**Challenges and Solutions in Coffee Cultivation: a case study of Growers in Chikkamagaluru and Kodagu Districts, Karnataka**

**ABSTRACT**

Coffee plays a crucial role in various aspects of daily life and industry, ~~coffee plays a vital role in various aspects of daily life and industry,~~ offering nutritional and economic benefits to many countries. Consequently, ensuring its production becomes a prime consideration. The current study aims to know the important constraints faced and suggestions by coffee growers at Chikkamagaluru and Kodagu District of Karnataka. These study converse details on extent of adoption practices of coffee growers in above regions. Random sampling method was used to select 120 respondents. The primary data was collected from respondents using pre-tested interview schedule. For this purpose, an ex-post facto research design was employed. The study revealed that, several significant constraints encountered during the adoption of improved cultivation practices in coffee. These included Exploitation by middlemen (I), non-availability of labour (II), high cost of fertilizers and plant protection chemicals (III), fluctuation in market price (IV), problems of pest and diseases (V), indeterminate rainfall (VI), Lack of market information (VII) and High cost of transportation (VIII) were some of the problems faced by the Coffee growers respectively. In response, growers offered valuable suggestions, such as standardized price for the produce (I), eliminating middlemen (II), standardized weighing scales (III), providing access to market information (IV), frame cooperative for collective marketing (V) and the Coffee board should ~~spend time on~~ conduct more extensive market research (VI) were the suggestions given by Coffee growers respectively.The findings of this paper explains different challenges faced by the Coffee growers of Chikkamagaluru and Kodagu Districts, Karnataka. If these challenges were solved by the policy makers by making informed decisions to enhance the production and sustainability of coffee farming, then this will contribute to the nation's growth.

**Keywords**: Coffee growers, constraints, suggestions, profile characteristics, labor

**INTRODUCTION**

The importance of horticultural sector in Indian economy can be visualized from the fact that it accounts for 30 per cent of India’s agricultural GDP from only 8.5 per cent of the cropped area. The major horticultural crops exported from India are mango, grapes, orange, apple, banana, coffee, tea, arecanut, sweet lime, onion, potato, tomato and pumpkin. Coffee is the world’s second most traded commodity. Indian coffee is known to be “The world's best shade-grown 'mild’ coffees”. Coffee belongs to the genus Coffea of the family Rubiaceae (Anonymous, 2021 and Anonymous, 2023).There are over 70 commercially cultivated species under the genus Coffea, most of which are native to Africa including two species in India *viz.*, *Coffea arabica* and *Coffea canephora*. Coffee is cultivated as a silvi-horti cropping system under a tree cover for better yield (redefine).The development of any nation depends primarily on the role played by entrepreneurs. An entrepreneur organizes the economic ventures for producing goods and services at lower cost with setting up new business.Entrepreneurship is the capacity for innovation and caliber to introduce innovative techniques in business operations. Entrepreneurship behavior components include *viz.*, innovativeness, decision making ability and achievement motivation, knowledge of farming enterprise, risk orientation, information seeking behavior and ability to co-ordinate farm activities, economic motivation, leadership ability, scientific orientation and management orientation. Since coffee crop is one of the major horticultural exports crop the coffee growers are looking the coffee cultivation has an enterprise/industry and also for the reason that huge amount of finance, manpower, land, input is involved in coffee production (Kumar, A., & Sharma, R. 2018 and Murthy, et. al., 2012). Subsequently, there is an involvement of much entrepreneurial behavior in the production of the coffee. As coffee production involves more of energy, huge financial and human involvement there is an adoption of good and improved production practices by coffee growers to get good yield and income. Hence, in this process the coffee growers encounter many problems while managing the crop through entrepreneurship mode by adopting improved cultivation practices. Therefore the study is to document the problem being faced by the coffee growers and the suggestions given by the growers to overcome these problems along with their socio economic profile characteristics.

**METHODOLOGY**

The study was conducted in Kodagu and Chikkamagaluru district of Karnataka (period may be mentioned). These districts were selected purposively because it had large area under coffee. Considering maximum area under coffee cultivation as criteria, two taluks were selected from each district namely Virajpet and Ponnampet from Kodagu district and Chikkamagaluru and Mudigere taluks in Chikkamagaluru district were selected for conducting the study. Three villages having maximum area under coffee cultivation were selected from each taluk and from each village 10 farmers growing coffee were selected by simple random sampling procedure. Thus, sample from each taluk was 30 making a total sample size of 120 respondents. Personal interview method was followed to collect the information in the light of objectives of the study. A schedule was developed and pretested in non-sample area was considered for the study. For this purpose, an ex-post facto research design was employed. The data collected were coded, analyzed and tabulated by using statistical tools such as frequency, percentage, mean, standard deviation, ranking and chi-square test.

**RESULTS AND DISCUSSION**

1. **Distribution of the coffee growers according to socio-personal characteristics**

The results obtained from the study were performed on the socio-personal, economic and communicational characteristics of the Coffee growers such as age, education, family size, occupation, land holding, farming experience, annual income, extension participation, extension contact, credit orientation and market orientation.The data in Table 1 revealed that 61.67 per cent of selected Coffee growers are from the middle age group (36 years to 55 years), while 20.00 per cent and 18.33 per cent from the old age group (above 55 years) and young age group (up to 35 years) respectively. It indicates that the majority of Coffee growers belong to the middle age group. In case of education, the study revealed that 40.00 per cent of the respondents were educated up to high school. However, 0.83 per cent respondents were illiterate, 2.50 per cent were educated up to the primary school, 24.17 per cent were educated up to middle school, 19.16 per cent were educated up to PUC and remaining 13.34 per cent were educated up to graduate and none of them were postgraduate and above.The result from Table 1 could be indicated that more than half of the Coffee growers (52.50 %) were from medium-sized families, preceded by 39.16 per cent and 8.34 per cent of the respondents belonging to small and big families, respectively. The results are in line with the Dixit and Birthal, 2010, Ghadge, *et. al.,* 2010 and Rajendran, 2016.

**Table 1: Distribution of the coffee growersaccording to socio-personal****characteristics**

**(n=120)**

|  |  |  |
| --- | --- | --- |
| **Characteristics** | **Category** | **Respondents** |
| **Frequency** | **Percentage** |
| Age  | Young (up to 35 years) | 22 | 18.33 |
| Middle (36 years - 55 years) | 74 | 61.67 |
| Old (above 55 years) | 24 | 20.00 |
| Education  | Illiterate (Cannot read and write) | 1 | 0.83 |
| Primary school (I - IV Standard) | 3 | 2.50 |
| Middle School (V - VII Standard) | 29 | 24.17 |
| High School (VIII - X Standard) | 48 | 40.00 |
| PUC (XI-XII Standard) | 23 | 19.16 |
| Graduate (Degree) | 16 | 13.34 |
| Post-graduation (Master’s degree or above) | 0 | 0 |
| Family size | Small sized Family (up to 5 Members) | 47 | 39.16 |
| Medium sized Family (5 - 8 Members) | 63 | 52.50 |
| Big sized Family (above 8 Members) | 10 | 8.34 |

1. **Distribution of the coffee growers according to economic and communicational characteristics**

Table 2 shows that the majority (74.16%) of the respondents had agriculture as their main occupation and 17.50 per cent of the respondents engaged in agriculture along with subsidiary enterprises. Whereas, only 8.34per cent of them engaged in business along with agriculture and subsidiary enterprises.It indicated that majority (39.16 %) of the Coffee growers were medium size of land holdings. Whereas, 26.67per cent were having small size of land holdings, whereas 20.00 per cent of respondents were big size of land holdings and about 14.17per cent are of marginal size of land holdings, respectively. Annual income was recorded and the data indicated that the majority (46.66 %) of the respondents belonged to a medium level of annual income (9,33,000Rs - 20,68,000 Rs) while 27.50 per cent belonged high annual income group (>20,68,000 Rs) and only 25.84 per cent belonged to the low annual income group (<9,33,000 Rs)**.**Table 2 pertaining to the overall farming experience of Coffee growers showed that 39.16 per cent of the respondents had medium farming experience (18 years to 28 years). Whereas, 33.34 per cent of the respondents had high farming experience (above 28 years) and 27.50 per cent of them had low farming experience (less than 18 years).40 per cent of the respondents belonged to medium market orientation. Whereas, 36.66 per cent and 23.34 per cent of the respondents belonged to high and low market orientation.The finding indicates that the majority (44.16 %) of the respondents belonged to medium mass media exposure. Whereas, 35.84 per cent of the respondents belonged to high mass media exposure and 20.00 per cent of them belonged to low mass media exposure.It is apparent that nearly half (48.34 %) of the respondents had medium extension participation, followed by 29.16 per cent of the respondents had low extension participation and 22.50 per cent had high extension participation.It is clear that, majority (45.00 %) of the respondents belonged to medium extension contact. Whereas, 27.50 per cent of the respondents each belonged to low and high extension contact.Majority (47.50 %) of the respondents had high credit orientation, followed by 42.50 per cent of the respondents who had medium credit orientation and 10.00 per cent of them had low credit orientation. The results are in concordance with the Bharathkumar, 2010, Prajapathi, *et. al.,* 2002 and Bharambe and Khandelwal, 2014.

**Table 2: Distribution of the coffee growersaccording to economic and communicational characteristics (n=120)**

|  |  |  |
| --- | --- | --- |
|  **Particulars** | **Category** | **Respondents** |
| **Frequency** | **Percentage** |
| **Occupation** | Agriculture | 89 | 74.16 |
| Agriculture+ Subsidiary occupation | 21 | 17.50 |
| Agriculture+ Subsidiary occupation + Others | 10 | 8.34 |
| **Land holding (ha)** | Marginal size of land holding (< 2.00 ha) | 17 | 14.17 |
| Small size of land holding (2.00 – 4.00 ha) | 32 | 26.67 |
| Medium size of landholding (4.00-10.00 ha) | 47 | 39.16 |
| Big size of landholdings (>10.00 ha) | 24 | 20.00 |
| **Annual income** | Low (<9,33,000 Rs) | 31 | 25.84 |
| Medium (9,33,000 Rs-20,68,000 Rs) | 56 | 46.66 |
| High (>20,68,000 Rs) | 33 | 27.50 |
| **Farming experience** | Low (<17.91) | 33 | 27.50 |
| Medium (17.91-27.12) | 47 | 39.16 |
| High (>27.12) | 40 | 33.34 |
| **Market orientation** | Low(<6.55) | 28 | 23.34 |
| Medium(6.55-7.99) | 48 | 40.00 |
| High(>7.99) | 44 | 36.66 |
| **Mass media exposure**  | Low (<7.75) | 24 | 20.00 |
| Medium (7.75-9.36) | 53 | 44.16 |
| High (>9.36) | 43 | 35.84 |
| **Extension participation** | Low(<11.59) | 35 | 29.16 |
| Medium(11.59-13.32) | 58 | 48.34 |
| High(>13.32) | 27 | 22.50 |
| **Extension contact**  | Low(<4.46) | 33 | 27.50 |
| Medium(4.46-5.60) | 54 | 45.00 |
| High(>5.60) | 33 | 27.50 |
| **Credit orientation** | Low (<10.91) | 12 | 10.00 |
| Medium(10.91-11.72) | 51 | 42.50 |
| High(>11.72) | 57 | 47.50 |

Based on coffee growing area, growers are classified as small, medium and large growers

1. **Constraints faced by coffee growers**

The results from Table 3 revealed that problems faced by the Coffee growers in Coffee cultivation practices were ranked based on frequency of response of respondents were as follows. Exploitation by middlemen (I), non-availability of labour (II), high cost of fertilizers and plant protection chemicals (III), fluctuation in market price (IV), problems of pest and diseases (V), indeterminate rainfall (VI), Lack of market information (VII) and High cost of transportation (VIII) were some of the problems faced by the Coffee growers respectively and the similar trends was observed with Ashok & Rajesh, 2015 and Ravi, & Patil, 2019.

**Table 3: Constraints faced by coffee growers (n=120)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Constraints** | **Frequency** | **Percentage** | **Rank** |
| 1 | Non availability of labour | 97 | 80.83 | **II** |
| 2 | High cost of fertilizers and plant protection chemicals | 88 | 73.33 | **III** |
| 3 | Problem of pest and diseases | 84 | 70.00 | **V** |
| 4 | Indeterminate rainfall | 71 | 59.16 | **VI** |
| 5 | Exploitation by middlemen | 98 | 81.66 | **I** |
| 6 | Fluctuation in market price | 85 | 70.83 | **IV** |
| 7 | Lack of market information | 27 | 22.50 | **VII** |
| 8 | High cost of transportation | 21 | 17.50 | **VIII** |

1. **Suggestions by the coffee growers to overcome the problems**

The results from Table 4 show the suggestions given by Coffee growers in Coffee cultivation and suggestions were ranked based on frequency of responses from the respondents. The major suggestions were standardized price for the produce (I), eliminating middlemen (II), standardized weighing scales (III), providing access to market information (IV), frame cooperative for collective marketing (V) and the Coffee board should spend time on market research (VI) were the suggestions given by Coffee growers respectively and the similar trends was observed in Chandrashekar & Naik, 2016 and Sivakumar & Rajendran, 2017.

**Table 4: Suggestions by the coffee growers to overcome the problems (n=120)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Suggestions** | **Frequency** | **Percentage** | **Rank** |
| 1 | Standardized price for the produce | 101 | 84.16 | **I** |
| 2 | Frame cooperatives for collective marketing | 35 | 29.16 | **V** |
| 3 | Standardized weighing scales | 72 | 60.00 | **III** |
| 4 | Eliminate middlemen | 98 | 81.66 | **II** |
| 5 | Provide access to market information | 50 | 41.66 | **IV** |
| 6 | Coffee board should spend time on market research | 23 | 19.16 | **VI** |

**CONCLUSION**

In conclusion, this research sheds light on the significant constraints perceived by coffee growers in their pursuit of improved cultivation practices. The study's findings underscore the multifaceted challenges posed by factors such as the Non availability of labour, High cost of fertilizers and plant protection chemicals, Problem of pest and diseases, Indeterminate rainfall and few more. Clarify whether growers are applying fertilizers based on soil test based nutrient management or not. These constraints collectively hinder the whole adoption of improved practices and hinder the growth and sustainability of coffee farming. However, the study also showcases the valuable suggestions to address these challenges. The recommendations put forth by the coffee growers, including Standardized price for the produce, Frame cooperatives for collective marketing, Standardized weighing scales, eliminate middlemen etc., By accepting the constraints and implementation the suggested solutions, stakeholders can collectively work towards the advancement of both the coffee sector and the overall socio-economic landscape of the growers. In conclusion, this study contributes valuable insights that can guide the formulation of policies aimed at boostingcoffee cultivation which will pave the way for sustainable production.

**COMPETING INTERESTS**

Authors have declared that no competing interests exist

**REFERENCE**

Anonymous. (2021). Database on coffee 2021*.* Coffee Board, Government of India, Bengaluru, 2-64.

Anonymous. (2023). Economic Times. India’s horticulture sector holds untapped potential despite challenges.

Ashok, K., & Rajesh, P. (2015). Constraints faced by coffee growers in Karnataka: A study. International Journal of Current Microbiology and Applied Sciences, 4(3), 770–775.

Bharambe, A., & Khandelwal, S. (2014). Socio-economic characteristics of coffee growers and their adoption of recommended practices in Karnataka. International Journal of Agricultural Science and Research, 4(1), 13–20.

Bharathkumar, T. P. (2010). Decision making and time utilization pattern among women vegetable growers in Kolar district *(Unpublished master's thesis).University of Agricultural Sciences, Bengaluru.*

Chandrashekar, V., & Naik, R. (2016). Marketing constraints and suggestions of coffee growers in Karnataka. Journal of Coffee Research, 44(2), 45–52.

Dixit, P. K., &Birthal, P. S. (2010). Socio-economic characteristics of farmers and their influence on adoption of improved practices in Uttar Pradesh. Agricultural Economics Research Review, 23, 287–294.

Ghadge, S. N., Chandgude, D. S., & Jadhav, M. V. (2010). Constraints analysis and identification of strategies for the cut flower producers. Agriculture Update, 5(1–2), 177–180.

Kumar, A., & Sharma, R. (2018). Entrepreneurship development and small business enterprise*.Pearson Education India.*

Murthy, B. N. S., & Madhava Naidu, M. (2012). Sustainable production of coffee: A study from Kodagu district, India. Agroforestry Systems, 85(1), 27–34.

Prajapati, M. R. V. T., Patel, N. V., Chaudhary, N. V., &Soni, M. C. (2002). Constraints experienced by growers in adoption of recommended chilli technology. Gujarat Journal of Extension Education, 12–13, 55–58.

Rajendran, P. (2016). A study on the socio-economic profile of coffee growers in Tamil Nadu. International Journal of Commerce and Management Research, 2(6), 40–44.

Ravi, D., & Patil, B. L. (2019). Constraints experienced and suggestions by farming community in adaptation to climate change in Karnataka: An economic analysis. International Journal of Current Microbiology and Applied Sciences, 8(2), 376–383.

Sivakumar, T., & Rajendran, P. (2017). Role of cooperative societies in coffee marketing in India: Coffee growers’ perspectives. Indian Journal of Agricultural Economics, 72(4), 583–594.