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STABILITY ANALYSIS FOR YIELD AND QUALITY CHARACTERS IN GROUNDNUT (*ARACHIS HYPOGAEA* L.)

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A great deal of concern regarding significance of homeostatis in crop species has stimulated plant breeders to develop well buffered cultivars. The present investigation was, therefore, undertaken to find out the G x E interaction in fiftyone genotypes of groundnut for yield and quality components.

The experimental material consisted of 51 groundnut genotypes of which 37 were Spanish type and 14 Virginia bunch type. The experiments were conducted in randomized block design with three replications at four locations. Each cultivar was planted in two rows of 3 m length with 30 cm spacing between rows and 15 cm between plants. Observations were recorded on five random plants for six characters. The number of seedlings were counted 10 days after sowing and it was converted into per cent initial plant population. Data were analysed by using the stability model [1]. Highly significant differences were observed among the genotypes for all the six characters studied (initial plant population, number of pegs per plant, number and weight of pods per plant, shelling percentage, and oil content). The differences among the environments were also highly significant for all characters. Genotype x environment interactions were highly significant for initial plant population and pegs per plant in other studies also [2–4]. For the expression of these characters, the linear component was more important than the nonlinear one, although both the components were significant.

All the genotypes could be classified as suitable for high, medium and low yielding environments (Table 1). Four genotypes, namely, ICGS-51 (86.87 g), TG-17 (88.95 g), CGC-2 (89.16 g) and CO-2 (87.49 g) gave high mean performance with $b_i = 1$ and $S^2_{di} = 0$. These varieties may, therefore, be expected to exhibit greater stability for initial plant population over a wide range of environments. Similarly, the genotypes ICGS-82 ($\bar{X}_i$=19.50), BPG-521

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Table 1. Groundnut vaieties with high mean performance over four locations

Character	Varieties
Initial plant population	ICGS-51, TG-17, CGC-2 and CO-2
Number of pegs per plant	ICGS-82, BPG-521 and G-201
Number of pods per plant	ICGS-30 and G-201
Pod weight per plant	G-201
Shelling percentage	CGC-4018 and ICGS-5
Oil content	BAU-6

($\bar{X}_i$=18.79) and G-201 ($\bar{X}_i$=19.87) performed well across the four environments for number of pegs per plant. For pods per plant, genotypes ICGS-30 ($\bar{X}_i$=12.86) and G-201 ($\bar{X}_i$=12.07) were most stable. G-201 appeared most stable genotype over the different environments ($\bar{X}_i$=11.90) for pod weight, while CGS-4018 ($\bar{X}_i$=66.66) and ICGS-5 ($\bar{X}_i$=63.49) were most desirable genotypes for shelling percentage, showing stability over a wide range of environment. Likewise, BAU-6 ($\bar{X}_i$=51.70%) was the most stable genotypes for oil content. It may thus be concluded that the genotype G-201 was stable for number of pegs, number and weight of pods per plant, the three important primary yield contributing characters.

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