

# Can farmer multipliers meet QDS standards in the production of sweetpotato planting material?

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## What is the problem?

Sweetpotato production in Tanzania is below the country's potential due to limited availability of clean planting material during the planting season, usually at the onset of rains. Farmers mostly depend on materials conserved from the previous season whose quality is often unknown. This contributes to spread of Sweet potato virus disease (SPVD) and weevils, the two most important constraints in production. A decentralized seed system with reliable linkages between research institutions or private tissue culture laboratories and farmer multipliers can help circumvent this problem. However, there is need for a quality assurance system which will ensure that materials at each step in the seed value chain meet acceptable standards. The government of Tanzania through the Tanzania Official Seed Certification Institute (TOSCI) is at the final stage of approving standards for production of quality planting materials for sweetpotato. With the gazetting of the standards imminent it is essential to assess how they will work within the local context, and whether the use of seed standards benefits farmers.

## What have we done?

- Consultative meetings were held under the auspices of the Tanzania Official Seed Certification Institute (TOSCI) to discuss proposed standards for various seed classes.
- Trained 16 and 26 people in the Lake Zone and Zanzibar respectively on QDS inspections. These were drawn from extension, research, plant health services and farmer multipliers.
- Conducted pilot inspections of quality declared seed (QDS) multiplication plots among farmer-multipliers to test the standards' applicability under local context. These plots are the first open field multiplication using cuttings sourced from net tunnels. The inspections were done in Zanzibar (June 2015) and the Lake Zone (March and August 2015).
- 21 multiplication plots were inspected in Mwanza, 5 in Kagera and 9 in Zanzibar regions.

## What are the results?

- Following the stakeholder consultation meetings Tanzania is now in the final stage of approving standards for production of quality planting material for sweetpotato and other vegetatively propagated crops.

Table 1: Proposed seed standards for sweetpotato in Tanzania

Element	P	B	C1	C2	QDS
(a) Land history					
Field rotation/Tissue culture number of cycles	-	6 seasons	4 seasons	4 seasons	2 seasons
Maximum permitted ratoons	3	2 (16)	1	1	1
Isolation distance (Meters)	-	50	20	20	20
Number of inspections (Min.)	1	Twice a season	2	2	1
Off-types (No. in 100 plants)	0	0	1	1	2
(a) Diseases					
SPVD, SPCSV, SPFMV, SPMNV, SPLCV	1	-	-	-	-
(Laboratory testing) (Maximum %)					
Virus symptoms					
a) Mosaic and stunting	-	0	2	3	5
a) Leaf curl	-	0	2	5	5
a) Other (purpling, chlorosis, vein clearing)	-	0	2	5	10
Alternaria blight (%)	-	-	2	5	5
Black rot (Maximum %)	0	0	0.5	0.5	0.5
Wilt (bacterial) (Maximum %)	0	0	0.5	0.5	0.5
Scurf (Maximum %)	0	0	0.1	0.5	0.5
SSR-Pox (Maximum %)	-	0	10	10	10
(a) Insects					
Sweetpotato weevil ( <i>Cylas puncticollis</i> ) (Maximum %)	-	5	5	5	10
Wire worm (Maximum %)	-	5	10	10	10
Root knot nematodes (Maximum %)	-	1	2	2	3
Mites/Thrips (Maximum %)	5	5	5	5	5
Caterpillars (Maximum %)	5	10	10	10	10
Aphids & whiteflies (Maximum %)	0	5	5	5	5



Photo 1: Inspection of quality declared seed. Geita. Photo credit: K. Ogero

- The Lake Zone region (Mwanza and Kagera) had a higher percentage of acceptable plots (60%) compared to Zanzibar (55%). DVMs who met acceptable standards were given labels for use during marketing (figure 1).

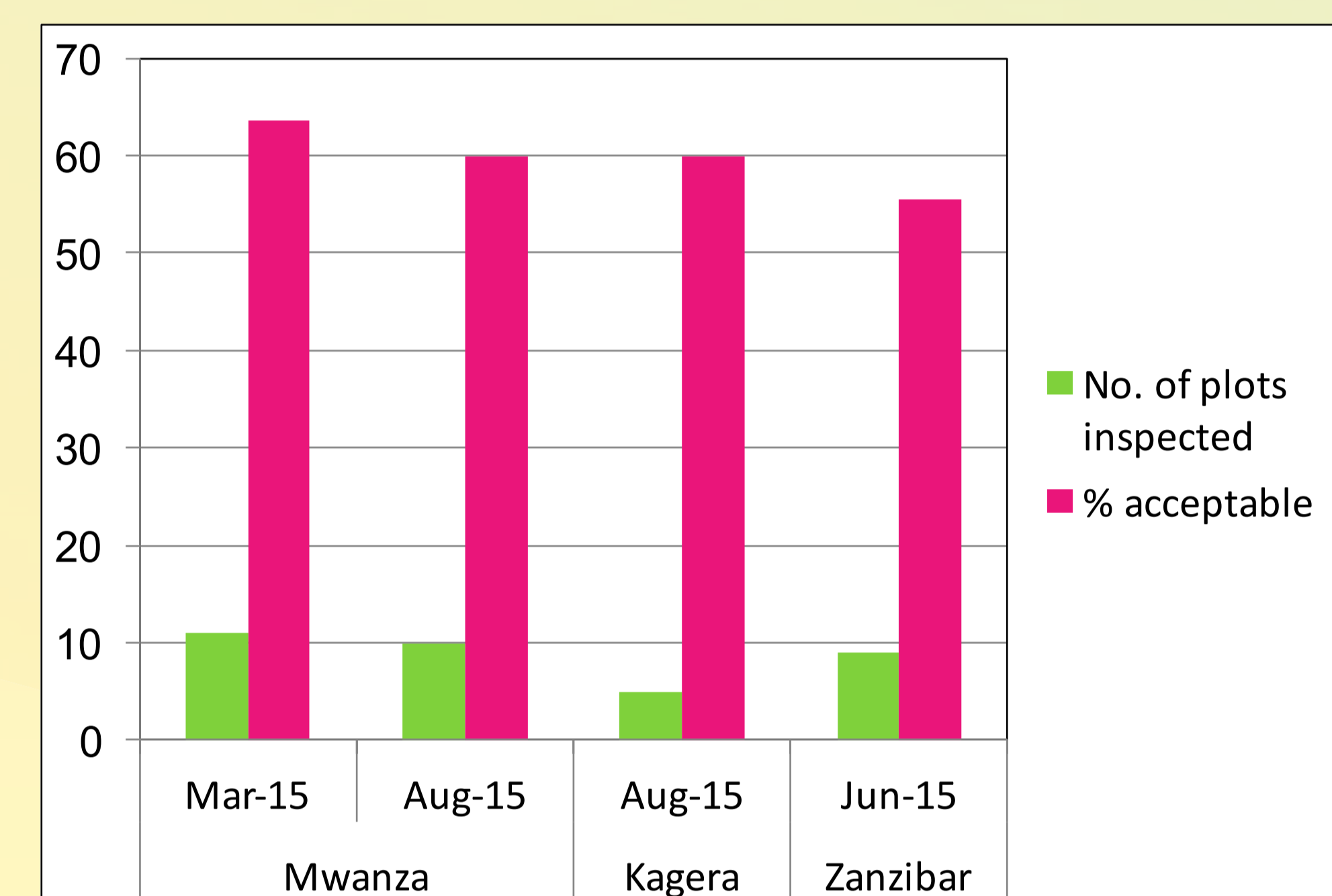


Figure 1: Comparison of QDS inspection results from Mwanza, Kagera and Zanzibar regions.

NB: Plots inspected in Mwanza in March and August were different.

- There were no observable virus symptoms. Multiplication plots that did not meet acceptable standards were disqualified due to high weevil infestation.
- Majority of the DVMs have managed to maintain recommended isolation distances and practice crop rotation.

## Conclusions and Recommendations

- The proposed QDS standards are practical and can be implemented by farmer multipliers. The difference in results between Lake Zone and Zanzibar highlights the importance of investments in continued training on good agronomic practices including pest and disease management.
- With the use of insect-proof net tunnels, adherence to good agronomic practices such as rotations and isolation distances multipliers have managed to keep sweetpotato viruses in check. The results show an increase in acceptable plots compared to the previous study under Marando Bora.
- The plots which failed to meet the seed standards were affected by weevils. Currently the tolerance level for QDS is 10%. Greater attention is needed to disseminate information on improved weevil management.
- Adopting the team inspection model proposed in the Marando Bora project will make the exercise affordable. The team inspection is whereby the multiplier liaises with the village extension officer (VEO) to inspect his/her plot.
- In Uganda, QDS standards are being drafted and will be validated through a field pilot.
- The effect of the proposed seed standards on availability, access and use of clean planting material should be monitored among different users.
- There should be continued monitoring of the implementation of the seed standards and inspection protocols to understand the institutional implications and what benefits actually accrue to farmers.