

Assessment of Socio Economic Status and Awarenesses of Smallholder Rubber Farmers in Kurunegala District

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ABSTRACT

It is known fact that land is limiting in traditionally rubber growing areas in the country. As a result, no more expansion of rubber extent is expected in those areas. However, initiatives have been taken to encourage potential farmers to grow rubber in non-traditional rubber growing area where land is not limited. There are some nontraditional rubber growing areas; Kurunegala District as an example where other major plantation crops are established and land is comparatively scarce. This study mainly focus on evaluating the present status of the existing rubber smallholder sector in the Kurunegala District supporting policy makers to re-establish rubber cultivation. Study reveals that young generation is reluctant to engage in rubber cultivation and most of the existing rubber lands are at the uprooting stage. Further, the use of high yielding new rubber clones is not at a satisfactory level among the growers. Moreover, the awareness test on recommended practices in rubber cultivation revealed that awareness of rubber growers in the area is at a very poor level. This suggests policy makers to set proper extension program to uplift rubber cultivation in the area.

KEYWORDS: Rubber small holders, Socio economic status, Yield Performance Index

INTRODUCTION

Rubber (*Hevea brasiliensis*) is the second most important plantation crop in Sri Lanka in terms of export earnings and employment generation. At present rubber based industries in Sri Lanka are booming up demanding more row rubber. Increasing productivity and extent under rubber cultivation are the two possible solutions to achieve the national targets in the rubber sector. However declining rubber extent and scarcity of lands in major rubber growing areas are main issues of national concern to Sri Lanka.

The rubber extent in 2002, 157,000 ha (Central Bank, 2012) has reduced to 127,500 ha (Ministry of plantation industries, 2012) in 2011. This is mainly due to changes in land use that took place in traditional rubber growing areas in the wet zone of Sri Lanka. The state has responded towards this issue very positively, giving emphasis on expanding rubber cultivation to non-traditional rubber growing areas. With this background, studying the existing condition of the small holder rubber land especially in non-traditional rubber growing areas is a basic necessity to identify aspects, which need to be strengthened to increase productivity through appropriate planning and proper extension services.

Some parts in Sabaragamuwa, Eastern and Northern provinces have been identified as potential areas that rubber can be expanded where land has not become a limiting factor. However Kurunegala District also has been

identified as a non- traditional rubber growing area.

In Kurunegala District, rubber is mainly cultivated in areas that border to low country wet zone (Mathle, Kegalle and Gampaha Districts). However coconut is grown in the district as a major plantation crop. It is a known fact that Kurunegala is located in the coconut triangle. Although there are some lands are available, there are many other perennial crops are competing with rubber cultivation.

As a results issues related to rubber cultivation will be different from the issues found in other non-traditional rubber growing areas. There are many studies done in Moneragala District to assess the existing status of rubber farmers (Dissanayake *et al.*, 2005, Edirisinghe *et al.*, 2005, Herath *et al.*, 2005, Wijesuriya *et al.*, 2005a, Wijesuriya *et al.*, 2005b). They have recognized the awareness of rubber farmers about proper plantation management and processing techniques was at a very poor level. With this background they emphasize the need of a strong extension program to increase the awareness of rubber cultivation in the District.

There are no such research is found in the literature regarding the status of smallholder rubber farmers in Kurunegala District. Consequently this research aims at fulfilling this gap and to bring suggestions for policy makers.

METHODOLOGY

Sample Selection and Data Collection

This study covered rubber small holders in major Rubber Development Officer's (RDO) divisions in Kurunegala district; Polgahawela and Rideegama. Small holder sector was purposefully selected as they are contributing significantly for national rubber production. A multistage sampling scheme was used for sample selection. Twelve Grama Niladari (GN) divisions were selected from two RDO divisions randomly and probability proportionately. Rubber farmers were also selected randomly and probability proportionately from a list of mature rubber smallholder units. Total sample size was restricted to 152 considering the limitations on expenses and time.

Data were cross sectional in nature and they were collected through a pre tested questionnaire via face to face interviews. Questionnaires were designed to gather information falling into socio-economic, environmental, technological and institutional aspects of the small holder rubber sector. The data were collected for the period from 01-12-2012 to 31-03-2013.

Data Analysis

Both descriptive and inferential statistics were used to analyze the data. For socio-economic analysis age of plantation, level of education, gender, land size, experience, tapping knowledge, level of management and social participation were used. The Yield Performance of rubber small holders were evaluated using Yield Performance Index (YPI) derived by Wijesuriya *et al.*, 2007. YPI is defined as;

$$YPI_i = Y_{ij} / Y_{ij,AV}$$

YPI_i is the yield performance index of i^{th} holding and Y_{ij} is the yield of i^{th} holding at j^{th} age. $Y_{ij,AV}$ is the average yield in i^{th} holding at j^{th} age in the area which is derived from the yield curve of the area.

The impact of the awareness on the YPI was established through a Linear Regression model. The total awareness of the farmers was quantified through an index which is named as General Awareness Index (I_{GA}). It was defined such that;

$$I_{GA} = f(I_i) \quad i=1,2,\dots,k$$

(k =no. of recommended management practices used to develop the I_{GA})

I_i is an index developed for awareness of i^{th} recommended management practice. We

tested awareness of farmers on crop management, fertilizing, weed management, disease and pest management, exploitation, sheet production and planting aspects. All statistical analysis was done using GENSTAT statistical package version 12.

RESULTS AND DISCUSSION

Descriptive Statistics

Demographic characteristics of the rubber small holders in the area under investigation are depicted in Table 1. It can be noticed that majority of small holders were categorized into the age group of 51-70 years which is 68% of the total sample. Out of the total farmer population no any farmer was found in the age group less than 24 years. It can be inferred that the involvement of elder farmers (51-70) is higher than younger generation in rubber cultivation which doesn't seem a favorable drive for the future of rubber cultivation in the area.

Table 1. Socio Demographic Characters

Parameter	Frequency	Percentage
Gender		
Male	134	89%
Female	17	11%
Age(Yrs)		
<25	1	1%
25-50	44	29%
51-70	102	68%
>70	4	2%
Education level		
Not schooling	5	3%
Primary	63	42%
Secondary	59	39%
Tertiary	22	15%
Higher	2	1%
Experience(Yrs)		
<10	12	8%
10-20	61	40%
21-30	34	23%
31-40	28	19%
41-50	10	6%
>50	6	4%

Among the total respondents 89% of the small holders were males and 11% of them were females. This indicates that the males were dominated in the management of rubber small holdings. 97% of the farmers have attained at least primary level education. 39% of the farmers have obtained up to secondary level education while 15% of the farmers have reached up to tertiary level education. This would be a favorable situation in the area compared to other non-traditional rubber growing areas where the education level of farmers at a low level. As far as the experience of rubber farmers is considered, it can be noticed that 52% of the farmers have engaged

in rubber cultivation more than 20 years. However, 48% of the farmers are new to this venture.

Details of Rubber Small Holdings

Size of Land Holdings

The distribution of the land size classes are depicted in Figure 1. Majority of the rubber lands in the study area falls into the category of <=1 acres (43%). 45% of the farmers owned lands of size between one acre to five acres, while about 12% of them owned more than five acres of rubber.

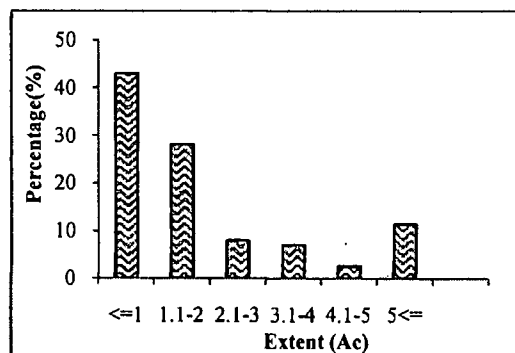


Figure 1. Distribution of lands among smallholder farmers

Age of Existing Plantation

Age distribution of the rubber plantations in the study area is illustrated in Figure 2. It can be noticed that 44% of the plantations are more than 30 years old. They must be less productive and at the age of replanting. Another 28% of the holding belongs to the age group of 21 to 30 years of which either C or D panels are being tapped. It can be observed that majority of the rubber holding in the study area is either over aged or about to over age. As far as the productivity is concerned, this is not a very favorable situation of rubber sector in the area.

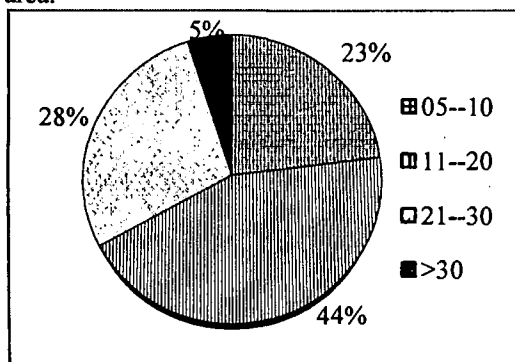


Figure 2. Age distribution of mature holdings in Kurunegala District

Type of Clone

Clone distribution (mature holding) of the study area is depicted in Figure 3. Majority of the mature holdings (37%) in the Kurunegala district are planted with clone RRIC100. 19% of the holdings are planted with RRIC 121. PB86 is grown in 27% of the holdings, which is not currently recommended to plant. It was noticed that these holdings are over aged and at the stage of uprooting. This is a possible reason for existing low productivity levels in the area. This matter should be taken up at the policy level especially during programs for expansion of rubber in the area.

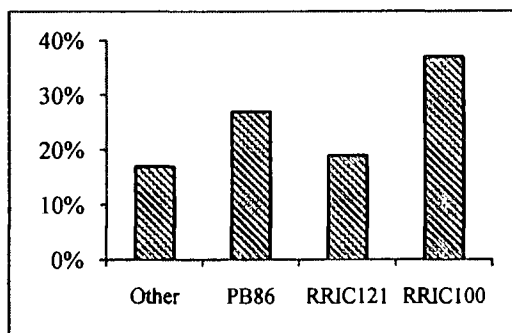


Figure 3. Clone distribution in the study area

Condition of the Cover Crop

In 72% of the holdings, the condition of the cover was 'good' while there were no cover crop in 28% of the holdings. It was noticed during the study that intercropping was practiced in 18% of the mature holdings. Coffee, cocoa, banana were the main intercrops found cultivated with rubber.

Tapping Practices

The sample comprised of 44% of the holdings where the virgin panel (panel A-25% and B-19%) is under exploitation. Holdings tapped under renewed bark accounted for 36% and slaughter tapping was found to be practiced in 20% of the holdings. The majority of small holders commence tapping at 6.30 a.m.

Awareness on Agronomic Recommendations

Awareness on recommended practices in soil fertility management, fertilizer application, intercropping, Disease control and tapping were tested during the awareness test. The status of awareness on fertilizer management is illustrated in Table 2.

Table 2. Awarenesses on soil fertility management

Focus	% Awarenesses						
	M	G	L	U	I	K	OA
Fertilizer app.	19	6	7	29	36	9	18
Recmd. Fert.	5	19	7	71	43	18	27
Methd of Fert. app.	10	31	14	93	36	18	34
Soil Consvrtn	18	18	17	14	17	12	16
Overall Awareness	13	19	11	52	33	14	24

Note: Mawatha -M, Ganegoda -G, Lewdeniya -L, Uggalpaya -U, Inguruwatha -I, Koshinna -K, Overall Awareness - OA

The overall awareness on the fertilizer management of the area was 24%. While farmers in Uggalpaya shown about 52%. Most poor overall awareness on fertilizer recorded in Lewdeniya area. Awareness about intercropping in rubber recorded in the area in given in Table 3. It is reported that the awareness about intercropping with rubber is at a very poor state in the study area. However in Uggalpaya are about 81% of the farmers knew about intercropping.

Table 3. Awareness on intercropping under rubber

Focus	% Awarenesses						
	M	G	L	U	I	K	OA
Intercropping	0	7	0	81	7	14	18

Awareness about disease control in rubber of the farmers in the study area is given in the Table 4. It is clearly seen that more than 50% of the farmers aware about the diseases and the methods of control.

Table 4. Awareness on disease control

Focus	% Awarenesses						
	M	G	L	U	I	K	OA
Preccence of disease	48	94	64	36	64	36	57
Method of control	43	94	50	36	64	36	54
Overall Awareness	46	94	57	36	64	36	56

Awareness on recommended practices during exploitation process of the rubber smallholders in the study area is given in Table 5. The overall awareness about good tapping practice of the farmers in the area is about 69% which is comparatively a high level. The high awareness level on tapping was shown by the farmers in Uggalpaya area.

Table 5. Awareness on basic knowledge of tapping related activities

Focus	% Awarenesses						
	M	G	L	U	I	K	OA
Ht. of cut	76	94	100	100	100	73	91
Slope of cut	29	63	64	93	100	73	70
Time of tapping	29	94	71	100	93	73	77
Tapable circumstance	19	75	64	86	79	82	68
Density of tapping bark	14	31	50	93	50	64	50
Extract of latex	10	88	71	57	43	73	57
Overall Awareness	30	74	70	88	78	73	69

Awareness and Yield Performance

The regression between YPI and the I_{GA} was statistically significant. The regression equation is $YPI = 0.835 + 0.00826 I_{GA}$. Slope and the intercept were statistically significant at 95% confidence with slandered errors of the 0.087 and 0.004. This indicates farmers' productivity can be improved through proper awareness programs. However the Adjusted R^2 was reported 10% indicating there are many other factors that would lead to the variability in the yield performances of the rubber smallholders in the area.

CONCLUSIONS

The relationship between awareness of recommended practices and farmer performances is positive and significant. Further it can be noticed that farmers overall awareness about the recommended practices of rubber is at a very low level. However, there are some areas, where farmers are aware about recommendations on rubber cultivation. This situation indicates the need of implementing more awareness program if farmers in the area should reach expected national productivity levels.

Further the status of the existing rubber lands are not at satisfactory standards. It can be noticed that youth do not tend to engage in rubber cultivation. Most of the rubber stands are over aged and reached to the point of uprooting. Considerable numbers of farmers do not use high yielding clones. Therefore it is very important to consider this figure in policy set up for the sustainable development of rubber industry in the area.

ACKNOWLEDGEMENTS

The authors wish to express their profound gratitude to the small holder rubber farmers for their valuable cooperation during the survey. Authors would also like to extend their sincere thanks to Rubber Development Officers (RDO) and Rubber Extension Officers (REO) for their support given during the data collection.

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