

## New High yielding Virginia bunch groundnut variety : COGn 5

V. MURALIDHARAN, N. MANIVANNAN, B. SUBBALAKSHMI, C. SURENDRAN, C.S. SRIDHARAN, T.K. RAMACHANDRAN, T. RAGUCHANDER AND G. UMAPATHY

*Department of oilseeds, Tamil Nadu Agricultural University, Coimbatore - 641 003, Tamil Nadu.*

**Abstract :** Virginia bunch (*Arachis hypogaea* ssp. *hypogaea* var. *hypogaea*) groundnut culture TNAU 281 is a multiple cross derivative. It recorded an average pod yield of 1626 kg/ha which is 14.9 per cent increase over TMV 10 under rainfed situation. It is tolerant to late leaf spot and rust diseases. It matures in 125 days. It has kernels with red testa. The 100-kernel weight is 46g. The oil content is 53.6 per cent with good keeping quality oil. Hence the culture TNAU 281 was released as COGn 5 during 2002 for large scale cultivation in Tamil Nadu.

**Key words :** Groundnut, Variety, Virginia bunch

### Introduction

Groundnut is an important oilseed crop in Tamil Nadu and occupies 8.25 lakh ha with the production and productivity of 14.6 l.t and 1765 kg/ha respectively. Among the 8.25 lakh ha, about 30,000-40,000 ha area is under Virginia bunch commonly known as semi-spreading types in Dharmapuri, Salem, Namakkal, Erode and Perambalur districts, grown completely under rainfed situations. After the release of semi spreading variety TMV 10 during 1970, there was no improved variety released so far under this group in Tamil Nadu. Hence an intensive research on the development of new- Virginia bunch groundnut variety better than TMV 10 was planned at Tamil Nadu Agricultural University, Coimbatore. This resulted, in the development of a promising culture TNAU 281 and it was released as an improved variety as COGn 5 during January 2002 for cultivation in Tamil Nadu.

### Materials and methods

The Virginia bunch culture TNAU 281 was evolved at the Department of Oilseeds, Tamil Nadu Agricultural University, Coimbatore. The crosses were made between (CO 2 x ICGS 86010) x [CO 2 x (VG 119 x ICGS 50)].

Elite plants were selected from F<sub>2</sub> onwards and evaluated for their performance and homozygosity and the culture TNAU 281 was identified as the best. The culture TNAU 281 was evaluated with check varieties at the Department of Oilseeds, Tamil Nadu Agricultural University, Coimbatore between 1995-2001. Further evaluations were done in multilocation trials during 1997 - 2000 and ART during 1998 in farmers holdings at Dharmapuri, Salem, Namakkal, Erode and Perambalur districts of Tamil Nadu. This culture was also tested in All India Coordinated trials during *kharif* 1999 and *kharif* 2000. Free fatty acid profile was assessed at ICRISAT.

### Results and Discussion

The results of station trials, multilocation trials, adaptive research trials and All India Coordinated trials are presented in Table 1. The culture TNAU 281 which was tested in station trials from 1995 to 2001 has recorded an average pod yield of 1375 kg ha<sup>-1</sup> which was 18.6 per cent increase over TMV 10. Similarly under multilocation trials, it recorded an average pod yield of 1626 kg ha<sup>-1</sup> which was 14.9 per cent increase over TMV 10. Under Initial Varietal Trial of All India Coordinated trials,

**Table 1.** Over all performance of groundnut culture TNAU 281 in various trials for pod yield ( $\text{kg ha}^{-1}$ )

Name of the trial	No.of locations	TNAU 281	TMV 10	Per cent increase over TMV 10
Station trials	7	1375	1159	18.6
MLT (kharif 2000)	9	1626	1415	14.9
ART (kharif 1998)	20	1753	1620	18.0
AICRP Trials*	13	1468	1272	15.4
<b>Mean</b>	<b>36</b>	<b>1585</b>	<b>1398</b>	<b>13.4</b>

\* Not considered for mean

**Table 2.** Performance of groundnut culture TNAU 281 for fatty acids composition

Fatty acids (%)	TNAU 281	TMV 10
Palmitic (16:0)	12.1	10.5
Stearic (18:0)	2.3	2.5
Oleic (18:1)	49.9	54.2
Linoleic (18:2)	27.3	25.4
Arachidic (20:0)	1.5	1.4
Eicosenoic (20:1)	1.1	1.1
Behenic (22:0)	4.4	3.3
Lignoceric (24:0)	2.1	1.7
O/L ratio	1.83	2.13
Oil content (%)	53.8	53.5
Protein content (%)	22.62	24.42

this culture recorded an increased pod yields ranging from 67.7 (Zone I) to 148.6 (Zone IV) per cent over the check varieties. Finally the performance of this culture was tested under Adaptive Research Trials during 1998 at Dharmapuri, Salem, Namakkal, Erode and Perambalur districts of Tamil Nadu where Virginia bunch groundnuts are being cultivated. The culture recorded a pod yield of 1753  $\text{kg ha}^{-1}$  which was 18.0 per cent increase over TMV 10.

The groundnut culture TNAU 281 and check TMV 10 recorded a score of 1 for late leaf spot and rust while it showed lower incidence of bud necrosis. With regard to leaf miner and spodoptera, the culture recorded less pest incidence than the check variety, TMV 10 (Table 3).

Table 3. Reaction of groundnut culture TNAU 281 for diseases and pests during *kharif* 2001.

	TNAU 281	TMV 10
<b>Disease:</b>		
Late leaf spot (1-9 scale)	1.0	1.0
Rust (1-9 scale)	1.0	2.0
Bud necrosis (%)	2.0	5.0
<b>Pests:</b>		
Leaf miner (Mean % leaf damage)	5.0	6.5
Spodoptera litura (Mean no. of egg masses / 100 m)	5.0	7.0

(Note : ETL for leaf miner = 10% leaf damage; for Spodoptera litura = 8 egg masses / 100 m)

The culture TNAU 281 matures in 125 days. It is a Virginia bunch type with a plant height of 25-40 cm. The leaves are dark green, small to medium sized and obovate. The flower colour is yellow; pods are usually 2-3 seeded, basal setting, medium sized, prominent beak, less constriction, moderate pod reticulation and red testa. The 100-kernel weight is 46 g. The average pod yield is 1626 kg ha<sup>-1</sup> under rainfed condition. The composition of fatty acids content of TNAU 281 and TMV 10 are given in Table 2. The oil content

is 53.6, which is on par with TMV 10 and nutritive value (linoleic acid of oil is superior to TMV 10.

Considering the superior performance of TNAU 281 over check variety TMV 10, the culture was released as a new variety COGn 5 for large scale cultivation in Tamil Nadu during January 2002 by the state variety release committee.

(Received : September 2003; Revised : December 2004)