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FIELD TESTING OF LEUCAENA GERMPLASM FOR THEIR RELATIVE SUSCEPTIBILITY TO INFESTATION BY THE PSYLLIDS

Subabool (*Leucaena leucocephala)* is a popular multipurpose tree species introduced to India and being grown intensively for fodder and fuelwood. One important problem that confronts the cultivation of *Leucaena leucocephala* is the susceptibility of this tree to the leucaena psyllid (*Heteropsylla cubana*). Psyllid incidence was reported in India for the first time from Kattupakkam, Tamil Nadu in February, 1988. Now the pest has spread throughout the peninsular India, causing considerable damage to leucaena (Singh and Bhandari, 1989). Exploitation of psyllid resistant genotypes and species of leucaena is probably the most effective mechanism by which the onslaught of the pest can be controlled. In this context the resistance of a leucaena germplasm consisting of 16 genotypes of *Leucaena leucocephala* and two species of *Leucaena* maintained at the Livestock Research Station, Thiruvazhamkunnu under the Agroforestry Project was evaluated for a period of two years from December 1988 to December 1990.

Eighteen entries were tested in a randomised block design (RBD) with two replications. Each plot included 20 trees accommodated in 4 m long rows, spaced 1 m apart with 50 cm within rows. Observations on tree height and diameter at breast height (DBH) were taken from five trees selected at random in each replication at six month intervals. Psyllid population (eggs, nymphs and adults) and psyllid damage were, recorded monthly using empirical rating scale of 1-9 (Brewbaker *et al.*, 1988).

Leucaena latisiliqua and *Leucaena diversifolia* showed a remarkable degree of psyllid resistace (Table 1). All of the *Leucaena leucocephala* genotypes were, however, susceptible to the psyllids. The psyllid resistant species were also

Table 1. Index on psyllid damage recorded during the months of highest infestation (No. of plants scored = 10)

Genotypes	Year of infestation	
	1988-89	1989-90
L. leucocephala		
FG 32	7.1	6.2
FG 24	6.8	7.2
FG 30	7.2.	8.1
FG 19	8.1	7.5
FG 23	8.2	7.6
K 28	7.5	8.2
K 132	7.6	7.2
K 62	7.8	6.6
K 455	8.1	3.5
K 500	6.6	6.6
K 601	7.2	4.2
K 614	7 6	6.2
K 636	8.2	4.5
EC 124344	6.4	5.6
Peru type	8.1	5.3
Perisicana	7.8	5.0
L. latisliqua		
FG 6	1.2	1.0
L. diversifolia		
K 156	1.1	1.5

Index
0-1 No damage
1-3 Slight damage
3-5 Moderate damage
5-7 Heavy damage
7-9 Completely defoliated

Table 2. Growth measurements at yearly intervals

Genotypes	1988 December		1989 December		1990 December	
	Height (m)	DBH (cm)	Height (m)	DBH (cm)	Height (m)	DBH (cm)
L. leucocephala						
FG 32	2.3	4.0	3.0	7.4	5.2	8.0
FG 24	5.5	17.2	7.1	23.4	8.2	25.2
FG 30	2.7	4.8	5.0	14.5	6.4	16.2
FG 19	3.3	6.1	4.9	10.6	5.6	12.2
FG 23	1.6	1.8	2.4	3.9	3.6	4.5
K 28	3.8	11.3	3.9	11.5	5.2	12.6
K 132	3.37	5.7	5.3	10.6	6.3	12.2
K 62	2.7	3.4	3.5	8.1	4.6	9.2
K 455	4.2	6.5	6.6	13.3	7.6	14.2
K 500	3.1	7.6	4.3	14.5	5.2	16.2
K 614	2.2	3.2	3.8	6.6	4.2	7.7
K 601	3.0	5.6	5.3	11.6	6.3	12.6
K 6363	2.9	4.1	4.4	10.7	5.2	11.6
EC 124344	2.3	3.7	3.2	6.3	4.2	7.3
Peru type	3.2	6.4	4.0	9.9	5.2	10.2
Perisicana	3.2	5.8	5.0	10.2	6.2	11.3
L. *latisiliqua*						
FG 6	5.0	10.3	5.9	14.0	6.6	15.2
L. diversifolia						
K 156	4.0	6.1	5.3	11.4	6.2	13.2
CD (0.05)	0.14	0.25	0.42	0.33	0.26	0.52

DBH = Diameter at breast height

very fast growing (Table 2) and can be attributed to their ability to resist the psyllid infestation. Some of the *Leucaena* genotypes have been able to recover much faster from the psyllid attack compared to other genotypes. For instance FG 24 and K 455 out-performed the other *Leucaena leucocephala* types due to its ability to recover much faster from psyllid damage.

The identification of psyllid resistant leucaena species is a major achievement in the control of this pest. Glover (1988) reported *L. pallida* and *L. diversifolia* as source of resistance to psyllid. With the present study, *L. latisliqua* is added to the list of psyllid resistant species of leucaena. As such, these species can be used after evaluating their fodder quality or it can be exploited as

a source of resistance in the breeding programme.

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