



Plant health rallies as an extension tool in small-scale farming in Kenya

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Summary

Kenya has consistently reported new and serious disease and pest problems on key crops over the years, often associated with substantial crop yield losses. In just the last six years, for example, maize lethal necrosis – a disease responsible for crop losses valued at about US\$ 4.1 million in 2014 alone – and tomato leaf miner entered and got established in the country. For small-scale farmers, who make up 80% of the farming community and contribute 25% of the GDP, an attack by such diseases could spell doom for their income and food supply. Decisive action is needed to prevent new pests and diseases from spreading and becoming established. Also, other well-established crop pests and diseases regularly cause major crop losses. Farmers need help to take preventative measures and avoid costly and often less effective treatments after the problem has entered the crop. Extension campaigns can play a critical role in controlling crops pests and diseases by acting as a source of timely information. One such approach, plant health rallies, has been embraced in Kenya, though so far on a limited scale. In 2015 the University of Nairobi and Plantwise undertook a study in parts of Kenya among 150 farmers and 27 extension staff in five counties to get a picture of extension campaigns in crop health and to understand how the role of plant health rallies could be enhanced in delivering a comprehensive service to farmers. The study focused on maize lethal necrosis, mango fruit fly, Napier grass stunt, tomato leaf miner and wheat stem rust, all which have the potential for high economic impact.

Key highlights

- Plant health rallies supported by Plantwise are already a feature in Kenya's extension programme and the only clearly visible extension campaign method used. The rallies are perhaps the single most significant extension initiative for maize lethal necrosis.
- About three-quarters of the extension staff interviewed knew of the plant health rallies and about two-thirds had taken part in them.
- More than 95% of all farmers interviewed were aware of the target problems – including those who did not grow the target crops – and most likely obtained this information through indirect sources such as other farmers and agrochemical dealers.

- 53% of the farmers in the study had received agricultural extension services and information over the previous year. Most common source of information on problems was through other farmers and agrovet. Few farmers had obtained information from mass media approaches e.g. radio, TV, newspapers and similar channels with a wide coverage.
- The impact of the target crop pests and diseases was similar for farmers who had received information about the control of the pests and diseases and those who had not received such information.
- The ability of extension providers to run plant health rallies and other campaigns is limited by lack of funds and other resources. Institutional coordination needs improvement for addressing major pests and diseases.

The challenge



Tomato leaf miner has spread rapidly in Africa, perhaps helped by bus passengers.

Kenya's agricultural sector is faced with the challenges of stopping new crop pests and diseases from getting into the country and ensuring that known and established crop pests and diseases are kept in check. None of these tasks is easy, for various reasons.

The diseases and pests themselves often are highly virulent and the extent of their burden can be overwhelming. This character, together with the country's position as a regional melting point for commercial and social activity, creates a heavy burden for surveillance efforts for crop pests and diseases. The uncontrolled and precarious movement of plant material across borders and within the country also exposes the country to diseases from any part of the world, many of which it would not have the capacity to handle. These problems are amplified by insufficient surveillance mechanisms for crop diseases and pests and because often the outbreaks are trans-boundary, making it necessary that control strategies be implemented at both national and regional levels.

Once the pests or diseases arrive in farmers' fields, urgent action is required to deliver information to farmers on how to deal with them. This is the role of the extension system. Kenya's extension suffers inadequacies in human and other resources. There are 5,500 public extension agents, which is a dismal number in a country where 75% of the population depends directly or indirectly on agriculture. The study found that 53% of the farmer respondents had interacted with extension services the previous year.

Although more than 95% of the farmers were aware of the diseases the study targeted, the reliability of their information is questionable since it mostly was obtained from other farmers and agrochemical dealers. Few farmers said they had obtained information from mass media approaches e.g. radio, TV, newspapers and similar channels with a wide coverage.

The extension system tends to be fragmented in composition and approach, and planning and coordination insufficient. There are many players but each is acting alone. The study found little indication of people working in a harmonised fashion to tackle any of the diseases it investigated, or effort to get information from research to farmers. There was a general feeling that the devolution of extension responsibilities from the central government to the counties had weakened the capacity of the extension system.

Kenya's extension services are also affected by insufficient skills among extension workers to diagnose plant problems and prescribe effective remedies and by the limited reach of conventional extension approaches, such as field days, group demonstrations and farm visits. Extension workers often rely on out-of-date information, and many of them make little use of information resources on new pests and diseases even when they are available. This might be part of the reason why the study found no difference in the impact of the target crop diseases between farmers who had received information on the diseases and those who had not.

Plant health rallies (PHRs) supported by Plantwise have the potential to help fill the gaps in Kenya's extension and to reach more farmers with credible information.

Plant health rallies

PHRs, which in Kenya were introduced in 2005, aim to deliver customised crop health messages to farmers in locations where they normally congregate such as marketplaces. To prepare for running PHRs, extension staff are trained on the best methods to quickly and effectively deliver the message and to answer farmers' questions. The content of the message is validated. The use of the Plantwise database guarantees that the recommendations to farmers are based on up-to-date information and evidence from research. The rallies also enable staff from crop disease and pest surveillance areas to work and share knowledge with extension staff for the benefit of farmers.

PHRs have been embraced in the country and become a complementary feature in the extension programme. During 2013–2014 for example, Plantwise, together with public extension service providers, ran 86 rallies on a range of topics, attended by 5,218 people (Table 1). The study found that 78% of the interviewed extension staff knew about PHRs and 64% of them had taken part in the rallies. In some cases PHRs were the only large-scale effort to raise awareness on crop health, for example for maize lethal necrosis (MLND).

PHRs' unique qualities make them an appealing extension tool for Kenya's smallholder farming. They can be quickly organised when rapid response to a crop problem through large-scale delivery of information is required. This quality is particularly suitable in situations such as the entry of a major crop pest or disease into the country or an outbreak of a pest or disease on an important crop. Such situations are difficult to predict or prepare for, particularly where the surveillance system is not effective.

Table 1: PHRs held in Kenya, 2013–2014

Focus	Adult participants	Rallies
MLND	1,304	17
Cabbage black rot	881	20
Banana xanthomonas wilt	876	13
MLND/ <i>Tuta absoluta</i> (or other)	716	12
Potato late blight	456	7
<i>Tuta absoluta</i>	486	7
Potato bacterial wilt	196	4
Napier grass stunt	111	2
Potato late blight/cabbage black rot	56	1
Soil acidity	98	2
Soil fertility	38	1
Total	5,218	86

MLND – Maize lethal necrosis disease

Source: Adapted from Boa (2015)

PHRs are valued for their simple and robust design, requiring few resources. In 2005, for example, among the 57 PHRs run in Kenya, 10 were held over just a few days, each reaching about 2,000 farmers. This means that PHRs should be considered among the preferred options where resources are limited such as in Kenya's extension system. Because they focus on one disease or area, PHRs can also help overcome the problem of fragmentation of the extension services that has been associated with the devolution of most government services to the counties.

For extension efforts, PHRs included, to translate into success on farmers' fields they need to include a mechanism to support farmers to follow the recommendations and to find out if they are doing so. Plant health clinics can be incorporated into the PHR campaign to play this role. At the end of the rallies, farmers should be provided information on the locations of plant health clinics where they can find help on the crop problem addressed at the rally. The clinics serve a surveillance function and will provide feedback on whether the advice from the rallies is working.



Photographs are used during the plant health rallies to stimulate discussions about target problems.

Way forward

PHRs are a suitable way of delivering targeted extension messages. In Kenya they have been taken up and are being used in campaigns against diseases like MLND, Napier grass stunt disease and tomato leaf miner. But their interaction with other extension efforts needs refinement to realise their full potential to provide quick and cost-effective responses to crop threats.

The relationship between PHRs and plant clinics needs to be enhanced in an effort to create a feedback loop where the crop problems identified at the clinics form the basis of PHR messages, while the clinics become the locations farmers go with questions on the topics covered in the rallies.

Adding other actors involved in plant health such as research and surveillance institutions to this mix will ensure that the extension services address the issues that are important to farmers. Opportunities should be sought to involve the many nongovernmental organisations working in extension in conducting the rallies, and collaborating with agrochemical distributors will help ensure that the products recommended during the rallies are available for farmers to buy.

Additional information and resources

Boa, E. (2015). A Guide to plant health rallies (with notes on training and implementation). Plantwise.

Ndiritu, M.M. (2015). Extension campaigns against major crop pests and diseases in Kenya. Plantwise internship study, final report. Plantwise.

Acknowledgements

CABI is an international intergovernmental organisation, and we gratefully acknowledge the core financial support from our member countries (and lead agencies) including the United Kingdom (Department for International Development), China (Chinese Ministry of Agriculture), Australia (Australian Centre for International Agricultural Research), Canada (Agriculture and Agri-Food Canada), Netherlands (Directorate-General for International Cooperation), and Switzerland (Swiss Agency for Development and Cooperation).

Project donors

Plantwise is supported by:



Project partners



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How to cite this paper

Ndiritu, M., Boa, E., Nyikal, R. 2016. Plant health rallies as an extension tool in small-scale farming in Kenya. CABI Study Brief 12. DOI: <https://dx.doi.org/10.1079/CABICOMM-62-8116>