

MALAWI - 1

ICRISAT COOPERATIVE REGIONAL GROUNDNUT
YIELD TRIALS, MALAWI 1983/84

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The ICRISAT Regional Groundnut Program, established in 1982 in Lilongwe, Malawi, has been organising regional groundnut yield trials for the last two seasons in southern Africa.

Of the nine Southern Africa Development Coordination Conference (SADCC) member countries, Malawi, Mozambique, Zambia and Zimbabwe participated in the 1983/84 season. In the 1984/85 season, these trials were further extended to Botswana and Tanzania.

The purpose of this brief note is to encourage other groundnut scientists in southern and eastern Africa to make full use of this material in their research programs. Full set of trials can be made available to other cooperators on request.

Results obtained from the 1983/84 regional trials are briefly presented in this note for the benefit of other interested cooperators. Results from the 1984/85 season are still awaited.

1983/84 results: After initial evaluation and selection in 1982/83 and subsequent seed increase in 1983 off-season at Makhanga (Shire Valley in southern Malawi), 34 sequentially branched populations and 14 alternately branched populations were selected for regional yield trials. These populations were assigned ICRISAT Groundnut Malawi Selection Numbers (ICGMS).

The trials were conducted in Malawi (2 locations), Mozambique (1 location), Zambia (2 locations), and Zimbabwe (1 location). Planting arrangement and other cultural operations carried out were similar to those of other groundnut yield trials at the stations. Two standard varieties of the countries were included in each of the trials as local controls.

1. Sequential Branching

Thirty four ICGMS lines and two local control varieties were planted in a 6 x 6 lattice design with four replications. Local controls were Malimba and Spancross for Malawi, Starr and Spanish 18-30 for Mozambique, Comet and Natal Common for Zambia, and Plover and Valencia R2 for Zimbabwe. Performance of a few of the promising ICGMS lines is presented in Table 1.

On an overall mean basis, lines 11, 5, 33, 31, and 13 occupied the first five ranks for pod yield (kg/ha) and lines 31, 33, 11, 5 and 28 for shelled yield (kg/ha).

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Table 1: Performance of some of the promising ICGMS lines in the ICRISAT cooperative regional groundnut trial (sequential branching), 1983/84 crop season.

Identity	Locations**										
	Malawi				Mozam- bique	Zambia			Zimbabwe		
	Chitedze		Lupembe		Sabie	Msekra		Magoye	Gwebi		
	(1)	(2)	(1)	(2)	(1)	(1)	(2)	(1)	(1)	(2)	
ICGMS	1	1630	1250	1790	1340	1210	1800	1330	1420	1830	1380
	2	1850	1440	1500	1100	1450	1970	1500	1950	820	600
	3	1500	1120	1330	1020	1590	1640	1150	1950	2340	1680
	5	1660	1160	1540	1090	1180	2240	1490	1710	3290	2200
	11	1380	980	1850	1270	1310	2100	1370	1920	3510	2390
	14	1280	890	1800	1200	1340	1690	1070	1830	2860	1940
	22	1780	1320	1400	1070	1330	1870	1390	1810	1890	1420
	23	1760	1370	1190	810	1220	2010	1350	1210	2820	2090
	28	1550	1160	1230	870	1280	1960	1420	1350	3270	2420
	31	1800	1160	1420	950	1740	1670	1100	1070	4110	3120
	33	1730	1330	1610	1260	1180	1840	1350	1860	3120	2310
C ₁ *		1460	1090	1540	1010	1050	1830	1320	1830	2690	1940
C ₂ *		1380	1080	1440	980	750	1880	1350	1420	4010	2930
SE		±87.6	-	±113.2	±74.4	-	±114.2	±75.9	±222.6	±159.2	-
CV (%)		12	-	17	16	-	12	12	28	12	-

*C₁ and C₂ = Local controls 1 and 2, respectively.

** (1) and (2) = Unshelled and shelled yield (kg/ha), respectively.

Table 2 Performance of some of the promising ICGMS lines in the ICRISAT cooperative regional groundnut yield trial (alternate branching), 1983/84 crop season.

Identity*	L o c a t i o n s **										
	Malawi		Mozamb- ique		Zambia		Zimbabwe				
	Chitedze	Meru	Namialo	Msekera	Golden Valley	Gwebi					
	(1)	(2)	(1)	(2)	(1)	(1)	(2)	(1)	(2)	(1)	(2)
ICGMS 36	1740	1290	1920	1250	1000	2450	1800	1120	690	760	520
42	2630	1990	2490	1810	630	2530	1800	1380	810	3560	2630
43	1790	1360	2340	1660	590	1800	1260	1660	1000	3270	2390
45	1620	1120	3330	2350	590	2250	1440	840	470	3320	2290
48	1480	1100	2420	1510	670	2240	1550	1450	590	1390	910
C ₁	2380	1760	2490	1670	610	2560	1730	1030	450	3090	2100
C ₂	172	1290	2170	1520	570	2300	1550	530	330	2790	1930
SE	±89.9	-	±197.2	±138.5	-	±130.8	±96.0	±131.6	±70.5	±103.6	-
CY (%)	11	-	18	18	-	13	14	23	21	8	-

* C₁ and C₂ = Local controls 1 and 2 respectively

** (1) and (2) = Unshelled and shelled yield (kg/ha), respectively.

The ICGMS lines with at par or better performance (both pod and seed yield) than the higher yielding control variety at three or more of the six locations were 9, 5, 33, 11, 2, 21, 22, 32, 1, 27, 12, 20, 31, 14, 23, 34, 3, 17 and 28. These lines appeared to combine wide adaptability with good performance. Lines which had at par or better performance than the higher yielding control at less than three of the locations were 7, 29, 15, 18, 24, 30 and 8. Although performance of these lines was good, their adaptability was narrower.

2. Alternate Branching

Fourteen ICGMS lines and two local control varieties were planted in a 4 x 4 lattice design with four replications. Local controls were Mani Pintar and RRI/1 for Malawi, 57-422 and RMP 12 for Mozambique, Makulu Red and Chalimbana for Zambia, and Egret and Makulu Red for Zimbabwe. Performance of a few of the promising ICGMS lines is presented in Table 2.

On an overall mean basis, the top five lines for pod yield were ICGMS 42, 45, 43, 47 and 40; and for shelled yield ICGMS 42, 45, 43, 47 and 38.

The ICGMS lines with at par or better performance (both pod and seed yield) than the higher yielding control variety at three or more of the six locations were 42, 45, 36 and 48. These lines appeared to combine wide adaptability with good performance. ICGMS lines 35, 39, 37, 40, 44, 46 and 41 performed at par or better than the higher yielding control variety at less than three of the locations. Although performance of these lines was good, their adaptability was narrower.

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