Evaluation of Genetic Resources of Groundnut

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Two hundred seventy Spanish bunch groundnut genotypes were assessed for pod yield against six different elite varieties viz. AK-12-24, JL-24, TAG-24, OG-52-1, Girnar-1 and ICGS-11 in Augmented Design under paddy fallow during *rabi*, 1999-2000. There was no significant difference among blocks and as well as checks. The variety TAG-24, among the checks registered highest mean pod yield/plant, Seven test entries viz. ICGS-387, 1931, 2499, 3317, 3336, 3345 and 6474 showed higher pod yield/plant against best check variety, TAG-24.

Key words: Genetic Resources, Germplasm, Groundnut

Groundnut is one of the most important crops grown in India for edible oilseed production. It is grown over an area of 8.6 million hectares with a production of about 8.2 million tonnes. Efforts have been made to evaluate, characterize, preserve and catalouge the genetic resources of groundnut. Improvement of seed and oil yield in this crop to meet the increasing demand is foremost. Hence, there is a need to intensify efforts to search for appropriate donors for utilization in the location specific breeding programme. In the present paper attempts have been made to evaluate the genetic resources of groundnut maintained at this centre to assess their potential use in cultivar development programme for rice based groundnut cropping system.

Materials and Methods

Two hundred and seventy accessions of groundnut along with six check varieties were evaluated in Augmented Design during *rabi* 1999-2000 at Out-reach centre of National Research Centre for Groundnut, Bhubaneswar. The accessions were grown in three rows of 5 m bed with plant to plant and row to row spacing of 10 x5 cm., respectively. NPK were applied @ 20:40:40 at the time of sowing. Standard agronomic practices were followed and plant protection measures were adopted as and when required. Observations were recorded on 5 competitive randomly selected plants for pod yield/ plant at harvest. Data was analysed according to Agrawal and Sapra (1995). Two hundred and seventy test entries were equally distributed to six blocks containing 45 entries per block. Six different checks namely AK-12-24, JL-24, TAG-24, OG-52-1, Girnar-1 and ICGS-11 were randomly distributed in each block. Thus, total plots/block were 51 (45 test entries and 6 check entries). Total number of plots in six blocks were three hundred and six.

Results and Discussion

Mean pod yield/plant of six different checks over the block and ANOVA have been given in Table 1 and 2, respectively. No significant difference was observed among the blocks and as well as checks (Table 2). Since, there is no block effect on the test entries, observed value of a test entries will be the actual performance of a particular genotype. Observed pod yield/plant of 270 test entry and different standard errors have been shown in Table 3 and 4, respectively. TAG-24 registered highest mean pod yield/plant (12.0) among the checks and standard error between check mean and variety yield is 2.36. Since, there is no block effect highest check mean value (12.0) along with standard error (2.36) has been opted here as criteria for selecting better performing genotypes on the basis of observed pod yield/plant without considering their block. Seven genotypes (Table 5) out yielded than best check mean value.

Table 1. Mean pod yield/plant (gm) of six check varieties over blocks

Sl. No.	Checks	Mean pod yield/plant (gm).
1.	Ak-12-24	8.9
2.	JL-24	10.0
3.	TAG-24	12.0
4.	OG-52-01	11.3
5.	Girnar-01	10.9
6.	ICGS-II	10.8

Table 2. ANOVA for check varieties

Source	d f	MSS	F value
Block	5	5.95	1.44
Checks	5	6.67	1.61
Error	25	4.12	
Total	35	4.75	

Table 3. Observed pod yield/plant (gm) of 270 test entries in six different blocks

Block1		Block2		Block3		Block4		Block5		Block6	
ICG No.	Yield	ICG No.	Yield	ICG No.	Yield	ICG No.	Yield	ICG No.	Yield	ICG No.	Yield
45	8.8	1517	10.0	3317	16.8	4069	6.4	4893	12.0	6679	3.0
183	10.0	1537	10.0	3327	10.0	4071	10.0	6027	10.8	6710	6.8
317	9.6	1538	6.8	3336	21.2	4075	8.4	6028	7.0	6769	8.2
372	6.0	1571	6.4	3345	15.0	4078	9.4	6030	8.9	6823	8.0
387	14.5	1572	7.8	3354	10.0	40.83	10.6	6035	8.8	6906	8.0
1064	10.4	1750	7.8	3369	4.4	4084	13.0	6038	10.4	3242	8.0
1102	11.6	1834	10.0	3388	12.4	4102	9.2	6042	8.1	3272	8.0
1103	13.6	1826	6.0	3383	7.2	4091	10.0	6040	7.2	3264	8.4
1135	11.6	1834	10.0	3388	12.4	4102	9.2	6042	8.1	3272	8.0
1204	8.0	1837	8.8	3409	12.8	4104	4.0	6058	7.0	3273	9.0
1212	9.2	1839	6.8	3438	11.6	4107	9.2	6069	10.0	3287	6.0
1214	11.2	1856	12.0	3463	10.0	4112	7.4	6104	10.8	3298	5.2
1215	8.0	1859	11.0	3469	12.0	4114	6.0	6105	8.0	3630	5.6
1235	12.4	1873	9.6	3491	6.4	4117	7.6	6166	5.6	3653	5.6
1259	11.9	1880	9.6	3495	8.4	4118	12.0	6168	11.2	3660	7.6
1315	11.2	2220	11.6	3500	4.8	4518	7.0	6172	6.8	7018	8.4
1330	10.2	2221	8.0	3537	8.0	4549	6.0	6174	9.0	7022	12.0
1331	10.0	2395	6.8	3555	12.0	4551	12.0	6176	7.0	7029	6.6
1338	9.2	2499	16.4	3569	7.6	4563	6.0	6177	5.6	7036	9.2
1347	10.0	3028	10.8	3572	8.1	4565	6.4	6178	4.4	7037	10.6
1353	10.4	3098	9.6	3575	12.0	4570	5.6	6117	9.6	7041	10.4
1354	10.8	3100	5.6	3606	12.4	4571	4.8	6238	4.8	7044	11.6
1355	12.0	3106	6.4	3613	11.0	4588	6.0	6270	8.0	11618	7.0
1358	10.0	3158	10.4	3616	12.0	4593	6.0	1917	12.0	11645	8.0
1361	9.6	2028	6.4	3617	9.6	4594	13.6	1922	9.8	11663	6.4
1365	9.2	2038	5.2	3618	10.8	4600	6.8	1923	8.8	11684	4.8
1391	8.0	2055	12.8	3621	4.0	4603	7.0	1930	7.2	11748	7.6
1404	10.8	2061	9.0	3622	6.0	4604	8.0	1931	14.5	11749	8.8
1407	12.0	2067	9.2	3625	6.0	4606	6.0	1967	10.8	11948	8.0
1424	12.0	2077	8.0	3527	8.0	4607	8.0	1982	7.6	11953	8.0
1912	8.8	2080	10.0	3723	10.0	4612	9.6	6320	10.4	12115	5.2
1916	12.0	2081	9.0	3727	7.6	4626	10.6	6362	10.8	12121	5.0
1449*	6.0	2087	9.2	3740	10.4	4635	3.6	6380	9.0	12126	8.4
1451	9.6	2089	7.0	3746	9.6	4636	7.2	6473	8.4	12305	5.0
1480	10.8	2099	10.0	3575	8.4	4637	6.4	6474	14.5	12312	4.0
1487	10.6	2107	7.6	3762	16.0	4642	4.4	6486	5.2	2044	3.6
1489	9.2	2119	12.0	3765	10.4	4660	8.8	6503	10.0	2412	6.6
1491	11.2	2132	5.2	3772	12.8	4661	6.0	6508	10.8	6497	4.0
1496	8.4	2152	5.0	3773	12.0	4574	11.0	6573	8.0	6499	6.0
1507	6.8	2176	7.0	3774	6.8	4686	6.0	6595	5.0	6529	4.0
1509	4.0	2179	5.0	3785	9.0	4690	3.6	6617	9.2	6658	3.0
1510	2.	2193	10.8	3823	10.0	4691	5.2	6625	9.0	1427	12.2
1511	8.0	2194	6.0	4038	10.8	4702	6.6	6630	6.0	1437	11.6
1512	7.0	2196	10.0	4043	6.0	4708	9.2	6676	8.0	2674	9.0
1513	8.0	2210	10.4	4044	8.0	4710	6.4	6677	8.0	3698	6.4

Table 4. Standard error for different components

Sl. No.	Components	S.E. Value
1	Between two check means	1.17
2	Between variety yield and check mean	2.36
3	Between yield of two varieties	2.87

Table 5. Promising genotypes against best check

Sl. No.	Genotypes	Observed Pod Yield/Plant
1	ICGS-387	14.5
2	ICGS-1931	14.5
3	ICGS-2499	16.4
4	ICGS-3317	16.8
5	ICGS-3336	21.2
6	ICGS-3345	15.0
7	ICGS-6474	14.5
8	TAG-24 ± S.E. (Best check)	12.0 ± 2.36

Reference

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