

Integrating Plant Clinics into County Agricultural Advisory Services Systems

Kenya Case Study

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Photo credit on front page: Willis Ochilo, CABI

Acronyms

AAK	Agrochemical Association of Kenya
AIE	Authority to Incur Expenditure
CC	Cluster Coordinator
CDA	County Director of Agriculture
CECM	County Executive Committee Members
CIDP	County Integrated Development Plans
COO	Chief Operating Officer
FAO	Food and Agriculture Organization
FAW	Fall Armyworm
FGD	Focus Group Discussion
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICT	Information and Communication Technology
IPM	Integrated Pest Management
KALRO	Kenya Agriculture and Livestock Research Organisation
KEPHIS	Kenya Plant Health Inspectorate Service
KES	Kenya Shillings
KII	Key Informant Interview
M&E	Monitoring and Evaluation
MoALFI	Ministry of Agriculture, Livestock, Fisheries and Irrigation
NSC	National Steering Committee
UoN	University of Nairobi
PCPB	Pest Control Products Board
PD	Plant Doctor
PDO	Plantwise Desk Officer
POMS	Plantwise Online Management System
PPSD	Plant Protection Service Division, MoALFI
PW	Plantwise
SCAO	Sub-County Agriculture Officer
SHA	Self Help Africa
SOP	Standard Operating Procedure

Abstract

Plantwise (PW) is a global programme led by CABI that is improving farmers' livelihoods by providing them with plant health information in order to reduce production losses and increase crop yields. In Kenya the programme was launched by the Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALFI) in 2012. In 2013 advisory services were devolved to 47 county governments. This qualitative study was conducted to help: understand what factors had encouraged funding in some counties; whether and how the programme had influenced the evolution of county extension systems during the uncertain devolution period (2013-2016); and whether and how the programme was being institutionalized and integrated at county level. The study found that Plantwise contributed to shaping agricultural advisory systems following devolution and provided an innovative approach that county governments could adapt. Two counties had scaled up the PW approach in their county agriculture extension system by including plant clinics into their County Integrated Development Plans (CIDPs) and performance contracts of senior cadre. This ensured clinics were eligible for county government funding to support recurrent costs as well as scale out. Institutionalization secured the programme from being marginalized whenever there were high demands for allocation of resources. In counties where PW was integrated, there was evidence that the ministers had demonstrated programme benefits to their seniors, in particular how the service contributes to reducing crop losses thus becoming an important part of meeting the county's food security needs. The study concluded therefore, that CABI and partners should invest in measures to integrate PW into policy and funding instruments at the county level to ensure sustainability. Interactions between PW management and county governments should primarily target the county ministers for agriculture as key policy makers.

Background

Plantwise (PW) is a global programme led by CABI that is improving farmers' livelihoods by providing them with plant health information in order to reduce production losses and increase crop yields. In Kenya the programme was launched by the Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALFI) in May 2012 under its advisory service. In the following year advisory services were devolved to 47 newly constituted county governments. CABI and stakeholders have, over the programme's implementation period, focused on instituting sustainability measures.

By the end of 2018, 591 plant doctors (PDs) had been trained and were operating 152 clinics in 65 sub-counties of 21 counties namely Siaya, Bungoma, Trans Nzoia, West Pokot, Nakuru, Elgeyo-Marakwe, Narok, Kajiado, Machakos, Kiambu, Embu, Kirinyaga, Nyeri, Tharaka Nithi, Kwale, Uasin Gishu, Kakamega, Busia, Kisumu, Kisii and Migori. Plant clinics were mainly operated by ward level front line extension staff, with the exception of 20 PDs from Katoloni community based organization in Machakos and Kenya Plant Health Inspectorate Service (KEPHIS) staff who operated 10 clinics.

Programme organization

The Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALFI), through the Crop Resources, Agribusiness and Market Deployment Directorate, has been leading Plantwise implementation since its inception in 2012, in close collaboration with relevant actors in the national plant health system. In 2013, Kenya devolved responsibility for agricultural development from national level to county governments. In response to this change, CABI in 2014, piloted tri-partite partnership agreements between CABI, MoALFI and county governments in an effort to ensure that both levels of government engaged with the programme. Out of fourteen counties where the programme operated only five counties signed the proposed agreements. The counties were not yet clear how extension services would be managed or how the two levels of government would work together. Hence many officers were not comfortable enough to make a binding commitment on behalf of their counties. Despite these uncertainties county governments allowed extension officers to continue running plant clinics.

Programme coordination was guided by a National Steering Committee (NSC) comprising institutions playing a key role in Kenya's plant health system represented by the MoALFI, Kenya Plant Health Inspectorate Service (KEPHIS), Pest Control Products Board (PCPB), Agrochemical Association of Kenya (AAK), and the University of Nairobi (UoN). Day to day activities were managed by a national secretariat comprising four staff, three from the national Plant Protection Service Division (PPSD) and one from CABI. Each county appointed a Plantwise Desk Officer (PDO) responsible for overall supervision and growth of the programme. For this role, counties selected senior officers that were responsible for crops, horticulture or monitoring and evaluation (M&E) activities at county level. Each county also selected an officer to play the role of a 'Cluster Coordinator' (CC) at sub-county level. This coordinator was responsible for monitoring clinic operations at ward¹ level and mentoring plant doctors. Plantwise desk officers were responsible for advising the respective County Directors of Agriculture (CDAs) on crop protection issues, and subsequently in the case of PW, drawing up plans for scaling out and sustaining the initiative.

In order to support scaling out, CABI and MoALFI spearheaded the development of Standard Operating Procedures (SOPs) to guide partners as they came on board to scale out clinics. The SOPs document, developed in 2018, laid out quality assurance measures to ensure that plant doctors provided good quality services to farmers.

Programme funding

From 2012 to 2016, CABI fully funded the setting up of plant clinics including training PDs, procuring clinic materials, and providing PDs with a lunch allowance on clinic days at the government rate of KES 1000 per person. On average KES 200,000 was also disbursed monthly to various officers to support coordination and monitoring at the county level. In 2017 the programme, then in scaling-up phase in Kenya, embarked on a phasing-out model that required cost sharing with the counties. The main focus was to encourage both the national and county governments to integrate the programme into their agriculture funding mechanisms, as well as encourage other parties to partner directly with CABI or the county

¹ The lowest level of government administration in Kenya, at which plant doctors operate

governments. This was done through targeted meetings with county policy makers and various organizations that were supporting agriculture at county level.

By 2018 CABI had ceased funding PD training and the procurement of clinic start-up materials. Plant doctor lunch allowance was reduced to KES 500. A good response to the new co-funding model was realized with a total of £150,714 invested by five county governments (Kiambu, Trans Nzoia, Nakuru, Tharaka Nithi and Kajiado), GIZ, KEPHIS, KALRO and SHA. This came to the equivalent of 50% of the funds invested by CABI.

Clearly the agricultural set-up in the counties had evolved from the situation in 2013 and they were now in a better position to determine how they could support extension work including funding PW-related activities. This included mechanisms for the County Directors of Agriculture (CDAs) to generate plans and budgets for the agriculture ministry which were submitted to the county's Executive Committee Members for agriculture (CECM), i.e. the minister for agriculture. The minister, working together with the Chief Operating Officer (COO), had to present and defend these proposals in the county parliament where allocation of funds always requires rigorous justification as competition for funds is stiff. For most counties, the funds requested for agriculture were never guaranteed in full; and the amount eventually allocated covered recurrent costs such as staff salaries and procurement of 'hardware' in the form of equipment. Allocation for day-to-day extension activities has been inadequate since devolution, despite the amount that the six counties have managed to invest.

Purpose of study

This study was conducted to help understand: what factors had encouraged funding in some counties; whether and how the programme had influenced the evolution of county extension systems during the uncertain devolution period (2013-2016); and whether and how the programme was being institutionalized and integrated at county level. The selected counties represented some that had invested in the programme and some that had not. The study intended to draw lessons from both scenarios in order to guide how the programme could accelerate uptake in more counties for sustainability.



A clinic in session at Nakuru Agriculture Show, 2018. (Photo credit, Peter Karanja, CABI.)

What We Did

Sampling and sample size

For the study, four counties where CABI had initiated PW were selected: Nakuru, Narok, Tharaka-Nithi and Trans-Nzoia (Table 1). The counties were purposefully selected based on institutional knowledge about counties. Two of those selected (Trans Nzoia and Nakuru) had made significant steps towards integrating at least one component of PW into their agricultural extension activities. This was either through training their agriculture extension workers in module 1 (diagnosis) and 2 (recommendations) courses in order to become PDs and/or supporting the actual operation of PCs. The other two counties (Narok and Tharaka Nithi) had

made much less progress towards embedding the plant clinics into their agriculture extension activities. The decision to hold discussions with officers in the two categories of counties was an attempt to present a balanced picture of how different counties had adopted and adapted the PW model, and to determine what factors were likely to bring successes as well as challenges. Field work to gather information was conducted between June and September 2018.

Table 1: Sources of data by county

County	Focus group discussions	Number	Key informant interviews
Nakuru	Plant doctors	M =8 F= 4	<ul style="list-style-type: none"> County Executive Committee Member (CECM) for Agriculture (Minister for Agriculture) County Director of Agriculture Cluster Coordinators Sub-County Agriculture Officers Kenya Agricultural & Livestock Research Organization (KALRO) staff Plantwise Desk Officer/County Crop Officer
Trans-Nzoia	Plant doctors	M=7 F=10	<ul style="list-style-type: none"> County Executive Committee Member (CECM) for Agriculture (Minister for Agriculture) Chief Officer for agriculture County Director of Agriculture Cluster Coordinators Sub-County Agriculture Officers Plantwise Desk Officer/County Crop Officer
Narok	Plant doctors	M=9 F= 5	<ul style="list-style-type: none"> County Executive Committee Member (CECM) for Agriculture (Minister for Agriculture) County Director of Agriculture Cluster Coordinators Sub-County Agriculture Officers Plantwise Desk Officer/County Crop Officer
Tharaka-Nithi	Plant doctors	M=7 F= 6	<ul style="list-style-type: none"> County Executive Committee Member (CECM) for Agriculture (Minister for Agriculture) Cluster Coordinators Sub-County Agriculture Officers Plantwise Desk Officer/County Crop Officer

Data collection and analysis

This was a qualitative study utilizing focus group discussions (FGDs) and key informant interviews (KIIs) to gather data and expert opinions on how counties were adopting and adapting PW components into agricultural extension and advisory services. One member of the team facilitated the FGDs with plant doctors, while other members took notes, with occasional follow-up questions to obtain further explanations and clarifications. KIIs were conducted with individual county staff as listed in Table 1. Three of the four FGDs took place at the county agricultural offices and one at a hotel. The KIIs were held in the offices of senior staff being interviewed. Checklists of questions were used to obtain data, with data collection taking place between July and September 2018.

Data collection was structured around five key thematic areas to assess how counties had adopted and institutionalized Plantwise.

- **Benefits.** We asked whether PW was enabling individuals to achieve their work targets, get job satisfaction, improve career progression, open new opportunities or get recognition and promotion. This helped gauge motivation to support Plantwise and work towards its sustainability. Those directly implementing PW activities as well as policy makers at the counties were interviewed.

Specific questions were asked in relation to how the county remuneration and reward system was organized and whether PW had influenced it in any way. We enquired whether running a plant clinic would help individuals meet their performance contracts, whether there were targets set for plant doctors in terms of numbers of farmers to be served, and whether the county had production targets and how were these cascaded to ward level.

- **Policy tools and funding instruments.** The aim was to find out what guided the county government's resource allocation and to what extent were plant clinics factored into these funding instruments. Other questions related to instruments for scaling up and mainstreaming PW activities.
- **Resources allocated.** We investigated the adequacy of both financial and human resources for advisory services. We also focused on whether and how PW is influencing the operations of the extension officers including, for example, any influence on existing reward systems, allocation of funds for day-to-day activities, interactions and sharing of information. The analysis was carried out in the context of how other agriculture activities were being supported in the county.
- **Implementation and coordination.** The aim was to find out whether plant clinic implementation was streamlined with other extension activities or whether they were considered to be extra work. We sought information into how the programme interacted with and influenced existing or evolving aspects of the current extension system such as (i) communication and collaboration between different players in the plant health system including farmers, agrodealers, government officials; (ii) internal relations between extension staff, e.g. those trained as PDs versus those that have not been trained, PDs and their superiors; and (iii) data use and M&E. In addition we investigated what elements of PW partners they would like to retain or abandon and why, and which elements were easy to implement or caused difficulties and why. The analysis focused on four areas: communication and internal relations, stakeholder linkages, using clinic data, and M&E. With respect to communication, the study aimed to understand whether the PW programme had spurred more and/or new avenues for interactions between different cadres in the ministry. It queried whether and how peer-to-peer and senior-junior communication had been affected and whether it increased in frequency, changed the means of communication, or even the type of information communicated.
- **Scaling out of plant clinics.** We sought evidence that counties were providing actual commitments to build sustainability for established clinics as well as for increasing plant clinic numbers. We assessed whether staff (at all levels) were engaged in the discourse and action towards sustainability; the extent that individuals and the county were concerned about continuity; whether there were additional clinics set up by the county themselves or in partnership with other organizations; whether there were discussions on

how the counties would continue to support clinic operations; whether the plant clinic concept had been adapted or adopted by other organizations; and what the PW secretariat could do better to support sustainability efforts.

Findings

Benefits of implementing PW activities

Plant doctors

Plant doctors had improved their knowledge and skills to diagnose and provide advice on various plant health issues as a result of undergoing Module 1 and 2 training. The knowledge and skills gained made it easier for them to give farmers advice, as well as improved their own farming activities.

Involvement in PW improved the plant doctors' sense of job satisfaction as their peers recognized their knowledge and skills in plant health diagnosis and advice. They became a resource to their colleagues. The programme also strengthened the plant doctors' links and interactions with farmers, as they were able to provide farmers with better advice through improved knowledge, on a systematic and regular basis. PDs felt that farmers had benefited by getting information from them immediately, through an SMS with the prescription to the farmer's phone. This meant that the farmer could access the information later on, for example, when visiting an agrovet shop to buy the recommended inputs. They felt able to engage farmers with confidence, and improved their relationships with farmers.

The provision of tablets revolutionized the way plant doctors provided agricultural advisory services to farmers. They were able to access plant health and good agricultural practice information resources through their tablets, which enabled them to provide good and up-to-date advice to farmers. In addition, the tablets meant they were able to interact with peers through WhatsApp and Telegram to ask for diagnostic support, for instance. This networking was an invaluable real-time peer support system which did not exist before PW and the digital plant doctor network.

Senior county officials

Senior county officials described how the programme had enabled them to retain their individual relevance as well as that of their department during the uncertain devolution process. All the ministers interviewed said the programme had boosted the visibility and importance of extension staff as well as the importance of tackling crop pests and diseases at a time when the value of the extension department was under scrutiny. Two out of the four ministers were able to articulate the importance of extension work to their county parliaments using plant clinic data, thus not only securing staff jobs but also obtaining funding to upscale the clinic network. In Trans Nzoia County, plant clinics are being transformed into a one-stop-shop, 'huduma centre', where farmers will be able to obtain other services provided by the ministry. For example, subsidized fertilizer and seeds will be distributed through plant clinics.

Sub-county officials

Sub-County Agriculture Officers (SCAOs) that supervised PDs felt the programme had improved staff confidence and productivity. It had enhanced their interactions with PDs since the latter could readily give information on plant health in their respective wards. They felt more confident that farmers were being served by competent staff. Before the programme, it was difficult to get a 'general picture' of plant health issues that farmers were dealing with in a specific location, since there was no systematic way of collecting and analyzing data. PW has helped to solve this problem.

Effects of running plant clinics on extension staff careers

Performance contracts for staff in the counties ceased with devolution. Hence none of the PDs had a formalized requirement to run plant clinics and there was no institutionalized reward for this work. However, this state of affairs was not unique to plant clinic work: it applied to all activities undertaken by extension staff. Counties did not have funds to facilitate officers to implement their activities, hence lacked a basis for evaluating staff based on performance contracts. In addition, promotions were generally not being implemented following devolution, and current policy dictated that promotions be based on academic qualification rather than on performance. Overall there was no evidence that running clinics and other related PW activities could lead to career progression. However, a few officers got chances to continue with their studies through CABI as a result of being PDs or CCs which was a good motivator, albeit limited in terms of the numbers that could benefit.

The ministers for agriculture reported that the counties were in the process of reinstating performance contracts which were to be piloted in 2019 starting with their cadre. Two of the ministers interviewed (Trans Nzoia and Nakuru) reported they had included plant clinics in their draft contracts, therefore, they needed to cascade the requirements to run plant clinics to their staff in order to achieve their own goals. This was a good indication of their commitment to have PW activities carried on beyond the end of the programme. Future follow-up was recommended to find out whether including plant clinics in the senior officials' contracts made a difference to funding.

In summary, running clinics:

- highlighted the importance of extension services in the counties in addressing plant health issues
- led to improved job performance and satisfaction

Policy and funding instruments

Overall the study found that all the counties were still in the process of domesticating the national government's agriculture policy, hence there were no existing policy documents in place. However, some counties were drafting specific bills including an Agriculture Development Fund Bill in Tharaka Nithi and a Crop Protection Bill in Trans Nzoia. These activities, and development activities for all sectors are guided by the County Integrated Development Plan (CIDP). Each sector has to present an annual development plan and budget to the county government that must be anchored in the CIDP. Two counties, Nakuru and Trans Nzoia, had specifically mentioned plant clinics in their CIDPs. This, however, did

not necessarily guarantee funding for clinics, as only limited amounts of funds were provided for extension in the four counties. Nevertheless, it was a good basis for the minister for agriculture to lobby for an allocation.

Resource allocation

Findings are in three sections: funding, staffing and building skills and knowledge.

Funding

In three of the four counties, CDAs had prepared and submitted annual budgets to support plant clinic operations at least once. In the two counties where plant clinics were included in the CIDP, the ministers had managed to secure funding for plant clinic expansion to scale out clinics to all their administrative wards. Both ministers realized that clinics were a good link to farmers and hence had championed the plant clinic approach as an extension tool. They were also keen to use the clinic network as an infrastructure for delivering other extension services, and to increase their visibility and relevance of their departments.

The success of the two counties that obtained funding by having plant clinics in their CIDPs should be shared with other counties to demonstrate how they could institutionalize clinic work. It was recommended that the programme works with ministers and the CDA to produce short policy briefs that can influence funding for plant health, including sustaining clinics. Briefing sessions with the COOs and governors on the programme benefits were also recommended. Overall, clinics provided an important, and generally the only, avenue for extension work during the transition to devolution, when no funding mechanisms were available.

Box 1: Working with Zero Budget – according to a sub-county agricultural officer

“Performance contracting is not happening, each person sets their targets and submits to their superior a workplan and budget. Before devolution, we as SCAOs used to have Authority to Incur Expenditure (AIE) using approved budgets. However, currently, despite submitting a budget a year ago, we have not yet received any allocation. The approved budget for agricultural activities used to be shared before devolution, but now we don’t get to know what was approved – we are totally in the dark. We are working with zero budget. Activities are ad hoc – an officer may be asked to conduct a certain activity any time by their superiors usually with no accompanying facilitation. We are no longer AIE holders. We get directives – do this, do that and hence one is not able to plan. This financial year some funds for fuel have been made available – however, there is only one motorbike in running condition in my sub-county – many have broken down so officers are using public transport”

SCAOs have responsibility for planning and coordinating agriculture activities at the sub-county level from where plant clinic operations are coordinated. Their role is to manage resources (staff, finances, transport) and report to the CDA, including providing a food security status.

Despite this, all counties reported having dire funding for extension activities. For example, one county allocated only KES100,000 (~£770) in a year to extension activities. In another county the agriculture department as a whole was getting 4–5% of the county budget instead of the recommended 10%. The severity of the funding situation was illustrated during discussions with two SCAOs (Box 1).

Plant doctors reported that the most consistent and systematic work they had been undertaking since devolution was running plant clinics. In all counties the work of the front-line extension staff was primarily driven and funded through donor projects, managed either directly by the county or through the national government. Funding for day-to-day clinic operations (lunch allowance and transport) was not catered for in a consistent manner (Box 2). In all the counties officers were expected to perform their duties, irrespective of whether they received lunch and transport allowance: they could claim a reimbursement, but a refund was not always guaranteed. In two counties, the sub-county officers were quite sceptical that plant clinics would continue running if funds were not provided by a donor or by the county. They felt that the plant doctors' commitment would not be an adequate driver for individuals to go to the extent of using their salaries to run plant clinics. One recommended solution by the study team, as an immediate step towards sustainability, was to relocate clinics to where PDs either walk or use minimum travel costs. The expectation that staff can use their own resources to meet expenses for running clinics is not practical or sustainable.

Box 2: Who should bear the cost of running a plant clinic?

All four county governments allowed their extension officers to continue running plant clinics following devolution, and between 2013 and 2017, clinics were the main avenue for providing agricultural advisory services. During this period, the recurrent costs for running clinics was provided by CABI, comprising a lunch allowance of KES 1000 (~£7.70) for each clinic session. This was equivalent to the front line extension staff official entitlement for lunch when they worked outside their duty station. For most the allowance also catered for their travel costs on a motorbike and/or public transport. PDs stated that they did not get lunch allowances from their devolved governments and were grateful that CABI had provided the support.

In 2017 CABI reduced the lunch allowance to KES 500 (£3.85). Many plant doctors stated that they had to subsidize these costs during clinic days as KES 500 was inadequate for both lunch and travel. They were unsure that they would be able to meet costs of running clinics in 2019 when CABI planned to stop subsidizing lunch allowances. This was especially the case when they were operating more than one plant clinic. They considered that the cost of transport, lunch and mobile data bundles to send data to POMS was considered unaffordable to subsidize from their own salaries.

Staffing

All counties reported that they had inadequate numbers of extension staff, mainly resulting from natural attrition (retirements and deaths) without staff replacements. In addition, many officers were expected to retire in the next 3 years, and counties did not have replacement plans due to an ongoing 'freeze' on employment. In this scenario many sub-counties expected to have only one or two trained PDs by 2021 compared to having had at least 10 at the time of the study. The continued reductions in the number of extension staff with minimal replacements poses a real challenge to sustaining routine plant clinic operations. All ministers for agriculture were hopeful that different working methods, e.g. through mass extension, using ICT tools, would be more successful than trying to lobby for staff replacements. It was recommended that alternative ways to reach farmers with services normally delivered at the clinics be explored, not just relying on face-to-face interactions.

Building skills and knowledge

There were no systematic or continuous programmes for capacity building of extension staff at the time of the study, though senior staff did at times get managerial training. Since devolution, PW has been the main agent for re-training and increasing staff's knowledge and skills in diagnosis and giving good advice to farmers.

“Before Plantwise was introduced, the knowledge our extension staff had, had been overtaken by events. The government no longer had a budget for training but thanks to PW trainings, plant doctors are well equipped with knowledge and can now access up-to-date information by the touch of a button.” Mary Nzomo (Minister for Agriculture, Trans Nzoia County)

PW modules were said to be the most comprehensive in terms of addressing all crops and their respective pests and diseases. No other programme provided similar skills on plant health management though some targeted training on pest and disease management for a specific crop were sometimes provided through projects run by national institutions such as KALRO or by agro-inputs companies marketing their products. For example in Tharaka Nithi, KALRO had trained farmers on Integrated Pest Management (IPM) approaches for mango production.

“I graduated from college about 30 years ago and was still relying on that knowledge which was obsolete. Now, thanks to Plantwise, I am up-to-date with current happenings in the plant health field”. PD in Nakuru

None of the counties had adapted the training or approached institutions that deliver the courses. However, they suggested a number of institutions that could be targeted to deliver the training programme. It was recommended that PW works with the counties to explore how best to retain skills for delivering the PW modules to extension agents in future as clearly the training had made a difference.

“PDs now give detailed, accurate monthly reports that are dependable for decision making. The benefit of having extension staff with diagnostic skills was demonstrated in our county when a PD reported a case of Stock Rot on maize in Narok South. The county was able to take correct and timely intervention. This would not have been the case if the PDs did not have all the knowledge resources availed by PW”. Plantwise Desk Officer, Narok County.

Implementation and coordination

Communication and internal relations

The most quoted change on communication brought about by the programme was that it had created a platform for peer support between the PDs. Plant doctors were all linked through social media platforms (WhatsApp or Telegram). They posted queries when they were not sure about a diagnosis or recommendation. Technical staff from KEPHIS, KALRO and CABI provided additional support through these platforms whenever needed.

“Thanks to the Plantwise programme intervention, I have something in my pocket (tablet) that I can consult whenever in need of reliable information. The online platform provides a lot more information than would have been available within ‘normal reach’.” PD in Nakuru

In Nakuru, plant doctors stated that they felt farmer confidence in the extension staff had been boosted by the new skills that PDs had gained. They stated that this had led to an increase in farmers' requests for PDs to visit their farms.

In all counties those responsible for supervising PDs felt that increased knowledge had influenced positively how they related with the plant doctors. Crop officers from two counties (Tharaka Nithi and Narok) said they were more confident of the PDs' capacity and therefore they sought advice from them on the pest and disease situation as well as best management options. Furthermore, the extension staff that had not been trained as plant doctors were benefiting by learning from those that had received the training.

Stakeholder linkages

Minimal instances of increased interaction, as a result of the programme, with other players in the plant health system were cited. CABI had sponsored data sharing fora in 14 counties in 2014 to demonstrate how data could be used to generate discussions and interactions amongst stakeholders. However, these discussions and interactions had not progressed any further, even though the counties were positive about the idea. Discussions in this study indicated that extension staff mainly interacted with stakeholders on a needs basis. In Tharaka Nithi County, PDs reported that they were consulted by agrodealers seeking assistance with diagnoses or informing PDs that they had new stock available. As systems of interaction evolve and the number of diverse demands from those engaged increase, there is a need for both the public and private sector players to work together closely, so that they provide the correct and proper agricultural advice, services and products to farmers to tackle crop health issues effectively, with the ultimate aim of improving agricultural productivity, incomes and food security. Further discussions are needed to understand whether there is any benefit in the programme supporting stakeholder linkages, for example facilitating meetings, during this scale-up phase given that there was no evidence earlier efforts had made a difference.

E-Plant Clinics - Kenya Edition
323 members



A clip of a Telegram conversation among the Kenyan team of PDs and other experts

Use of agriculture data for decision making



Nakuru county minister for agriculture, Hon. Dr. Immaculate Maina explains the role of plant clinics to the cabinet secretary for agriculture Mwangi Kiunjuri. A chart showing top pests and diseases brought to clinic, as recorded in POMS, is displayed in the background. The clinics were displayed at the Ministry of Agriculture stand demonstrating the work in extension. (Photo credit, Peter Karanja, CABI.)

There was no centralized process or infrastructure for gathering, managing, analysing and using agriculture data for decision making in any of the counties. However there were instances cited whereby specific data on a pest had been collected as part of a project and then used for decision making. For example, data on Fall Armyworm (FAW) collected through an FAO-funded project was used to prioritize localities for intervention. The PW data collection system was regarded by the ministers interviewed to be a good example of how a data system could function and two of them gave accounts of how they had used clinic data.

Nakuru and Trans Nzoia Counties had used clinic data (i) to successfully lobby for funding to expand their clinic network. They used the funds to train PDs and set up clinics in every ward of their counties; (ii) Nakuru county constituted an early warning team that intends to use clinic

data as a source of information for surveillance; and (iii) in 2017, the Trans Nzoia County Plantwise desk officer and the minister for agriculture, wrote a cabinet memo to their county government raising awareness and concern on FAW, a new pest then, after getting a sense of its high incidence in the county from clinic data (see excerpt). They used the information to successfully lobby their county government to allocate KES 45 million (£324,000) to tackle the pest (Box 3). The funds were used for raising awareness on how to manage the pest and procure pesticides for farmers. This led to successful management of the pest during that cropping season which saved the county billions of shillings that could have been otherwise lost. This was significant not only at the county but also at national level considering that Trans Nzoia county produced the highest tonnage of maize, the country's staple. A maize crop failure in this county would impact the country's food security.

BOX 3: Using clinic data to lobby funding for control of FAW

Trans Nzoia County's Plantwise desk officer gave a sequence of events that led to tackling of FAW in Trans Nzoia using clinic data as follows:

- *A strange caterpillar was reported in clinics in early March 2017*
- *Surveys in all parts of the county were conducted on 10th to 17th March*
- *A Cabinet Memo was written by the PDO and the minister and submitted to the Governor in April 2017*
- *Launch of the National FAW Campaign in Trans Nzoia County on 8th April 2017*
- *Funds urgently allocated from the county coffers and launch of FAW campaign and distribution of county-funded plant clinic materials commenced on 9th May 2017*

M&E

There was no centralized M&E system for agriculture in any of the four counties. No county had undertaken assessments on how farmers had used the information provided at clinics, and any subsequent results on crop growth or yield. In one county there was an M&E and data manager but it was not clear what their role was with regard to overseeing M&E activities in the agriculture department. In Nakuru the minister for agriculture had a process for getting updates on agreed activities on a monthly basis. The report included reports on pests and diseases compiled by the PDO, partly from Plantwise data. Most other M&E-related activities were specific to ongoing donor-funded programmes. The study did not find a robust M&E structure that could readily integrate PW activities. The lack of systematic M&E processes denies the counties the opportunity to learn from what is working well and what is not working and thus learn lessons for improvement. This translates to poor accountability to the farmers they serve and to other stakeholders.

It was encouraging to note that Nakuru County had conducted peer reviews of clinic data on a quarterly basis to assess quality of diagnosis and recommendations, as well as to identify areas where PDs need retraining. Based on findings, the county had conducted targeted training for PDs on disease and pest management. For example, in 2017 the county trained PDs on the identification and management of Potato Cyst Nematode. It was recommended that the programme should share with counties its monitoring and evaluation processes and tools as a guide on how clinic operations could be monitored.

Both Nakuru and Trans Nzoia Counties demonstrated how powerful clinic data could be in influencing both policy and resource allocation. It was recommended that the programme should share these lessons with other counties so that they can aspire to similar benefits.

Scaling out the plant clinic network

All four counties had attempted to obtain funds for plant clinic expansion. Nakuru and Trans Nzoia counties focused on sustaining clinics that had been set up under PW, as well as expanding to new areas. For example, in 2017 Trans Nzoia scaled out clinics to all its 25 wards, building on the base of 15 clinics in 11 wards established by Plantwise. The county established a further 12 clinics in 14 wards, providing a total of 27 clinics. Plant doctor training costs,



Minister for agriculture in Trans Nzoia County, Hon. Mary Nzomo launching county sponsored clinics in 2017. (Photo credit, Florence Chege, CABI.)

procurement of clinic kits and operational costs for clinics to run were all provided by the county, while Plantwise provided trainers. This county also integrated other extension

services, such as distributing subsidized fertilizer into clinic services. Both counties included plant clinics in their CIDPs and had an expansion plan in place. Nakuru County had concrete plans to establish plant clinics in all its 23 wards and by the time of writing this report the county had sponsored the training of 25 new PDs (6 men, 19 women) in December 2018. The officers planned to start 11 new clinics in 2019.

Both Narok and Tharaka Nithi Counties had attempted to obtain funding from their governments to scale up plant clinic operations. However, these efforts have yielded minimal results. It was recommended that the programme should support these and other counties to articulate the importance of clinics, as has been done in Trans Nzoia and Nakuru Counties.

Conclusions

This study was conducted as an interactive and learning exercise between CABI and PW partners at national and local levels. The objective was to learn how the programme had benefited and influenced the agriculture extension systems at the county level. It sought to assess whether there was evidence demonstrating that PW's plant clinic model was being integrated into the county agriculture system sustainability. The overall aim was to learn lessons and make recommendations on how best the programme should engage with counties in order to support their efforts in sustaining plant clinic operations.

Were extension systems changed?

There were many indications and examples provided about how PW had brought about system change in extension services delivery. PW had:

- changed how agricultural extension staff acquire and share knowledge
- enhanced interactions (and the depth of substance in the information shared) between officers both at same cadre, as well as with their superiors particularly through the Telegram platform
- revolutionalized how front-line extension staff work and expanded their world by having tablets to be able to readily access information
- inspired many officers to conduct further research online, seeking information and knowledge, and motivating a number of them to study for higher academic credentials
- provided a new structural approach for reaching farmers, which is being modified to deliver other county programmes to farmers
- streamlined crop health reporting, including collection, collation, analysis and use of data on plant health, and ensured that decisions were evidence-based as front-line officers had the information at hand
- highlighted the importance of having an agriculture database system in place

- inspired the need to have a work and planning system that is relevant, well-coordinated and organized

Clinics became a default avenue for extension during devolution. In retrospect they can be considered a pilot of how extension could be structured in the devolved system. The fact that two counties had already institutionalized and expanded their clinic network by the time of the study was evidence that plant clinics were a useful avenue for delivering advisory services in the counties.

Factors supporting plant clinic integration

Findings from Nakuru and Trans Nzoia demonstrated that avenues exist that could be used to integrate plant clinics into a county extension system. The two counties had not only managed to include clinics in their key agriculture planning instrument, the CIDP, but also secured funding for expansion of the clinic network. The study team's observations on why these two counties were successful in integrating clinics are listed below.

- Political support for agriculture, and in particular extension, is essential for plant clinics to flourish in the counties. It was evident that successful counties had aggressively sought and managed to demonstrate the role and contribution of plant clinics in addressing pests and diseases to senior officials in their county. This contributed to a reduction in farmer losses and improved food security, which was a top priority in both national and local governments' development agenda.
- When clinics are included in CIDPs, and in the performance contracts of senior officials, there is better integration of plant clinics into county systems, and a better chance of sustainability.
- It was apparent that sub-county staff (PDs and SCAOs) had little input in the development of policy and funding instruments. It was therefore found to be critical, in this scaling-up phase, that the programme works very closely with those that can influence change. Increased interactions with the crop officers, CDAs and ministers for agriculture are necessary. The programme also needs to support these policy influencers to reach the final decision makers in the county.
- Team work was most effective when senior officers had agriculture or other related sciences as a background. This could be because they understood and appreciated the work of extension officers and could relate to their frustrations. Where senior officers were politically appointed, with no relevant background, team cohesiveness was less evident.
- A passion, particularly from the county crop's officers, who usually doubled up as Plantwise desk officers and/or the minister for agriculture, for delivering advisory services to farmers as well as a buy-into plant clinics as an extension tool, was critical. Such officers have the means to champion clinic integration because they have decision-making power or can influence resource allocation. Staff showing drive and initiative could be further encouraged through training and exchange visits.
- The two counties had crop protection and/or plant clinics clearly articulated in at least one funding instrument, be it agriculture policy, strategy or CIPDs

Despite the lack of funding, PDs expressed their desire and commitment to continue running plant clinics. Most also said they did not view clinics as extra work, rather as a good means for them to deliver their work.

'Without clinics many of us would be idle'

Challenges to note

A number of threats to sustainability exist, all related to resource allocation of staff and funds. The team concluded that there was better chance of plant clinics being integrated into the county systems if these threats were considered and addressed as much as possible.

- A number of new very well-funded programmes are being initiated in the counties; and PW's most active CCs and desk officers are being transferred to these programmes. This was the situation in 3 out of the 4 counties in the study. This led to competition for time at the plant doctor level due to the tight schedules of the new programmes being initiated. For example in one county, though not in the study, some PDs explained that they had not run plant clinics for months because they were asked to focus on the new projects first. These other projects provided funds for transport and lunches so it was understandable that this work was prioritized.
- No funds (transport and lunch) are provided to PDs to run plant clinics and officers had to cover these costs themselves. This was not sustainable, especially as many PDs were running more than one clinic, some in places far from their offices.
- There is a high turn-over of extension staff with no replacement plans resulting in less people to run clinics. In one county it was estimated there would only be 3 officers, out the 20 currently serving, still in office by 2021.
- The use of plant clinic data for crop pest and disease monitoring and reporting in the counties is weak because inherent practices in the country rarely utilize data for informed planning and decision making. This is reinforced by a lack of skills and human capacity in simple data analysis that limits the ability of extension staff to utilize the plant clinic data to generate information that can aid in planning extension activities on pests and diseases.
- Plant health is assigned a low priority with associated low budgetary allocations. This undermines the future of plant clinics as a practical and innovative approach to tackling crop pests and diseases, despite agriculture being touted as the backbone of the country.

The Way Forward

The study provided some insights on how the programme was contributing to and shaping the extension systems in the counties. It helped identify areas that CABI and partners should focus on in order to support the integration of plant clinics and other related activities into county systems for sustainability.

- Encourage ministers for agriculture to take the initiative to entrench the plant clinic approach in their counties, demonstrating that clinics deliver a service that improves farmers' livelihoods, as shown in other PW studies. Use the case of Nakuru and Trans Nzoia to demonstrate that clinics provide an avenue for resource allocation for extension activities.
- Continue to work with the national government's Ministry of Agriculture to finalize the Standard Operating Procedures (SOPs) to provide guidance to counties on plant clinic operations. This will support counties as they adopt and adapt national level policy rather than developing new policies at county level. This is supported by formal and recognized avenues for such policy and direction to be cascaded from national to county level, and should be more effective with PW working with each county to develop individual SOPs.
- Support the relocation of plant clinics to locations where the plant doctors can reach them at an affordable cost. This may include siting plant clinics in the ward in which the plant doctor is located so that travel costs are minimal or eliminated entirely.
- The programme should partner with the ministers that have succeeded in obtaining funding for extension services, and plant clinics in particular, in order to demonstrate to other counties the benefits of clinics, and that it is possible to institutionalize them into the county system. The minister for Trans Nzoia chairs the caucus for agriculture ministers from the 47 counties and is willing to work with PW. The programme should use this opportunity to reach all ministers for agriculture in the country. It is further recommended that there is a need for urgent dialogue with these ministers to develop ways of communicating to the chief officers, parliament and governors.

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