

Financing, handling, hardening and marketing of tissue culture-derived planting material through nurseries: the case of banana in Kenya, Uganda and Burundi



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Introduction

The distribution of contaminated planting material (suckers) remains a major cause of spread of pests and diseases in banana. A traditional subsistence staple in East Africa, banana is becoming increasingly a commercialized commodity in the region. Essential for effective commercialization of this crop, however, is the supply and use of uniform and healthy planting material. Tissue culture (TC) technology can help provide this.

Methodology

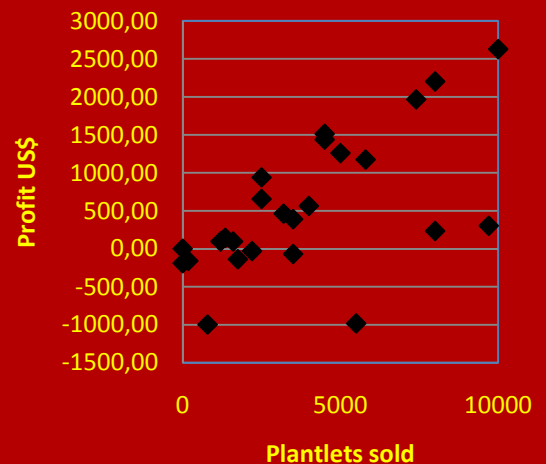
In 2008, financing, handling, hardening and marketing of TC-derived planting material through nurseries was assessed using semi-quantitative interviews of nursery operators. A census of all nurseries affiliated with the commercial tissue culture producers in Kenya, Uganda and Burundi was achieved.

Results

	Kenya	Uganda	Burundi
Level of organization	[Redacted]		
Stakeholders involved	[Redacted]		
Organization	1 private, 2 public producers 17 external nurseries 11 operational Western, Central, Eastern and Coastal regions Operators are entrepreneurs	1 private producer 15 external nurseries 11 operational South-Central regions around Kampala Operators are entrepreneurs	1 private producer 4 external nurseries 4 operational Northwest Burundi along major roads Headquarters coordinates activities
Mayor problems	Financing, Inputs, Transport, Customers	Financing, Inputs, Transport, Customers	Customers, Inputs, lacking skilled staff
Handling & Hardening	Variations among locations and affiliations <i>Nursery facilities:</i> Shade net screen house & demo plot installed in all nurseries 73% poorly maintained	Variations among locations and affiliations <i>Nursery facilities:</i> Shade net screen house in all, demo plot in 91% of cases 73% poorly maintained	Uniformly done after one protocol <i>Nursery facilities:</i> Closed polyethylene foil greenhouses in good condition, no demo plots
Financing	<i>Highest costs:</i> Personnel, soil-mix, losses	<i>Highest costs:</i> Personnel, water, soil-mix, losses	Costs unknown to nursery operators
	Bank loan available for 40% Micro credit experience: 9%	Bank loan available for 28% Micro credit experience: 18%	Technicians are paid a salary by the tissue culture plantlet producer
Marketing	Supply did not match demand. <i>Average plantlet price:</i> To customers 1,2US\$ From producer 0,69US\$ <i>Customers:</i> NGOs, GOs, farmers Average plantlet number sold per nursery: 2340 <i>Promotion:</i> extension providers, Ministries, mouth to mouth communication	Supply did not match demand. <i>Average plantlet price:</i> To customers 0,95US\$ From producer 0,58US\$ <i>Customers:</i> NGOs, GOs, farmers Average plantlet number sold per nursery: 4986 <i>Promotion:</i> mouth to mouth, extension service, commendations of plantlet producer	Supply matched demand <i>Average plantlet price:</i> To customers 1US\$ no intermediate trade <i>Customers:</i> NGOs, GO's, farmers Average plantlets sold per nursery: 69250 <i>Promotion:</i> through tissue culture plantlet producer

Figure 1: Relationship between profits and plantlets sold for 25 Kenyan and Ugandan nurseries.

Number of plantlets sold and profit were significantly correlated ($R^2 = 0,63$). The more plantlets are sold, the less significant is the effect of losses and fixed costs on the business. Operators handling higher numbers are more likely to make profit than their colleagues selling fewer plantlets.



Conclusions

- organizational differences between the nurseries in the three countries with a gradient towards more organization from Kenya over Uganda to Burundi
- coordination between different producers and between producers and their affiliated nurseries often insufficient
- little or no availability of qualified extension in banana tissue culture nursery management and production organization
- nurseries plagued by poor input and time management, poor record-keeping and plant losses
- climatic and agronomic circumstances vary across the surveyed region making locally adapted nursery operation techniques and marketing strategies crucial to enable a profitable banana tissue culture nursery business