Marando Bora: validation of community based QDPM inspection scheme

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SASHA

Sweetpotato Action for Security and Health in Africa

Sweetpotato: QDPM

Why do we want to promote QDPM?

- Quality sweetpotato PM (pest and disease free, of known source and varietal purity) is higher yielding than farmer selected PM
- An inspection process ensures that the PM is of a high standard:
  - Provides assurance to farmers
  - Reduces risk of spread of disease and pests if PM is being moved between different locations
  - Provides recognition to multipliers

Sweetpotato: QDPM

Background to FAO protocols & standards

- In 1993, the FAO produced technical guidelines on standards and procedures for quality seeds – known as QDS
- Useful source of practical information on seed standards for seed propagated crops
- QDS, as a quality assurance scheme for seed production, is less demanding than full quality control systems and, thus, can be more easily implemented in situations where resources are limited

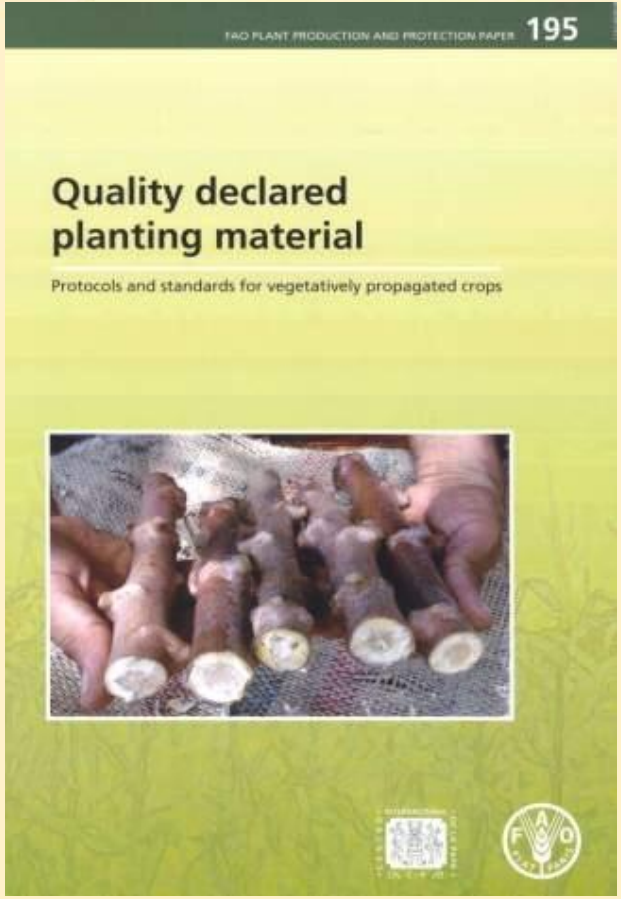
Sweetpotato: QDPM

How were the FAO protocols and standards arrived at?

- The QDPM meeting held in Lima, Peru, 27-29 Nov 2007 was attended by highly qualified experts in vegetatively reproduced crops from all regions of the world

- FAO in collaboration with CIP and a team of international experts, developed and prepared a protocols and standards for the production of quality planting material of the most important vegetatively propagated crops

Sweetpotato: QDPM



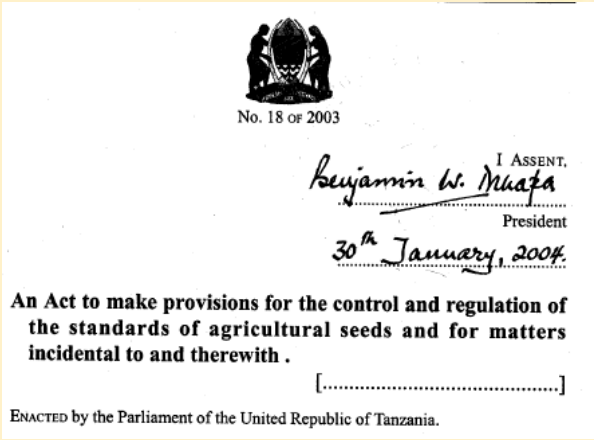
- **Guide (2010)** is meant to be practical and useful tool for seed producers and technicians at the community level and also for national seed services and the agricultural research community

Contribute to:

- Better quality of materials
- Improved agricultural production and productivity
- Food security

QDPM inspection: current situation

- Tanzania has QDS scheme: Seeds Act (2003) – “seed” includes vegetative material
- Regional plant quarantine officers focus on outbreaks of notifiable diseases
- District seed inspectors focus on cereals; have not been trained in inspection for VPC
  - Some experience with cassava mosaic virus
- NARI has role to work with district seed inspectors
- On-going interviews and literature review to understand country policy context for sweetpotato QDPM



No. 18 OF 2003

I ASSENT,
Benjamin W. Mkapa
President
30th January, 2004.

An Act to make provisions for the control and regulation of the standards of agricultural seeds and for matters incidental to and therewith .

[.....]

ENACTED by the Parliament of the United Republic of Tanzania.

MB: research objective

To validate the FAO QDPM protocols and standards for sweetpotato:

- Does “inspection” improve the quality of the planting material?
- What is the cost of inspection?
- Does the increased income from improved yields cover the cost of inspection?

Use of research results

- **Government (MoA, TOSCI)**
  - Recommendations for most appropriate (cost and access) inspection process and quality standards for sweetpotato QDPM
- **Sweetpotato root producers**
  - Improved yields from using QDPM from registered source
- **Sweetpotato vine multipliers**
  - Recognition (higher price) for producing high quality planting material
  - Increased market for quality vines
  - Letter of recommendation

Comparing 3 inspection models

1. **Self inspection**: existing farmer practice
2. **Team inspection**: multiplier and buyer (CRS Implementing Partner)
3. **External inspection**: district crop protection officer

Method

- Site selection
- Inspection visits
  - Growing season (2-3 weeks after planting)
  - Two weeks prior to harvest
- Data collection
  - Observations, interviews, records, measurements

Data collection

- Interviews with
  - Multipliers about multiplication practices
  - Crop Protection Officers on inspection practices
  - Customers on level of satisfaction with planting material
- Sampling of plants for virus testing (MARI)
- Yield measurements (root and vines)
- Independent validation of harvested vines (Regional Plant Quarantine Officer + CIP)
- Cost data

QDPM inspection sites

AEZ	Close to lake, high virus pressure (NW)	Upland, low disease pressure (SE)	Lake, high disease pressure, longer dry season (SW)	Upland, dry, low disease pressure (NE)
Village, Ward District	Kabusungu Village, Sangabuye Ward, **Ilemela**	Tunyenge, Kishinda, **Sengerema**	Nungwe, Chigunga, **Geita**	Kitaramanka, Sirorisimba, **Musoma Rural**
Self inspection	farmer multiplier	farmer multiplier	farmer multiplier	farmer multiplier
Team inspection (Group and IP)	Mshikamano Group	Manyara Group	Tunu Group	Ukombozi Group (**Bunda**)
External inspection (DALDO crop protection officer)	Another DVM in Kabusungu area	Another DVM in Tuyenye area	another DVM in Nungwe area	another DVM in Kitaramanka area

Data collection: sampling

- Sampling procedure:
  - For every 10 standard (1.2 x 6 m) beds of one variety, 3 beds selected at random
  - Each bed should have 5 rows. Outer 2 rows discounted; leaving three inner rows, of these the middle row is discounted. Leaves 2 rows to be used
- Estimation of original plant population/row and remaining number of plants for observations to be recorded
- Calculation of percentage bed/plot/field affected

Data collection: growing plants

1st (2-3 weeks after harvest) and 2nd visit (2 weeks prior to harvest:

- Beds labelled with name of variety and date of planting
- Evidence of roguing practice
- Varietal purity in bed
- Presence of symptoms of serious diseases
- Presence of serious pests

2nd visit

- Physiological age of material
- Estimated quantity of material that can be harvested

Data collection: independent validation of vine cuttings

- Physiological age and condition
- Vine length: 25-30 cm
- Presence of other varieties:
- Observations of pests and diseases
- Labelled with:
  - Name, location and contact of multiplier, variety
  - Number of cuttings, and date of harvest
- *Packed in ventilated sacks (gunny/hessian)*
- *Transported in medium size open trucks*

FAO Standards: presence of symptoms of serious diseases

Disease or symptoms	QDPM Tolerance
Mosaic and stunting virus	1%
Leaf curl (SPLCV)	5%
Purpling of old leaves, Chlorotic spots Vein clearing	5%
Black rot	0.5%
Root knot nematodes	1%
Scurf	0.5
Black rot	
Storage rot	none

FAO Standards: presence of symptoms of serious diseases

Pest	QDPM Tolerance
Sweetpotato weevil	none
Wireworms	10%

Proposed cut offs for research study

Parameter	FAO Standard	Marando Bora		
		Very Good	Acceptable	Not acceptable
Mosaic & stunting	1%	1%	5%	>5%
Leaf curl	5%	5%	10%	>10%
Purpling	5%	5%	10%	>10%
Other varieties	2%	2%	2%	>2%
Weevil	0%	0%	10%	>10%

Summary report and recommendations

- Date of visit
- Site details, contact person details
- Summary of findings
- Estimated quantity of planting material that can be harvested
- Recommendations:
  - Acceptable for QDPM
  - Acceptable with actions needed (and time-frame)
  - Not acceptable for QDPM

Comments after training of DVMs and CPOs

- Good to come with an inspection protocol now, to assess vines before dissemination
- Have been able to study the FAO inspection protocol
- Why zero tolerance for weevils when we can select and disinfect cuttings?
- Need to simplify forms so that inspectors can do it quickly
- Good collaboration between DVM groups
- Empowering farmers so that even farmers can do the inspection

Planning: October 2011 – October2012

- Workshop to refine method and train DVMs and District Crop Protection Officers (Oct. 2011)
- First phase:
  - 1st round of inspection visits: Nov/Dec
  - 2nd round of visits: Feb/March
  - Independent validation: Feb/March
- Second phase: (post intervention)
  - July – Oct 2012
- Review meetings with district stakeholders:
  - January and August 2012

Discussion

- Findings will contribute to understanding of how QDPM guidelines can be implemented as part of community based inspection scheme
  - Costs in context of public sector provision
  - Outcomes in terms of quality of planting material
- Implications of setting standards which are “not feasible for DVMs”?
  - Abandon efforts to improve quality of PM?
  - Open to corruption?

Asante Sana!


Marando bora
mavuno zaidi
Wasiliana na
Anisia Samweli : 0767224315
Kikundi cha: Tushikamane
Kijiji : Kasamiko