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Farmers Perception towards Agri-clinical Services for Rubber Plantation Crop at Sepahijala District of Tripura

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Abstract

This study aims to access and evaluate the Farmers perception towards Agri-clinical services of the rubber crop. The study has taken readings on the basis of their awareness level towards clinical services, the perception regarding clinical services, the significance of issues during the application of clinical services and some suggestive opinions of farmers located at Sepahijala district of Tripura. Study has highlighted the level of awareness and knowledge among farmers for clinical services to be used for rubber plantation crop. The study has highlighted that the subsidies will increase more development in their purchasing capacity like equipment and tools and also it will lead to more participation in rubber farming. It has been categorically identified the core significance of clinical services among the key stakeholders of the plantation crop. Paper has made an attempt to find out the utilization of farm utility, schemes, proper handling of inputs and risk management functions of commodity.

Keywords: Farmers perception, plantation crop, purchasing capacity, rubber farming

1. Introduction

The North eastern state, Tripura is fortunate enough that it has been gifted by nature an agro-climatic condition which is suitable for *Hevea brasiliensis* (rubber) for cultivation. This opportunity needs to be utilised for socio-economic development of the state. The Bishalgarh block of Sepahijala district, Tripura, India is characterized by humid subtropical climate and also represents undulating topography (325% slopes). Hilly soils are very prone to degradation and pose a serious threat to agricultural productivity. Rubber cultivation in Bishalgarh block of Sepahijala district, Tripura was moderately suitable in the undulating plains and uplands without forest (Bandyopadhyay et al., 2018). The *Hevea brasiliensis* (Rubber) have created a significant platform in the income generation for the producers and it also leads to contribute in the GDP of Tripura. It also introduced as a mode of afforestation drive in the early 1960s. The sector was attributed by the efforts of various augmenting agencies like Rubber Board, Tripura Forest Development and Plantation Corporation Ltd. (TFDPC) and Tripura Rehabilitation Plantation Corporation Ltd. (TRPC). It also shows that the real wages of the tappers are lesser than that of the agricultural and unskilled labourers. It is important for the state to have an assessment on the labour requirement as more and more rubber plantations of Tripura

are reaching the stage for tapping, which requires sustained flow of rubber tappers or else the potential of the sector can never be realised and this perceived engine of growth will slow down (Chouhan and Bhowmik, 2017). The farmers who are having smaller size of holdings to run rubber enterprise are more active on better adoption of the plantation technology. Smaller plantations mean high intensity management, are more dynamic display of modernizing enterprise through the adoption of technologies. It indicates that the socio-economic variables like age, education, homestead land; own land and area under rubber cultivation had become the predominant factors in adopting the recommended technology packages (Reang et al., 2104). Intercropping of rubber with food crops has found to be a solution for the production constraint in most rubber producing countries. Policy makers, researchers and extension providers have closely work together with rubber farmers in identifying suitable rubber plantation spacing and varieties on a case by case basis to ensure effective adoption and scaling out (Tetteh et al., 2019).

The major problem facing the cultivation of rubber in developing countries is the destructive effect of the pathogens which result in about 50% loss in crop yield and various operational and logistic challenges. The disease symptoms presented in categories from a JAVA based user friendly



graphical interface and suggests curative and preventive measures of it. The diagnosis of the crop was able to reveal the causes, prevention and the resultant disease of the rubber crop (Konyeha and Imouokhome, 2018). The straw-based composites demonstrated that cereal straw waste could be used as an alternative, biodegradable and eco-friendly reinforcement of natural rubber composites. The use of cheap and renewable raw material to strengthen the elastomer matrix contributed to the creation of an extensive secondary filler structure in the polymer, which was confirmed by dynamic mechanical analysis (Masłowski et al., 2019). The specialization and competitiveness of natural rubber production is related to natural conditions, market demand and technological development and with the lowest production costs. Therefore, it is necessary to promote a regional innovation system for the design and implementation of smart specialization strategies (Vargas-Canales et al., 2019).

2. Materials and Methods

The descriptive research design was adopted for the concerned research study. The research was conducted at Sepahijala district of Tripura in 2020. After the district selection, two blocks were selected from the district and from there 3 villages from each block were chosen for the study. The sampling was done over a total number of 120 rubber growing farmers where 20 respondents from each village are randomly selected for the study observation. Two types of data were collected for the study. Primary data was collected through closed ended structured interview schedule. The questionnaire was divided into two parts. Part 'A' was designed to seek information on the demographic variables such as name, gender, age, income etc. Part 'B' consisted of general views and statements based on Likert scale to evaluate farmers perception towards benefits, problems and prospects of clinical services for rubber plantation crop. Secondary data was taken from journals, magazines, research articles, newspaper, and books. Simple mathematical and statistical tools including Arithmetic Mean, Standard Deviation, %age and Total Weightage Score method were used for satisfying the objectives with a view of keeping the analysis simple and easy to understand. The concerned study was initiated with the key objective, to study the awareness level of rubber producing farming community towards various agri-clinical services, to evaluate the perceptual mapping of rubber producing farmers on the facilities extended by agri-clinical agencies, to highlight various clinical issues faced by rubber growers and also to seek suggestive opinion for improving agri-clinical Facilities and to identify the areas of existing rubber plantations in the state and the impact of targets set by agri-clinics involve with Rubber plantation and production.

3. Results and Discussion

3.1. Employment status of the respondents

Agriculture is the sector that provides job opportunities to the

majority sections of the society. The maximum respondents were farmers and involved in rubber farming for their day to day livelihood expenses. It was observed that largely respondents were holding the farming status followed by govt. Service and both dual occupation as the sole employment source and there were fewer respondents who were holding both the employment status together. Thus, considering a mixed set up of employment status, it was observed that farmers were highly inclined to understand and avail the agri-clinical services in their respective farming business (Table 1).

Table 1: Employment status of the respondents

Employment status	No. of respondents	%age
Govt. Service	12	10
Farmer	98	81.67
Both	10	8.33
Total	120	100

Source: primary probe, 2020

3.2. Gender status of the respondents

It was observed that majority of the respondents were males 58.33% followed by females 41.67%. Female population was also averagely indulged in the rubber farming for sustaining their livelihood (Table 2).

Table 2: Gender status of the respondents

Gender	No. of respondents	% age
Male	70	58.33
Female	50	41.67
Total	120	100

Source: primary probe, 2020

3.3. Age of the respondents

Respondents in the Sepahijala district were in between the age group of 31-50 followed by 21-30 age group above 50 age group. Highest %age of respondents belongs to the 31-50 years of age group (Table 3).

Table 3: Age of the respondents

Age (in years)	No. of respondents	% age
18-20	0	0
21-30	24	20
31-50	74	61.67
Above 50	22	18.33
Total	120	100

Source: primary probe, 2020

3.4. Marital status of the respondents

Maximum no. of the respondents were married and only 10% of the respondents are unmarried (Table 4).



Table 4: Marital status of the respondents

Marital status	No. of respondents	% age
Married	108	90
Unmarried	12	10
Total	120	100

Source: primary probe, 2020

3.5. Educational qualification of respondents

Majority of the respondents had studied up to matriculation followed by higher secondary and graduation. The 38.33% respondents of matric level are higher among the group while 20% of the respondents were up to primary level only (Table 5).

Table 5: Educational qualification of respondents

Education level	No. of respondents	% age
Matriculation	46	38.33
Higher secondary	34	28.33
Graduation	16	13.34
Post graduation	0	0
others	24	20
Total	120	100

Source: primary probe, 2020

3.6. Income of the respondents

It shows from the tabular representation that The income of the respondent in the sepahijala district are based on the number of trees owned by the family. 41.67% of the respondents earns in between INR 20,000-50,000 month⁻¹ and 10.83% of the respondents were earning above INR 55,000 month⁻¹ or more than that (Table 6).

Table 6: Income of the respondents

Income (INR Month ⁻¹)	No. of respondents	Frequency (%)
Less than 20,000	34	28.33
20000-35000	50	41.67
35000-55000	23	19.17
Above 55000	13	10.83
Total	120	100

Source: primary probe, 2020

3.7. Distribution of land holding among the respondents

Most of the respondents were small scale farmers who were holding land in between 1-4 ha followed by marginal farmers (less than 1 ha), medium scale farmers (5-10 ha) and large scale farmers (above 10 ha). And only 2.5% of the respondents were large scale farmers amongst the respondents who hold land in above 10 ha (Table 7).

Table 7: Distribution of land holding among the respondents

Land holdings (Ha)	No. of respondents	% age
<1	42	35
1-4	68	56.67
5-10	7	5.83
Above 10	3	2.5
Total	120	100

Source: primary probe, 2020

3.8. Respondents opinions about rubber farming in Sepahijala district, Tripura

It was observed that largely losses were being held with the attack of pest and diseases takes place in their field or farm followed by the increase in cost of labour, production and marketing problems, export of the final product, lesser marketable facilities and storage. The respondents were highly inclined to understand and avail the agri-clinical services in their respective farming business for the ultimate growth of their rubber farming. Thus the agri-clinical services improvise the management system of the rubber crop (Table 8).

3.9. Farmers responses towards the significances of Agri-clinical services in providing training for the management of rubber plantation

Respondents attained training facility for the rubber farming which is provided in the block levels within the sepahijala district. Majority of the respondents attended the training while the others respondents were not aware about the training (Table 9).

3.9.1. Clinical services availability within the locality

Availability of the agri clinical services were barely available within the locality. Among the respondents, only the 16.67 % can avail the agri clinical services facility. Majority of the respondents was unable to find the inputs that were needed for the rubber farming (Table 10).

3.10. Type of rubber processing done by the respondents

Respondents usually sell the raw material in Ribbed smoked sheets (RSS) form by 85% of the respondents who seems to had higher margins than the latex creamy white. It was observed that only 15% of the respondents prefer to sell the product in latex creamy white (Table 11).

3.11. Respondent's opinion about consultation with the clinical services

Respondents require more consultation from agri-clinical services while some of the respondents don't want consultation from others and one-third of the respondents were neutral in the consultation process (Table 12).

3.12. Challenges faced during the production of natural rubber

It was observed that largely losses occurred due to the uncertainty of the environment followed by crop diseases,

Table 8: Respondents opinions about rubber farming in Sepahijala district, Tripura

Farmers Opinions	Weightage					*TWS	RANK
	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)		
There is an increase in the cost of labour	36	42	42	0	0	474	II
Storage facilities are major challenges that are faced by rubber farmers	0	42	48	20	10	362	VI
Attack of pest and disease, outbreak of fire and wind hazards affecting productions	68	42	8	2	0	#536	##I
Adequate market for primary rubber production	2	18	92	4	4	370	V
Obtaining information about export markets of rubber products is difficult	34	46	28	8	4	458	IV
You work collectively with other farmers to solve farming problems (production and marketing problems)	34	44	38	2	2	466	III

Source: primary probe, 2020; *TWS: Total Weightage Score Method; #536: $68*5+42*4+8*3+2*2+0*1$; ##I: resulted on account of TWS score descendingly

Table 9: Farmers responses towards the significances of Agri-clinical services in providing training for the management of rubber plantation

Inclination	No. of respondents	% age
Yes	76	63.33
No	44	36.67
Total	120	100

Source: primary probe, 2020

Table 10: Clinical services availability within the locality

Status	No. of respondents	% age
Yes	20	16.67
No	100	83.33
Total	120	100

Source: primary probe, 2020

Table 11: Type of rubber processing done by the respondents

Processed form	No. of respondents	%age
Ribbed Smoked Sheets	102	85
Latex Creamy White	18	15
Total	120	100

Source: primary probe, 2020

pest attack and others. The respondents were much worried about the destruction of the plants prevalently with different problems which occur seasonally (Table 13).

3.13. Respondents view on requiring the solutions from clinical services

Most of the respondents wants agri clinical services for their

Table 12: Respondent's opinion about consultation with the clinical services

Inclination	No. of respondents	%age
Yes	86	71.67
No	34	28.33
Total	120	100

Source: primary probe, 2020

Table 13: Challenges faced during the production of natural rubber

Issues	No. of respondents	%age
Crop diseases	40	33.33
Pest Attack	8	6.67
Uncertainty	66	55
Others	6	5
Total	120	100

Source: primary probe, 2020

rubber farming and majority of the respondents said yes for solving the problems by 91.67% (Table 14).

Table 14: Respondents view on requiring the solutions from clinical services

Inclination	No. of respondents	%age
Yes	110	91.67
No	10	8.33
Total	120	100

Source: primary probe, 2020



3.14. Awareness Level towards Agri- clinical services

The awareness level features of agri-clinics upon certain statements by the respondents in the form of Total Weightage Score (TWS) and rankings. It was observed that higher awareness among the respondents places the first rank with highest to plant health and protection remedies i.e., 290 followed by pest management, field survey, crop consultancy, spray scheduling and others. The respondents were less aware about the diagnostic search of the crop where the TWS is 142 and ranking is last in the criteria (Table 15).

Table 15: Awareness Level towards Agri-clinical services

Clinical services	Awareness Level			*TWS	Rank
	High (3)	Moderate (2)	Low (1)		
Field survey	28	84	08	260	III
Soil testing	2	32	86	156	IX
Diagnostic search	4	14	102	142	X
Pest management	54	50	16	278	II
Spray scheduling	8	76	36	212	V
Harvest standard-ization	4	78	38	206	VI
Nutrient verification	14	18	88	166	VIII
Plant health and Protection remedies	66	38	16	#290	##I
Crop consultancy	24	80	16	248	IV
Other institutional services	16	40	64	192	VII

Source: primary probe, 2020; *: TWS: Total Weightage Score Method; #290: $66*3+38*2+16*1$; ## I: resulted on account of TWS score descendingly

3.15. Perception level towards agri-clinical Services

It was observed that the perception regarding clinical services helps in inducing plant knowledge and plant protection solutions i.e., 296 amongst the respondents who places it on 1st rank followed by increases productivity, facilitates scientific knowledge, inculcate farm planning and crop management, extend the life of plant and crop and others. The farmers were less benefitted with alternative by-products of the rubber crop that is why the respondents answer the other crop benefits with lowest rank and TWS i.e., 160 (Table 16).

3.16. Significance level towards the application of agri-clinical services

The issues during the clinical services of the rubber crop were the limited number of clinical services in the locality or within the particular area, most of the respondent's given 1st rank to limited number of clinical services provider with TWS i.e., 310 followed by low promotion and awareness, high cost, low scientific know how among farmers, No set standard quality of services and others. The other crop related issues with lowest rank and TWS i.e., 220 which showed that the farmers were having fewer grievances towards other crop related issues of the crop (Table 17).

3.17. Suggestive opinions to improve the agri-clinical services

It was observed that the farmers highly recommend the government subsidies for the rubber cultivation, most of the respondent's places the 1st rank with highest TWS i.e. 334 to government subsidies followed by efforts to increase farmers participation, may provided through Agriculture Extension agencies, redressal mechanism over complaints against service providers, intensive promotion and farmers knowledge to be enriched, affordable clinical services and clinical services should be designed as per the farmers' need. The clinical services should be designed as per the farmers had given the lowest rank and TWS with 264 (Table 18).

Table 16: Perception level towards agri-clinical services

Clinical services	Perception Level			*TWS	Rank
	High (3)	Moderate (2)	Low (1)		
Helps in managing crop cost	8	86	26	222	VI
Facilitates Scientific knowledge	46	62	12	274	III
Extends the life of plant and crop	6	96	18	228	V
Increases productivity	70	32	18	292	II
Decreaseswastivity	4	66	50	194	VII
Inculcate farm planning and crop management	18	78	24	234	IV
Induces plant knowledge and Plant protection solutions	62	52	6	#296	##I
Other crop benefits	6	28	86	160	VIII

Source: primary probe, 2020; * TWS: Total Weightage Score Method; #296: $62*3+52*2+6*1$; ## I: resulted on account of TWS score descendingly

Table 17: Significance level towards the application of agri-clinical services

Clinical services	Significance level			*TWS	Rank
	High (3)	Moderate (2)	Low (1)		
High Cost	48	72	0	288	III
Low credibility	30	74	16	254	VII
No set standard quality of services	58	38	24	274	V
unavailability as per the need	26	72	22	244	VIII
Low promotion and Awareness	60	50	10	290	II
Limited number of clinical service providers	86	18	16	#310	##I
Less Farmers participation	26	84	10	256	VI
Low scientific know how among farmers	52	54	14	278	IV
Other crop related issues	16	68	36	220	IX

Source: primary probe, 2020; * TWS: Total Weightage Score Method; #310: $86*3+18*2+16*1$; ## I: resulted on account of TWS score descendingly

Table 18: Suggestive opinions to improve the agri-clinical services

Clinical services	Recommendation Level			*TWS	Rank
	High (3)	Moderate (2)	Low (1)		
Government subsidies	98	18	4	#334	##I
May provided through Agriculture Extension Agencies	68	44	8	300	III
Intensive promotion and Farmers knowledge to be enriched	56	64	0	296	V
Clinical services should be designed as per the farmers' need	32	80	8	264	VII
Redressal mechanism over complaints against service providers	64	50	6	298	IV
Affordable clinical services	40	66	14	266	VI
Efforts to increase Farmers participation	74	46	0	314	II

Source: primary probe, 2020; * TWS: Total Weightage Score Method; #334: $98*3+18*2+4*1$; ## I: resulted on account of TWS score descendingly

4. Conclusion

In rubber farming systems, significant variables should get more emphasis and care through formulating different development strategies and programmes for the rubber farmers. The awareness programmes should be conducted more frequently for better understanding of modern farm practices and to redress farming problems and related grievances. Farmers suggested that clinical services should be more often available to the farmers. The farmers should visit more clinical services with their causes and learn redressed mechanism. Use of clinical services may increase resource use efficiency and productivity and reduction in losses.

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