

Research Application Summary

Banana farming in Kenya: Options for rejuvenating productivity

Maina Mwangi¹ & Mbaka, J.²

¹Department of Agricultural Science and Technology, Kenyatta University, P. O. Box 43844-00100
Nairobi, Kenya

²Kenya Agricultural Research Institute, P. O. Box 220, Thika, Kenya
Correspondence author email: maina@biosciences.elewa.org

Abstract

Bananas constitute an important component of farm enterprises in the mid altitudes of central and eastern provinces of Kenya. In recent years the crop has steadily gained importance over traditional cash crops, e.g. coffee, and various short season horticultural crops grown mostly for export markets. Despite its increasing importance, the crop's production faces intractable constraints. Interventions have previously focused on increasing availability of healthy seedlings and strengthening farmer capacity to manage pests. Recent indications are that there is need to re-think current approaches to enhancing productivity. Interventions should consider creating micro-financing and value addition opportunities, and extending technologies to cope with climate change effects.

Key words: Bananas, production constraints, seed systems, value chain

Résumé

Les bananes constituent un élément important des exploitations agricoles de moyenne altitude dans les provinces du centre et de l'est du Kenya. Ces dernières années, la culture n'a cessé de gagner en importance sur les cultures commerciales traditionnelles, par exemple, la culture de café et diverses cultures horticoles de courte saison effectuées principalement pour les marchés d'exportation. Malgré son importance croissante, la production de cette culture fait face à des contraintes insurmontables. Les interventions ont déjà porté sur la disponibilité croissante des semis sains et le renforcement de capacité des agriculteurs pour lutter contre les insectes ravageurs. Selon de récentes indications, il est nécessaire de repenser les approches actuelles pour améliorer la productivité. Les interventions devraient envisager la création de micro-financement et les possibilités de valeur ajoutée ainsi que l'extension des technologies pour faire face aux effets du changement climatique.

Mots clés: Bananes, contraintes de production, systèmes de semences, chaîne de valeur

Background

Bananas are one of the most important crops for food and income in western, central and parts of eastern Kenya. Collectively these regions produce the bulk of bananas that are consumed in the major urban areas of the country. The Kisii region produces the bulk of the cooking varieties, while the central and eastern regions produce more dessert varieties (Mbaka *et al.*, 2008). Unlike in other East African countries where bananas are cooked as part of the staple diet, Kenyan consumers prefer dessert banana. The demand for ripened fruit often outstrips supply, which has created opportunities for imports from neighbouring countries (Biruma *et al.*, 2007). Despite its importance, banana production in Kenya has not received due policy attention, unlike other cash and horticultural crops.

Literature Summary

To improve productivity of banana, previous efforts emphasised enabling farmers to access healthy planting materials (Mwangi and Muthoni, 2008; Mbaka *et al.*, 2008). To a large extent this approach was in response to the Fusarium wilt (Panama disease) caused by *Fusarium oxysporum* f.sp. *cubense* race 1 (FOC) (Rutherford and Kangire, 1999; Ploetz and Pegg, 2000). FOC race 1 has been reported to be widespread in Kenya attacking the dessert cultivars Gros Mitchel (AAA), Sukari (AB) and the local ripening Muraru (AA), among others (Seshu-Reddy *et al.*, 1999). Previous efforts aimed to replace the susceptible cultivars with the race 1 resistant Cavendish varieties, e.g. Williams (Mbaka *et al.*, 2008) through increased availability of tissue cultured (TC) seedlings. The initial success of this approach is currently threatened by looming attacks by the more virulent FOC race 4, which has been reported in several African countries (Ploetz, 1993).

Past interventions hinged on the belief that access to planting materials is the single most important constraint. The introduced tissue culture (TC) technology which is yet to be widely adopted due to high seedling costs and the perception that TC plants require more management input, but still decline in productivity faster than naturally regenerated suckers. Thus farmers continue to largely plant conventional suckers, which partly explains the general decline in productivity of banana orchards that is evident across Kenya. There is therefore need for renewed engagement with farmers to determine what precisely is required to rejuvenate productivity and improve profitability of banana farming enterprises.

Research Approach

As part of a wider study, a survey was carried out in selected banana producing districts in eastern and central Kenya [Muranga (North and South), Kirinyaga (East and West), Embu (East and West) and Meru Central and Imenti South]. The survey aimed to document banana production constraints and determine interventions needed to improve productivity. Information was obtained through a questionnaire and observation of orchards.

Research Application

According to the information obtained from farmers, banana is a highly important crop for their livelihoods. Unexpectedly, access to planting materials was not ranked high as a constraint; farmers perceive natural regeneration to be a reliable source of seedlings. Awareness of the risks of pests and pathogen spread associated with naturally regenerated suckers was determined to be generally low. This may be a major hindrance to the successful introduction and adoption of technologies aiming to improve access to healthy planting materials.

Some of the factors identified to be limiting production are declining farming area and soil fertility due to overexploitation and fragmentation as population increases, lack of funds to improve/expand orchards, drought occasioned by global climate changes, and a generally ageing population of farmers as youth move to other sectors of the economy. The farmers reported no constraints in marketing of banana.

Recommendation

To more effectively respond to the constraints facing banana farmers, current interventions need to be re-assessed to ensure they are appropriately oriented to meet farmers' needs. Considering the widespread occurrence of Fusarium wilt and other soilborne banana pests, efforts to improve access to planting materials should be implemented in tandem with an effective approach to address farmers' perceptions and attitudes regarding their current sources of planting, e.g. raising awareness on plant health risks linked to use of naturally regenerated suckers.

Regulation of banana farming/marketing could benefit the sector by encouraging participation of microfinance institutions to provide funds for farm inputs and also to support initiation of locally based value addition enterprises. Such micro-enterprises would open up new opportunities that attract participation of youth in agriculture.

To better cope with drought and climate change effects, banana farmers should be empowered with knowledge and means to implement water harvesting and conservation technologies. Training is needed on plant management techniques to reduce plant water demand during periods of drought.

It would also be necessary for stakeholders to put in place mechanism(s) to generate funds for supporting research to address banana production constraints. Reliance on external funding for research on banana in Kenya has not been conducive for development of timely, effective solutions. Funds can be generated through a small levy on marketed produce, as happens with other key income generating crops in the country. Other countries, e.g. South Africa have successfully implemented such schemes (Ploetz, 1993).

Interventions to improve marketing could aim to maximise value through improved packaging and labelling to differentiate products and promote competition based on value (e.g. marketing under organic label).

References

- Biruma, M., Pillay, M., Tripathi, L., Blomme, G., Abele, S., Mwangi, M., Bandyopadhyay, R., Muchunguzi, P., Kassim, S., Nyine, M., Turyagyenda, L. and Eden-Green S. 2007. Banana Xanthomonas wilt: A review of the disease, management strategies and future research directions. *African Journal of Biotechnology* 6(8):953-962.
- Mbaka, J.N., Mwangi, M. and Mwangi, M.N. 2008. Turning farming to business: The role of tissue culture propagated bananas in Kenya. *J. Applied Biosciences* 9(1):354 - 361.
- Mwangi, M. and Muthoni, S. 2008. Implementing banana macropropagation in Kenya - potential and challenges. <http://www.e-conference.elewa.org/agriculture/abstracts2008-new.html>. Int. e-Conference on Agricultural BioSciences 2008, June 2-16, 2008.
- Ploetz, R.C. 1993. Fusarium wilt of banana. APS Press, St. Paul, MN, USA.
- Ploetz, R.C. and Pegg, K.G.2000. Fusarium wilt. In: Diseases of banana, abaca and enset. CABI, UK. pp. 143 - 158.
- Rutherford, M.A. and Kangire, A.1999. Prospects for the management of Fusarium wilt of banana in Africa. In: Mobilizing IPM for sustainable banana production in Africa. Proceedings of a workshop on banana IPM held in Nelspruit, S. Africa, 23 - 28 Nov., 1998. Frison, E.A., Gold, C.S., Karamura, E.B. and Sikora R.A. (Eds). pp. 177 - 188.

Seshu-Reddy, K.V., Ngonde, L., Ssenyonga, J.W., Wabule M., Onyango, M., Adede T.O. and Ngoze S. 1999. Management of pests and diseases of banana in Kenya; a status report. In: Mobilizing IPM for sustainable banana production in Africa. Proceedings of a workshop on banana IPM held in Nelspruit, S. Africa, 23 - 28 Nov., 1998. Frison, E.A., Gold, C.S., Karamura, E.B. and Sikora R.A. (Eds.). pp. 215 - 223.