

**SNEHA, AN IMPROVED VARIETY OF GROUNDNUT FOR UPLANDS**

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**Abstract :** Initial evaluation trials (IETs) were conducted with 18 superior types and 18 extra early segregants from the F<sub>8</sub> progenies during 1993. From the IETs, seven high yielding types and nine high yielding, extra early progeny bulks were selected and subjected to CYTs during kharif 1994 and 1995 at the College of Agriculture, Vellayani, Thiruvananthapuram along with check varieties. Two promising types, VGE-55-1 and ISKO-8805 with high yield and two cultures, Culture 15 and Culture 18 with high yield and early maturity were advanced to farm trials along with TMV 2 and local check at nine locations in Thiruvananthapuram district during kharif 1996. Culture 15 with high yield and early maturity was recommended for release as Snehasuitable for cultivation in the uplands of Thiruvananthapuram district.

**Key words:** Extra early, groundnut, high yielding, Sneha

**INTRODUCTION**

Groundnut is one of the most important oilseed crops and the edible oil economy in India is primarily dependent upon groundnut production. The major portion of groundnut produced in India is utilized for oil extraction (Maiti *et al.*, 1988). Because of high population pressure on land, there is only limited scope for increasing the area under groundnut. Lack of high yielding varieties with early maturity is the main constraint in the large-scale cultivation of this crop in the uplands of Kerala. Therefore, research programme was initiated in the Department of Plant Breeding and Genetics, College of Agriculture, Vellayani, Thiruvananthapuram during 1992 to develop groundnut varieties with high yield and early maturity suitable for cultivation in the uplands.

**MATERIALS AND METHODS**

The material consisted of promising types collected from the test entries of the All India Co-ordinated Research Project on Oilseeds and extra early segregants available in the Department of Plant Breeding and Genetics.

Two initial evaluation trials (IETs) were conducted at the College of Agriculture, Vellayani during 1993 with 18 superior types and also with 18 extra early segregants from the F<sub>8</sub> progenies. From the IETs, seven high yielding types and nine extra early segregants were selected and subjected to two separate comparative yield trials during kharif 1994 and 1995 at the College of Agriculture, Vellayani, Thiruvananthapuram. Two promising types, VGE-55-1 and ISKO 8805 and two

Table la. Initial evaluation trial of groundnut types

| Sl. No. | Types            | Days to maturity | Pod yield (kg ha <sup>-1</sup> ) |
|---------|------------------|------------------|----------------------------------|
| 1       | ISKO 8805        | 110              | 3080                             |
| 2       | 9-2-2            | 115              | 1600                             |
| 3       | 10-1-1           | 108              | 2160                             |
| 4       | 14-2-1           | 114              | 1960                             |
| 5       | INS 8916         | 112              | 2360                             |
| 6       | INS 8917         | 115              | 2200                             |
| 7       | INS 8918         | 112              | 2360                             |
| 8       | INS 8927         | 117              | 2600                             |
| 9       | ICGS(E) 21       | 114              | 1800                             |
| 10      | VGE 41-1         | 112              | 2240                             |
| 11      | VGE 55-1         | 116              | 3160                             |
| 12      | AIS 8902         | 110              | 1880                             |
| 13      | Spanish Improved | 110              | 2240                             |
| 14      | ICGU 86013       | 116              | 2520                             |
| 15      | NRCGE2           | 105              | 3040                             |
| 16      | TMV 2            | 115              | 2360                             |
| 17      | TG 3             | 109              | 2120                             |
| 18      | JL 24            | 110              | 2480                             |
|         | CD (0.05)        | NS               | 471                              |

high yielding early maturing cultures, Cul.15 and Cul.18 were advanced to farm trials along with TMV 2 (standard) and local variety as checks. Farm trials were conducted at nine locations in Thiruvananthapuram district in 20 m<sup>2</sup> plots in the interspaces of coconut garden during kharif 1996 including a station trial at the College of Agriculture, Vellayani. The cultural and management practices were carried out as per the recommendations of the Kerala Agricultural University (KAU, 1993).

Table 1b. Initial evaluation trial of groundnut cultures

| Sl. No. | Cultures   | Days to maturity | Pod yield (kg ha <sup>-1</sup> ) |
|---------|------------|------------------|----------------------------------|
| 1       | Culture 1  | 87               | 3800                             |
| 2       | Culture 2  | 85               | 3840                             |
| 3       | Culture 3  | 85               | 3080                             |
| 4       | Culture 4  | 90               | 2360                             |
| 5       | Culture 5  | 88               | 3440                             |
| 6       | Culture 6  | 90               | 2920                             |
| 7       | Culture 7  | 88               | 3040                             |
| 8       | Culture 8  | 90               | 2920                             |
| 9       | Culture 9  | 88               | 2800                             |
| 10      | Culture 10 | 86               | 2720                             |
| 11      | Culture 11 | 93               | 2840                             |
| 12      | Culture 12 | 95               | 2880                             |
| 13      | Culture 13 | 89               | 3680                             |
| 14      | Culture 14 | 88               | 2840                             |
| 15      | Culture 15 | 87               | 3640                             |
| 16      | Culture 16 | 89               | 3840                             |
| 17      | Culture 17 | 88               | 4280                             |
| 18      | Culture 18 | 89               | 3800                             |
|         | CD (0.05)  | -                | 460                              |

## RESULTS AND DISCUSSION

The IET data of types and cultures are presented in Tables 1a and 1b. Seven promising types viz. ISKO 8805, Spanish Improved, INS 8917, INS 8927, VGE 55-1, ICGU 86013 and NRCGE 2 which had high pod yield were selected and subjected to CYTs along with the three checks (TG 3, TMV 2 and JL 24). Nine

superior cultures were selected from the segregants and subjected to CYTs during kharif 1994 and 1995 along with the check variety TMV 2. The CYT data of promising types and cultures are presented in Tables 2a and 2b. Based on the pooled mean yield data of two years, two types with high yield viz. VGE 55-1 (3200 kg ha<sup>-1</sup>) and ISKO 8805 (2711 kg ha<sup>-1</sup>) with a duration of 112 days and 109 days respectively and two cultures viz. Cul. 15 (3827 kg ha<sup>-1</sup>) and Cul. 18 (3556 kg ha<sup>-1</sup>) with a duration of 86 and 87 days respectively were advanced to farm trial. The farm trial data are presented in Table 3. Based on the pooled mean yield data of nine locations, two types and two cultures (ISKO 8805, VGE 55-1 and Culture 15, Culture 18) were found to be on par and significantly superior to the standard check and local variety. Culture 15 is early maturing (86 days) as compared to VGE 55-1 and ISKO 8805 (112 and 109 days, respectively). It recorded a mean pod yield of 2400 kg ha<sup>-1</sup> (as compared to 1882 kg ha<sup>-1</sup> by the local and 1975 kg ha<sup>-1</sup> by TMV 2). Culture 15 recorded 27.6 per cent increase in pod yield over the local-variety and 22.08 per cent increase over the standard check (TMV 2). Moreover, Culture 15, which is almost free from major diseases and pests, is having an oil content of 47 per cent and protein content of 24 per cent. Culture 15 with high yield and early maturity was recommended for release as "Sneha" suitable for cultivation in the uplands of Thiruvananthapuram district of Kerala by the State Seed Sub-committee on Crop Variety Release during May 1998.

Table 2a. Comparative yield trial with groundnut types

| Sl. No. | Types            | Days to maturity |             | Pod yield (kg ha <sup>-1</sup> ) |             |             |
|---------|------------------|------------------|-------------|----------------------------------|-------------|-------------|
|         |                  | Kharif 1994      | Kharif 1995 | Kharif 1994                      | Kharif 1995 | Pooled mean |
| 1       | TMV-2            | 115              | 115         | 2222                             | 2600        | 2422        |
| 2       | TG-3             | 106              | 109         | 2022                             | 2022        | 2022        |
| 3       | JL-24            | 114              | 113         | 2178                             | 2089        | 2133        |
| 4       | Spanish Improved | 110              | 109         | 2289                             | 2556        | 2422        |
| 5       | ISKO 8805        | 110              | 107         | 2556                             | 2844        | 2711        |
| 6       | INS 8917         | 115              | 115         | 2067                             | 2556        | 2311        |
| 7       | VGE 55-1         | 116              | 108         | 3022                             | 3378        | 3200        |
| 8       | ICGU 86013       | 108              | 116         | 2400                             | 2689        | 2556        |
| 9       | NRCGE-2          | 105              | 104         | 2022                             | 2111        | 2067        |
| 10      | INS 8927         | 115              | 117         | 2200                             | 2667        | 2422        |
|         | CD (0.05)        | 1.4              | 1.4         | NS                               | 275.6       | 300.0       |

Table 2b. Comparative yield trial with early cultures

| Sl. No. | Cultures   | Days to maturity |             | Pod yield (kg ha <sup>-1</sup> ) |             | Pooled mean |
|---------|------------|------------------|-------------|----------------------------------|-------------|-------------|
|         |            | Kharif 1994      | Kharif 1995 | Kharif 1994                      | Kharif 1995 |             |
| 1       | Culture-1  | 86               | 87          | 3533                             | 2889        | 3026        |
| 2       | Culture-2  | 85               | 85          | 3978                             | 2378        | 3185        |
| 3       | Culture-3  | 86               | 85          | 3778                             | 2734        | 3216        |
| 4       | Culture-9  | 88               | 88          | 3111                             | 2667        | 2844        |
| 5       | Culture-13 | 89               | 89          | 4022                             | 2156        | 3093        |
| 6       | Culture-14 | 87               | 87          | 3022                             | 2622        | 2829        |
| 7       | Culture-15 | 86               | 86          | 4467                             | 3111        | 3827        |
| 8       | Culture-16 | 89               | 86          | 3333                             | 2111        | 2722        |
| 9       | Culture-18 | 86               | 87          | 4311                             | 2889        | 3556        |
| 10      | TMV-2      | 114              | 111         | 2222                             | 2600        | 2422        |
|         | CD (0.05)  | 1.3              | NS          | NS                               | 387.0       | 798.0       |

Table 3. Farm trial data on groundnut types / cultures conducted during kharif 1996

| Sl. No. | Location                          | Pod yield (kg ha <sup>-1</sup> ) |          |            |            |                  |               |
|---------|-----------------------------------|----------------------------------|----------|------------|------------|------------------|---------------|
|         |                                   | •VGE55-1                         | ISKO8805 | Culture 15 | Culture 18 | TMV-2 (standard) | Local variety |
| 1       | Kollayil                          | 2675                             | 2600     | 2425       | 2500       | 2000             | 1950          |
| 2       | Thirupuram                        | 2500                             | 2585     | 2600       | 2300       | 2050             | 1875          |
| 3       | Chenkai                           | 2475                             | 2750     | 2500       | 2800       | 2150             | 2000          |
| 4       | Athiyanoor                        | 2300                             | 2150     | 2400       | 2300       | 1900             | 1800          |
| 5       | Paudikonam                        | 2460                             | 2700     | 2500       | 2725       | 2200             | 1875          |
| 6       | Kazhakoottam                      | 2200                             | 2320     | 2000       | 2180       | 1700             | 1750          |
| 7       | Panangode                         | 2285                             | 2150     | 2350       | 2400       | 1880             | 1800          |
| 8       | Venganoor                         | 2650                             | 2550     | 2450       | 2420       | 2020             | 2060          |
| 9       | College of Agriculture, Vellayani | 2415                             | 2505     | 2375       | 2500       | 1875             | 1900          |
|         | Mean                              | 2440                             | 2479     | 2400       | 2458       | 1975             | 1882          |

"F" value for treatment was significant. CD at 5% = 103.6

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## REFERENCES

- KAU, 1993. *Package of Practices Recommendations - 'Crops'* 1993. Directorate of Extension, Kerala Agricultural University, Mannuthy, Thrissur
- Maiti, S., Hegde, M.R. and Chattopadhyay, S.B. 1988. *Handbook of Annual Oilseed Crops*. Oxford & IBH Publishing Co., New Delhi