCs may temporarily cease.

Equipment: Table, chairs for plant doctors and clients, shade (if held outside), hand lenses, knives for cutting open plant samples, PHC banner, forms for recording queries and giving recommendations to farmers, reference literature (e.g. pest and disease handbooks), and extension materials (e.g. photosheets, fact sheets). Laptops and tablets are useful for recording queries and advice and for showing photos of symptoms.

Samples: Farmers should bring examples of unhealthy plants, preferably with early symptoms. Material should be disposed of safely to avoid spreading pests and diseases. Reference photographs of key pests and diseases can help to diagnose problems where no samples are available or material is of poor quality.

Plant clinic data: Systematic recording of queries and advice helps to monitor PHC use and the relative importance of different problems, including new pests and diseases. Analysis of advice identifies areas where PHC staff need further training and information. This feedback is important for PHC staff to understand the benefits of recording data.

Operators: Plant health clinics are run by many different organisations involved in agriculture. They include public extension services (e.g. Pakistan), farmer organisations (Nicaragua), agricultural institutes (China), NGOs (Uganda), and national plant protection organisations (Burkina Faso).

Staffing: Clinics may be conducted by extension workers, plant health inspectors, and others who have attended plant doctor training courses (Box 2). At least two people (plant doctors) are needed to process queries efficiently and share their thoughts on diagnosis and advice.

Technical support and follow-up: Plant health clinics provide a standalone service but work best when they can access linked services and resources facilitated by a plant health system approach (Box 1).

Implementation

The following guidelines consider relatively large-scale establishment of PHCs, usually at country level. This approach offers significant advantages in facilitating access to expert support. Single or small groups of PHCs can be run independently, but establishing links will require more effort.

Getting started: Planning should ideally start with the Ministry of Agriculture and the NPPO. This will strengthen sustainability but can also be a lengthy process. It should be possible to start pilot PHCs with individual organisations, pending official government support. Early results help to demonstrate the clinics' wider value and encourage official support and investment.

Identifying operators: The functions and features of a PHC need to be clearly described and discussed with potential operators before launching. Extension providers are often concerned about the extent of their knowledge of crop protection, yet familiarity with farmers and agriculture is equally vital in framing advice. It is important to discuss PHC results and experiences with staff as well as their managers, so that the value of PHCs to organisations is clearly understood.

Development stages:

- 1 Scoping study of organisations working in plant health at national and regional levels to assess roles and interactions
- 2 Piloting of PHCs with first-time organisations
- 3 Consolidation – regular clinics are run by confirmed operators
- 4 Scaling-up – the number of clinics expands and new operators take part
- 5 Sustainability – stable operation of plant clinics as part of a functioning plant health system.

This is an ambitious series of steps for countries to complete, and requires strong overall leadership and

BOX 2: TRAINING OF PLANT DOCTORS

Plantwise offers two short training courses⁵. Module 1 is on field diagnosis and running plant clinics. Module 2 is on developing good recommendations. The two- to three-day courses accommodate up to 20–25 people and are run by trainers trained by CABI staff. Plant doctors can access further training material as well as extension literature via the Plantwise website⁶. Supplementary courses on writing fact sheets and monitoring progress are also held.

⁵ Plantwise – Plant doctor training: www.plantwise.org/plant-clinics/plant-doctor-training

⁶ Plantwise – Knowledge bank: www.plantwise.org/KnowledgeBank/Home.aspx



support at high level within government, as seen in Kenya, for example.

Coordination: The Plantwise programme has national coordinators seconded from public organisations, supported by CABI counterparts⁷. Countries with large, autonomous states (e.g. India and Brazil) may require more than one coordinator. High-level planning is carried out by a national forum comprising plant health stakeholders from the public, private, and civil society sectors. Annual meetings review overall progress and functioning of a national plant health system. Planning and monitoring of regular activities are carried out by a steering committee, which can also help to coordinate responses to pest and disease outbreaks. Staff from different PHCs operating within a small area may hold cluster meetings to discuss and review matters of interest.

Capacities required

Staff of PHCs should have a broad knowledge of agronomy, the common crops, and pests and diseases that occur locally. The basic requirements are post-secondary educational qualifications and the ability to use a computer or other devices to write reports and enter data, coupled with good interpersonal skills for interviewing farmers, and a systematic approach to solving problems. Plant doctor training provided by Plantwise (Box 2) gives pragmatic guidance on how to diagnose problems and give advice.

The term 'plant doctor' is widely used by those who run PHCs. Plant doctors do not as yet need to be registered or accredited. Plant health services lack the professional roles found in human and animal health, such as doctor, nurse, and vet, and further discussion is needed of formal qualifications and regular assessment of competencies. These discussions should recognize that plant doctors provide basic healthcare, similarly to a rural health clinic. They recognise the unknown, and seek information and advice from elsewhere.

Costs

If all basic equipment needs to be purchased, the minimum cost would be around US\$300. Tables and

chairs may already be available or borrowed on the day of the PHC. Running costs include transport to the venue, daily allowances for food, airtime for mobile phones, and internet connections. Assuming two persons per clinic, approximate costs would be around US\$50 per session. Honoraria paid to 'hire' crop protection experts to assist at PHCs are difficult to sustain. PHCs usually provide services free of charge, and introducing fees is unlikely to generate enough funds to offset the potential deterrent effect. Institute-based plant clinics are more likely to charge for laboratory diagnoses, which can be costly to undertake.

Strengths and weaknesses

Strengths

- Plant health clinics are demand-led: they respond to problems that concern farmers and give bespoke recommendations.
- They do not require special equipment so running costs are low.
- They build on existing knowledge and organisations that work directly with farmers and are familiar with local agriculture. They showcase what rural advisory services can achieve through effective use of available resources.
- They enable organisations to provide practical support to farmers on a larger scale.
- They help to forge new and stronger links between rural advisory services and national and international sources of plant health expertise and knowledge.
- Plant health clinics encourage constructive dialogue with agrodealers to guarantee that recommended inputs are available and that dealers respect the advice given to farmers.
- They provide a platform for public, private, and civil society sectors to collaborate.

Weaknesses

- Operators struggle to schedule regular sessions in addition to normal staff duties.
- Attendance can be disappointing and continuing effort is needed to publicise sessions.
- Establishment of national forums and steering committees is a lengthy process. Signing agreements and confirming partnerships requires perseverance and steady negotiations.
- Partnerships between PHCs and agrodealers may be viewed with suspicion because of concern about bias in recommending pesticides.
- Farmers may expect instant diagnoses and advice, and plant doctors fret about not being able to meet this demand.
- The quality of advice is variable and needs sustained effort to improve. Gaps in knowledge and weak skills of PHC staff are difficult to overcome with plant doctor training alone.
- Developing local ownership and self-sustaining funding models for PHCs requires strong political buy-in. Changes in government policies and personnel can easily undermine progress.

⁷ CABI. 2015. *Plantwise Annual Report 2015*. Wallingford, UK: CABI. Available at: www.plantwise.org/Uploads/Plantwise/Plantwise%20Annual%20Report%202015.pdf



Best-fit considerations

Plant health clinics are suited to all agricultural systems and address consistent demand by farmers for timely advice. The biggest gains are often seen where existing rural advisory services are weakest, as in Sierra Leone, for example. Plant health clinics are suited to farming communities that are often ignored or that fail to receive public extension support. They can be operated by many different types of organisation. They are flexible and adaptable to local conditions. The clinics help to bridge gaps between extension and research and strengthen collective responses to plant health threats and risks.

Governance

Plant health clinics are owned by the organisations that run them, although their management will also depend on any conditions set by external funding. National coordination is usually through the Ministry of Agriculture or delegated authority. Regional departments of agriculture may also play an important role in coordinating clinics. Under the Plantwise programme, 19 countries have established a national governance body as part of a general plant health system approach.

Evidence of impacts, sustainability, and scalability

Several studies of PHCs have found positive trends in increased crop production and income earned⁸. Attributing these key changes to PHCs alone is difficult. High farmer satisfaction is reported from several countries and anecdotal evidence attributes yield gains to clinic visits. Plant doctor knowledge and confidence has improved substantially following training under the Plantwise programme, with nearly 3,000 having attended courses.

Local funding in Pakistan, Sri Lanka, and Malawi, buoyed by positive feedback from initial PHCs, has seen the combined number for these three countries rise steadily from 147 in 2013 to 529 in 2015.

Sustainability depends on organisations incorporating PHCs into their everyday activities and embedding them in a plant health system. Local commitment plus strategic national support is the key to maintaining regular and high-quality services. For example, strong central support in Kenya has created a thriving network of PHCs. It is generally more difficult to maintain such networks when management of public extension services is devolved to regions.

Plantwise monitors progress using a sustainability roadmap, combining scores for key elements such as plant clinic operations, stakeholder linkages, use of data, and monitoring and evaluation⁹. In future this tool will help to identify corrective actions needed to strengthen sustainability.

Further reading

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Mur, R., Williams, F., Danielsen, S., Audet-Bélanger, G. and Mulema, J. 2015. *Listening to the silent patient: Uganda's journey towards institutionalizing inclusive plant health services*. Working Paper 7. Wallingford, UK: CABI.

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Photo: Eric Boa

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⁸ Brubaker, J., Danielsen, S., Olupot, M., Romney, D. and Ochatum, N. 2013. *Impact evaluation of plant clinics: Teso, Uganda*. Working Paper 6. Wallingford, UK: CABI. Available at: www.cabi.org/Uploads/CABI/expertise/CABI-WP6-impact-of-plant-clinics-teso-uganda.pdf and Bentley, J., Boa, E., Almendras, F., Franco, P., Antezana, O., Díaz, O., Franco, J. and Villarroel, J. 2011. How farmers benefit from plant clinics: An impact study in Bolivia. *International Journal of Agricultural Sustainability*: 393–408.

⁹ Plantwise roadmap: www.plantwise.org/Uploads/Plantwise/roadmap.pdf

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