

TRENDS IN ADOPTION OF PLANTING MATERIALS IN THE RUBBER SMALLHOLDINGS SECTOR IN INDIA

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The study analysed the trends in the adoption of planting materials in the smallholdings sector across different regions and size classes and the response of the small growers to the recommendation of the Rubber Board (1991) towards multiclonal planting. The study covered Kerala and Tamil Nadu and the database consisted of information collected from the regional offices of the Rubber Board for the years 1984-85, 1989-90 and 1994-95. A strong preference for RR11 105 was observed in all the regions and size classes during the reference years (89, 83 and 86 per cent respectively). There existed an inverse relationship between holding size and the extent of monoclonal planting and a substantial adoption of multiclonal planting (61%) was observed only in the largest size class (above 4 ha) as it is mainly determined by the resource base. The response to the recommendation on multiclonal planting was lukewarm (14%) as the smaller size groups were not inclined to risk the proven yield record of RR11 105.

INTRODUCTION

Ever since the introduction of the planting material, RR11 105, there has been a steady growth in its adoption leading to a very high degree of concentration of monoclonal planting in the smallholdings sector. It was reported that RR11 105 accounted for 89 per cent of the area planted under the smallholdings availing of the rubber planting subsidy from the Rubber Board during the year 1984 (Ipe and Haridasan, 1988). Anticipating the potential risk associated with the extensive mono-clonal planting, the Rubber Board has been recommending the practice of multi-clonal planting since 1991.

The present study was initiated in the absence of a systematic analysis on the response of the small growers to the recommendation of the Rubber Board towards multi-clonal planting. The main objective of the study was to analyse the quinquennial

trends in the adoption of planting materials in the smallholdings sector across different regions and size-classes.

METHODOLOGY

The study was confined to the smallholdings availing of subsidy under the Rubber Plantation Development (RPD) scheme as documented information were available only in respect of this category. Only the traditional rubber growing regions of Kerala and Tamil Nadu were considered for the study since the combined share of the two states in the total rubber-planted area in the country was 89 per cent. The reference periods of the study were the financial years of 1984-85, 1989-90 and 1994-95. The data for the year 1984-85 were solely based on an earlier study (Ipe and Haridasan 1988), and those for the other two periods were collected from the concerned regional offices of the Rubber Board. The comparative analysis of the adoption of planting ma-

terials was confined to the overall trends during the three periods whereas the region-wise and size-class-wise analysis could be done only for 1989-90 and 1994-95 as the earlier study did not examine such details.

RESULTS AND DISCUSSION

The database of the study had a significant coverage of the newplanted/ replanted area under the smallholdings in the country during the reference years (Table 1). The area covered under the scheme constituted 48 per cent (1984-85), 38 per cent (1989-90) and 46 per cent (1994-95) of the total newplanted/ replanted area of the respective years. The actual area covered under the study was 13313 ha in 1984-85, 10294 ha in 1989-90 and 7146 ha in 1994-95.

The size-class-wise composition of the area covered for the study showed that a major

Table 1. Newplanted/replanted area and RPD scheme coverage

Rubber area (ha)	1984-85	1989-90	1994-95
Newplanted area	22365	20175	8400
Replanted area	5217	6854	7000
Total area	27582	27029	15400
Area covered under the study	13313	10294	7146
RPD scheme coverage as % of total area	48	38	46

Notes: The figures for 1984-85 cover Karnataka state which was excluded in the latter two sub-periods.

Source: Indian Rubber Statistics, Vol. 21, 1996.

portion of the area under the RPD scheme belonged to the lowest size-class of 0-2 hectares (Table 2). The operational size of holdings under the scheme which was as low as 0.54 hectare in 1989-90 further declined to 0.48 hectare in 1994-95.

Table 2. Trends in size-class-wise area and operational size of holdings (1989-90 and 1994-95)

Size class	Relative share(%)		Number of units		Average holding size (ha)	
	1989-90	1994-95	1989-90	1994-95	1989-90	1994-95
0 to 2	88.28	91.18	18768	14669	0.48	0.44
2 to 4	9.51	7.57	359	212	2.73	2.55
4 to 5	2.21	1.25	52	20	4.38	4.48
Total area(ha)	10293.98	7145.61	19179	14901	0.54	0.48

The overall trend in the adoption of the planting materials showed the dominant position of RR11 105 in the smallholdings sector during the sub periods. Its relative share was 88.96 per cent in 1984-85, 83.31 per cent in 1989-90 and 85.75 per cent in 1994-95 (Table 3).

The major reason for the revealed preference for RR11 105 appeared to be its proven commercial yield performance. An evaluation of the commercial yield of 22 planting materials in the estate sector showed that RR11 105 was the highest yielder with a mean yield of 1556 kg per ha per year during the first ten years of tapping (Joseph and Haridasan, 1990). Another important general trend observed was a sharp

Table 3. Trends in the adoption of planting materials (1984-85 to 1994-95)

Planting material	Relative share (%)		
	1984-85	1989-90	1994-95
RR11 105	88.96	83.31	85.75
PB 311	0.13	1.76	0.05
RR1M 600	0.33	0.71	0.19
GT1	1.16	0.16	0.04
PB 28/59	0.12	0.26	0.16
PB 235	0.66	0.09	0.04
PB 217	0.01	0.09	0.02
PB 260	0.00	0.04	0.24
With RR11 105@	6.87	12.44	13.09
Without RR11 105#	1.76	1.14	0.42
Total Area (ha)	13313.08	10293.98	7145.61

Notes: @ Includes PB 311, RR1M 600, PB 235, PB 28/59 and GT1

Mixed planting materials other than RR11 105

increase in the share of multi-clonal planting with RRII 105 from 6.87 per cent (1984-85) to 13.09 per cent (1994-95), consolidating its position as the second important category. The modern planting materials used for multi-clonal planting with

RRII 105 were mainly GT1, RRIM 600, PB 311, PB 28/59 and PB 235. The relative shares of major individual clones declined, though there was a marginal increase in the case of PB 260 during the three periods under analysis.

Table 4. Region-wise trends in the adoption of planting materials (%) (1989-90 and 1994-95)

Planting material	Nagercoil		South Kerala		Central Kerala		North Kerala	
	1989-90	1994-95	1989-90	1994-95	1989-90	1994-95	1989-90	1994-95
RRII 105	6.80	20.14	72.30	68.23	84.23	95.96	90.48	92.59
PB 311	0	0	1.11	0	3.44	0.03	0.62	0.11
RRIM 600	1.99	5.47	2.53	0.07	0.13	0	0.47	0.02
GT1	0	0	0	0	0.01	0	0.35	0.09
PB 28/59	8.67	3.92	0.17	0.14	0.13	0.02	0	0
PB 235	0	0	0.12	0.17	0.07	0.01	0.11	0
PB 217	0	0	0.14	0.07	0.18	0	0	0
PB 260	0	0	0.01	0.48	0.09	0.32	0	0.02
With								
RRII 105@	66.50	60.27	21.86	30.47	11.23	3.64	7.24	7.13
Without								
RRII 105#	16.04	10.20	1.76	0.37	0.49	0.02	0.73	0.04
Total area (ha)	226.16	221.31	1680.56	1687.68	3905.28	2427.58	4481.98	2809.04

Notes: @ Includes PB 311, RRIM 600, PB 235, PB 28/59 and GT1

Mixed planting materials other than RRII 105.

The region-wise analysis of the adoption of planting materials showed disparate trends in 1989-90 and 1994-95 (Table 4). While there was an increase in the adoption of RRII 105 by 13.34, 11.73 and 2.11 percentage points in Nagercoil, central and northern regions respectively, its share has declined by 4.07 percentage points in the southern region. The decline in the planting of RRII 105 in the southern region coincided with a sharp increase by 8.61 percentage points in multiclonal planting with RRII 105. In Nagercoil, multi-clonal planting with RRII 105 was the dominant group both in 1989-90 (66.50 %) and 1994-95 (60.27 %). In all the three regions of Kerala, this category occupied the second position in terms of the relative share in total area planted during 1989-90 and 1994-95. However, except in the southern region, the relative share of this category declined in 1994-

95. The monoclonal planting of individual clones other than RRII 105 was found declining in all the regions over the sub periods.

The status of adoption of planting materials across the size classes in 1989-90 and 1994-95 showed the dominance of mono-clonal planting of RRII 105 in all the three size groups during 1989-90 (Table 5). During 1994-95 there was a marginal increase in the share of RRII 105 in the first two size groups (2.22 and 0.81 percentage points respectively) and a sharp decline was observed in the largest size group of above 4 ha (16.96 % points). Conversely, the share of multiclonal planting with RRII 105 has recorded a significant increase in the largest size group during 1994-95 compared to 1989-90. Compared to the increase in the share of multiclonal planting with RRII 105 to the extent of 28.95

percentage points in the above 4 ha size class, there was only a marginal increase in the case of the other two size classes (0.68 and 1.91 % points respectively) during the sub periods under con-

sideration. The relative shares of all other individual clones and multiclonal combinations in the total area planted declined in 1994-95 compared to 1989-90.

Table 5. Size-wise trends in the adoption of planting materials 1989-90 and 1994-95

Planting material	1989-90			1994-95		
	0-2 ha (%)	2-4 ha (%)	>4 ha (%)	0-2 ha (%)	2-4 ha (%)	>4 ha (%)
RRII 105	85.42	69.98	55.90	87.64	70.79	38.94
PB 311	1.64	2.84	1.93	0.02	0.46	0
RRIM 600	0.74	0.62	0	0.18	0.38	0
GT1	0.13	0	1.92	0.04	0	0
PB 28/59	0.20	0.46	2.16	0.17	0	0
PB 235	0.10	0	0	0.05	0	0
PB 217	0.10	0	0	0.02	0	0
PB 260	0.04	0	0	0.21	0.44	0
With RRII 105@	10.62	24.83	32.11	11.30	26.74	61.06
Without RRII 105#	1.01	1.26	5.98	0.36	1.19	0
Total Area(ha)	9087.75	978.68	227.55	6514.75	541.19	89.67

Notes: @ Includes PB 311, RRIM 600, PB 235, PB 28/59 and GT1.

Mixed planting materials other than RRII 105.

CONCLUSION

The results of the study showed region and size class specific responses to the Rubber Board's recommendation of multi-clonal planting. The two major planting choices (monoclonal and multiclonal) as evidenced by the small holdings across the four regions indicated a strong preference for RRII 105. This position is in sharp contrast to the choice of planting materials in the estate sector. An earlier survey covering 105 estates reported the share of RRII 105 as 41.60 per cent during the period 1980-90 (Joseph and Haridasan, 1991). However, another survey confined to the corporate sector alone showed a lower share of RRII 105 (8.1%) during 1980-89. At an operational level, an inverse relationship was observed between the size of the plantations and monoclonal planting. The sharp increase in the share of multiclonal planting in the

largest size group (above 4 ha) is only logical as normally the adoption of new technology/ practices is very often determined by the resource base across the major commercial crops. In the present case, the relatively smaller size groups appear to be not inclined to risk the proven record of RRII 105 with the limited choices underlined by the size of the holdings.

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