

*Full Length Research Paper*

# Assessment of training needs of rubber farmers in the South-west region of Cameroon

Owona Ndongo Pierre-André<sup>1\*</sup>, Nyaka Ngobisa Aurelie<sup>1</sup>, Ehabé Eugene Ejolle<sup>1</sup>,  
Chambon-Poveda Bénédicte<sup>2</sup> and Bruneau Jean-Claude<sup>3</sup>

<sup>1</sup>Latex Plants Programme, IRAD-Ekona, P. M. B. 25, Buea, Cameroon.

<sup>2</sup>Cirad-Persyst, TAB 34/02, Avenue d'Agropolis, 34398 Montpellier Cedex 5- France.

<sup>3</sup>11 Allée Jean Giraudoux, 33600 Pessac, France.

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**Agricultural policy changes in Cameroon had weakened technical and managerial capacities in rubber smallholdings. This study assessed the training needs of rubber farmers in the South-West region of Cameroon. A structured questionnaire was administered to fifty respondents in Bombe-Bakundu and Mundame, two representative rubber-producing localities. The findings of the study revealed that the majority of rubber farmers had high training needs on production of planting materials (100%), tapping techniques (100%), accurate preparation of stimulant and its application (88%) and improved agricultural techniques (82%). The results showed a negative but significant relationship between the age, the level of education and socio-economic status with training needs expressed by the farmers. Relational analysis also revealed that membership to a rubber farmers' organization was found positive and significantly correlated with training needs.**

**Key words:** Assessment, training needs, Cameroon, rubber farming.

## INTRODUCTION

Rubber occupies an important place amongst the commercial crops in Cameroon. Rubber smallholders are mostly peasants, who carry their farming with crude implements like cutlass, hatchet, and pickaxe. In the context of Cameroon, the capacity for surface extension of rubber agro-industries is very limited (Fèvre, 2002) due to land scarcity. Smallholdings are the best opportunity to increase the country's rubber production. Cameroon tried from 1980s to include smallholders in "nucleus estates" giving technical help and other services to surrounding farmers, these had limited impact since managers tried to

maximize benefits to core operations. It is interesting, indeed, that nucleus estates were employed in Indonesia on the development of rubber smallholdings in Cameroon. The technical assistance provided to farmers with similar disappointing outcomes (Barlow, 1996).

The economic crisis of the 1990s had a severe impact by rubber agro-industries stopped. The National Fund for Rural Development (FONADER) that provided financial assistance to farmers for the establishment of small scale colonial rubber farms also ceased. This had resulted in deficiencies in some technical and managerial skills of rubber smallholders because they were unable to access production information routinely. Chambon and Eschbach (2009) reported that there was a big gap in the productivity between the estate (1500 kg/ha) and the smallholder sector (900 kg/ha) in Cameroon. One of the main reasons of the low level of productivity of rubber in

\*Corresponding author. E-mail: [pierre.andre.owona@gmail.com](mailto:pierre.andre.owona@gmail.com). Tel: +237 99 65 36 49 / +237 74 70 89 89. Fax: +237 33 32 24 91.

smallholdings of the South-West region is the fact that farmers lack the skill and knowledge on improved agricultural practices for rubber production. In order to achieve optimum production level of rubber, smallholders require appropriate training. There is also a wide gap between modern or improved agricultural practices and the local ones. Hence the existence of training needs as a gap to be filled (Farinde and Ajayi, 2005).

Proctor and Thornton (1961) defined training needs as skill, knowledge and attitude an individual requires in order to overcome problems as well as to avoid creating problem situation. From the definition above, it is clear that training is an essential resource, which will direct knowledge and skill towards production (Adesoji et al., 2006). Identifying training needs often remains the responsibility of outside training operators. It is therefore characterised by their analysis of the situation (often external) and by the objectives that they are pursuing (often sectorial, almost always determined by their institutional requirements). Thus it is decided from the outside, what is good for the farmers, what is necessary, and later, the farmers' lack of enthusiasm to follow the sessions organised for them is deplored (Mercoiret and Mercoiret, 2003).

To our knowledge, no study has investigated the relation between socio-economic characteristics of rubber farmers and their training needs in Cameroon. However, this is a pilot study to identify training and extension needs of rubber smallholders in the south-west region.

Looking for the needs of farmers for rubber production, the present study was carried out with the following objectives:

1. To identify the training needs of rubber farmers for planning the future agricultural extension programmes to foster the rubber production in Cameroon;
2. To examine the socio-economic characteristics of rubber farmers in the South-West region and relationship with their training needs.

## METHODOLOGY

The present study was conducted in the South-West region. Two representative rubber-producing localities (Bombe-Bakundu in the Muyuka sub-division and Mundame in Meme division) were purposely selected because of their accessibility and the presence of rubber farmers' organizations. Despite the multiplicity of methods to identify farmers' needs, the methodology adopted in the majority of previous studies depended on farmers themselves as they considered that only these farmers could adequately assess their needs (Al-Shadiadeh, 2007).

The survey was conducted over a period of three months, from June to August 2009. A systematic sampling technique was applied in the selection of farmers from the data base of the Latex Plants Programme of the Institute of Agricultural Research for Development (IRAD), Cameroon. Field survey was conducted using a survey research design. Data were collected through a questionnaire design technique (semi-structured interviews). A total of fifty farmers were interviewed. The results were analyzed using

frequency distribution, percentage distribution, score range, rank order, mean and standard deviation. The relationship between training needs and some socio-economic characteristics of rubber farmers were established with the use of Standard Least Square model of JMP® Version 5.

## RESULTS AND DISCUSSION

### Socio-economic characteristics

Data in Table 1 show that the majority (90%) of respondents were male while only 10% were female. This high representation of men in rubber farming and in our sample is justified by the local traditional land tenure system. According to the traditional land tenure system of this area, women do not inherit land; they have access to land property and rubber farms through their deceased husbands.

The age distribution of respondents ranged from 27 to 74 years. The mean age of rubber farmers was 43 years with a standard deviation of 11.41. A total of 32% of male respondents was more than 50 years. Those few aged farmers benefited from financial support of the government through the FONADER and of the technical assistance of the agro-industry for the establishment of their rubber farms.

Table 1 also show that 58% of respondents had up to primary school education level, 20% were at least secondary school level and only 12% had received no formal education. This concludes that most respondents were literate. Considering the monthly running costs involved in the harvesting of rubber (tappers' wages, purchase of chemicals and small equipment, transportation, etc.) and the monthly revenue received from the sales of the rubber coagula (50% dry rubber content), some computerisations were conducted and used for the assessment of the farmers' socio-economic status. In this wise, monthly production levels were put in three classes: low (< 200 kg/month), medium (200 - 400 kg/month) and high (> 400 kg/month) (Owona et al., 2010). For the socio-economic status, the monthly rubber production and income were used (Table 1). About 36% of respondents belonged to medium socio-economic status, 34% to high socio-economic status and 30% to the low socio-economic status. This equal distribution of farmers to the different categories considered was due to the socio-professional origin (peasants, civil servants, company employees etc.) of rubber smallholders of the area of study.

The study shows that the majority (82%) of farmers were members of local farmers' organizations while only 18% were non-members. Membership of an organization provides a valuable learning and collective bargaining opportunity for farmers (Sebadieta et al., 2007) such as: (i) access to a budwood garden, (ii) training on budding process and, (iii) production of planting materials. Most of respondents (66%) purchased their rubber farm land

**Table 1.** Personal and socio-economic characteristics of rubber farmers in the localities of Bombe-Bakundu and Mundame, South-West region of Cameroon.

Characteristics	Frequency	Percentage	Central tendency
<b>Sex</b>			
Male	45	90	
Female	5	10	
Total	50	100	
<b>Age</b>			
< 30	4	8	
30 to 39	19	38	X = 43.62
40 to 49	11	22	$\bar{\sigma}$ = 11.41
≥ 50	16	32	
Total	50	100	
<b>Level of formal education</b>			
No formal education	6	12	
Primary	29	58	
Secondary and above	15	30	
Total	50	100	
<b>Socio-economic status</b>			
Low (< 200 kg/month)	15	30	
Medium (200-400 kg/month)	18	36	
High (> 400 kg/month)	17	34	
Total	50	100	
<b>Organizational membership</b>			
Members	41	82	
Non-members	9	18	
Total	50	100	
<b>Source of farm land</b>			
Inherited	20	40	
Purchased	33	66	
Total	53	106	
<b>Farm size (ha)</b>			
< 3	33	66	X = 2.82
3 to 6	14	28	
6 to 9	1	2	$\bar{\sigma}$ = 2.39
9 to 12	1	2	
≥ 12	1	2	
Total	50	100	

against 40% of farmers who inherited theirs'. This high purchased land is due to the high rate of immigration observed in this area. About 66% of the respondents cultivated only less than 3 ha while about 28% cultivated from 3 to 6 ha. Only 6% of the respondents cultivated more than 6 ha. The average size of rubber farmland was 2.82 ha with a standard deviation of 2.39. This finding corroborated that of (Chambon, 2002; Michels, 2005).

#### Rubber farming information sources

Data in Table 2 show that 56% of respondents indicated that fellow farmers were their main source of information on rubber farming, while 20% obtained their information from the nearest rubber agro-industry. About 20% of respondents also obtained their information from researchers and only 4% of respondents got information

**Table 2.** Sources of Information about rubber farming.

Sources of information	Frequency	Percentage	Mean score	Rank
other farmers	28	56	2.24	I
Agro-industry	10	20	0.8	II
Extension services	2	4	0.16	III
Researchers	10	20	0.8	II

**Table 3.** Type of advice received by farmers from their sources of information.

Items	Frequency	Percentage
Availability of equipment	12	24
Availability of stimulant	12	24
Availability of planting materials	20	40
Rubber price	46	92
Stimulation methods	28	56
Production of planting materials	23	46
None	4	8

**Table 4.** Distribution of respondents according to the extend of their satisfaction toward their sources of information.

Category	Frequency	Percentage
Low	38	76
Average	12	24
Total	50	100

from extension agents. This low impact of extension services on rubber farming information channel was due of rubber in the extension programmes of the ministry of agriculture and rural development.

Table 3 indicates that 92% of respondents reported rubber price as the main information they received from their source. Stimulation methods (56%), production of planting materials (46%), availability of planting materials (40%) were also commonly advised. These advices, however, were not always used. Some respondents reported believing that it was too expensive to adopt most of these improved agricultural techniques. Hence, the results in Table 4 indicated a lower level of satisfaction with the type of advice and information received amongst the majority (76%) of respondents.

### Training needs

On the basis of data presented in Table 5, the totality of respondents had expressed their needs for training about production of planting materials (5.34) and tapping techniques (4.62). The majority of respondents had expressed their training needs about improved agricultural techniques (3.00), budding process (2.90),

accurate preparation of stimulant and its application (2.34) and identification of diseases and chemical application for their control (1.26). Here it is necessary to recall that respondents had a lot of difficulties to rank their needs. Mercoiret and Mercoiret (2003) also reported similar findings. All the respondents reported believing that acquisition of knowledge through training could increase their rubber production. The production of planting materials was ranked first by respondents because of the high cost and scarcity of budded planting materials. Rubber smallholdings of the South-West region lack qualify tappers who master tapping techniques and accurate preparation of stimulant and its application. All the qualify tappers were employed by the nearest agro-industry. Hence, respondents required training about this subject matter. Respondents were not also able to identify the most frequent rubber diseases and they were not aware of the control measures.

### Relationship between socio-economic characteristics of respondents and their training needs

The regression results were obtained using maximum likelihood estimation and are given in Table 6. The model

**Table 5.** Training needs of rubber farmers in different subject matter areas.

Items	Frequency	Percentage	Mean value	Rank
Production of planting materials	50	100	5.34	I
Budding process	33	66	2.90	IV
Tapping techniques	50	100	4.62	II
Accurate preparation of stimulants and their application	44	88	2.34	V
identification of diseases and chemical application for their control	33	66	1.26	VI
Improved agricultural techniques	41	82	3.00	III

**Table 6.** Results of regression analysis showing relationships between investigated variables.

Variables	Parameter estimate	Standard error	t Ratio	Prob> t
Intercept	1.535	0.208	7.390	< 0.0001
Age	- 0.009*	0.003	- 2.680	0.010
Level of education	- 0.204*	0.073	- 2.780	0.008
Socio-economic status	- 0.365*	0.054	- 6.760	< 0.0001
Membership of a rubber farmers' organization	0.231*	0.108	2.150	0.038
Size of rubber farm land	0.001	0.017	0.060	0.956
Source of rubber farm land	- 0.095	0.084	- 1.140	0.263

\*significant variables at  $p < 0.05$ .

fits the data well ( $R^2 = 0.717$ ) and most variables are significant at the 5% level of significance. From the results as shown on Table 6, training needs of rubber farmers were significantly negatively correlated with age ( $\beta = -0.009$ ,  $p = 0.01$ ), level of education ( $\beta = -0.204$ ,  $p = 0.008$ ) and socio-economic status ( $\beta = -0.365$ ,  $p < 0.0001$ ). These implied that: (i) The older the rubber farmers, the less their training needs. This result supports the findings of Adesoji et al. (2006) and Ajayi (1995) which mentioned the resistance to change by aged farmers. This may also be because younger farmers are often better disposed to trying new innovations and have lower risk aversion and longer planning horizons (Akinwumi et al., 2000); (ii) The higher the level of education of farmers, the less their training needs. Less educated farmers were inquisitive and wanted to learn more about rubber farming while farmers with a high level of education seemed to be unenthusiastic; (iii) The higher the socio-economic status of the rubber farmers, the less their training needs. In general, rubber farmers of the South region with a high socio-economic status were not working in their farms; they were managers who employed hired labour for all their farm activities. This can justify the fact that they did not personally need training. While farmers with a low socio-economic status (low income) explained that the acquisition of additional knowledge on rubber farming may help them to improve their rubber production and the income generated. The source of rubber farm's land also tended to correlate negatively with training needs, but was not significant ( $\beta = -0.095$ ,  $p = 0.263$ ).

Table 6 also show that membership of a farmers' organization ( $\beta = 0.231$ ,  $p = 0.038$ ) had a positive significant impact on farmers' training needs. Farmers who belonged to a rubber farmers' organization were more aware of the constraints they were facing to improve their rubber production than non-members. This may be due to the fact that most extension programmes were intended for farmers' organisations instead of individual farmers. The size of rubber farm land had a positive but no significant impact on training needs ( $b = 0.001$ ,  $p = 0.956$ ). Large farms are generally owned by well-off farmers. Hence, it was expected that the sign of this indicator would be negative. Although not statistically significant at 5% level of significance, it was also expected that farm size would probably have a positive impact on training needs because big farms require more labour than small ones and farmers with large farms would desire to acquire knowledge in order to improve their production and be able to pay for the hired labours.

## Conclusion

It can be concluded from the findings of the study that both male and female farmers were involved in rubber farming. Most of the rubber farmers lacked information about their activity and this indicated a clear need of advice and training.

Highly demanded areas for training were production of planting materials, tapping techniques, improved agricultural techniques and accurate preparation of stimulants

and their application.

Variables such as farmers' age, their level of education, their socio-economic status and membership of rubber farmers' organization were found significant to explain their training and extension needs. These variables should be highly considered when planning and organizing trainings for rubber farmers in the South-West region of Cameroon for the training to be efficient.

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