Agricultural Research Institute of Mozambique

STABILITY AND ADAPTABILITY OF COTTON (*Gossypium hirsutum* L. race *latifolium*) VARIETIES AND INBREDLINES IN NORTH MOZAMBIQUE

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11TH MEETING/ SYMPOSIUM OF
THE SOUTHERN AND EAST AFRICAN COTTON FORUM

I. INTRODUCTION

Cotton (*Gossypium hirsutum* L), which is also known as 'white gold', is an important crop in many developing countries.

Considered:

- The main income crop in Mozambique

Cultivated by ~ 200 thousand families in Mozambique

I. INTRODUCTION

> 90% of total production comes from small-scale farmers
Area: < 1 ha.

I. INTRODUCTION

Low seedcotton yield

lack of improved varieties adapted to the local edafoclimatic conditions

(Rohrbach et al., 2001).

I. INTRODUCTION

Introduction of IMPROVED cotton varieties from other countries

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The new germoplasm was not evaluated regarding to their production stability and adaptability.

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OBJECTIVE

To assess the performance of new introduced varieties and inbredlines in Mozambique.

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II. MATERIAL AND METHODS

2007/08
2008/09
2009/10
seasons.

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II. MATERIAL AND METHODS

Experimental design

Randomized complete block, with four replications.

Treatments: 21 varieties/inbred lines

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Id.	Cultivar/ inbred line	Geographic group	Origin
1	Albar SZ9314	African	Zimbabwe
2	Albar FQ902	African	Zimbabwe
3	Albar BC853	African	Zimbabwe
4	STAM 42	African	Senegal
5	CA 222	African	Ivory Cost
6	CA 324	African	Ivory Cost
7	IRMA 12-43	African	Cameroom
8	ISA 205	African	Ivory Cost
9	REMU 40	African	Mozambique
10	TAMCOT 22	American	US -Texas
11	TAM 96WD-69s (L)	American	US -Texas
12	TAMCOT PYRAMID	American	US -Texas
13	TAM 98D -102 (L)	American	US -Texas
14	TAM 96WD-18 (L)	American	US -Texas
15	TAM 94J-3 (L)	American	US -Texas
16	TAM 88G-104 (L)	American	US -Texas
17	TAMCOT Sphinx	American	US -Texas
18	TAM 98D-99ne (L)	American	US -Texas
19	TAM 94WE-37s (L)	American	US -Texas
20	TAM 94L-25 (L)	American	US -Texas
21	TAMCOT Luxor	American	US -Texas

US: United States. (L) Inbred line. Numbers from 10 to 21 refer to the four cultivars and eight inbred lines from US introduced in Mozambique in 2006.

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II. MATERIAL AND METHODS

4 LOCALS x 3 YEARS = 12 Environments

21 Genotipes

The adaptability and stability were evaluated using the methods proposed by (Annicchiarico, 1992) and (Toler and Burrows, 1998).

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II. MATERIAL AND METHODS

Characteristics assessed

Seedcotton yield (kg.ha^{-1})
Mean value, expressed in kg.ha^{-1}, of the total weight of cottonseed collected in each plot.

Fiber yield (%):
Mean value of the percentage of fiber extracted from the cottonseed collected in each plot.

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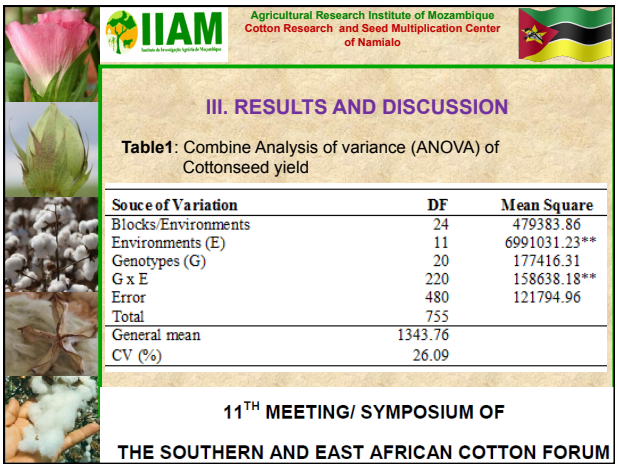

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III. RESULTS AND DISCUSSION

Table1: Combine Analysis of variance (ANOVA) of Cottonseed yield

Souce of Variation	DF	Mean Square
Blocks/Environments	24	479383.86
Environments (E)	11	6991031.23**
Genotypes (G)	20	177416.31
G x E	220	158638.18**
Error	480	121794.96
Total	755	
General mean	1343.76	
CV (%)	26.09	

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Varieties/ Inbredlines	Toler e Burrows						Annicchiarico
	$\hat{\alpha}_i$	$\hat{\beta}_{1i} - \hat{\beta}_{0i}$	$\hat{\beta}_{0i}$	$\hat{\beta}_{1i}$	$\hat{\beta}_i$	Group	$W_{i(Cl)}$ (%)*
1-Albar SZ9314	1355.89	0.37	1.22	1.59	1.41*	B	92.97
2-Albar FQ902	1304.89	0.01	0.90	0.91	0.93	C	91.59
3-Albar BC 853	1241.89	-0.35	1.17	0.82	0.99	C	87.86
4-Stam-42	1346.97	0.18	0.80	0.98	0.90	C	96.89
5-CA-222	1430.11	0.05	1.16	1.21	1.20	C	100.44
6-CA-324	1369.33	-0.19	1.14	0.95	1.02	C	96.65
7-IRMA 12-43	1304.50	-1.04	1.13	0.09	0.61*	D	93.67
8-ISA-205	1362.28	-0.44	0.86	0.42	0.64*	D	98.57
9-REMU-40	1387.75	-0.02	0.83	0.81	0.82	C	99.60
10-Tamcot-22	1252.14	2.08 **	0.51	2.59**	1.54	A	84.60
11-Tam-96WD-69s	1351.83	0.72	0.89	1.61	1.25	C	93.41
12-Tamcot Pyramid	1302.14	0.22	1.01	1.23	1.12	C	92.92
13-Tam-98D-102	**1415.06**	**0.02**	**0.96**	**0.98**	**0.97**	**C**	**102.57**
14-Tam-96W-18	**1458.64**	**0.01**	**0.95**	**0.96**	**1.01**	**C**	**106.30**
15-Tam-94J-3	**1476.08**	**-0.07**	**1.27**	**1.20**	**1.24**	**C**	**104.61**
16-Tam-98G-104	1297.19	0.29	0.73	1.02	0.87	C	92.82
17-Tamcot Sphinx	1250.67	0.55	0.81	1.36	1.08	C	89.33
18-Tam-98D-99ne	1258.64	0.12	0.92	1.04	0.98	C	89.47
19-Tam-94WE-37s	1271.94	-0.53	1.13	0.60	0.87	C	92.67
20-Tam-94L-25	1368.22	-0.66	1.00	0.34	0.67	C	100.33
21-Tamcot Luxor	1412.83	-1.43*	1.59	0.16**	0.89	E	98.30

CONCLUSION

Tam-96W-18, Tam-94J-3 and Tam-98D-102 inbred lines with wide adaptability, more stable, associated with good productivity, showed a high potential to be recommended for its cultivation in North Mozambique.

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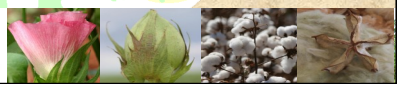

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