

Progress of sweetpotato breeding in Malawi



Felistus Chipungu

Objectives



The national sweetpotato breeding program in Malawi is mandated to develop varieties that:

Give high and stable yields (≥ 20 t/ha) per unit area and time

Are resistant/tolerant to major and prevalent diseases (SPVD and Alternaria) and sweetpotato weevil (SPW) in Malawi

Give desired root quality colour (white, cream, yellow, orange) to meet local cooking and consumption requirements (high dry matter content, sweetness)

Wide and specific adaptability to environmental conditions and cropping systems

Contribute to vitamin A source

Most important landraces in ..country



Country/ Name of landrace	Root yield t/ha	Flesh color	Dry matter (%)	Earl	SPVD	Alt	Remarks
Malawi							
Zonden	8-16	o	32	L		r	widely grown
Yoyera	3-7	w	36	L		r	Low yields
Kamchiputu	3-7	lo	36	L		r	Low yields
Babache	5-7	cr	34	L		r	widely preferred
Mfumumu	7	cr	34	L		r	widely preferred
Landrace6							
Landrace7							
Landrace8							
Landrace9							
Landrace10							

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)

Type of sweetpotato trials 2012/13



Type of trial		Details	2009	2012
Crossing block				
	1	No. of parents in crossing block		36
	2	No. of seed collected from OP	+4000	8000
		a. Total no. of families of OP seed	+50	36
	3	No. of seed collected from crosses	-	1200
		a. Total no. of families of controlled crosses		21
Seedling nursery				
	1	No of seeds planted	13200	8900
	2	No of seedlings established	10000	8000
	3	Total no. of families planted	6	30

Type of sweetpotato trials 2012/13



Type of trial		Details	2009	2012/13
Observation trial				
(OT)	1	No of clones planted	91	500
	2	No of checks (check clones) planted	2	2
	3	No. of locations	2	2
Preliminary yield (PT)				
	1	No of clones planted	54	58
	2	No of checks (check clones) planted	2	2
	3	No. of locations	3	3
Advanced yield trial (AT)				
	1	No of clones planted	4	8
	2	No of checks (check clones) planted	2	2
	3	No. of locations	4	5

Type of sweetpotato trials 2012/13



Type of trial	Details	2009	2012/13
On-farm trials			
1	No of farms/farmers/region/district / province	12oft-3r-4d	30-3r-9d
2	Total no. of trials whole country	28	56
No of varieties released in 2011 is 7			
No. of clones in pipeline for realease by Dec 2013			
			3

Other Project Information

Funding source/amount /duration

Agra: (U\$183,400) for 3 years (2010-2012)

Government: salaries and facilities

Number of scientists and technicians in program

6 root and tuber crops scientists and 21 technicians (across the country)



Other Project Information

Constraints

SPVD, alternaria and sweetpotato weevil prevalence

Drought and prolonged dry spells

Staffing- too many crops to handle

Proposed future activities

Intensify breeding for specific environments

