

Awareness and adoption of recommended technologies and management practices by the Tea small holders

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Introduction

Tea (*Camellia sinensis*) is the world famous beverage next to the water and having numerous health and socio economic benefits. Tea, the prominent crop of the plantation sector in Sri Lanka, grows in many parts of the country (Mendis, 1992). Tea growers who have lands less than 10 acres in extent are treated as “Tea small holdings” according to the Tea Control act. The cultivation of tea is attractive to small farmers because tea provides work and income throughout the year, requires relatively little investment, and the risk of complete crop failure is small (Annual Report, Tea Small Holdings Development Authority, 2012). As well as the Contribution of small holders to the Sri Lankan tea sector is higher than the plantation sector and it accounts for 71.4 % of the national tea output (TSHDA, 2012). Therefore, application of scientific agricultural knowledge and technology adaptation in the small holding tea sector is a vital investment to enhance the productivity and overall performance of the tea industry.

Materials and methodology

Data were collected through a sample survey by giving a structured questionnaire to 8 tea inspector's (TI) ranges at Badulla administrative district and 150 small holders were randomly selected as the respondents. The questionnaire was mainly formulated to identify the awareness, level of adoption, and factors affecting to the level of adoption. The awareness was measured by percentage of aware respondents. The adoption level was measured by using “Adoption index” and “Confident interval method”. Adoption index was categorized into three levels as low adoption, medium adoption and high adoption. To identify the factors affecting to level of adoption, regression analysis was conducted and “Adoption on Technology and recommended practiced” has been taken as the dependent variable and data were collected for dependent variable under five categories as Machinery usage, Planting materials, Field practices, Recommended tests and Extension services. For the independent variables data were collected under nine categorical variables as Gender, Age level, Education Level, Source of Income, Experience with Tea land, Land ownership, Land extent, Time spending with tea land and Yield.

Data were analyzed using SPSS Software package and MS-Excel 2010 package. Descriptive statistics were done to analyze the independent variables and by using regression and correlation analysis factors affecting to the level of adoption was analyzed and their strength was measured.

Results and Discussion

According to the study only 26 % of respondents have the awareness regarding machinery usage in tea plucking and from them, 48.7 % belongs to year 40 – 50 age group. 79.3 % of the respondents have awareness regarding the improved varieties. According to the study 64.7 % of the respondents have an awareness regarding recommended tests like pH test, starch test which use at the field. Extension services have been accounted under two categories as consulting services and E-consulting services and according to the study 100 % of the respondents have an awareness on consulting services while 36 % of the respondents have awareness on E-consulting services. According to the

results of the study it shows that awareness on shade trees, pruning methods and soil conservation methods are respectively 95.3 %, 90.3 % and 93.3 %.

Level of adoption was calculated using Adoption index and confident interval method. Data were collected under five categories and finally overall adoption level for the recommended technology and management practices was calculated.

Table 1: Level of Adoption on Recommended Technologies and Management Practices

Statement	Adoption Level		
	Low Adoption	Medium Adoption	High Adoption
Machinery Usage	71.3 %	0	28.7 %
Improved Planting Materials	58.7 %	0	41.3 %
Field Practices	26.7 %	30 %	43.3 %
Recommended Tests	44.7 %	0.7 %	54.6 %
Extension Services	39.3 %	18 %	42.7 %
Overall Adoption on Recommended Technology and Management Practices	38 %	9 %	53 %

According to the Table 1, it clearly shows a lack of adoption on machinery usage in tea fields and usage of improved planting materials for the tea fields by small holders. But when we consider about the adoption level on field practices, recommended tests and extension services respectively 43.3 %, 54.6 % and 42.7 % are belong to high adoption level. After analyzing all factors 53 % of tea small holders in Badulla district show high adoption on recommended technologies and management practices while 38 % and 9 % respectively show low adoption and medium adoption.

Regression analysis was conducted to identifying the factors affect to the level of adaptation on recommended technologies and management practices. Mainly there were nine factors have been considered as independent variables. According to the results of the regression analysis Gender (0.000), Age level (0.009), Education level (0.043), Experience with Tea land (0.001) and Land extent (0.001) gave significant effect on level of adoption on recommended technologies and management practices under 0.05 significant level with the 67.9 % of R value.

After that to identify the relationship between level of adaptation and factors affected on level of adaptation, Correlations analysis was conducted.

Table 2: Results of the Correlation Analysis with Level of Adoption

Independent Variables	Correlation Co-efficient	Status of Correlation
Gender	-0.661	Strong Negative Relationship
Age	-0.251	Weak Negative Relationship
Education Level	0.304	Weak Positive Relationship
Experience	-0.313	Weak Negative Relationship
Land Extent	0.451	Weak Positive Relationship

Results of the Table 2 show that there is negative relationship of Gender, Age level and Experience with tea land while Education Level and Land extent show positive relationship. The negative relationship of gender is due to male is given “1” and female is given “2” at the analysis. The negative relationship of the age level shows that the youngers have more adopted on recommended technologies and management practices than elders. It may be elders are not willing to shift from their traditional methods. As well as when farmers older their experience is also high. There for the experience with the tea land also have given the negative relationship. Education level has given a positive relationship with the adoption. It may due to high educated people more likely to use new technology than others and they have more access to reach for technologies. Land extent also shows the positive relationship with the technology usage. It may due to people use technology for larger lands than small lands.

Conclusion

According to the research it is revealed that there is a good awareness on recommended technologies and management practices by the small holders. But there is a lack of awareness regarding usage of plucking machineries as 26 % and the usage of E – Consulting services (36%). When we consider about the adoption level of small holders, majority of small holders (53%) have high adoption level on recommended technologies. For the above adoption levels, Gender, Age level, Education level, Land extent and Experience is affected. Land extent and Education level positively affect while Gender, Age level and Experience affecting negatively.

References

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