

## COMPARATIVE PERFORMANCE OF SOME VARIETIES OF GREATER YAM (*DIOSCOREA ALATA* L.)

The greater yam is an important tuber crop grown in the tropics. Seventy-two cultivars of the crop with wide variation in biometric characters, yield and quality attributes are reported to be under cultivation in different regions (Anon., 1952). The characteristically long vines, with fairly elongate internodes are better suited for multistoried photosynthesis. In order to identify the promising varieties of *D. alata* for cultivation in Kerala, an experiment was conducted at the Coconut Research Station, Nilaswar during the year 1976, 1977 and 1978.

The soil of the experimental site was red sandy loam with a pH 5.4. Five varieties, Da 80, Da 42, Da 60, Da 122 and Da 48 from the Central Tuber Crops Research Institute, Trivandrum were raised in a randomised block design with 5 replications in plots of size 5 m x 5 m. Pits of size 45 cm<sup>3</sup> were opened at a spacing of 1 m x 1 m. The top soil was refilled in the pits after mixing with farmyard manure at the rate of 1 kg per pit. Seed tubers were planted in pits and mulched with dry leaves. Planting was done during April and the crop was harvested during December. The crop was manured with N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O at the rate of 80, 60 and 120 kg/ha. The entire dose of P and half the doses of N and K were applied within a week after sprouting and remaining N and K were applied one month after the first application. The plants were weeded and earthed up at the time of manuring. Three plants from each plot were selected at random during 1978 and observations on yield attributes like number of tubers and tuber weight per plant were recorded. The tuber samples of different varieties were separately cooked to a constant time of 30 min and the consumer preference was rated using the taste panel method (Jellinck, 1964). The panel was asked to record the palatability preference after tasting each variety.

Number of tubers per plot ranged on the average from 1 to 2.3 indicating that many of the varieties of this crop are poor initiators of tubers (Tables 1 and 2). On an average, Da 80 had 2.3 tubers per plant which was significantly superior to all the other varieties.

Tuber weight per plant did not show any significant difference among varieties. The varieties did not differ significantly among themselves in respect of tuber yield in any one year of the trial (Table 2). Eventhough the line Da 80 produced more tubers per plant, the weight of the individual tubers was less and therefore the total tuber weight per plant was on par with other varieties. The variety Da 60 recorded the maximum yield of 10.5 t/ha which was twenty per cent more than the variety Da 42. The results of the initial evaluation trial at the

Table 1

Mean values on yield attributes and consumer preference in *Dioscorea alata* (1978)

Varieties	No. of tubers per plant	Weight of tubers per plant (kg)	Marks scored in consumer acceptability test
Da 80	2.3	0.84	46
Da 42	1.0	1.99	-26
Da 122	1.2	0.83	54
Da 48	1.5	0.75	34
Da 60	1.2	0.93	37
C. D. (0.05)	0.7	NS	--
S $\bar{E}$ m $\pm$	0.3	0.30	—

Table 2

Mean yield of tubers (t/ha) in *Dioscorea alata* varieties

Varieties	1976	1977	1978	Mean
Da 80	9.92	9.76	8.00	9.23
Da 42	7.68	10.32	7.85	8.62
Da 60	11.56	11.96	8.50	10.55
Da 122	7.76	10.96	7.35	8.69
Da 48	9.84	12.24	6.90	9.66
C. D. (0.05)	N.S	N.S	N.S	N.S
S $\bar{E}$ m $\pm$	2.68	2.25	2.39	1.43

Central Tuber Crops Research Institute, Trivandrum also showed that among the 17 varieties tested Da 60 was superior to the rest in yield per plant and yield per hectare (Anon., 1973).

A comparison of the tuber yield during three years showed that Da 60 was a consistently high yielding variety. Yield data for three years also showed large variation over the years in all the varieties. The soil types of the experimental site being the same, yield variation in successive years might be attributed mainly to rainfall pattern with different years. The high consistency in yield of Da 60 over the years suggested that this was least influenced by variation in weather parameters. Comparatively poor performances of the varieties during 1978 might be because of the excessively high rainfall (4316 mm) received in May and June, The rainfall during these two months were 400 and 200 per cent more than that of these months in the preceeding years respectively. The number of rainy days with overcast sky was also extraordinarily high during 1978. The rainfall during 1978 in September, October and November was lower. The heavy rainfall immediately after germination leading to water stagnation and cloudy sky might have adversely affected the crop during 1978.

A comparison of the data on the consumer preference (Table 1) showed that Da 60 with the highest yield was the fairly acceptable. Da 48 was only second to Da 60 in both yield and consumer preference. The study showed that though all varieties compared in present experiment were equal for yield, consideration of consumer preference along with yield suggested that Da 60 was the best variety that could be recommended for cultivation in north Malabar.

സംഗ്രഹം

നീലേശ്വരം പ്രാദേശിക ഗവേഷണ കേന്ദ്രത്തിൽ അഞ്ച് കാച്ചിൽ ഇനങ്ങളുടെ മേൽമ പരിശോധിച്ചതിൽ ഡി 60 എന്ന ഇനം ഏറ്റവും മെച്ചപ്പെട്ടതാണെന്നു ക്ഷയിക്കെ യോജിച്ചതാണെന്നു കണ്ടു.

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