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Performance of High Yielding Virginia Runner Groundnut Cultivars in Summer Season in Gujarat State

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Gujarat State accounts for about 30% of the groundnut production in the country. With a view to meet the rising demand for vegetable oils in the country, a sustained programme for increasing groundnut production in the State has been in progress. As a part of this programme efforts are being made to increase area under summer groundnut in the State. Present study was therefore undertaken to obtain information on the behaviour of Virginia runner Groundnut varieties (*Arachis hypogaea*, L. var *hypogaea*) in charotar region of Gujarat so as to decide the most suitable variety for large scale cultivation in the area.

This study was taken up during the summer season of 1981 at the Agronomy farm of the B. A. College of Agriculture, Gujarat Agricultural University, Anand Campus, Anand. Eight virginia runner type groundnut cultivars were tested in a randomised block design with three replications. The soil was low in organic matter (0.51%) and total nitrogen (847 kg/ha) and medium in available phosphorus (24 kg/ha) as well as exchangeable potassium (249.0 kg/ha.). Soil had a slightly alkaline reaction (pH 7.8). Fertilizers at 25 kg N, 50 kg P_2O_5 and 25 kg K_2O/ha in the form of urea, super phosphate and muriate of potash were placed 5 cm away from the seed row and 5 cm deep at sowing. The seeds were hand dibbled on 11-2-1981 at a distance of 60×10 cm. The gross and net plot sizes were 3.0×4.5 m and 1.8×3.9 m respectively. Irrigations were given at an interval of 10 days all through the crop period. All the cultivars matured in 125 days.

The differences amongst cultivars studied with respect to number of mature pods per plant which ranged from 19.23 to 23.90 per plant were not significant (Table 1). Differences in weight of mature pods per plant (oven dry) among cultivars were significant. The pod weight per plant in cultivar M13 (29.32 g) was significantly more as compared to other varieties. The difference in pod weight was due to bigger pod size of cultivars. Significant differences were observed among cultivars in respect of 100 kernel weight. The cultivar M-13 (69.37 g) and (M-13×G-10)-25 (69.13 g) had the highest 100 kernel weight, which differed significantly from other cultivars.

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TABLE 1

Total number of mature pods and mature pod weight per plant, 100 pod weight, weight of 100 kernels, shelling percentage, pod yield, haulm yield, oil and protein content of kernel of different cultivars of virginia type groundnut. (Mean of three replications).

Cultivars	*Number of mature pods per plant*	*Mature pod weight per plant (g)*	*100 pod weight (g)*	*100 kernel weight (g)*	*Shelling percentage*	*Pod yield (q/ha)*	*Haulm yield (q/ha)*	*Seed oil content (%)*	*Seed protein content (%)*
M-13	20.10	29.32	161.03	69.37	63.68	39.06	64.07	50.40	26.40
GAUG-10	23.90	20.62	112.40	47.77	66.60	30.93	68.97	50.27	25.35
C-208	21.47	22.94	113.73	46.10	66.07	39.92	54.20	50.33	21.35
C-222	23.33	20.00	107.63	44.80	64.13	27.95	78.27	49.27	25.11
6-3	20.87	20.21	95.87	47.07	66.83	28.16	75.87	48.60	25.73
39-7	21.65	18.86	100.97	44.60	67.53	27.22	75.77	50.20	24.68
(M-13 x G-10)-18	19.87	23.11	126.87	59.23	66.80	33.91	60.07	49.37	24.09
(M-13 x G-10)-25	19.23	24.16	150.60	69.13	55.27	36.66	65.83	49.97	24.12
Mean	21.23	22.40	123.39	53.51	64.61	32.98	67.88	49.80	24.60
C.D. 0.05	N.S.	3.60	15.83	3.73	6.31	4.61	11.31	N.S.	2.62
C.V. %	9.61	9.25	7.32	3.99	5.57	7.98	9.52	1.58	6.04

The lowest 100 kernel weight was recorded with cultivar 39-7 (44.60 g) and C-222 (44.80 g). The highest 100 kernel weight was due to larger seeds.

The significant differences in pod yield were observed among the cultivars tested. The pod yield ranged from 27.22 to 39.92 q/ha. The cultivar C-208, M-13 (M-13×G-10)-25 and (M-13×G-10)-18 gave 31.81, 30.31, 25.75 and 19.73 per cent higher pod yield over 39-7 respectively. The yield attributes such as number of mature pods per plant, mature pod weight per plant and 100 kernel weight singly or in combination affected the pod yield.

The differences in oil content among cultivars were non-significant which varied between 48.60 to 50.40 per cent.

The seed protein content differences were significant among cultivars and ranged from 21.35 to 26.40 per cent. Seed protein content was significantly higher in M-13 and 6-3 over C-208 by 19.13 and 17.02 per cent, respectively. It was evident that the cultivar which produced higher pod yield had comparatively lower protein content in seeds except cultivar M-13.

The cultivars C-208, M-13, (M-13 × G-10)-25, (M-13 × G-10)-18 gave significantly higher pod yield than the other cultivars tested in summer season under Charotar conditions. The above three varieties did not differ significantly amongst themselves in respect of pod yield.

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