

PROGRESS ON SWEETPOTATO BREEDING IN MOZAMBIQUE

By
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Objectives



- Develop, **select** & release SP varieties of white & yellow fleshed color with **high yield**, high dry matter & **tolerant to pests (weevils) & diseases (SPVD)** that are drought tolerant for farmers in drought-prone areas in southern Mozambique
- **Increase availability of OFSP vines** for farmers to mitigate the effects of droughts, floods and minimize the effects of Vitamin A deficiency with the introduction of new OFSP varieties that are drought tolerant

Most important landraces in Mozambique



Country/ Name of landrace	Root yield t/ha	Flesh color	Dry matter (%)	Earl	SPVD	Alt	Remarks
Mozambique							
Xipone	5.42	W	31.25	L	R	N/A	Parental CB
Xitsekele	6.85	Y	33.25	L	R	N/A	Parental CB
Mwamazambane	7.71	W	31.71	L	R	N/A	Parental CB
Nhacutse4	5.21	W	30.05	L	R	N/A	Parental CB
Canassumana	6.67	Y	31.95	L	R	N/A	Parental CB
cincominutos	6.65	Y	33.12	E	R	N/A	Parental CB
Ligodo	11.91	C	32.76	L	R	N/A	
Manhissane	5.99	W	32.34	L	R	N/A	
Xiadlaxakau	12.6	Y	32.04	L	R	N/A	Parental CB
Chulamete	7.04	Y	32.69	L	R	N/A	

Flesh color: White (w), cream (cr), yellow (y), light orange (lo), orange (o), deep
 Earl (Earliness: Early (E) (about 4 months), late (L) about 5 or more months
 SPVD resistance (r: resistant, s: susceptible)
 Alt (Altenaria blight resistance, r: resistant, s: susceptible)

Most important bred SP varieties in Mozambique



Name of variety	t/ha	color	(%)	Earl	SPVD	Alt	Remarks
Country							
Irene	19.6	LO	28.8	E	R	NA	Released 2011, wide, drought tolerant
Ininda	22.2	O	29.3	E	R	NA	Released 2011, wide, parent in crossing block
Sumaia	21.6	DO	25.2	E	R	NA	Released 2011, wide, parent in crossing block
Bela	25.9	DO	27.5	E	IR	NA	Released 2011, wide, parent in crossing block, drought tolerant
Lourdes	18.3	DO	25.8	E	IR	NA	Released 2011,
Esther	18.6	O	29.6	L	R	NA	Released 2011, drought tolerant
Delvia	23.4	LO	32.8	E	R	NA	Released 2011, wide, parent in crossing block
Namanga	19.3	DO	27.0	E	R	Na	Released 2011, wide, Resistant to weevil

Flesh color: White (w), cream (cr), yellow (y), light orange (lo), orange (o), deep orange (do). Include beta-carotene

Earl (Earliness: Early (E) (about 4 months), late (L) about 5 or more months

SPVD resistance (r: resistant, s: susceptible)

Alt (Altenaria blight resistance, r: resistant, s: susceptible)

Summary of progress 2009- 2014



Type of trial		Details	2009	2013/14
Crossing block				
	1	No. of parents in crossing block	38	68
	2	No. of seed collected from OP	143.046	
		a. Total no. of families of OP seed	258	
	3	No. of seed collected from crosses	3.758	
		a. Total no. of families of controlled crosses	72	
Seedling nursery				
	1	No of seeds planted	24,694	8.281
	2	No of seedlings established	20.989	7.204
	3	Total no. of families planted	140	125

Summary of progress 2009- 2014



Type of trial		Details	2009	2013/14
Observation trial (OT)				
	1	No of clones planted	4.558	2.725
	2	No of checks (check clones) planted	3	3
	3	No. of locations	4	2
Preliminary yield (PT)				
	1	No of clones planted	1016	324
	2	No of checks (check clones) planted	3	3
	3	No. of locations	4	2
Advanced yield trial (AT)				
	1	No of clones planted	254	44
	2	No of checks (check clones) planted	3	3
	3	No. of locations	4	3

Summary of progress 2009- 2014



Type of trial		Details	2009	2013/14
Multilocation trial (MT)				
	1	No of clones planted	64	19
	2	No of checks (check clones) planted	3	3
	3	No. of locations	4	3
On-farm trials				
	1	No of farms/farmers/region/district / province	128	0
			3	0
			4	0
No of varieties released				
No. of clones in pipeline for realease by e.g. Oct. 2015				16

Summary of progress 2009- 2014



Type of trial	Details	2009	2013/14
On-farm trials			
1	No of farms/farmers per region/district / province	16	0
2	Total no. of trials whole country	64	0
No of varieties released		15	0
No. of clones in pipeline for release by 2015			16
Package used for			
2009-2012		GenStat ? SAS ? CloneSelector?	GenStat SAS, Plabstat CloneSelector
2013/14			CloneSelector Statistics

Sweetpotato Foundation Seed system



Tissue culture lab:	Response (a)	Response (b)
No. of lamina flow benches (a)		
No. of CVs maintained in tissue culture (a)		
No. of screenhouses/need repair (a)		
No. of good screenhouses (a)		
No. of in vitro plantlets wined:		
a) Every 3-4 months (b) every year)		
No. of vine cuttings:		
a) Distributed every 4-5 months (b) every year)		162.250
a) Sold every 4-5 months [(b) every year]		
How long does it take to breed a variety (years)?	3 to 4	
How long does the variety release process take? (Assuming all data is available)/1 season/1 year (a)?	1 year	

Seed dissemination



Province	District	Location	Area (ha)
Gaza	Chokwé	E.A. Chokwé	4
	Chibuto	E.A. Maniquenique	1.5
Maputo	Boane	E.A. Umbeluzi	0.5
Total			6.0

Decentralized vine multipliers

Province	District	No. of DVM	Male	Famele
Gaza	Xai-xai	4	3	1
	Chibuto	3	3	0
	Macia	5	3	2
	Chokwé	5#	15	35
Maputo	Marracuene	3	2	1
	Moamba	1	0	1
Total		21	26	40

Linkage to Vine multipliers for further multiplication



Linkage to vine multipliers	Proportion	Comment
Government institutions (list):	40 %	
MINAG, DPA, SDAE		
NGOs (list):	20 %	I
Save, WVI, Caritas, LWF, ATAP, ADRA		
Farmer multipliers	35 %	
DVM, farmers groups		
Others (list them)	5 %	
Schools		

Status of AGRA grant (delete what is not applicable)



Project title:	Response
Funded since	June 2012
Amount (USD)	219,400
Expiration date	July 2015
Other information on AGRA grant:	

Number of SP varieties released 2009 - 2014



No. of varieties released		No. of release document(s)*	No. of release papers /Manuscripts**
Non-orange	Orange		
0	15	1	1
No. of clones in pipe in pipeline for release (final tests/data already compiled)			
Non-orange	Orange		
16	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

Papers published/Manuscripts (2009-2014)



José Ricardo¹, Maria Isabel Andrade² & Paul E. Shanahan³

"Screening sweetpotato (*Ipomoea batatas* L.) for drought tolerance and high β -carotene content in Mozambique" Presented in "The 9th Triennial African Potato Association Conference 2013 "

Current staff on sweetpotato research (replace example with yours)



Sweetpotato (SP) Staff Category	No.	Gender (M/F)	Age <35 / > 35 years
Full/Part time on SP (%) (indicate qualification):			
MSc (Plant breeder, 30%)	1	M	<35
BSc (Agronomist, 20%)	1	F	>35
Technicians:			
MSc (tissue culture, 10%)	0		
Diploma (breeding & seed systems, 50%)	0		
Certificate (breeding, 100%)	0	M	
Total	2	(1 M:1F)	
Comment:			

Update Other Project Information



Funding source/amount /duration

Constraints

- Floods, Drought, Supplies

Proposed future activities

- Establishment of on-farm trials for release of white and yellow variety in 2015