

# What motivates vine multipliers to continue once project support has ended? A Case Study from the Lake Zone, Tanzania



Fig 1. Sex disaggregated Focus Group Discussion, Chato, Tanzania (Credit: M. McEwan)

## What was the problem?

The engagement of farmer groups or trained individuals in local seed multiplication is widely advocated but there has been limited follow up to determine what happens after project interventions close. The practice of selling vines is common in areas with long dry season (2.5 months); and areas closer to established markets for roots. However, in many areas there are strong “traditions” and social norms around sharing planting material, which is made easier by the vegetatively propagated nature of the crop. Understanding what type of seed delivery model works for who and where is essential for ensuring improved varieties and seed reach male and female farmers.

## What objectives did we set?

We wanted to explore the motivations of individuals and groups to engage and disengage in specialized seed multiplication to inform future interventions. The study aimed to understand the drivers contributing to the continuity of sweetpotato vine multiplication enterprises producing and disseminating improved white and orange-fleshed varieties in the Lake Zone of Tanzania.

## Where did we work?

The follow-up study was carried out in the 13 implementation districts in Mwanza, Geita, Kagera, and

- In the Lake Zone, Tanzania, between 2009-2012, 88 decentralized vine multipliers (DVMs) were established by the Marando Bora project. Five years later, the follow up study traced 81 of the DVMs.
- 40% of the DVMs had sold planting material of Marando Bora varieties in the last year; a further 16% had maintained the improved varieties for own use.
- The percentages of DVMs retaining different improved varieties were: Polista: 48%; Kabode: 34% Ukerewe: 23%; Ejumula: 12%; and Jewel: 11%. Depending on variety, between 9-21% of DVMs had obtained replacement materials.



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Mara regions, Tanzania. The area has a bimodal rainfall pattern, with conservation and multiplication practices determined by proximity and access to water sources and lowlands.

## What did we achieve?

Between October 2017 and December 2018, 81 DVMs were traced and interviewed by telephone to establish the current status of their vine multiplication activities. Sex-disaggregated Focus Group Discussions (FGDs) (Fig. 1), field interviews and plot visits were conducted with 46 continuing and non-continuing DVMs taking into consideration agro-ecology, market access, sex and individual or group organization management of the vine multiplication enterprise. Qualitative and quantitative data were analyzed using descriptive statistics in SPSS.

The follow-up study found that 40% of the 81 traced DVMs had sold planting material of Marando Bora varieties in the year prior to the study, five years after the end of the project. This contrasts to 18% that had sold any variety of vines before the intervention. A further 16% had continued to maintain the improved varieties for own use. During the intervention 72% and 28% of the DVMs were operating as groups or individuals, respectively; five years later the proportion of DVMs operating as groups had reduced to 44% (of which 28% were continuing to sell).



Fig 2. Weeding time at Iligamba Village, Buchosa (Credit: M. Sila)

## Were there any key challenges or lessons learned?

### Varieties

During the Marando Bora project, five improved sweetpotato varieties were promoted and distributed through the DVMs: three were orange-fleshed (Jewel, Ejumula and Kabode) and the other two were cleaned up local cream/white-fleshed varieties (Polista and Ukerewe). The DVMs received 2-5 varieties for multiplication and distribution. Of the multipliers reporting receiving each variety 48% had retained Polista; 34% retained Kabode; 23% had retained Ukerewe; 12% Ejumula and 11% Jewel.

Reasons for losing or retaining varieties related to susceptibility of the variety to drought and diseases, and market preferences. Individual DVMs were more likely to retain the varieties compared to groups. Male individuals had higher retention of Polista, Ejumula and Ukerewe than females. DVMs stated that Polista and Ukerewe were tolerant to diseases and drought, with Polista being marketable (both vines and roots), with large roots and high dry matter. Reasons for retaining Ejumula related to nutrition for their families and sale of vines when there is the opportunity. Kabode appears to be widely adaptable; (Fig. 3) but Jewel was considered more susceptible to drought and diseases<sup>1</sup>.

If they lost a variety, some DVMs would find replacement material from within their network of other multipliers,

neighbours and kin; or by contacting research stations. Depending on variety between 9% (for Ejumula, Ukerewe) and 21% (for Kabode) of DVMs who had received a variety, had replaced it. Of the 45 multipliers who were continuing for sale or own use 78% were also multiplying other varieties, with male DVMs having the highest number of other varieties. These included local land races and improved varieties distributed through subsequent projects (e.g. Mataya and NASPOT 1, 8, 12, 13).

There is increasing differentiation among varieties in terms of use; i.e. home consumption, marketing and to some extent processing (both traditional sweetpotato processed products such as “mchembe” and processing of OFSP types for chapati, mandazi). The persistence of varieties depends on how varietal characteristics fit into different agro-ecologies and degree of preference in the market. For the upland system – (with showers in August) – the variety needs to be longer maturity (5 months – e.g. Polista). Shifting between lowlands and uplands – suits the shorter maturity OFSP varieties.

### Seed production practices

Observations were taken on 17 plots to capture the use of specialized seed practices. 94% were conserving vines during the dry season; 88% were weeding (Fig. 2); 47% used seed beds; 59% used short cuttings; 41% close spacing; 41% rouging; 71% rotation and 35% practiced isolation. 24% labelled their multiplication plot, with only 18% labelling planting materials. Access to a water

<sup>1</sup> During the project, both Ejumula and Jewel were known to be virus susceptible, but the taste of Ejumula is highly preferred in East Africa, and Jewel, an important OFSP variety, met needs of a niche processing market.

source ranged from 5 to 20 meters. Groups rented or used land belonging to a group member; the individual multipliers used their own land. FGDs on the changing division of labour, highlighted that men were joining their wives in their vine multiplication activities, ensuring that measurements for seed beds and spacing were done correctly, and supporting the irrigation effort during dry spells.

### Group and individual DVMs

We found different scenarios as to why farmer groups who had been DVMs continued vine multiplication or not. 36 (57%) of the original group DVMs were traced of which 53% (19) had abandoned sweetpotato vine multiplication as an activity. Reasons for dropping including the start of another project with a different crop or activity focus; the lack of markets for vines in their area, or loss of varieties due to drought or disease. 19% (7) of the group DVMs had completely disbanded due to a variety of reasons relating to: group dynamics; technical challenges related to irrigation, pests and diseases; or the close of the project. 28% of the group DVMs were continuing to sell vines.

However, in some cases although the group may have discontinued vine multiplication, members within the group started their own multiplication activities. This explains the increase in number of individual multipliers compared to the project period (from 28% to 56%) of which 69% were male and 31% were female. The number of female individual DVMs had doubled from seven during the intervention to 14 at the time of the follow-up. Among the individual DVMs, 49% were continuing to sell; with 39% of individual male DVMs continuing to sell; compared to 71% of female DVMs.

### Customers

The main types of customers mentioned for all categories of DVMs (groups, individuals, male, female) were farmers from the surrounding community (up to 10 km distance) (Fig. 4). The second category were institutional customers. Individual male DVMs were the only ones to mention traders as customers; and group DVMs were the only ones to mention "events" (e.g. agricultural shows) as a source of customers. There was a mixture of one-off and repeat customers. The maximum number of customers reported was between 80-98; but the majority of DVMs reported between 5-10 customers over the last year, of which they could recall some details of the transactions. For groups: the predominant unit of sale was "bundle" (head-load/ bicycle load) which was not standardized but ranged in the equivalent of 100-300 30cm cuttings, with a price range per cutting of 7-20 TSH (US\$0.003 -0.009). For individual DVMs, bags were more commonly used as the unit of sale, with each bag having 1,200 30 cm cuttings on average. Unit price per 30 cm cutting ranged from 4-40 TSH (US\$0.002- 0.018). Varieties requested, depended on what was available, but Kabode was most frequently mentioned and Polista. Key promotion strategies were: word of

mouth through friends and neighbours; roadside sign-boards; village meetings and contacts through extension officers. Radio and use of demonstration plots were only mentioned by a few.

### Changing attitudes and behaviours

In the past, sweetpotato was the responsibility of women because of its role in assuring food security in the home; and women's role in crop production, sourcing varieties and planting material. Attitudes and practices have changed towards sweetpotato as a crop and vine exchange. Sweetpotato is now considered as a cash crop by men, because production of other crops (e.g. maize, rice, coffee) is being affected by climatic variability, disease outbreaks, and marketing uncertainty. This is reflected in national and regional sweetpotato production figures and the increase in road side markets in Bukombe and Butiama on the major transportation routes to Dar es Salaam, Dodoma, Shinyanga and border towns with Kenya.

As economic benefit is apparent, gender roles become more fluid, and ridicule overcome. In FGDs women noted how engagement in specialized vine multiplication, and the associated income – has led to increased respect in the household and community, leading to different social norms and practices emerging around sweetpotato. Managing access to appropriate land and water resources both within and outside the household are jointly negotiated by wife and husband for mutual benefit.

Specialized seed production practices require additional investment and resources, so multipliers want to see some recognition/monetary compensation. Extra labour, manure and irrigation inputs are needed. Parallel pricing systems are emerging "people know seed for sale is better quality than what they get for free. People are already accepting that". "There can be a price differentiation between local vines (TSH 1,000) and improved (TSH 5,000) (ID42)". So, there is growing acceptance that vines can be sold.



Fig 3. Young child enjoying an orange-fleshed sweetpotato root

However, commercialization and a business approach are still mediated by strong sentiments related to community obligations “justness”. The DVMs balanced their social obligations with the development of their business. Some set the number of families they will assist or the quantity they will gift – planning to meet their social obligations; some only gift vines from their root production field, not their vine multiplication plot. Some will gift but only provide very small quantities. There are other motivations around gifting such as spreading risk if they lose a variety, and pragmatism when vines are plentiful or to avoid theft.

While there are social norms and values that underpin transactions of sweetpotato vines, it appears that DVMs can navigate these to continue in their vine business. These social norms also contribute to the persistence of the orange-fleshed varieties as FGDs explained when people know the nutritional benefits, they want these to be shared widely in the community.

### What’s next?

The findings have increased our understanding of the motivations of different types of multipliers to continue to sell and maintain improved varieties, and the types of social norms underpinning vine transactions in cash or through gifting practices. This information can be used to ensure stronger linkages with the sources of improved varieties, clean seed and information about quality assurance practices. Using social media and identifying regular events where multipliers can access new varieties and clean seed is critical. In the context of commercialization of the root crop and availability of

improved varieties vine multiplication is increasingly a specialized activity, with changes in the gender division of labour. Women can negotiate and manage these changes to their own benefit and that of the household, if they have access to training and resources.



Fig 4. Satisfied customers displaying their quality vines in Mwanza (Credit: J. Low)

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