

# SWEETPOTATO BREEDERS' ANNUAL MEETING

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SWEETPOTATO ACTION FOR SECURITY AND HEALTH IN AFRICA



# CLONES ASSESSMENT AND EVALUATION





# Objectives

**Overall objective:** to contribute to improved income, food and nutrition to the communities in Tanzania.

**Specific objectives are:**

- To improve sweetpotato production in Tanzania through participatory breeding.
  - To promote the new technology and improved varieties to Tanzanian communities.
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**One of the participatory breeding activity in Bwanga village, Chato district**





# MOST IMPORTANT SP LANDRACES IN TANZANIA



Country	Root yield	Flesh	Dry matter	Earl.	SPVD	Alt.	Remarks
Name of landraces	t/ha	Colour	(%)				
Polista	22	Cr	37-9	E	r	R	Released 2013. Widespread throughout lake zone. Moderate weevil resistance
Mwanatatata	19.3	Cr	37	E	r	R	Not released, widespread in Mwanza region, Moderate weevil resistance
Ukerewe	17.8	Cr	37	E	r	R	Released 2008. Widespread throughout lake zone,. Weevil resistant moderate
Sekondari	16.5	cr	36	E	s	R	Not released because it is susceptible to SPVD

Flesh color: White (w), cream (cr), yellow (y), light orange (lo), orange (o), deep orange (do), Purple(pl)

Earl(Earliness: Earl(E) (About 4 months), Late(L) (About 5 or more months. SPVD Resistance (r : resistant, s:susceptible ), Alt(Altenaria blight resistance)(r: resistance, m; moderate s: susceptible)

# SP LANDRACES IN TANZANIA CONT'D



Country	Root yield	Flesh	Dry matter	Earl.	SPVD	Alt.	Remarks
Name of landraces	t/ha	Colour	(%)				
Kigambile nyoko	17	w	36	E	r	r	Not released, popular in Kagera
Umeme	16	w	33	E	r	r	Not released, popular in Mwanza region
Matege	20.7	w	38	E	r	r	Not released, popular in dry areas (under evaluation)
Nzugunatela	24.1	Cr	32	E	r	r	not released, popular in dry areas of Meatu (under evaluation)
Mayai	10	o	32.5	E	r	r	Released, 2010, widespread in Zanzibar and Eastern Zone

# Most important bred SP varieties in Tanzania cont'd



Country	Root yield	Flesh	Dry matter	Earl.	SPVD	Alt.	Remarks
Name of variety	t/ha	Colour	(%)				
Mlezi*	16	do	33.8	E	s	r	Released in 2013, wide spread in Lake zone and Eastern zone region
Carrot Dar	17	do	32.9	E	s	r	Not released,
Carrot-C	15	do	33	E	s	r	Not released
Jewel	21	do	28	E	s	r	Not released

\*Ejumla

# bred SP varieties in Tanzania cont'd



Country	Root yield	Flesh	Dry matter	Earl.	SPVD	Alt.	Remarks
Name of variety	t/ha	Colour	(%)				Released 2013, spread over in Lake zone and Eastern zone
Kakamega (SPK004)**	17	lo	33.1	E	r	r	released,
Mataya	13	do	30.7	E	r	r	Released 2010, Widespread in Coastal region
Kiegea	14	lo	30	E	r	r	Released 2010, widespread coastal region
Mazao*	22	Cr	36	E	r	r	Released 2013, spread over Kagera, Mwanza, Geita, and now to dry areas of Simiyu and Shinyanga regions
Kabode	20.6	o	33	E	r	r	Not released, in the pipeline
Simama	20.3	y	41	E	r	r	Released 2002, widespread in central Tanzania



# bred SP varieties in ..country cont'd

*In the pipeline for release!*



Country	Root yield	Flesh	Dry matter	Earl.	SPVD	Alt.	Remarks
Name of variety	t/ha	Colour	(%)				
SPKBH/5/09	19.7	cr	36.2	E	r	r	High dry matter content, resistance to SPVD
SPKBH/03/03	20.8	pl	38	E	r	r	High dry matter content, resistance to SPVD
SP 69op208/70	24.6	cr	36.1	E	r	r	High dry matter content, resistance to SPVD
SP 2001/05	28.8	y	37.7	E	r	r	High dry matter content, resistance to SPVD
Kabode	20.6	o	35.5	E	r	r	High dry matter content, resistance to SPVD

# NEW CANDIDATES IN THE PIPELINE



Bred believed to treat cancer ?



SP 2001/05 is promiscuously high yielding,  
marketable roots will be released soon!



# NEW CANDIDATES IN THE PIPELINE



Kabode is promiscuously high yielding, will be released soon!



SP69OP2008/70, marketable roots!



# Summary of progress 2009- 2014



Type of trial		Details	2009	2013/14
<b>Crossing block</b>				
	1	No. of parents in crossing block	20	39
	2	No. of seed collected from OP	<b>1,142</b>	2520
		a. Total no. of families of OP seed	56	224
	3	No. of seed collected from crosses	10,057	16,716
		a. Total no. of families of controlled crosses	224	570
<b>Seedling nursery</b>				
	1	No of seeds planted	7,200	16,696
	2	No of seedlings established	900	2,700
	3	Total no. of families planted	48	120

# SUMMARY OF PROGRESS 2009- 2014

Type of trial		Details	2009	2013/14
<b>Observation trial</b>				
<b>(OT)</b>	1	No of clones planted	144	317
	2	No of checks (check clones) planted	2	3
	3	No. of locations	2	2
<b>Preliminary yield (PT)</b>				
	1	No of clones planted	48	72
	2	No of checks (check clones) planted	2	3
	3	No. of locations	2	3
<b>Advanced yield trial (AT)</b>				
	1	No of clones planted	8	12
	2	No of checks (check clones) planted	2	3
	3	No. of locations	3	6

# SUMMARY OF PROGRESS 2009- 2014



On-farm trials			
	1	No of farms/farmers per region/district / province	
		12	15
	2	Total no. of trials whole country	
		120	150
No of varieties released			7
No. of clones in pipeline for			
To be released by 2014			5
Package used for			
analysis:			
2009-2012		GenStat	



# sweetpotato foundation seed system



•Tissue culture lab:	•Response (a)	•Response (b)
•No. of screenhouses/need repair (a)	3	
•No. of good screenhouses (a)	0	
•How long does it take to breed a variety (years)?	5	
•How long does the variety release process take? •(Assuming all data is available)/1 season/1 year (a)?	1 year	

# Linkage to vine multipliers for multiplication

Linkage to vine multiplier	Proportion	Comments
<b>Government institutions (list):</b>		
ARI Ukiriguru, ARI- Maruku , Kibaha reserch centre & Kizimbani research centre in Zanzibar.	30%	Primary nursery
<b>NGOs (list):</b> Tanzania Home Economics Association (TAHEA), Karitas Rurenge Diocesan Development Office (RUDDO) , KOLPING ,Prisons	60 %	(Secondary nursery)
District councils		
<b>Farmer multipliers :</b> e.g Farmer groups, Individual vine multipliers under supervision of researchers	10%	Tertiary nursery

# Status of AGRA grant

Project title: Development and Evaluation of Improved Sweetpotato Varieties through Farmer Participatory Breeding in Tanzania	Response
Approved but has not started	No
Funded since	2010
Amount	USD 185,000
Expiration date	2013
Renewal proposal (delete what is not applicable):	Yes
Not yet written/ In process of writing	No
Written but not submitted	Yes
	Yes
Submitted, waiting for feedback	
2 <sup>nd</sup> phase funded since (year), amount (USD)	296 000 U\$D



# NUMBER OF SP VARIETIES RELEASED

## 2009 - 2014



No. of varieties released		No. of release document(s)*	No. of release papers /Manuscripts**
Non-orange	Orange		
2	5	3	1
No. of clones in pipeline for release (final tests/data already compiled)			
Non-orange	Orange		
4	1	0	0

\* Document submitted to Variety Release Committee/Authority; Each release has a separate document (several varieties released at the same time have one document)

\*\*Papers published in journal(s) or manuscript for journal/submitted/to be submitted

# DETAILED INFORMATION OF VARIETY RELEASE DOCUMENTS (2009-2014)



**1. Title:** Proposal for formal release of sweetpotato varieties

**Year:** 2010

**Number of varieties:** 2

**Organization:** Tanzania National Roots and Tuber Crops Improvement Programme, Department of Research and Development  
City – Country: Kibaha - Tanzania

**2. Title:** Proposal for formal release of sweetpotato clones

**Year:** 2013

**Number of varieties:** 2

**Organization:** Tanzania National Roots and Tuber Crops Improvement Programme, Department of Research and Development  
City – Country: Mwanza - Tanzania

# PAPERS PUBLISHED/MANUSCRIPTS (2009-2014)



1. Building sustainable sweetpotato market linkages through Innovation Platforms for Technology Adoption: Case studies from Uganda, Kenya, Rwanda and Tanzania. *16th ISTRC, Nigeria 23 to 28 Sept 2012* S. Mayanja, M. McEwan, Y.Obong, R.Manasseh , P.Ndolo, **E.Lukonge**, 2012.
2. Health and income improvement from OFSP value chain in the Lake Zone , *9<sup>th</sup> Triennial APA conference coming up June 30<sup>th</sup> - July 4<sup>th</sup> 2013 in Naivasha Kenya.*  
**Lukonge E.**, I. Ndyetabula, W. Kaswahili and J. Shigulu, 2013.
3. Leaning and Innovative and Dissemination of OFSP Technologies in Tanzania, *FARA annual meeting, 1<sup>st</sup>-5<sup>th</sup> October, 2012. Mwanza, Tanzania*  
**Lukonge E.**, I. Ndyetabula, W. Kaswahili and J. Shigulu, 2012.



# PAPERS PUBLISHED/MANUSCRIPTS (2009-2014)



4. Promoting OFSP utilization through the value chain: Lake Zone, Tanzania. Poster, 3<sup>rd</sup> Annual Technical Meeting for the SASHA project and the broader *SPHI 11<sup>th</sup> to 13<sup>th</sup> September, 2012 Nairobi, Kenya*.

**Lukonge E.**, Ndyetabura I., Mayanja S., McEwan M., Shigulu J., Kaswahili W., Bundala R., Kuliani L., Shumbusho E, 2012.

## Manuscript:

1. Release of 4 Sweetpotato varieties in Tanzania for food and nutrition improvement  
*Journal of The Science of Food and Agriculture*.

# Current staff on sweetpotato research

Discipline	No	Gender (M/F	Age / > 35 years	<35
PhD - Breeders (70%)	4	2M ,2F.	>35	
Msc - 2Breeders, 1 socio-economist (20%) 1Agronomist, 1Entomologist 1Environmentalist (50%) 1 Nutritionist (30%)	7	2M, 5F	1<35	
Bsc - 2 Agronomists & 1 Nutritionist (30%)	5	2M, 3F	>35	

# Update Other Project Information

## Funding source

1. AGRA – USD 185,000 – 3 years
2. GoT – USD 5,000 – 3 years

Number of scientists and technicians in program = 20

## Constraints

- A combination of extended period of dry season and unpredictable rain have been affecting breeding program in the country
- Projects timeframe are shorter than the actual breeding activities
- Virus pressure

## Proposed future activities

- Fast tracking the already released varieties within the East Africa countries and the available bred materials
- Continue with participatory breeding activities



# THANK YOU FOR LISTENING!

