IAR PROCEEDINGS

FIRST ETHIOPIAN HORTICULTURAL WORKSHOP

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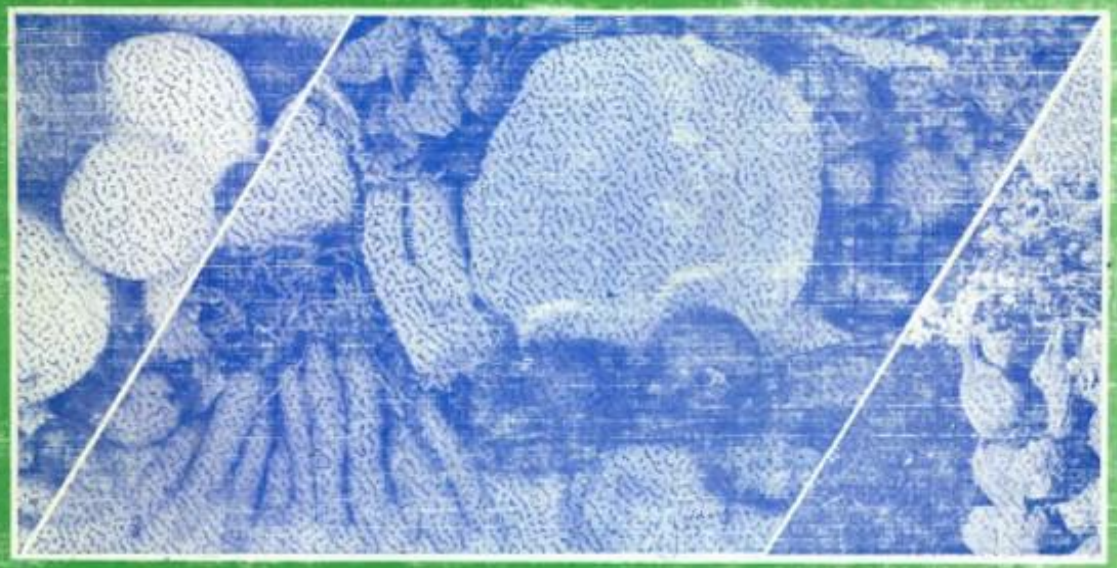

INSTITUTE OF AGRICULTURAL RESEARCH

PRELIMINARY EVALUATION OF POTATO VARIETY TRIALS

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INTRODUCTION

According to the ten-year Horticultural Development Indicative plan, by the end of the plan period 1981-1990, potatoes will have a share of 2200 ha, of which 200 ha will be irrigated for seed ad 2000 ha, non-irrigated crop in rainfed areas for ware potato production (1).

The HDD in cooperation with the Horticulture Development Corporation (HDC) started to multiply the foundation seed of the first six released (AL-560, AL-100, AL-575, AL-135, AL-204 and AL-148) from the breeding programme at Alemaya Agricultural College. Three of these varieties, AL-100 (Kenya Baraka), AL-135 (SPUNTA), AL-148 (ANITA) (3) showed better adaptability, until the recent outbreak of bacterial wilt *(Pseudomonas solanacearum)* (4) on AL-148 (ANITA).

However, to achieve the objectives of the ten-year Horticultural Development plan, the Horticulture Development Department (HDD) is of the opinion that seed of improved varieties should be imported from the beat sources abroad for seed multiplication purposes. Possible sources of seed imports would be Kenya, Germany or Holland (2).

Besides basic seed multiplication work at Tseday Farm, in order to facilitate adequate supply of produce for local market and develop an export programme within a reasonable time, HDD was obliged to carry out adaptation trials of internationally recognised cultivars to have a basis before ordering potatoes in bulk from abroad.

For this purpose, nine German potato varieties were grown for yield assessment since August, 1982 including five Alemaya selections for cross reference.

MATERIALS AND METHODS

Fourteen potato varieties (Table 1) were tried as irrigated crop (furrow irrigation) three times at Tseday State FArm and once at Debre Zeit Agricultural College research sites. The two sites characterize different ecological conditions - Tseday 2400 masl and Debre Zeit 1860 masl. Soil type of the trial sites was light and well drained at both locations.

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Table 1: Variety name and source.

No.	Variety	Source
1	MONZA	(POTATEX GERMANY)
2	TITANA	" "
3	ILONA	" "
4	GRANOLA	" "
5	RAMANZE	" "
6	AULA	" "
7	GUSTO	" "
8	DUNJA	" "
9	PINKI	" "
10	AL-204	ALEMAYA ETHIOPIA
11	ANITA	" "
12	ROSLIN EBURU	" "
13	SPUNTA	" "
14	KENYA BARAKA	" "

The trial design was RCB in 4 replications with plot size of 3 m x 6 m. Eighty tubers were planted per plot. The spacing used was 75 cm x 30 cm with the planting depth of 10 cm.

Fertilizer application; 300 kg of DAP/ha was broadcasted before redging and 100 kg/ha of UREA as a side dressing at both sides of the rows 3 weeks after planting.

Chemical application was recommended at weekly intervals as a preventive measure against leaf diseases. Chemicals applied were TAMARON at 25 ml in 10 litres of water, RIDOMIL 50 at 10 grams in 10 litres of water, or RIDOMAIL MZ at 50 grams in 10 litres of water.

Observations were made and recorded at different stages of growth. Stant at emergence and harvest, first flowering, full flowering, pest and disease incidence, maturity, mean number of tubers per plants, yield per plot were recorded and tubers graded into ware and seed potato sizes.

Besides these, some of the varietal characteristics on the side of consumer preference criteria were recorded.

RESULTS AND DISCUSSION

The yield results were not subjected to statistical analysis, because all the varieties were not treated simultaneously in four trials.

In Table 2, the results obtained indicate that, most of the German varieties have higher yield potential than those of Alemaya selections in both sites.

Serious leaf disease problems were not reported as preventive measure had been taken during the vegetative growth.

At their full maturity, most of the varieties have the tuber size of 35 mm - 55 mm and > 55 mm after grading.

According to the sensory evaluation results obtained from Ethiopian Nutrition Institute (ENI), most of the German varieties were acceptable as boiled, mashed and potato chips (5).

In addition to these, they have attractive colour, shape and shallow eye depth (Table 3). That means most of these varieties are commercially acceptable for local market as well as for export.

In order to confirm the yield performances of these varieties, systematic trial should be carried out in different ecological conditions of Ethiopia as a rainfed or irrigated crop in future.

Table 2: Yield observation from different date of planting at Tseday and Debre Zeit.

No.	Variety	Date of Planting			
		26-8-82 Tseday (q/ha)	15-2-83 Tseday (q/ha)	6-4-83 Tseday (q/ha)	1-4-83 Debre Zeit (q/ha)
1	MONZA	211	690	-	317
2	TITANA	200	-	522	269.5
3	ILONA	166	516	-	295.6
4	GRANOLA	216	523	-	219.6
5	ROMANZE	162	509	-	290
6	AULA	232	-	536	218
7	GUSTO	195	501	-	198.8
8	DUNJA	150	688	-	200
9	PINKI	140	-	348	230
10	AL-204	113	-	469	285
11	ANITA	-	-	377	158.4
12	ROSLIN EBURU	100	-	454	254.9
13	SPUNTA	104	-	447	329
14	KENYA BARAKA	-	-	335	190.6

Table 3: Varietal Characteristics.

No.	Variety	Maturity	Skin Colour	Shape	Eye Depth
1	MONZA	M-L	Light yellow	Round oval	Shallow
2	TITANA	E	" "	" "	"
3	ILONA	E	" "	Oval	"
4	GRANOLA	M-E	" "	Round Oval	"
5	ROMANZE	M-E	" "	Long oval	"
6	AULA	M-L	" "	Oval	"
7	GUSTO	M-E	Yellow	Round oval	"
8	DUNJA	M-E	"	Round	"
9	PINKI	E	"	Oval	"
10	AL-204	E	White	Round oval	"
11	ANITA	M-E	Light Red	Round	Deep
12	ROSLIN EBURU	M-L	White	Oval	Shallow
13	SPUNTA	M-E	"	Elongated	"
14	KENYA BARAKA	L	"	Oval	"

E - Early

M - Medium

L - Late

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