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Short Communication

EVALUATION OF AMARANTH GERMPLASM FOR FODDER

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One hundred ninety exotic and indigenous accessions of amaranth (100 from NBPGR, Shimla; 51 from NBPGR, Delhi; 15 from NBRI, Lucknow; 10 from NBPGR, Akola and 14 from local markets and other agencies) were assembled. This germplasm was grown at fodder research farm of Punjab Agricultural University during different months (March to October) in 1992 and 1993. A replicated yield trial constituting of twelve entries was conducted during April 1993.

Wide range of variability was observed for all the quantitative traits studied (Table 1). From the present germplasm, green fodder yield upto 46

Table 1. Variability for various agronomic and morphological characters

Character	Range
Days to germination	6-12
Days to flower	30-140
Numbr of branches	1-38
Number of leaves	24-325
Plant height (cm)	7-295
Leaf length (cm)	3.1-22.0
Leaf width (cm)	1.8-11.2
Green fodder yield (t/ha)	13.0-46.0

t/ha has been obtained. Exceptionally high fodder yields of 234 t/ha from Bangladesh and 225 t/ha from China have been reported by Hamid *et al.* (1989) and Shaoxian and Hongliang (1989),respectively. Uros *et al.* (1987) suggested the possible use of amarnath as a forage plant. Maximum number of branches per plant upto 38, plant height upto 285 cm, leaf length of 22 cm, lead width of 10 cm and number of leaves upto 325 have been recorded in the germplasm. Hauptli and Jain (1987) showed a wide range of flowering responses, a maximum leaf length of 26.4 cm, leaf width of 12.4 cm and plant height of 245.3 cm. Tucker (1986) reported a leaf area of 4000-6000 cm^2 per plant. Batta *et al.* (1993) reported ample amount of variability for quantitative traits in 169 amarnath collections.

Perusal of Table 2 showed that variation among different genotypes was significant for all the characters. High heritability alongwith high genetic advance and coefficient of variability were observed for leaf length and leaf width. It might be due to additive gene effects. Hauptli and Jain (1984) showed significant inter population differences for the quantitative traits. Joshi (1986) reported high heritability and expected genetic advance for plant height in a study on twenty genotypes of amaranth. A number of promising strains suitable for fodder yield and component traits have been identified (Table 3). These outstanding lines will be utilized as potential parents. Response to cutting has shown that N-45 and LC-6 genotypes can provide fodder in more than one cutting. In sowing during march to May, there was severe damage due to insect pests. Late sowings in and after October produced low fodder yieds. Hence May and June months were found to be suitable for raising fodder crop and July-August were suitable for seed production of amaranth.

Table 2. Genetic parameters of amarnath genotypes

Character	Treatment Mean-Squares	Heritability (%)	GA(%) Mean	PCV (%)	GCV (%)
Green fodder yield	10379.0**	46.3	37.9	39.7	27.0
Plant height	1504.1**	89.9	28.2	28.2	26.7
Days to flower	520.7**	92.6	25.9	25.9	25.0
Number of branches	186.2**	85.5	42.3	42.3	39.1
Number of leaves	4405.8**	62.0	53.1	53.1	41.8
Leaf length	101.2**	93.1	57.9	57.9	55.8
Leaf width	19.3**	89.5	60.1	60.1	56.9

Table 3. Promising fodder genotypes of amaranth

IC-35445	AV-45
IC-17947	AV-64
EC-13958	BDJ-18
EC-120051	93-p-63
EC-223636	LC-4
K-436	LC-6

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