	Longterm vision	Plantwise contributes to improving food security and livelihoods and alleviating poverty		
	Impact (Goal)	**Impact Indicators**	**Means of Verification**	**Assumptions**
	Adoption of the Plantwise approach enables male and female farmers in Plantwise countries to lose less crops through increased productivity and income	1. Change in crop loss through reduced pest damage 2. Change in pesticide use 3. Change in male/female farmers' crop productivity 4. Change in male/female farmers' household level income 5. Number of countries adopt the Plantwise approach, with more integrated extension response and delivery, diagnostic services' and use of plant health information and data for management strategies	1. Internal monitoring and evaluation reports 2. Internal impact assessment reports 3. External evaluation reports 4. Peer-reviewed journal papers 5. National reports and statistics by relevant government bodies (e.g. Ministries of Agriculture) in target countries	1. Political and civil stability in target countries 2. Absence of natural disasters in target countries 3. Commitment of government authorities and key stakeholders in plant health to support and encourage strengthening of national plant health management and advisory services 4. Farmers and farming communities able and willing to change farming practices
	Outcome (Purpose)	**Outcome Indicators**	**Means of Verification**	**Assumptions**
	Agricultural institutions and organisations' capacity to strengthen plant health systems sustainably increased, using the Plantwise approach within their country	1. Number of countries that have incorporated plant clinics into national extension strategies and budgets to sustain them. 2. Number of countries using data from plant clinics and other PWKB information to inform operations that improve plant health management 3. Number of new or re-emerging plant health problems identified rapidly through Plantwise-related activities, prompting management responses 4. Number of male and female farmers received appropriate, timely and locally relevant information and advice on plant health through plant clinics, complementary extension methods and farmer-to-farmer sharing 5. Percentage of female and male farmers adopt improved agricultural technologies and practices having received extension advice through the Plantwise approach	1. National strategy documents and budgets 2. Programme level and country-specific annual reports 3. Internal monitoring and evaluation reports 4. Internal impact assessment reports 5. External evaluation reports 6. Peer-reviewed journal papers 7. Plant clinic data	1. Governments policies support the development of plant health systems 2. Mutual understanding, strong partnership and cooperation between partners of national PHS 3. National partners willing to share plant clinic data with the knowledge bank 4. Appropriate personnel, facilities and materials available for planning and implementing programme activities 5. Organisations partnering with the programme continue to function throughout 6. Farmers and farming communities able and willing to change farming practices
	Outputs (Expected Results / Deliverables)	**Output Indicators**	**Means of Verification**	**Assumptions**
1	Linkages established/strengthened among stakeholders in the plant health system including farming, extension, research, diagnostics, regulation, input and information supply	1. Number of countries where changes observed in PHS stakeholder interactions	1. Reports and meeting minutes from LIOs, NROs and National Forum/ Steering Committee on PHS functions and progress 2. Guidelines for implementation of plant clinics and facilitation of PHS development 3. Diagnostic reports issued by national partner laboratories and international services in support to plant clinics 4. Lists of nationally registered agrochemicals and plant clinic-recommended products 5. Lists and reports of research bodies and technical experts supporting plant clinics 6. Country reports on extension policy and practice 7. Policy briefs on recommended changes	1. Local diagnostic facilities, agro-input suppliers, information providers, research institutions and regulatory bodies motivated to establish functional links with plant clinics and engage in National Forum 2. Sufficient funds and infrastructure available to enable plant doctors to send samples to partner diagnostic facilities 3. Partner diagnostic facilities possess sufficient resources and trained staff to diagnose plant health problems in a timely and accurate manner 4. National policies and strategies conducive for PHSD

2	Plant clinics networks established and complemented by other extension methods to provide advice to female and male farmers and catalyse the exchange and use of plant health data and information	1. Number of plant clinics operating in a number of countries 2. Number of male and female plant doctors trained and providing advice to male and female farmers 3. Number of male and female farmers received advice directly through plant clinics and complementary extension methods including mass media 4. Percentage of male and female farmers knowledgeable about agricultural technologies/ practices as a result of plant clinics and complementary extension methods 5. Number of countries operating their own country clinic data management system 6. Data validation scores for diagnoses and recommendations made by plant doctors 7. Change in the frequency of recommendations for highly hazardous pesticides by plant doctors	1. Signed agreements with key stakeholders 2. Monitoring and evaluation reports including client satisfaction surveys 3. POMS reports and statistics 4. Records of plant doctor trainings 5. Reports and meeting minutes from LIO, NRO, steering committee and national forum meetings	1. National and/or local organisations willing to establish and sustain novel extension methods 2. LIOs are capable and willing to allocate adequate resources (staff and budget) to the plant clinics 3. Partner organisations maintain adequate records of plant clinic queries and other relevant information 4. Educational institutions motivated to embed plant doctor training in curricula 5. Plant clinics are accepted by farming communities
3	Data and information management tools, content and processes used by PHS stakeholders to support national advisory and regulatory actions/ services	1. Number of countries in which plant clinic data is used by national stakeholders for monitoring and decision making 2. Number of male and female plant doctors and other extension personnel using the plant clinic data management tools and information	1. Data sharing agreements 2. KB reports and statistics on use of data and tools 3. Reports on key plant health problems and existing extension priorities and initiatives 4. Inventory of new extension material 5. Reports on extension training carried out 6. Reports on plant health rallies and other complementary extension campaigns 7. Case study reports on integration of extension activities 8. Reports on research topics identified	1. National and/or local partners interested in collaborating and sharing information with the knowledge bank 2. Organisations willing to collaborate with plant clinic partners and conduct joint extension activities 3. Partners motivated to adopt new extension approaches, e.g., plant health rallies and mobile services
4	Comprehensive PWKB material and tools used by PHS stakeholders for information on diagnosis of plant health problems, recommendations and pest distribution (incidence and severity)	1. Number of PHS stakeholders using the PWKB 2. Number of PHS stakeholders contributing to the PWKB 3. Number of validated extension materials targeting the needs of male and female farmers produced locally and uploaded into the PWKB and relevant national systems, and updated with plant clinic feedback	1. CABI's relevant existing data freely accessible in formats tailored for target users 2. Information from external sources in the PWKB in formats tailored for target users 3. Validated plant clinic data in the PWKB 4. Plant clinic-specific fact sheets and photo sheets in the PWKB 5. National webpages on the Plantwise website 6. Reports and statistics on use of PWKB data, tools and applications	1. Existing information repositories agree to partner and share information with the PWKB 2. National and/or local partners agree to share information materials and plant clinic data with the PWKB 3. New content regularly generated and shared with the PWKB; 4. Partners interested in country-specific information services via the PWKB 5. Final product meets expectations for functionality within the expected timescale and development costs 6. Political/commercial circumstances do not block the release of plant clinic data and new disease records
5	Monitoring and evaluation implemented for continuous learning, improving processes and quantifying outcomes and impact in-country and at programme level	1. Number of countries implementing plant clinic performance monitoring. 2. Studies from provide learning into what works and what doesn't in implementing the Plantwise approach 3. Number of impact assessments/studies and donor commissioned evaluations provide evidence of programme outcomes and impacts	1. External programme evaluation reports 2. Internal monitoring, evaluation and lessons learned reports 3. Reports on gender-disaggregated outcomes and impact 4. Peer-reviewed journal papers	1. Appropriate personnel available and motivated to support monitoring of programme activities 2. CABI and partners willing to accept lessons learned and adjust activities and behaviours accordingly

	Activities	Indicators of Achievement	Means of Verification	
1.1	Select programme countries based on pre-defined selection process results	1. Process and criteria defined for selecting countries in which to implement Plantwise programme 2. List of selected programme countries defined	1. List of criteria for country selection 2. Assessment report for new Plantwise countries 3. List of selected countries	
1.2	Describe and characterise existing plant health system stakeholders, resources and functions identifying those with whom partnerships can be established	1. An actor-linkage matrix prepared to map and analyse PHS stakeholder roles, behaviours and nature of interactions 2. Strategic fits and complementarities with Plantwise identified 3. Capacities for contribution evaluated	1. Country-specific actor-linkage matrices 2. Scoping report describing key actors in plant health, incl. national policies and strategies, institutional mandates, authority, resources, capacities and incentive structures 3. Stakeholder analysis reports including lists of national organisations as potential partners	
1.3	Create awareness of programme objectives and expected outcomes to seek partner engagement in activities	1. Awareness creation material prepared 2. Advocacy events conducted including meetings with representatives of relevant government ministries to introduce Plantwise concept 3. Key partners, including liaison officers of CABI member countries, regularly updated on programme activities	1. Awareness creation materials (e.g., PowerPoint presentations, brochures, videos) 2. Report and minutes from advocacy events 3. Member country portal on CABI's Plantwise.org website	
1.4	Establish key partnerships at national and local level	1. National coordinators from in-country organisations recruited with agreed ToR 2. National partnership statements and partnership agreements signed	1. Written ToR for national coordinators 3. Signed partnership statements and agreements	
1.5	Establish and facilitate or link to existing a steering committee and national forum of stakeholders and develop country-specific yearly plans of operation and budgets to enable establishment of national network of plant clinics	1. Steering committee and national forum with key country partners for planning and implementation of PHSs set up 2. Country-specific yearly plans of operation and budgets developed with national partners	1. Member list for steering committee 2. Country-specific yearly plans of operation 3. Country-specific annual budgets 4. Meeting minutes from national forum and steering committee meetings	
1.6	Identify existing capacity of agricultural research bodies and strengthen links with plant clinics to provide technical backstopping to support advisory services and respond effectively to farmers' needs for new technologies	1. Existing research bodies identified and characterised 2. Technical experts identified and providing backstopping at plant clinics 3. Targeted research topics identified through steering committee meeting and/or national forum meetings and/or plant clinic data 4. Technical experts engaged to contribute to the development of reference materials	1. Lists and reports of research bodies 2. Lists of technical experts supporting plant clinics 3. Steering committee minutes 4. Technical reports on relevant research activities 5. Applied research publications	
1.7	Strengthen links between plant clinics and in-country and international diagnostic support services	1. Diagnostic support services identified 2. New communication networks for diagnosis and advice established 3. Links to the Plantwise Diagnostic and Advisory Service (DAS) or other international support services strengthened	1. National Directories of Diagnostic Services 2. Reports on queries from plant clinics solved by diagnostic support services	
1.8	Investigate input supply chains and facilitate links between recommended agro-input dealers and plant clinics to ensure farmer access to approved inputs	1. Lists of nationally registered agrochemicals distributed to plant doctors and agro-input dealers 2. Access to Plantwise resource materials (e.g., Plantwise Pesticide Red List, PMDGs, factsheets) provided for agro-input dealers 3. Agro-input suppliers' operations, knowledge sources and constraints analysed	1. Situation analysis of agro-input sector	
1.9	Facilitate integration of Plantwise concepts into relevant existing/new policy documents (e.g. agricultural development plans, extension service policies, etc.)	1. Existing relevant policy documents assessed and described 2. Existing/new policy documents updated/developed	1. Policy document	
1.10	Embed plant doctor training and other Plantwise training content into in-service training programmes and/or formal post-secondary education institutions to enhance national capacity to expand schemes	1. Plant doctor training content integrated into in-service training programmes and/or post-secondary education institutions 2. Training content accredited by relevant education institution (where needed)	1. Revised curricula 3. Accreditation certificates/ statements	
2.1	Assess strengths, weaknesses and needs of national agricultural extension and advisory systems	1. Opportunities and threats for integration of plant clinics described	1. Country assessment reports 2. Meeting minutes	

2.2	Develop, update and translate training modules related to plant clinic establishment and operation	1. Training modules updated and translated	1. Feedback reports on training modules from PHS country teams 2. Up-to-date training modules	
2.3	Build capacity of plant doctors through training in Modules 1 and 2, and provision of technical backstopping	1. Modules 1 and 2 run for plant doctors 2. Plant doctors take exams from Modules 1 and 2 3. Technical backstopping provided to plant clinic partners	1. Training participant lists 2. Results of Module 1 and 2 exams 3. Country specific technical support reports and communications;	
2.4	Facilitate the establishment of plant clinics	1. Plant clinics operating 2. Plant clinic clusters identified and coordinated by local representatives;	1. National lists of plant clinics 2. Clinic data and admin information in POMS 3. Reports on clinic clusters meetings/events 4. Country annual reports	
2.5	Identify organisations and train trainers to lead further expansion of plant clinics	1. National/local organisations identified to run plant doctor training courses 2. ToTs, monitoring and backstopping conducted (Modules 1&2, and the Monitoring Plant Clinic Performance);	1. Lists of national/local organisations identified to train plant doctors 2. Lists of ToT participants 3. Country annual reports	
2.6	Train plant clinic supervisors, plant doctors and selected members of support network in Monitoring Plant Clinic Performance (MPCP) including quality assessment	1. Plant clinic supervisors, plant doctors and other relevant partners trained in MPCP 2. Introduction to plant clinic performance monitoring concept given to relevant partners and performance criteria developed with national partners 4. Regular plant clinic cluster (or review) meetings launched (to discuss and review clinic-related activities)	1. MPCP training materials 2. Participant list for MPCP training 3. List of performance criteria (from MPCP) 4. Minutes from regular plant clinic cluster/review meetings;	
2.7	Develop monitoring plans with country partners and facilitate regular monitoring for plant clinic networks, linkages and training	3. In-country monitoring plans developed and implemented, including required resources 5. Results of monitoring shared with relevant stakeholders and used in decision making	1. In-country monitoring plans including staffing and other resources 2. Reports of plant clinic monitoring outcomes and decisions made	
2.8	Facilitate the development and implementation of advocacy activities to increase national and local ownership of, and commitment to, running plant clinics	3. Advocacy activities implemented, including regular stakeholder meetings, exchange visits and conference presentations	1. Reports on planned advocacy activities and responsibilities 2. Advocacy materials (e.g., country briefs, videos, presentations) 3. Meeting minutes 4. Conference presentations	
2.9	Identify key plant health and productivity constraints according to plant clinic data and national priorities, and carry out mass extension campaigns with local extension and other service providers using a range of extension approaches, including plant health rallies, radio, mobile etc.	1. Key plant health problems identified according to plant clinic data and national priorities 2. Mass extension messages developed, campaigns implemented, documented and evaluated 3. Extension personnel trained in plant health rally methods 4. Plant health rally method tested, reviewed and adjusted as needed 5. Other mass extension campaigns and novel information dissemination methods for rapid and large-scale outreach developed and executed 6. Key messages circulated to larger numbers of farmers using mobile agro advisory approaches	1. Reports on key plant health problems from plant clinic data and national priorities 3. Plans and materials for extension activities 4. Reports on extension training 5. Documentation of extension activities including plant health rally monitoring reports	
3.1	Assess existing country processes for crop and pest data collection, management and use	1. Strengths and weaknesses of existing crop and pest data collection system described 2. Opportunities and threats of Plantwise data collection system described	1. Country-specific assessment report	
3.2	Develop and test an efficient plant clinic data collection and management system	1. Plant clinic data collection and harmonisation tools and methods reviewed and further developed 2. Data collection and handling training courses developed and given to LIO and NRO personnel, also through ToT in more advanced stages of implementation 3. Data management system adapted to local conditions and managed by national systems 4. Data Sharing Agreements signed with national partners	1. Updated clinic data collection and verification tools and methods 2. Data collection and management training course material 3. Documented data management procedures 4. Simple quality assessment (QA) tools	

3.3	Develop efficient processes for validation of diagnoses and recommendations	1. In-country data validation training developed and conducted 2. In-country data validation team established and operational 3. Plant clinic data validated in-country according to agreed operating procedures	1. Training participant list 2. List and ToR for validation team 3. Validated data in Plantwise Online Management System 4. QA reports	
3.4	Demonstrate, promote and facilitate use of plant clinic data by in-country partners as well as international collaborators	1. Key plant health problems identified according to plant clinic data and national priorities 2. Partner agreements established to share and use data through knowledge bank 3. Clinic data used by partners to assist them in fulfilling their mandate (e.g. identifying key plant health problems, plant doctor training needs, research and extension topics, etc.)	1. Reports on key plant health problems from plant clinic data and national priorities 2. Signed partner agreements on data sharing 3. Reports on additional and research needs training needs	
3.5	Identify opportunities for linking plant doctors with ICT to strengthen data collection and management	1. Apps developed, tested and translated as needed 2. Digital devices introduced to plant clinics to replace paper-based prescription forms and resource materials 3. Plant health data widely collected using ICTs 4. Improved communication systems developed to connect PHS stakeholders into an effective network.	1. Reports on improved plant doctor performance and data flow due to use of digital devices	
4.1	Assess existing national system for producing, storing and sharing technical and administrative information and identify needs to strengthen those systems	1. Strengths and weaknesses of existing information exchange system described 2. Opportunities and threats of Plantwise system for information exchange described	1. Country specific assessment report	
4.2	Develop and implement processes, based on country-specific information requirements, to enhance access to the knowledge bank	1. Processes of information exchange between the PWKB and relevant stakeholders defined 2. Mechanisms for linking information resources to extension services investigated 3. Access to information in the PWKB provided through the appropriate online or offline medium	1. Reports detailing linkages between information resources and extension providers 2. Reports on information exchange and within-country information sharing 3. Analytics on use of information materials available through KB	
4.3	Facilitate the production of new validated extension materials, based on topics identified through data generated in plant clinics, through training of relevant personnel (Extension Messages module training) and incorporate them into the PWKB	1. Relevant personnel trained in production of extension materials (e.g., pest management decision guides; factsheets for farmers, diagnostic photo-sheets) 2. Validated extension materials produced 3. New fact sheets and photo-sheets uploaded into the PWKB 4. Fact sheets and photo-sheets updated with plant clinic feedback	1. Training participant lists (Extension Messages module) 2. Locally-relevant extension materials for plant doctors 3. New and updated extension materials in the PWKB	
4.4	Enhance advisory capacity of plant doctors and other plant health stakeholders through ICT	1. Evidence that plant doctors in target countries using digital technologies 2. Apps developed, tested and translated as needed 3. Mobile friendly factsheets generated 4. Knowledge Bank material available for use on mobile devices 5. Online, country-specific networks of local experts facilitate communications between plant health workers	1. Number of mobile-friendly factsheets online 2. Mobile apps available 3. Reports on enhanced access to and use of resource materials through apps 4. Online, country-specific networks of local experts;	
4.5	Develop a negotiating strategy and establish agreements with content partners to enable two-way exchange of information materials between relevant international and national partners and knowledge bank for data and content access	1. Issues of Intellectual Property Rights (IPR) accommodated and policy statement composed and made publicly available 2. Processes developed and agreed for the transfer of information materials to and from the PWKB	1. IPR policy statement on the Plantwise website 2. Agreements with content partners 3. Documented processes for information exchange	
4.6	Incorporate CABI’s existing collection of extensive agricultural data into the knowledge bank	1. CABI’s relevant existing data and information (e.g., Crop Protection Compendium, CAB Abstracts and Distribution Maps of Plant Pests and Diseases) extracted, reviewed, quality-checked and repurposed for the requirements of the PWKB	1. CABI's relevant existing data freely accessible online in formats tailored for target users	

4.7	Incorporate existing information materials from other expert sources around the world, including locally-generated materials, into the knowledge bank and partner with other repositories for the provision of complementary datasets, services or technologies	1. Key existing repositories identified and partnerships established as necessary to link external sites to the PWKB and/or incorporate information, such as, diagnostic tools, images, distribution information, advice on the safe application of chemicals, links to other key experts (e.g. directory of diagnostic services) and services that are locally targeted	1. Lists of identified repositories 2. Agreements for data provision from external sources to the PWKB 3. Links to other repositories from the PWKB 4. Information from external sources in the KB in formats tailored for target users	
4.8	Develop tools within the knowledge bank to address country-specific information service needs, including interactive pest mapping application and pest information alerts	2. Tailored services provided to address country-specific information service needs 1. Pest distribution data brought together from multiple sources into one interactive mapping application including geospatial information for risk analysis 2. Alerting service built to deliver emerging information about new and existing pests, based on user specifications	1. Interactive mapping application comprising pest distribution data and other key geospatial information 2. Detailed pest distribution maps 3. Pest information alerts available from the PWKB	
5.1	Assess existing national systems for accountability, monitoring, and evaluation (particularly of organisations responsible for extension and crop protection)	1. Strengths and weaknesses of exiting M&E system described 2. Opportunities and threats of Plantwise M&E system described	1. Country specific assessment report	
5.2	Develop and monitor key performance indicators of strategic programme components	1. Key performance indicators for plant clinics, PHS and the PWKB identified; 2. Monitoring methods, tools and plan developed together with national and international partners 3. Regular monitoring activities conducted 4. Results used to track progress and lessons learned and inform improvements in services	1. Regularly updated monitoring plan for the programme 2. Monitoring reports on: (1) plant clinics (e.g. numbers of plant doctors trained, plant clinics established, clients attending (disaggregated by gender), client feedback reports), (2) PHS (e.g. changed behaviours, linkages strengthened) 3. PWKB (e.g. numbers and global distribution of users, metrics on content acquired and created)	
5.3	Develop and implement methods and tools to evaluate outcomes and impact of the programme	1. Evaluation methods, tools and plan developed, incorporating the collection of relevant baseline data 2. Gender-disaggregated impact (magnitude and scale of change) on household level indicators (agricultural productivity, farm incomes) evaluated in selected countries	1. Evaluation methods, tools and plan 2. Reports on baseline surveys 3. Reports on gender-disaggregated impact 4. Programme evaluation reports	
5.4	Carry out research to test procedures and processes involved in running plant clinics, strengthening plant health systems and delivering the knowledge bank, to test assumptions and assess new ideas and concepts	1. Impact evaluations to measure outcomes and impact of PW, causality and effects of the context 2. In-depth studies conducted to tackle more challenging assessments of Plantwise 3. Internships conducted with young researchers from universities in Europe, America and Plantwise countries themselves 4. MAS-ICM course conducted annually	1. Final reports and publications of study/evaluation results 2. Presentations of study/evaluation results for internal and/or external meetings 3. MAS-ICM student theses produced, linked to Plantwise	
5.5	Identify, document and share results and experiences and use lessons learned for improving effectiveness and sustainability of plant health systems	1. Lessons learned from all monitoring, evaluation and feedback documented and analysed	1. Monitoring and evaluation reports 2. Plantwise programme board minutes reflecting learning in decision making	
5.6	Facilitate external evaluations/reviews of the implementation of the Plantwise programme	1. External evaluations conducted 2. Required documentation provided by CABI to the external review body	1. External evaluation reports	