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ASSESSING THE SOCIO ECONOMIC STATUS OF BETEL (*Piper betel* L.) CULTIVATION IN BATTICALOA DISTRICT OF SRI LANKA: CASE STUDY FROM KALUTHAWALAI VILLAGE

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Abstract. The Betel is the deep green heart shaped leaves of betel vine (*Piper betel*), which is a vital commercial and most profitable crop in Sri Lanka and widely grown in Batticaloa district for local consumption and export market. Present paper attempts to assess the socio economic status of betel farmers in Batticaloa district. Therefore, Kaluthawalai village was selected, since it shows higher productivity in betel cultivation in Batticaloa district. Data were collected during 2017/2018 by using pre tested structured questionnaires. The present study reveals that majority of betel famers (37.5 %) belonged age category of 51-60, 60% of betel farmers were educated up to primary level and 60.5% of betel farmers were mainly depended on both betel and vegetable cultivation. Majority of farmers (55%) had more than 15 years of experience in betel cultivation. Most of the respondents harvest the betel at harvesting interval of 15 to 22 days (82.5%) and 67.5% of the betel farmers sell their betel through the market. 97.5% of farmers are cultivated the betel for market purpose and 92.5% of famers are using skilled labors for harvesting time. Further, negative correlation was observed between education level and income sources.

1.   Introduction

Betel (*Piper betel* L.) is a member of family Piperaceae and seven hundred species of plants belonging to the genus *Piper*. Of these about eighteen species have been reported in Sri Lanka and three of them are endemic (Nair & Chanda, 2008). It is a perennial dioecious climber and has deep green heart shape leaves. It has grown as a cash crop due its enormous market value around the world due to medicinal, religious and ceremonial values. Betel leaves have been traditionally used for chewing purposes along with other condiments. Leaf useful for the treatment of various diseases like bad breath, boils and abscesses, conjunctivitis, constipation, headache, hysteria, itches, mastitis, mastoiditis, leucorrhoea, ringworm, swelling of gum, rheumatism, abrasion, cuts and injuries as folk medicine (Suryanarayana *et al*., 2014). According to Chandra and Saga (2004), betel is an important commercial and most profitable crop in India, Sri Lanka and Bangladesh. Betel is grown in Sri Lanka for local consumption and export market. Pakistan is the major market for Sri Lankan betel (Sivashankary & Thivahary, 2014). Betel cultivation has gained the popularity not only for market demand, but also its playing significant role to uplifting the socio economic status of rural people (Jatindra, 2017).

Betel is widely cultivated in Batticaloa district, around Kaluthawalai, Kaluwanchikudy and Thettativu areas. Sivashankary and Thivahary (2014) reported that the betel leaves from theses area is having preferable quality andtherefore it has steady demand in local market as well as export markets in Bangladesh andPakistan. Among these three areas, betel production is comparably high in Kaluthawalai village. Therefore Kaluthawalai village has been selected to study the socio economic status of farmers. Objective of the study is to assess the socio economic status of betel farmers in Kaluthawalai village.

2.   Materials and methodology

The study was carried out in Kaluthawalai village which is located 27 km from Batticaloa town. Area was purposely selected since it shows higher productivity in betel cultivation in Batticaloa District. Data were collected during 2017/2018 by using pre tested structured questionnaires. The selections of samples are representation of the research population. 100 betel cultivation famers were selected by using simple random sampling method. With the help of questionnaires, data were collected and analyzed by using statistical soft wares, SPSS and Minitab.

3.   Results and discussion

Age
The mean age of the betel farmer was 47.95 with standard deviation of 12.44 (Table 1). Most of respondent in old age category (37.5%) is shown in Figure 1. This may due to the behavioral changes with farmers. Because young generation has several opportunities in occupation compare to old age famers. So they are switched to other occupation. Similar results were reported by Prasannath *et al*. (2017) in paddy cultivation at Alayadivembu Divisional Secretariat (DS) and Rodrigo (2007) in rubber cultivation noted that reason is lack of skill tappers.

Table 1. Descriptive statistic of betel farmer's age

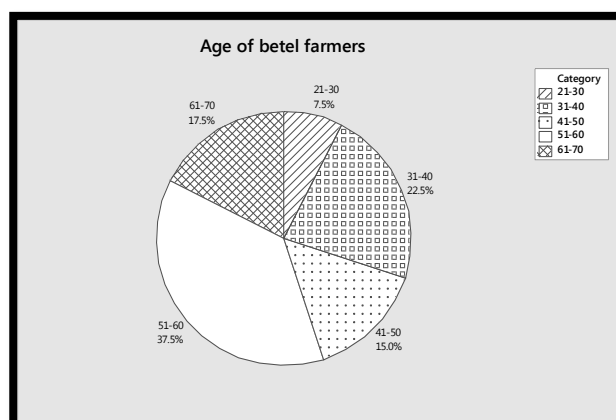| Variables	Mean	Standard deviation
Age	47.95	12.44

Figure 1. Betel farmer's age with percentage

Education Level

Educational levels of selected betel farmers were grouped as shown in Table 2. 60% of farmers were holding primary education level followed by illiteracy level (32.5%). Very few farmers were holding secondary education level (7.5%). This may happen due to the different occupation opportunities in the society. Therefore people with secondary education prefer to do the white-collar jobs compare to the betel cultivation. Farmers with primary education may unable to perform other jobs than the betel cultivation.

Table 2. Educational levels of selected betel farmers

| Variables	Percentage (%)
Education Level	
Illiteracy	32.5
Primary	60.0
Secondary	7.5

Main occupation

Result clearly stated that 60.5% of farmers were mainly depended on both betel and vegetable cultivation while 17.5% of farmers were mainly depend only betel cultivation. Contradicted result was stated by Sivashankary and Thivahary (2014) that, majority (53.8%) of the respondents were depended mainly on betel cultivation. And they stated results might be due to the reason that although betel farmers obtain low income from betel cultivation, it was a sustainable income. Therefore they were depended mainly on betel cultivation. But with increasing cost of production and unpredicted climate change, farmers may prefer to the diversity of cropping may be the reason for higher percentage from betel with vegetable cultivation. Through that they can stabilize their income.

Table 3. Main occupation of selected famers

Main Occupation	Percentage
Betel	17.5
Betel+ others	20.0
Betel + vegetable	60.5

Farming experience of selected betel farmers

Most of farmers (55%) had more than 15 years of farming experience in betel cultivation whereas only 7.5% of the respondents were of up to 5 year of experience. Most of the betel farmers from Kaluthawalai village were followed betel cultivation generation to generation. This might be the reason for higher percentage of farmers having 15 years of experience. And some of the farmers stated the cultivation recently due to the demand of that area betel in the market.
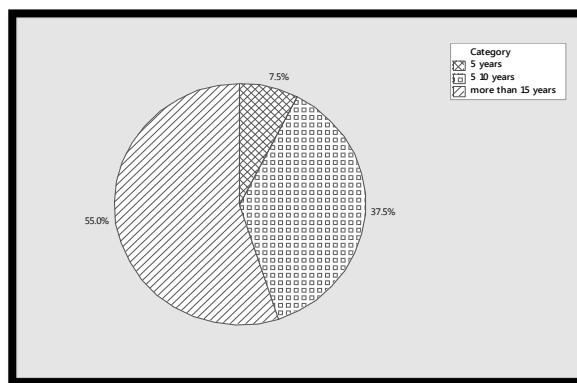
Figure 2. Farming experiences of selected betel farmers

Input materials that are used by farmers

The betel vines are propagated through terminal stem cutting. Betel plant is creeper. Therefore it requires compatible tree or stick for the support. In addition to that, betel vein needs constant moist soil therefore irrigation is essential (Suryanarayana *et al*., 2014). Sticks were used as a support and banana fiber was used to tie a betel vein with the sticks. Famers are using gliricidia or some other strong plant stems as a stick. In Assam, the betel farmers are using *Artocarpusheterophyllus*, *Dysoxylum* spp., *Ficusheterophyllus* and *Mangiferasylvatica* species for the support in order to conserve the moisture and provide the shade to betel vein (Nath *et al.,* 2016). All betel cultivation famers in Kaluthawalai village were using planting material which was taken from their field. During the interview, farmers said that, they were not faced the problem by pest and diseases. This may due to anti-bacterial and anti-fungal properties of betel vein leaves (Suryanarayana *et al*, 2014).

Betel harvesting frequency

Conferring with figure 03, majority of the betel farmers are harvesting the betel between 15 to 22 days (82.5%) whereas some of them are harvesting based on the demand (15%).Betel farmers in Karnataka are harvesting betel 30–45 day interval (Suryanarayana *et al*, 2014).
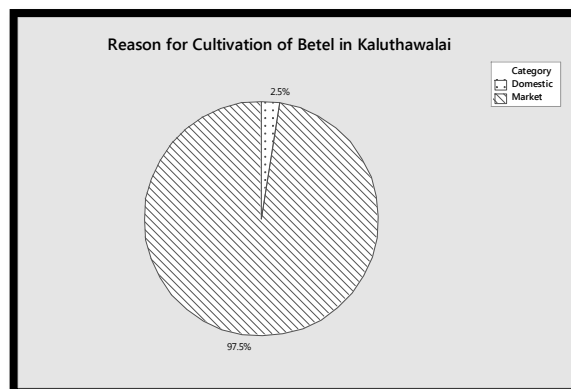
Figure 3. Betel Harvesting Frequency

Reason for betel cultivation

It is an evidence from figure 04 that, 97.5% of farmers are cultivated the betel for market purpose while 2.5% of farmers cultivate for domestic consumption. Market purpose increases due to farmers cultivate consumer preferred quality betel varieties and follow certain agronomic practices that are unknown to other betel cultivators in the country. The quality betel leaves have steady local markets and as well as export markets in Bangladesh and Pakistan (Eastern Provincial Council, 2013).
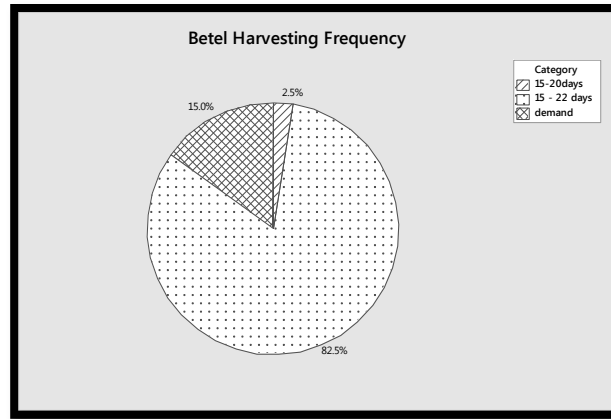
Figure 4. Reason for cultivation of betel in Kaluthawalai

Selling outlets

Majority of the betel farmers (67.5%) sell their betel through the market whereas, 32.5% of farmers sell through the auction (Figure 5). In 2014, Sivashankary and Thivahary concluded that, majority of the betel farmers have low and medium entrepreneurial behavior. But according to above data that proves farmers enhance their entrepreneurial behavior selling to market and auction. But still they can improve the activity by start to initiate the value added products from betel.
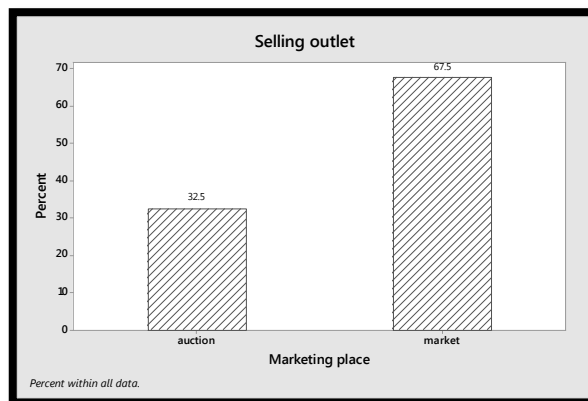

Figure 5. Selling outlets

Correlation analysis

Correlation analysis shows a negative correlation (R^2 = -0.228; P = 0.016) between education level and income sources. This may happen, because farmers with

primary education may have vast knowledge regarding the cultivation compare to the people who are having secondary education.

Harvesting operation

Figure 6 show the harvesting operation of betel vein. 92.5% of famers are using skilled labors for harvesting time whereas only 2.5% are using family members in order to reduce the labor cost. Picking is done manually. Similar results were stated by Nath *et al*. (2016) in Assam.
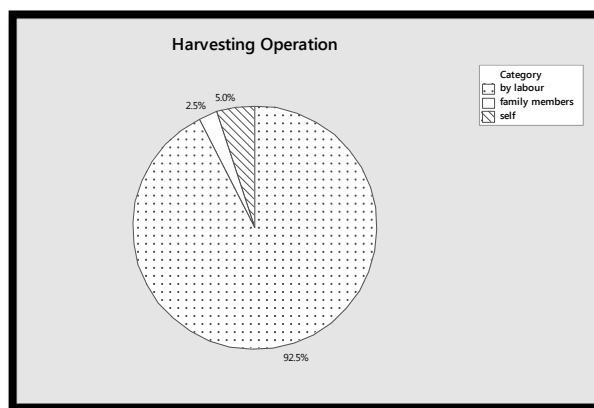
Figure 6. Harvesting Operation

4.   Conclusion

The present study reveals that 37.5 % of betel farmers in age category of 51-60 and 7.5% were holding secondary education level while 60% of betel farmers have primary education level followed by illiteracy level (32.5%). Further, result clearly stated that 60.5% of betel farmers were mainly depend their life in both betel and vegetable cultivation while 17.5% of farmers were mainly depend only betel cultivation. 55% betel farmers in this village have more than 15 years' experience. Betel farmers of 82.5 %harvested the betel between 15 to 22 days whereas 15% are harvesting based on the demand. Majority of the betel farmers sell their betel through the market while 32.5% of farmers sell through the auction. 97.5% of farmers are cultivated the betel for market purpose and 92.5% of famers are using skilled labors for harvesting time whereas only in Kaluthawalai village.

Acknowledgement

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