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LONG-TERM PERFORMANCE OF A FEW CLONES OF *HEVEA BRASILIENSIS* IN LARGE SCALE TRIAL

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ABSTRACT

Performance of eleven modern clones of *Hevea brasiliensis* in a large-scale trial conducted in the central part of Kerala State is presented. Among these clones three (RRII 5, RRII 104 and RRII 116) were evolved by the Rubber Research Institute of India, four (RRIM 513, RRIM 519, RRIM 600 and RRIM 628) were bred by the Rubber Research Institute of Malaysia and the rest (PB 206, PB 213, PB 217 and PB 5/76) developed by the Prang Besar Research Station of Malaysia. An old popular clone, Tjir 1, of Idonesian origin was used as the control. Important characters recorded are yield, yield depression during wintering, increase in the girth of the trunk during the period of tapping, rate of regeneration of bark, incidence of pink disease, abnormal leaf fall, powdery mildew, brown blast, wind damage, etc. Data collected over a period of 23 years are presented. This is the first report of this kind in our country covering such a long period. Very wide difference was observed between clones in the case of several characters. The results are discussed and an attempt is made to assess the suitability of the clones to the particular agroclimatic zone.

INTRODUCTION

Clones of *Hevea brasiliensis* are recommended by the Rubber Research Institute of India for commercial planting, after evaluating them in different kinds of trials. Large-scale trials are the second stage trials, which are usually conducted in different agroclimatic zones. Performance of 11 modern clones, as compared to an old popular clone, over a period of 23 years (seven years before tapping and 16 years after tapping) in a large-scale trial conducted in the central region of Kerala is presented in this paper. Early performance of the clones in this trial over a period of 11 years had already been reported (Joseph *et al.* 1986).

MATERIALS AND METHODS

The clones evaluated in the trial were obtained from different sources. Three of them viz. RRII 5, RRII 104 and RRII 116 were developed in India (Saraswathy Amma *et al.* 1988; Bhaskaran Nair and George, 1968). Four clones viz. RRIM 513, RRIM 519, RRIM 600 and RRIM 628 had been evolved by the Rubber Research Institute of Malaysia (Bhaskaran Nair and Joseph, 1975). PB 206, PB 213, PB, PB 217 and PB 5/76 are clones developed by the Prang Besar Research Station of Malaysia (Ang and Shepherd, 1979). Clone Tjir 1, used as control, had originated in Indonesia (Paardekooper, 1965). The trial was laid out in a randomized block design with three replications. Plot size was 0.072 ha. Number of plants per plot was 30 gross and 12 net, planted at a spacing of 4.9 x 4.9m. Central Kerala where the trial was conducted is an important rubber growing region of our country (Joseph *et al.* 1986). Important characters observed were yield over 16 years, yield during summer (Table I), girth of the trees at 23rd year after planting, girth increment before and after tapping, thickness of five year renewed bark (Table II), susceptibility to wind damage (Table III), incidence of diseases like pink, brown blast, abnormal leaf fall and powdery mildew (Table IV). Girth was recorded by measuring the trunk at a height of 150 cm above the bud union with a tailor's tape (Nazeer *et al.* 1988). Thickness of bark was measured with a Schleiper's guage (Bhaskaran Nair and Joseph, 1981). Yield was determined by coagulating the latex from individual trees in collecting cups, drying the coagule in a smoke house and recording the weight of dry rubber. Incidence of pink, brown blast and wind damage was estimated by counting the number of affected trees. Susceptibility to abnormal leaf fall and powdery mildew was assessed by visual observation. Summer yield was estimated by considering the mean yield during the period February to May as the percentage

Table I. Yield of the rubber clones in the trial

Clone	Mean yield - g/tree/tap/year				Yield during summer (%)
	1st to 5th year	6th to 10th year	11th to 15th year	1st to 16th year	
Tjir 1	43.43	56.77	47.67	48.03	70.42
RRII 5	56.21	84.39	82.06	76.42	69.01
PRII 104	45.26	61.58	64.23	57.63	74.50
PRII 116	52.20	66.28	59.43	60.52	80.25
RRIM 513	46.95	42.49	29.21	38.42	73.39
RRIM 519	43.46	54.22	54.09	51.18	76.06
RRIM 600	48.05	56.56	51.74	52.59	77.11
RRIM 628	55.94	44.53	34.71	43.03	68.20
PB 206	47.97	44.11	45.35	46.58	79.59
PB 213	41.67	68.48	71.53	62.16	75.92
PB 217	38.01	67.58	81.72	65.99	81.70
PB 5/76	38.32	61.74	68.18	58.42	76.40
General Mean	46.46	59.06	57.49	55.08	75.21
S.E.	4.16	5.64	6.08	4.37	2.68
C.D.		16.59	17.88	12.85	7.88
C.D*		18.75	20.20	14.52	8.90

* For comparing RRIM 513 with other clones.

Table II. Vigour of the rubber clones in the trial

Clone	Mean girth at 23rd year (cm)	Mean girth increment before tapping (cm/year)	Mean girth increment on tapping (cm/year)	Thickness of 5 year renewed bark (mm)
Tjir 1	101.54	8.49	2.46	9.23
RRII 5	106.06	9.11	2.64	9.46
RRII 104	103.13	7.84	3.01	10.61
RRII 116	112.97	8.90	3.17	8.91
RRIM 513	85.36	8.04	1.81	8.43
RRIM 519	101.83	8.11	2.82	9.43
RRIM 600	101.29	8.52	2.60	9.44
RRIM 628	80.76	7.74	1.66	8.26
PB 206	101.95	8.03	3.02	8.85
PB 213	87.77	7.56	2.18	9.25
PB 217	112.33	8.35	3.44	9.19
PB 5/76	109.80	8.43	3.17	8.79
General - Mean	100.40	8.26	2.66	9.15
S.E.	4.07	0.30	0.24	0.28
C.D.	11.97	0.88	0.71	0.40
C.D.*	13.53	0.99	0.80	0.45

* For comparing RRIM 513 with other clones.