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Short Communication

# PBS 29017 — A high yielding large seeded groundnut culture

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A virginia bunch groundnut (*A. hypogaea* L. subsp. *hypogaea* var. *hypogaea*) culture PBS 29017 was developed at National Research Centre for Groundnut, Junagadh following pedigree method from a Cross M13 × NCAc 17278. M13 is a high yielding popular adapted cultivar belonging to Virginia runner type (*A. hypogaea* L. subsp. *hypogaea* var. *hypogaea*) and NCAc 1727 is a land race (from Bolivia) germplasm of North Carolina State, USA (received from ICRISAT, Hyderabad as ICG 6284) belonging to Virginia runner type (*A. hypogaea* L. subsp. *hypogaea* var. *hypogaea*).

The performance of PBS 29017, are presented in Table 1. Seeds of each genotype were sown in 5-row plots (row length 5 m; spacing: inter row, 60 cm; plant to plant, 10 cm). The standard cultural practices recommended for the region were followed for raising the crop, which was harvested at maturity (120-125 days). The maximum pod yield realized by PBS 29017 was 2886 kg/ha in 1998. It had sown an average (over four years) of 62 and 44% seed yield superiority over the large seeded check cultivars, B 95 and Somnath, respectively. It had shown superiority every year also. The soil type was medium black and calcareous soil (a pH of 7.9 and 29.6% calcium carbonate) in which the expression of the seed size generally is not the best. In such situation also the PBS 29017 had an average hundred seed mass of 67 g, which was more than check variety B 95 (66 g) and Somnath (65 g). It had a better shelling outturn (71%) than Somnath (68%) and B 95 (63%).

The morphological features of PBS 29017 are presented in Table 2 according to the descriptors given by the International Plant Genetic Resources Institute [1]. During rainy season, PBS 29017 has decumbent-3 growth habit with alternate flowering, oblong dark green leaves with entire leaf margin and acute leaf tip. It has 14-16 primary branches and 28-30 secondary branches. The main axis is of 91 cm height with 70 cm broad canopy. it has mainly 2- seeded, bold and attractive pods with slight reticulation, slight constriction and slight beak. Seeds are tan in colour and contain a average of 52% oil, 26% protein, 5.7% sucrose, 0.21% free amino acids, and 023% reducing sugars.

Thus the culture PBS 29017 has the potentiality to be utilized as large-seeded cultivar of Virginia type directly besides as a source of breeding line for different traits like large seededness.

**Table 1.** Kernel yield (K) and pod yield (P) performance (kg/ha) of PBS 29017 and control cultivars in yield evaluation trials, during rainy season 1996-1999 (rainfed with life saving irrigation) at Junagarh

| Culture | 1996 | | 1997 | | 1998 | | 1999 | | Mean | |
|---|---|---|---|---|---|---|---|---|---|---|
| | P | K | P | K | P | K | P | K | P | K |
| PBS 29017 | 1665 | 1180 | 1363 | 996 | 2886 | 2000 | 1468 | 1059 | 1846 | 1309 |
| Somnath (Check) | 1250 | 825 | 1024 | 704 | 2206 | 1555 | 825 | 545 | 1326 | 907 |
| B 95 (Check) | 1534 | 983 | 747 | 449 | 1797 | 1170 | 983 | 629 | 1265 | 808 |
| CD | 663.1 | 454.2 | 296.3 | 212.7 | 702 | 485 | 398 | 280 | | |

| Culture | Hundred seed mass (g) | | | | | Shelling outturn (%) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | Mean | 1996 | 1997 | 1998 | 1999 | Mean |
| PBS 29017 | 72.45 | 63.07 | 69.28 | 62.67 | 66.87 | 70.9 | 73.1 | 69.3 | 72.1 | 71.4 |
| Somnath (Check) | 67.52 | 59.94 | 69.04 | 62.80 | 64.83 | 66.1 | 68.7 | 70.4 | 66.0 | 67.8 |
| B 95 (Check) | 77.97 | 57.60 | 63.22 | 67.00 | 66.44 | 64.0 | 60.1 | 65.1 | 64.0 | 63.3 |

**Table 2.** Morphological description of the groundnut culture PBS 29017

| Growth habit | Decumbent - 3 (Semi-spreading) |
|---|---|
| Branching pattern | Alternate |
| Stem pigmentation | Present |
| Stem hairiness | Scarce |
| No. of flowers per inflorescence | 1-3 |
| Peg colour | Present |
| Standard petal colour | Yellow |
| Standard petal marking | Purple crescent |
| Leaf colour | Dark green |
| Leaflet length | 41 mm |
| Leaflet width | 20 mm |
| Length/width ratio | 2.06 |
| Leaflet shape,margin,and tip | Oblong,entire,and acute |
| Hairiness of young leaflets | Moderately hairy |
| Hariness of mature leaflets | Sparse |
| Number of seeds per pod | 2-1 |
| Pod beak | Slight |

| Growth habit | Decumbent - 3 (Semi-spreading) |
|---|---|
| Pod constriction | Slight |
| Pod reticulation | Slight |
| Pod length | 28.6 mm |
| Pod width | 13.2 mm |
| Seed colour | One colour |
| Secondary seed colour | Tan |
| Seed length | 11.8 mm |
| Seed width | 4.4 mm |
| Seed weight | 66.87 g/100 kernel |
| Days to mergence | 6-7 |
| Days to 50% flowering | 29-31 days after emergence |
| Days to maturity | 120-125 days |
| Shelling outturn | 71.4% |
| Pod yield | 1846 kg/ha |
| Kernel yield | 1309 kg/ha |
| Oil content | 51.6% |
| Protein content | 26.0% |

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## Reference

1. International Board for Plant Genetic Resources and International Crop Research Institute for the Semi Arid Tropics. 1992. Descriptors for groundnut. IBPGR, Rome and ICRISAT, Patancheru, A.P.