

VAMBAN 1 - A HIGH YIELDING GREENGRAM VARIETY FOR TAMIL NADU

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ABSTRACT

Greengram culture NPRG 1 with high protein content is a hybrid derivative of the cross S 8 x PIMS 3 with a duration of 65 days. It recorded an average yield of 769 kg/ha with an increased yield of 24% over Co4, 22% over KM 2 and 19% over Paiyur 1. Based on the performance, this culture NPRG 1 was released as Vamban 1 greengram in 1989 for large scale cultivation in Tamil Nadu. This variety is suitable for Kharif and Rabi seasons. It is well suited for intercropping system. It is moderately resistant to yellow mosaic virus disease.

Greengram (*Vigna radiata* (L.) Wilczek) is one of the important pulse crop. In Tamil Nadu it is cultivated in an area of 1.55 lakh ha with an annual production of 0.52 lakh tonnes. The productivity of the crop is 333 kg/ha which is very low. To improve the yield potential of greengram, hybridization work was initiated under AICPIP programme at National Pulses Research Centre, Vamban, Pudukkottai district.

MATERIALS AND METHODS

Hybridization work was initiated at National Pulses Research Centre, Vamban with genotypes selected from germplasm. The crosses involved seven parents and twenty one cross combinations. Pedigree method of selection was followed in segregating generation. In F₃ population a promising line NPRG 1 was isolated from the cross S 8 x PIMS 3. This promising line was evaluated for its yield potential in preliminary yield trial. Because of its good performance, NPRG 1 was tested under multilocation testing in Tamil Nadu Agricultural University Research Stations. Based

on the consistent performance, the culture was further evaluated in adaptive research trials in the farmers' holdings in all major pulses growing districts of Tamil Nadu.

RESULTS AND DISCUSSION

In the station trials conducted during Kharif seasons from 1983 to 1987, NPRG 1 recorded an average yield of 700 kg/ha with an increased yield of 63% over Co 4 and 19% over KM 2 (Table 1) In rabi seasons from 1985 to 1987, it recorded an average yield of 500 kg/ha with an increase of 28% over Co 4 and 42% over KM 2.

In multilocation testing conducted in five Tamil Nadu Agricultural University research stations, NPRG 1 recorded a mean yield of 749 kg/ha with an increase of 22% over Co 4 (Table 2). The adaptive research trials conducted during Kharif seasons of 1985, 1986 and 1987 at 36 locations of nine districts of Tamil Nadu confirm the superiority of NPRG 1 over the ruling varieties Co 4, Paiyur 1 and KM 2. Out of 36 locations tested, NPRG 1 out yielded all the checks in 25 locations with an average yield of 769 kg/ha with an increase of 24%

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Table 1. Performance of NPRG 1 Greengram in Station trial

Year	Yield kg/ha		
	NPRG 1	Co 4	KM 2
Kharif season			
1983	653	465	-
1984	604	445	-
1985	676	494	601
1986	758	234	466
1987	811	504	694
Mean	700	428	587
% increase over	-	63	19
Rabi season			
1985	516	424	377
1986	588	392	333
1987	396	358	347
Mean	500	391	352
% increase over	-	28	42

Table 2. Performance of NPRG 1 Greengram in Multilocation Trial (Kharif)

Research Stations	NPRG 1	Co 4
National Pulses Research Centre Vamban	764	421
Agricultural Research Station Pattukkottai	950	865
Multicrop Experiment Station Palur	925	500
Oilseeds Research Station Tindivanam	275	250
Regional Research Station Paiyur	833	958
Mean	749	615

Table 3. Adaptive Research Trial - Kharif 1985 to 1987

Districts	No. of trials	Mean yield				% of increase over		
		NPRG 1	Co 4	KM 2	Paiyur 1	Co 4	KM 2	Paiyur 1
Pudukkottai	8(8)	785	430	742	666	83	6	18
Salem	7(5)	776	590	542	-	32	43	-
Dharmapuri	5(1)	616	667	576	820	-	7	-
South Arcot	5(4)	803	608	543	511	32	48	57
North Arcot	1(1)	925	580	-	-	59	-	-
Trichy	2(1)	496	652	518	-	-	-	-
Madurai	4(2)	603	749	506	920	-	19	-
Kamarajar	2(2)	1221	778	979	-	57	25	-
Ramanathapuram	2(1)	836	763	1000	1115	10	-	-
Over all mean		769(36)	621(36)	671(30)	746(12)			
% increase over						24*	21*	19*

Figures in parenthesis (Column) - No. of trials in which NPRG 1 out yielded all the checks. (Row) - No. of trials in which the entry is tested. * calculated with regard to corresponding no. of trials.

Table 4. Adaptive Research Trial - Rabi 1986 and 1987

Districts	NPRG 1	Yield kg/ha			% increase over		
		Co 4	KM 2	Paiyur 1	Co 4	KM 2	Paiyur 1
Kamarajar	982	-	829	973	-	18	1
Thirunelveli	666	360	509	-	85	31	-
Pudukkottai	544	537	537	577	1	2	-
Ramnad	728	708	649	802	3	12	-
Salem	750	569	1081	644	32	-	16
Mean	734	542	721	749			

over Co4, 22% over KM 2 and 19% over Paiyur 1 (Table 3). The culture performed well in Pudukkottai, Salem, South Arcot, North Arcot and Kamarajar districts.

In rabi trials conducted during 1986, NPRG 1 performed well in Tirunelveli and Kamarajar districts. It recorded an average yield of 734 kg/ha (Table 4). Besides high yield, the culture showed moderate resistance to yellow mosaic virus disease, the per cent of infestation ranging from 7 - 30%, while

it is 32 to 85% in Co 4, 32 to 54% in KM 2 and 70 to 80% in Paiyur 1. NPRG 1 has high per cent of protein content (22.0%). Based on the above performance, the culture NPRG 1 has been released as Vamban 1 greengram variety during January 1989 for large scale cultivation in Tamil Nadu.

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STABILITY ANALYSIS IN BUNCH GROUNDNUT

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ABSTRACT

Ten groundnut genotypes were studied in four locations for stability parameters. Genotype x environment interaction was not significant for pod yield. VG 77 was the best performer for all the characters. For shelling percentage, hundred pod and kernel weights, JL 24, VG 55 and J1 respectively were found to be stable.

Groundnut (*Arachis hypogaea* L.) contributes nearly 40 per cent of the vegetable oil production of the country. However the productivity of groundnut varies widely as it is grown predominantly as rainfed crop. Eberhart and Russel (1966) suggested a model which provides three statistical parameters for stability, namely, mean performance, linear response (regression) of a variety to the environments and minimal deviations from linear response. The present study was designed with a view to obtain information regarding the stability parameters of pod yield and three other characters in groundnut under four locations in Tamil Nadu representing varying environmental conditions.

MATERIALS AND METHODS

six cultures and four released varieties (Table.2) of groundnut were studied for productivity and stability during Kharif '85 in four diversified locations viz., Aliyarnagar; Paiyur; Vellore and Vriddhachalam. The trials were conducted under rainfed conditions, laid out in randomised block design with three replications. The plot size was 3 x 3.6 m and row to row and plant to plant distance was 30 cm and 10 cm respectively. Dry pod yield was recorded as kg/plot. Besides shelling percentage and hundred pod and kernel weights were also recorded. The method outlined by Eberhart and Russel (1966) was used to analyse the experimental data.

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