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CO 3 GROUNDNUT, A PREDICTABLE LEGUME

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ABSTRACT

The new groundnut variety CO 3 is a hybrid derivative of VRI 3 (VG 55) X JL 24 with desirable attributes Viz., high yielding and bold kernel (HPS) type coupled with moderate resistance to bud necrosis. This matures in 105 days. It gives an average yield of 1750 and 2150 kg/ha under rainfed and irrigated conditions respectively.

KEY WORDS: Groundnut, Variety, Adaptive Research Trial.

Groundnut (*Arachis hypogaea* L.) is one of the important oilseed crops of Tamil Nadu and grown in 11 lakh ha annually. Though many high yielding varieties have been released for general cultivation, there was a long felt need for a bold seeded variety coupled with high yield for export market. This long felt need had been satisfied by the release of this CO 3 groundnut for general cultivation.

MATERIALS AND METHODS

Hybrid combination was made during 1992 involving the parents VRI 3 (VG55) X JL 24 and pedigree breeding was followed to select the best derivatives. One such derivative was designated as TNAU 256 after its superiority was found in initial varietal trials during 1994-95 and 1995-96. It has been evaluated extensively under multilocation trials (9centres), adaptive research trials (ART 39 in rabi / summer (irrigated) and 46 in Kharif (rainfed) and in All India coordinated programme during 1994-1998.

The evaluation was carried out during kharif and rabi seasons with the checks CO 2 and VRI 2. The biometrical observation on plant stand (initial and final), days to initial and 50 per cent flowering, dry pod yield, kernel yield, oil content, and 100 kernel weight were recorded. The culture TNAU 256 was also tested for its reaction to bud necrosis, leaf spot and rust.

RESULTS AND DISCUSSION

The culture TNAU 256 was tested for its yield potential both under rainfed (kharif) and irrigated (rabi/summer) conditions at Coimbatore, University Research Stations, All India Coordinated testing centres and also in cultivators holdings (Adaptive

Table 1. Over all mean performance of TNAU 256 during Rabi/Summer in different trials

ABSTRACT :	Dry pod yield (kg/ha)	RABI/ SUMMER	
Name of the trial / Location	TNAU 256	VRI 2	CO 2
i. Station trials (6)	1613	1266	1365
ii. MLT (9)	2151	2092	1965
iii. AICORPO (9) (94-95 & 95-96)	2857	-	-
iv. ART 96-97 & 97-98 (All districts) (39)	1932	1826	-
Mean	2138	1728	1665
% on VRI 2	123.7	100.0	-
% on CO 2	128.4	-	100.0

Table 2. Over all mean performance of TNAU 256 during kharif in different trials

ABSTRACT :	Dry Pod yield (Kg/ha)	KHARIF	
Name of the trial / Location	TNAU 256	VRI 2	CO 2
i. Station trials (4)	1612	1107	1391
ii. MLT (5)	1677	1567	1487
iii. ART 96 and 97 (All districts) (46)	1951	1837	-
Mean	1747	1504	1439
% on VRI 2	116.2	100.0	-
% on CO 2	117.2		

Table 3. Multi-location trials Rabi/Summer 1995-96

	Dry pod yield (kg/ha)		
Station	TNAU 256	VRI 2	CO 2
1. Vridhachalam	1250	1583	1667
2. Tindivanam	3412	3017	3114
3. Aliyar	1804	1502	1502
4. Bhavanisagar	1633	1765	1666
5. Coimbatore	1814	1597	1361
6. Pondicherry	1917	1972	1977
7. Karaikal	1698	2583	1544
8. Kumulur	2173	1667	1887
9. Pattukottai	3660	3150	3030
Mean	2151	2092	1965
% on VRI 2	102.8	-	-
% on CO 2	109.5	-	-

Table 4. Multi-location trials Kharif 1995

	Dry pod yield (kg/ha)		
Station	TNAU 256	VRI 2	CO 2
1. Vridhachalam	1987	1327	1960
2. Killikulam	2112	1980	1573
3. Paiyur	1019	1264	678
4. Tindivanam	1766	2233	1842
5. Bhavanisagar	1499	1032	1366
Mean	1677	1567	1487
% on VRI 2	107.0	-	
% on CO 2	112.8	-	-

Research Trials). These results for rabi and kharif seasons have been summarised in Tables 1 and 2 respectively. In all the 118 trials conducted, TNAU 256 secured an over all mean yield of 2150 kg/ha under irrigated condition (24%over VRI 2 and 28% over CO 2 and 1750 kg /ha under rainfed condition (17% over VRI 2 and CO2). At research station under irrigated and rainfed condtions, TANU 256 gave 2151(3% over VRI 2 and 10% over CO2) and 1677 kg/ha (7% over VRI 2 and 3 %over Co 2 (Tables 3 & 4).

The economic attributes of TNAU 256 and its reaction to the incidence of leaf spot, rust and bud necrosis diseases in relation to VRI 2 and CO 2 have been given in Table 5. The data reveals the superiority of TNAU 256.

Thus the genotype TNAU 256 developed from a new genetic base having good pod characteristics

Table 5. Reaction to diseases - (Field Score) Mean score

Year & Location(s)	Late leaf spot (1-9 scale)	Rust (1-9 scale)	Bud necrosis (%)*
1995 kharif MLT (4 locations)			
TNAU 256	4.8	4.8	0.0
VRI 2	5.8	5.4	3.1
Co 2	6.1	5.5	3.8
1995 summer MLT (2 locations)			
TNAU 256	5.1	5.7	0.4
VRI 2	6.3	6.0	0.9
Co 2	6.2	4.2	0.8
1998 kharif (Coimbatore)			
TNAU 256	4.3	-	3.8
VRI 2	5.2	-	10.7
Co 2	6.4	-	11.3

* In All India Trials ; this culture (TNAU 256) has been identified as resistant genotype for BND (bud necrosis)

Table 6. Groundnut - Pod and Kernel Characteristics (HPS)

No. Entry	100 Pod wt. (g)	100 Kernel wt. (g)	Shelling outturn (%)	Oil content (%)
BUNCH :				
1. TNAU 256	163.0	60.9	71.4	49.2
2. CO 2	125.4	45.5	71.5	47.3
3. VRI 2	135.8	50.4	71.2	48.0

suitable for HPS category along with low incidence of bud necrosis has been released as CO 3 during January 1999 for general cultivation for growing in groundnut tracts of Tamil Nadu.

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INTEGRATED NITROGEN MANAGEMENT OF LOWLAND TRANSPLANTED RICE OF WEST ZONE OF TAMIL NADU

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ABSTRACT

Field experiments were conducted during 1991-94 at Tamil Nadu Agricultural University, Coimbatore to develop integrated N management practice for lowland transplanted rice. The treatments included placement of urea super granules (USG) at 100 kg N/ha, application of prilled urea (PU) at 100 kg N/ha, application of 75 kg N as PU with azolla or FYM or green manure or azospirillum and application of 50 kg N as PU with the combined use of azospirillum, azolla and green manure. The results of three-years study revealed the superiority of the placement of USG over the other treatments. The next best treatment was the application of PU at 100 kg N/ha. However, application of 75 Kg N as PU combined with either azolla or green manure (*Sesbania rostrata*) registered comparable yields. Substitution of 25 kg N as chemical fertiliser with either azolla or green manure was clearly seen. Possibility of substitution of chemical N fertilisers even to the extent of 50 per cent by the combined use of 50 kg N as PU with Azospirillum, azolla and *Sesbania rostrata* green manuring was also observed.

KEY WORDS : Integrated nitrogen management, Lowland rice

Escalation of the cost of chemical fertilisers, deterioration of soil health and productivity by the continuous use of large quantities of chemical fertilisers and concern for sustainable agriculture with emphasis on ecologically friendly inputs have resulted in the renewed interest on organic manures and biofertilisers. Many research workers have reported that organic manures/biofertilisers could substitute a subatantial part of the chemical fertilisers, especially N fertilisers, without any