

VI. RESEARCH NOTES

ALABAMA A&M UNIVERSITY
Department of Natural Resources
Normal, AL 35762

1) Evaluation of soybean germplasm for aluminum tolerance.

A growth-chamber experiment was conducted in nutrient solution containing 0 or 8 ppm of aluminum as $Al_2K(SO_4)_3$ to study differential Al tolerance of soybean germplasm representing Maturity Groups V, VI and VII, supplied by Dr. E. E. Hartwig. Two soybean cultivars, one sensitive ('Chief') and the other tolerant ('Perry'), were included as standard checks (Fig. 1).

Soybean roots were affected by the presence of Al and showed discoloration, stunted and blackish root tips. Abnormal leaf characteristics, such as narrow leaves, leaf chlorosis and short plant growth, were associated with high level of Al in nutrient solution. The average relative root length (8 ppm/0 ppm) of lines in Maturity Groups (MG) V, VI and VII was 34.5, 75.0 and 65.0%, respectively. The range of the relative root length was noticed from 18 to 179% in MG V, 24 to 200% in MG VI and 45 to 143% in MG VII. The relative root length of aluminum-tolerant Perry and aluminum-sensitive Chief was 130 and 50%, respectively.

Another measure of Al tolerance was studied by comparing the top and root dry weight of cultivars on the unlimed and limed Bladen clay loam soils in a greenhouse. The sensitive varieties (Chief, 'Essex', 'Ransom', 'Forrest') showed chlorosis of leaves of varying degrees. The symptoms were severe on the youngest leaves; the data on the relative root and top dry weight and root length of nine soybean cultivars are presented in Table 1.

Reference

Sapra, V. T., T. Mebrahtu and L. M. Mugwira. 1979. Evaluation of soybean germplasm Maturity Groups V, VI and VII for agronomic characters and aluminum tolerance. Special publication, Alabama A&M Univ., Normal, AL 35762 (paper presented at Southern Branch of American Society of Agronomy, Hot Springs, AR, Feb. 3-6, 1980).

NUMBER OF LINES

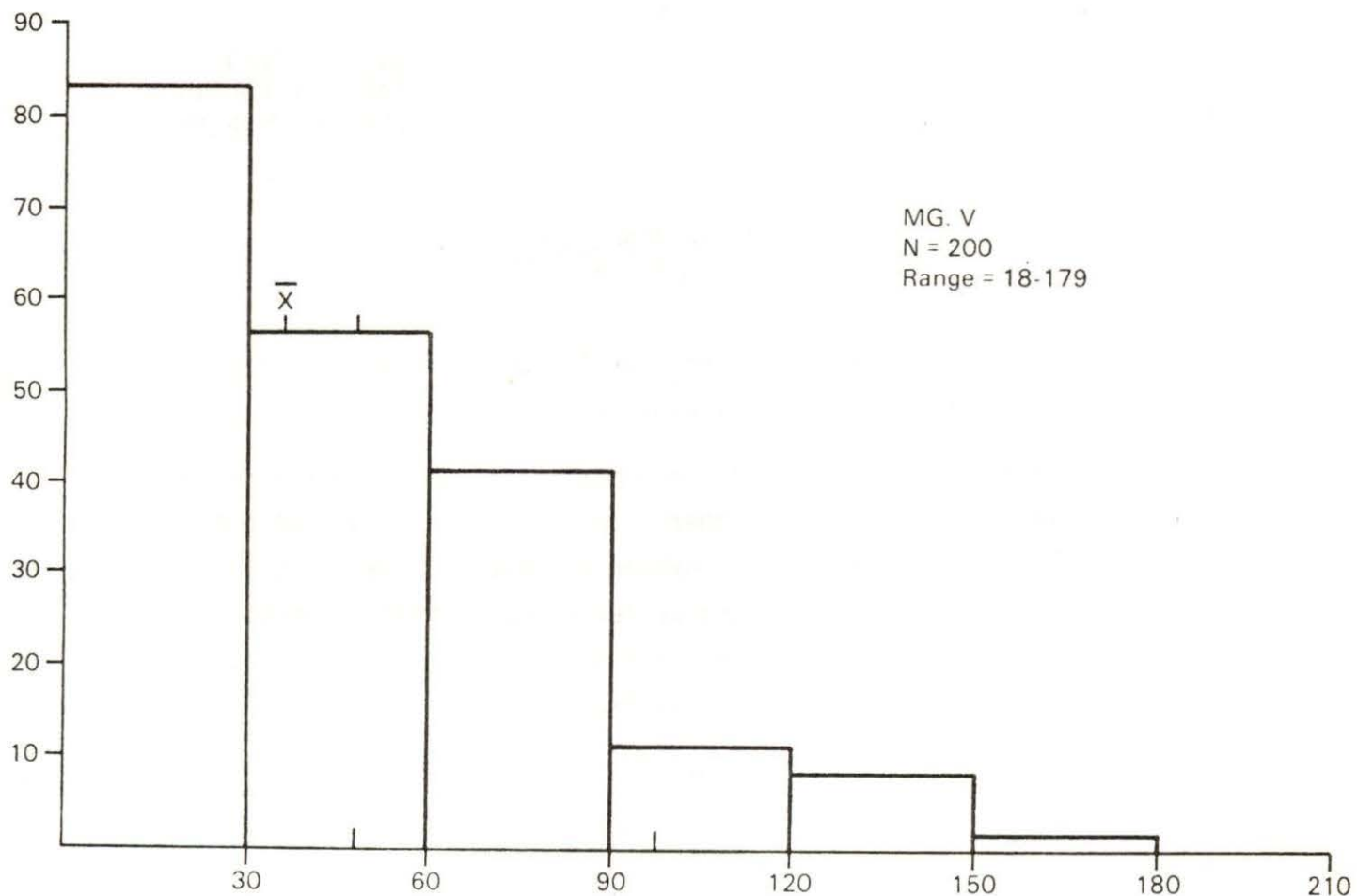
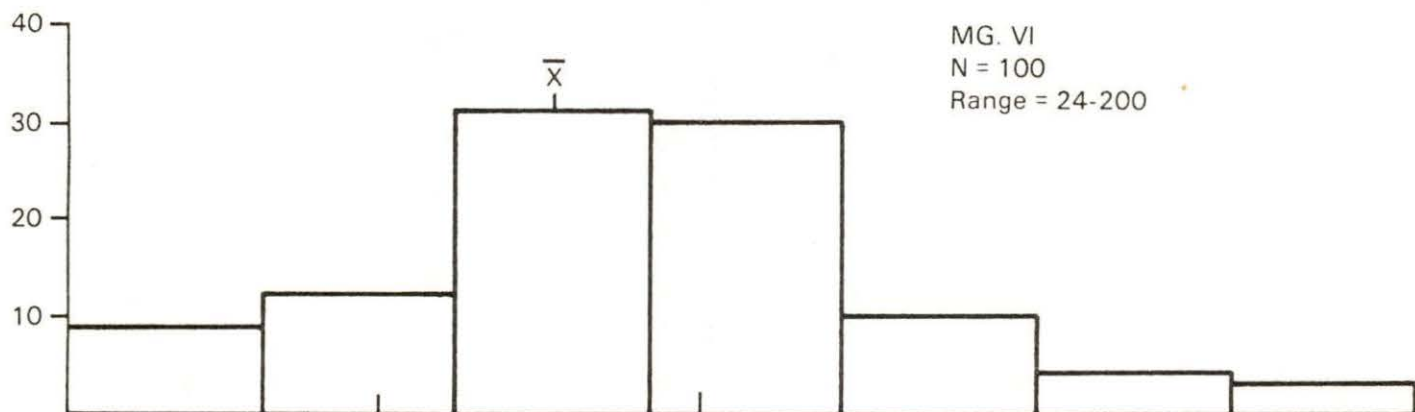
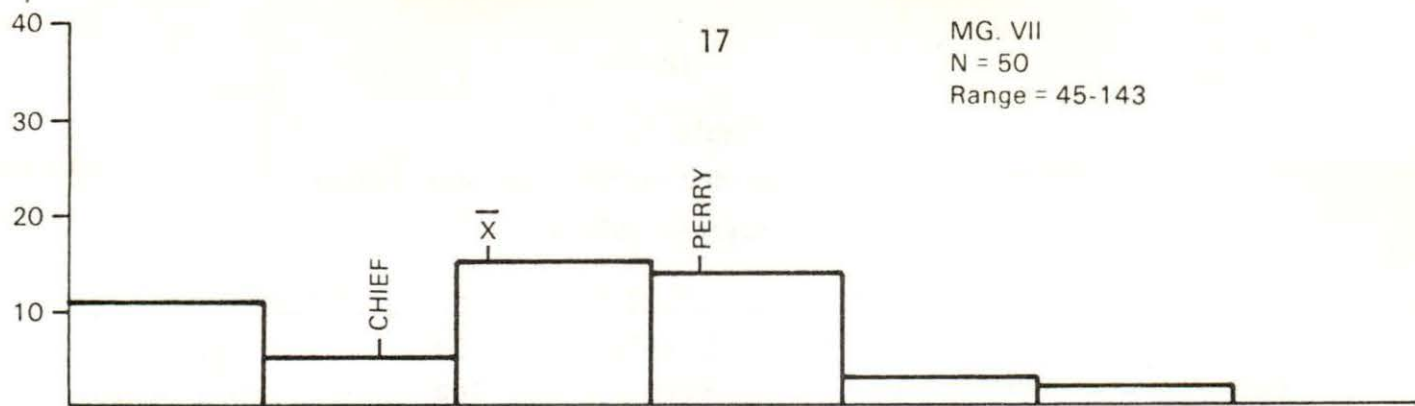


Figure 1. RELATIVE ROOT LENGTH (%)

Table 1
Relative root and top dry weight and root length
of nine soybean cultivars

Maturity Group	Cultivars	Relative dry weight		Relative root length ¹
		Root	Top	
VII	Ransom	0.73	0.78	0.65
V	Centennial	1.00	0.97	0.89
V	Essex	0.73	0.98	0.84
V	Forrest	0.75	0.78	0.67
V	Hill	1.04	1.04	0.32
V	York	0.96	0.98	0.96
VI	Lee	1.04	0.89	1.43
IV	Perry	1.20	1.12	1.30
IV	Chief	0.70	0.83	0.50

¹Data from nutrient solution study.

Val T. Saprà
Tadesse Mebrahtu
Luke M. Mugwira

INSTITUTO AGRONOMO
Campinas, 13100, SP, BRAZIL

1) Oviposition of *Bemisia tabaci* (Genn.) in F₁ soybean plants of crosses between PI 229,358 and commercial varieties.*

The whitefly *Bemisia tabaci* is an important vector of virus diseases of cotton, soybean, bean, tomato and other crops. Soybean is a good host for this insect and the increase in the soybean acreage in Brazil has brought an uprise in the whitefly population and whitefly-transmitted viruses.

The introduction of resistance against this whitefly in soybean commercial varieties may benefit many crops in Brazil.

*Research supported by CNPq, BRAZIL.