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Short Communication

A HIGH YIELDING LARGE SEEDED GROUNDNUT CULTURE PBS 29031

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A large seeded virginia bunch groundnut (*A. hypogaea* L. subsp. *hypogaea* var. *hypogaea*) culture PBS 29031 was developed at the National Research Centre for Groundnut, Junagadh following pedigree selection from the cross M13 × NCAc 17278. M13 is a high yielding popular adapted cultivar belonging to virgina runner type (*A. hypogaea* L. subsp. *hypogaea* var. *hypogaea*) and NCA × 17278 is a germplasm line of North Carolina State, USA (received from ICRISAT, Hyderabad as ICG No. 5723) belonging to virginia bunch type (*A. hypogaea* L. subsp. *hypogaea* var. *hypogaea*)

The performance of PBS 29031 in replicated yield trials conducted during four *kharif* seasons (1996-99) is presented in the Table 1 along with check cultivars. The

Table 1. Performance of PBS 29031 and control cultivars in yield evaluation trials, rainy season 1996-1999. (rainfed life saving irrigation)

Year	Culture	Mean yield	Increase over/the released large seeded cultivars (%)		
		kg/ha	Somnath	B 95	ICGV 89211
1996	PBS 29031	P 2058	64.6	34.2	71.4
		K 1379	67.2	40.3	67.0
1997	PBS 29031	P 1196	16.8	60.1	0.7
		K 853	21.2	90.2	8.7
1998	PBS 29031	P 2715	23.1	51.1	65.8
		K 1900	22.8	63.2	75.5
1999	PBS 29031	P 1379	67.2	40.3	82.2
		K 924	69.5	46.9	69.5
Average % increase in pod yield			42.9	46.4	55.0
Average % increase in kernel yield			45.2	60.1	55.2

K = Kernel yield; P = Pod yield

Table 2. Morphological description of the groundnut culture PBS 29031

Growth habit	Semi erect (Decumbent 3)
Branching pattern	Alternate
Stem pigmentation	Absent
Stem hairiness	Scarce
No. of flowers per inflorescence	1-3
Peg colour	Present
Standard petal colour	Orange
Standard petal marking	Purple crescent
Leaf colour	Light to dark green
Leaflet length	55 mm
Leaflet width	23 mm
Length/width ratio	2.39
Leaflet shape	Elliptic-obvate
Hairiness of young leaflets	Sparse and short
Hairiness of mature leaflets	Sparse and short
Number of seeds per pod	2-1
Pod beak	Slight
Pod constriction	Slight
Pod reticulation	Slight
Pod length	35.5 mm
Pod width	15.6 mm
Seed colour	One colour
Secondary seed colour	Tan
Seed length	8.6 mm
Seed width	8.6 mm
Seed weight	67 kg/ kernel
Days to emergence	7
Days to 50% flowering	37
Days to maturity	115-120
Shelling percentage	70
Pod yield	1837 kg/ha
Oil content	52.4%

soil type was medium black and calcarious 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, the PBS 29031 had hundred seed mass of 67 g as compared to the check varieties B 95 (66 g), Somnath (71 g) and ICGV 89211 (78 g). It has sown on an average of 46% pod yield and 60% seed yield superiority over the large seeded cultivars B 95 in four years of testing. It has also shown pod and seed yield advantages over such other cultivars as Smonath and ICGV 89211.

PBS 29031 was also evaluated under field conditions for reaction to insect pests and diseases occuring during *kharif* season. PBS 29031 recorded the scores (each on a 9 point scale, 0 by immune, 9 by most susceptible) of 5 for *Spodoptera* and *Heliothes*, 6 for early leaf spot (ELS) and late leaf spot (LLS) and 8 for rust as compared to maximum of 9 scored by the susceptible checks. Hence, it has shown field tolerance of ELS, LLS, *Heliothes* and Spodoptera. It has pod yield potential of 2700-3000 kg/ha under good management conditions.

The morphological features of PBS 29031 are presented in Table 2 as per the IPGRI descriptors [1]. Sound mature kernels from the pods collected at normal maturity were utilised for chemical quality analyses.

PBS 29031, which belongs to the virginia botanical group, has decumbent-3 growth habit (semi-erect) with alternate branching and medium to small elliptic dark green leaves. It has 4 to 6 primary branches and 8 to 12 secondary branches. The main axis is 27 cm high with a 62 cm broad plant canopy. It matures in 115 to 120 days in the rainy season and has a shelling turn over of 70%. It has mainly 2-seeded, bold- sized attractive pods with slight reticulation, constriction and beak. Its seeds are tan in colour, with a 100-seed mass of 67 g. Seeds contain on an average 52% oil, 20% protein, 9% sucrose, 0.29% free amino acids, and 0.35% reducing sugars.

Thus the culture PBS 29031 has the potentiality to be utilised as a high yielding large seeded cultivar besides as a source of breeding line for different traits like large seedness, moderate protein and sucrose content.

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