Table 2. Oil content and other ancillary characters of sunflower

Entry	Oil content (%)	Head diameter (cm)	100 seed weight (g)	Plant height (cm)	Duration (days)
TNAU SUF 7	39.7	15.5	5.6	158.5	85
CO 2 (check)	37.4	15.0	4.5	155.3	87
CO 3 (check)	38.3	15.5	5.5	168.3	88
Morden (check)	36.4	14.1	4.8	99.8	83
EC 68414 (check)	36.2	15.3	5.5	161.9	90

In view of its superior performance in respect of seed yield, high oil content, wider adaptability and tolerance to pests and diseases, this culture was released as CO4 sunflower in Tamil Nadu during 1996 for general cultivation.

Morphological character of sunflower variety CO4

Description of Variety: Plant height : 145-175 cm
Stem : Profusely hairy
Leaves : Large green
Head : Large
Head diameter : 13-16 cm
100 seed weight : 5 to 6 g
Seed colour : Dark grey-black Presence of stripes on the seed coat
Oil content : 39.7%
Yield : 1255 kg/ha
Duration : 85 days

(Received : October 1996 Revised : December 1996)

Madras Agric. J., 83(11): 720-722 November 1996
https://doi.org/10.29321/MAJ.10.A01097

VRI 4: A NEW GROUNDNUT VARIETY FOR TAMIL NADU

P. VINDHIYA VARMAN, V. MANOHARAN, S. KALAIMANI, C.S. SRIDHARAN, S. THANGAVELU, R. SETHUPATHI RAMALINGAM AND V. DHARMALINGAM.

Regional Research Station
Tamil Nadu Agricultural University
Vridhachalam 606 001

ABSTRACT

VG 8918 is a bunch type groundnut maturing in 105-110 days. It is a derivative of the cross VG 5 x NCAC 17090. It has recorded a mean pod yield of 1660 kg/ha under rainfed and 2171 kg/ha under irrigated conditions. The soluble sugar and protein contents of the kernel are higher than VRI-2 and Co 2. The quality of the oil is also graded better than VRI-2 and Co 2 as the ratio between oleic/linoleic fatty acids is higher. Culture VG 8918 was released as VRI 4 by the State Variety Release Committee of Tamil Nadu during January 1996.

KEY WORDS : Groundnut, VRI 4, New Variety, Soluble Sugar, Protein Oil Quality

Groundnut (*Arachis hypogaea* L.) is one of the important oilseed crops of Tamil Nadu. Though many high yielding varieties have been released for general cultivation, there is not much variation among them in respect of quality of kernel and oil. Hence, breeding work was initiated at the Regional Research Station, Vridhachalam in this direction and as a result, the culture VG 8918 was evolved.

MATERIALS AND METHODS

A Virginia bunch groundnut culture VG 5 was hybridised with NCAC 17090, a Valencia type of Peruvian land race. From the segregating progenies, culture VG 8918 was fixed in F_5 generation. This culture was identified as a high yielding type with high sugar and protein content, besides with higher ratio of oleic / linoleic fatty acid composition. It is a bunch type maturing in 105-110 days. It had been evaluated in station trials since 1989. Based on its superior performance, this culture was promoted to multilocation trials (MLT) and evaluated in various research stations of the University during 93-94 and based on the superior performance, it was nominated for adaptive research trials (ART) during *kharif* 94 and *rabi*/summer 94-95 seasons and evaluated in farmers holding in different districts of the state. Simultaneously, it was evaluated in All India Coordinated Trials during *kharif* 94 and *kharif* 95 seasons. The data from all those trails were consolidated and considered for the release of the variety.

Table 1. Performance of VG 8918 under rainfed and irrigated conditions

Name of the trial	Rainfed				Irrigated			
	No. of Trials	Dry pod yield (kg/ha)			No. of Trials	Dry pod yield (kg/ha)		
		VG 8918	VRI 2	Co 2		VG 8918	VRI 2	Co 2
Station trials	7	1738	1412	1283	7	2069	1723	1556
Multilocation trials	7	1496	1278	1123	12	1985	1801	1716
Adaptive research trials	36	1568	1371	1352	32	2238	2213	2058
Demonstration	3	1837	1587	1491	3	2392	2050	1950
Total / Mean	53	1660	1412	1312	54	2171	1947	1820
Increase over VRI 2		17.56%				11.50%		
Co 2		26.52%				1929%		

Table 2. Quality characters of VG 8918 in comparison with check varieties

	VG 8918	VRI 2	Co 2
Dry haulm yield (kg/ha)	4120	3270	3045
Shelling out turn (%)	72.1	73.4	73.6
100 pod weight (g)	111.7	107.0	92.5
100 kernel weight (g)	40.8	45.9	42.8
Oil content (%)	47.0	48.0	48.5
Oleic/Linoleic ratio	2.2	1.1	1.0
Total soluble sugars (%)	10.9	7.8	10.0
Protein (%)	21.2	18.6	18.6

RESULTS AND DISCUSSION

Culture VG 8918 was evaluated along with VRI 2 and Co 2 checks at the Regional Research Station, Vridhachalam (Table1). VG 8918 recorded a mean pod yield of 1738 kg/ha and 2069 kg/ha as against 1412 kg/ha and 1723 kg/ha under rainfed and irrigated conditions respectively. In the MLT conducted VG 8918 recorded 1496 kg/ha and 1985 kg/ha in comparison with 1278 kg/ha and 1801 kg/ha by VRI 2 under rainfed and irrigated conditions. In the ART, VG 8918 registered a mean pod yield of 1568 kg/ha and 2238 kg/ha compared with 1371 kg/ha and 2213 kg/ha by VRI 2 respectively under rainfed and irrigated conditions. Similarly in the large scale demonstration VG 8918 recorded 1837 kg/ha and 2392 kg/ha against 1587 kg/ha and 2050 kg/ha by VRI 2 under rainfed and irrigated conditions respectively. The overall performance revealed that VG 8918 recorded 17.56 per cent and 11.50 per cent increased yield over VRI 2 under rainfed and irrigated conditions.

Table 3. Morphological characters of VG 8918

Botanical type	Spanish bunch
Branching	Irregular without flowers on the main stem
Habit	Bunch
Stem	Medium thick, light green (a light purple tinge appears on maturity)
Leaf	Small size, dark green, oblong elliptic
Flower	Standard petal orange coloured, purple veins radiating from the basal cresent
Peg thickness	Thick
Pod size	Medium bold
Number of seeds per pod	One to four seeded, with the frequency of about 9.25, 50.50, 39.00 and 1.25 per cent respectively
Pod beak	slight to moderate
Pod constriction	None to slight
Pod reticulation	Moderate to prominent
Shell thickness	Thick
Kernel size and shape	Medium in size, shape round to flat either one or both the sides.
Seed coat colour	Tan

The quality characters are presented in Table 2. VG 8918 recorded a dry haulms yield of 4120 kg/ha as against 3270 kg/ha by VRI 2. It had recorded higher soluble sugar and protein and hence the kernels are tasty. The ratio between the fatty acids *viz.* oleic and linoleic (O/L) revealed that the VG 8918 recorded the highest ratio of 2.2. followed by VRI 2 (1.1) and Co 2 (1.0). The O/L ratio is directly related to stability of oil. The higher the ratio, the more will be the stability of oil. The higher the ratio, the more will be the stability and hence the shelf life of oil is higher (Nagaraj, 1995).

VG 8918 recorded lesser incidence of rust and late leaf spot diseases. The pollen parent NCAC 17090 is reported to be resistant to rust disease (Subrahmanyam *et al.*, 1982). Hence, VG 8918 might have acquired the character from the donar parent.

The morphological characters of VG 8918 is presented in Table 3. It branches profusely by producing more secondary branches which are usually absent in other bunch varieties. The leaves

are smaller and dark green in colour. The pods are medium sized without constriction and with prominent reticulation. The pods are 1-4 seeded, the frequency of 2 and 3 seeded pods being higher. The seeds are packed compactly inside the pods. The kernels are medium sized, round to flat in shape and tan in colour. Thus it could be easily differentiated from other varieties and the genetic purity could be maintained easily.

In view of the superior performance VG 8918 was released as VRI 4 during 1996 by the State Variety Release Committee.

REFERENCES

NAGARAJ, G. (1995). **Quality and Utility of Oilseeds.** Directorate of Oilseeds Research, Hyderabad.

SUBRAHMANYAM, P., MC DONALD, D., GIBBONS, R.W., NIGAM, S.N. and NEVILL, D.J. (1982). Resistance to rust and late leaf spot diseases in some genotypes of Arachis hypogaea. **Peanut Sci., 9:** 6-10.

(Received : October 1996 Revised : December 1996)

Madras Agric. J., 83(11): 722-724 November 1996

VRI 3: AN EARLY MATURING BUNCH GROUNDNUT VARIETY

V.MANOHARAN, R.SETHUPATHI RAMALINGAM, S.KALAIMANI, AND S.THANGAVELU

Regional Research Station
Tamil Nadu Agricultural University
Vridhachalam 606 001

ABSTRACT

The bunch groundnut variety VRI 3 is early to mature in 90 days. It is derived from the cross J11 X Robut 33-1. It has an average yield of 1668 and 1882 kg/ha under rainfed and irrigated conditions, respectively. It is suitable for cultivation as an intercrop in tapioca, banana and coconut. It has an oil content of 48.7 per cent and shelling out turn of 7 per cent.

KEY WORDS: Bunch Groundnut, VRI 3, Early Maturity, Variety

The bunch groundnut (*Arachis hypogaea* ssp. *fastigiata*) varieties under cultivation in Tamil Nadu take 100-105 days to mature. The early maturing bunch groundnut varieties will be useful in 1) multirelay cropping sequences 2) north-east monsoon conditions under rainfed situations 3) lift or tank-fed areas where water scarcity is likely to occur 4) delayed south-west monsoon conditions 5) growing in the rice fallows, and 6) intercropping situations. Hence, with the objective of developing early maturing bunch groundnut varieties, hybridisation work was undertaken at the Regional Research station, Vriddhachalam.

MATERIALS AND METHODS

Crosses were effected using chico, Ah 316/S. Gangapuri, EC 21137-1, 91176 and 91776 (early

Table 1. Performance of VG 55 under rainfed conditions

Name of the trial	No. of Trials	Dry pod yield (kg/ha)			
		VG 55	Co 1	Co 2	JL 24
Station Trials	6	2108	1637	1937	2412
Multilocation	5	1270	1338	1379	1398
AICORPO Trials	28	1867	-	-	1782
On Farm Trials	14	1428	1193	-	1553
Mean	-	1668	1389	1658	1786

Culture/variety	Dry pod yield (kg/ha)	Days to maturity	Productivity per day (kg/ha/d)
VG 55	1668	91	18.3
Co 1	1389	105	13.2
Co 2	1658	106	15.6
JL 24	1786	105	17.0

Percentage of increase in per day productivity over
Co 1 : 38.6
Co 2 : 17.3
JL 25 : 7.6