

# A Preliminary Study on Factors Affecting the Production of Cashew (*Anacardium occidentale* L.) in Mullaitivu District, Sri Lanka

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**Abstract:** Cashew has the potential to deliver the sources of income for farmers, empower rural women in the processing sector, make employment opportunities and build foreign exchange through exports. This study was conducted to find out the factors affecting cashew production and to identify the major constraints present in cashew cultivation met by farmers in the Maritimpattu Divisional Secretariat Division in Mullaitivu District of Sri Lanka. It was examined the social characteristics, economic factors, and farming knowledge of cashew cultivation among farmers in the study area. Data were collected using a structured questionnaire administered to 60 respondents selected through a simple random sampling method. Descriptive statistics and multiple linear regressions were used for the data analysis. Results revealed that age and education level significantly ( $P < 0.05$ ) and negatively affected on production while, farming knowledge and participation of training significantly ( $P < 0.05$ ) and positively affect the cashew production and it was found that the mean income from cashew production per acre was LKR 121,848.00 per annum and the average yield of the sample of respondents was 312 kg/ha. Cashew cultivators were constrained by several limitations such as inadequate machineries, severe pest and disease attack, lack of marketing facilities, no reasonable price for fresh cashew apple, poor cashew processing technology and poor storage facilities. Farmers should be trained and educated well in terms of good agronomic practices, and processing technologies to increase the quality and productivity.

**Keywords:** Cashew production, Constraints and Mullaitivu district.

## 1. INTRODUCTION

Cashew (*Anacardium occidentale* L.) is an evergreen perennial plant belonging to the family Anacardiaceae which is a good source to earn foreign income and also create many employment opportunities mainly for rural communities. Cashew is the poor men's crop, but rich men's food (Thirumarpan, 2014). Cashew has expected more importance due to its superior qualities and consumer preferences, which is accepted as the "World Tastiest Cashew" in the worldwide market. The key buyers of cashew are Middle-East countries, Canada, USA, Israel, and Japan who prefer Sri Lankan cashew as

its kernel is superior quality (Surendra, 1997). Cashew production is a better value for small holder farmers from developing countries. Despite the importance of cashew production in the international markets and the potential for enhancing rural expansion and reducing poverty (Dendena et al, 2014). Cashew cultivation is best in the dry zones because the climatic factors and soil conditions are favorable for obtaining good yield (Thusyanthini et al., 2018). However, cashew cultivation caught the eyes of agriculturist only after the independence, particularly after the establishment of the Sri Lanka Cashew Corporation in 1973.

The cashew nut consists of oil (47%), carbohydrates (22%), protein (21%), moisture (5.9%), vitamins (B-6, E) and minerals (Desai et al., 2010). Cashew Kernel provides more energy compared to animal food (147-272 kcal/100 g) and fish (234kcal/100 g) (Mathew and Shobana, 2013). At present, cashew is becoming an important cash crop for farmers in Sri Lanka where there is prodigious potential for increased production for the local and export market and which creates more employment prospects for a higher number of farmers and promoting small to medium scale processors especially in rural areas (FAO, 1992). The tree produces a nutritious kernel that may be eaten raw, roasted, or as processed confectionery (O'Farrell, 2010).

Sri Lanka is primarily an agricultural country where this sector plays a major role in the country's economy, nearly 23% of the GNP earning around 19% of foreign exchange (Surendra, 1998). There is a big demand for Sri Lankan cashew in the global markets, although it has not been able to meet the demand and Sri Lanka has only about 10-15 traders today (SLCC annual report, 2010). More than thirty countries in the world are involved in producing nearly 3.1 million tons of cashew nuts per annum and the contribution of Sri Lanka is about 12,000tons (Cramer, 1999).

The national average yield of cashew in Sri Lanka at present is 341.4kg/ha of nuts, while the potential yield is more than 640kg/ha (FAO, 2008). However, total cashew nut production has failed to reach the market requirements due to several constraints. Therefore, it is an important to find out the factors that affect the production of cashew. During this study, special attention was considered to analyze the factors that affect the cashew production and

to identify the major constraints met by cashew growers in Mullaitivu district, Sri Lanka.

## 2. METHODOLOGY

### 2.1 Study area

This research was conducted in Maritimpattu D.S division in Mullaitivu district, Northern Province of Sri Lanka located at 9.16°N latitude 80°47' E longitude and the elevation is 36.5 m above sea level. Land area of Mullaitivu District is 2,617 km<sup>2</sup> and mean temperature, annual rainfall and relative humidity were 27.8 °C, 1473mm and 69%, respectively.

### 2.2 Sample size and sampling method

The simple random sampling technique was used to select 60 cashew growers from Maritimpattu D.S division, Mullaitivu district, Sri Lanka.

### 2.3 Information from farmers

Dependent and independent variables were measured in this study. The dependent variable of this study was the production while, the independent variables were identified as the factors affecting the production, such as age, gender, education level, farming experience, land extent, farming knowledge, extension services and training and capacity.

### 2.4 Data analysis

The data collection was done using pretested questionnaire and informal discussions with respondents. Collected data were statistically analysed in the multiple linear regression model using Statistical Package for Social Sciences (SPSS version: 20.0) software. P values less than 0.05 were considered the level of significance of the result.

## 3. RESULTS AND DISCUSSIONS

### 3.1 Socio economic background

The age level of the selected respondents ranged from 24 to 76 years and the highest percentage belongs to the category of 31-50 years (51.7%). Considering the gender of the 60 respondents in cashew farming, 38 were male and 22 were female which shows that involvement of male was more than female in cashew farming while, 63.3% of the cashew growers were educated up to the ordinary level followed by 10% up to advanced level. As the farming experience was one of the most important socioeconomic variables, around 55% of the farmers in the studied it showed 20- 30 years of experience in cashew farming while, 40 % were with at least 10 years of experience and 5 % of the farmers were having experience of more than 35 years. The land extends under cashew cultivation ranges from 0.5 hectares to 15hectares. Fifty eight percent of the growers had less than 2 hectares and 2 % of them had more than 10 hectares. Moreover, levels of knowledge were categorized into three: high, medium and low. According to that, the overall majority of the respondents (58%) had a poor knowledge on a recommended agricultural practices, while only 4% of the growers had good knowledge on overall agricultural practices. The majority of them who approached information from the SLCC. Most of the growers received extension services

through personal/ home visits by an extension officers of SLCC. In addition, group meetings and field visits also were organized by SLCC for them where, minority of growers (27%) were not received extension services. Training is one of the factors which determine the knowledge, skill, and attitudes of the growers. The majority of the growers had trained, while 33% of them were not trained with respect to cashew cultivation and processing.

Only five percent of the growers were engaged in cashew farming while, 80% of them were engaged in other agricultural farming such as paddy and other field crops. Further, 3.3 % of the farmers were engaged in government jobs and 11.7 % of the growers were engaged in other occupations like own business and labouring. According to the results most of the cashew growers did not mainly occupy with cashew farming.

With respect to the yield performance, which varied from 80 kg to 320kg per hectare. About 13% of the growers produced less than 100kg per hectare yield. And 30% of them had produced from 100kg to 200kg per hectare. The half of the cashew growers 'productivity was about 200kg to 300kg followed by 7% of the farmers had more than 300kg.

**Table 1: Multiple linear regression analysis of factors which affect cashew production**

Factors/Variables	B value	Significant level
Age	-.935	*
Gender	-39.621	Ns
Education level	-2.581	*
Farming experience	.789	Ns
Cashew land extent	1.671	Ns
Farming knowledge	5.165	*
Extension services	-2.487	Ns
Training and capacity	12.852	*

Ns-Non significant \* -Significant (P<0.05)

Out of the eight factors, only four factors significantly (P< 0.05) affect the cashew production in multiple linear regression analysis. Table 1 shows that the age of the farmers significantly and negatively influences the cashew production because the old growers had old plants and they did not know the recommended practices on cashew farming while, age of the growers can have a profound effect on technology adoption (Shivani, 2000). Resultant, they were getting a least productivity from their cashew land.

The education level of the growers also significantly and negatively influences the cashew production (Table 1). The reasons were educated growers migrated to another area to find the technological related job. Therefore, they did not encourage with not only cashew cultivation but also agriculture. Moreover, General education is thought to create a favorable mental attitude for the acceptance of

new practices, especially of information intensive and management intensive practices (Caswell, 2001).

Knowledge in cashew farming significantly and positively influences the cashew production (Table 1). Because, growers who followed recommended practices. As a result, they got the maximum productivity from their land area. Damianos and Skuras (1996) discovered that farmers with a strong belief in their own knowledge, which had been gathered through the continuous day to day learning, were more reluctant to adopt innovations. However, the growers who had proper knowledge they had obtained the higher yield.

Participating in training programs significantly and positively influences the cashew production (Table 1). Training motivates farmers to adopt new technologies and there was a significant positive relationship between participation in the training programs and the adoption of innovative agricultural production practices (Karki, 2011).

### 3.2 Constraints in cashew cultivation

Growers were facing various problems with response to production, marketing and processing of cashew fruits in the study area. Most of the respondents were constrained by an inadequate machineries for harvesting and post harvesting technology like processing of cashew nuts and other by products, On the other hand, zero-market availability for cashew apple and poor storage facility. Additionally, harvested raw cashew nuts sell to vender as low price than processed cashew nut due to poor processing of cashew nut because of, high cost of machinery for processing. Thirumarpan (2014) stated that inadequate capital is one of the major constraints to lack of processing of cashew nut. Moreover, growers were not well adapted to pest and disease management, which increased the unsuccessful cultivation and they were not aware to apply chemical pesticides due to higher expensive method. Prevalence of Powdery Mildew Disease (PMD), is a major cashew production constraint (Uwagboe et al., 2006). Further, almost all the growers faced that the cashew apple was wasted during the harvesting season because of unavailability of the market. Azam-Ali and judge (2001) also reported that the cashew apple production is wasted, since the producer only has confirmed the market for cashew nuts. In addition, more than half of the growers had faced the difficulties in storing the cashew nut in the proper way and the lots of raw cashew nuts wasted in rainy season due to poor storage facility. Uwagboe et al., 2006 also stated cashew growers did not store the cashew due to lack of storage facilities therefore, they sell as fresh.

### 4. CONCLUSION

Cashew is one of the cash crops which contribution in GDP is 0.03%. National yield at present stagnated at as low as potential level, therefore this study focused on major factors responsible for poor production and productivity. The major findings were, significant factors associated with cashew production and major constraints faced by the growers. The result revealed that age and

education level of the growers significantly and negatively influence on production while, knowledge of cashew farming and participation in training programs significantly and positively influence the production of cashew. Meanwhile, inadequate machineries, severe pest and disease attack, lack of marketing facilities, no reasonable price for fresh cashew apple, poor cashew processing technology and poor storage facilities were identified as the major constraints faced by the cashew growers in Mullaitivu district of Sri Lanka.

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