

Sensitizing the Peasants on the Economic Livelihood Impact of the Large Cardamom Enterprise

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Abstract—Large cardamom, being the main cash crop of Sikkim, provides ample scope for sustainable livelihood to the farmers associated with this crop. Therefore, it is obvious that large cardamom farming would have a definite impact on the socio-economic condition of the farmers of the state. With this backdrop, the present study has been conceived to analyze the socio-economic impact of large cardamom farming and thereby explore the factors associated with. The study was conducted at six gram panchayat wards under Regu block of East Sikkim district in Sikkim. Purposive, multi-stage and simple random sampling procedures were followed for selecting final respondents. In the present study, impact of the large cardamom cultivation on socio-economic condition of the farmers has been considered as the dependent variable and eighteen other attributes of the respondents were considered as the independent variables. Personal interview method through structured interview schedule was followed for data collection. Major statistical tools used were Pearson correlation and multiple regressions. The salient outcome of the present study showed that the attributes like family annual income, management orientation, risk orientation and innovativeness of the farmers were positively and significantly contributing towards characterizing the dependent variable, socio-economic impact of large cardamom cultivation whereas the other attributes like annual expenditure, livestock possession and social possession were contributing significantly but negatively towards characterizing the dependent variable and the entire explicability is 0.625. Another important observation in the study is the sharp increase in the investment pattern of the large cardamom growers in different aspects of their day-to-day life reflecting an improvement of their socio-economic condition after cultivating large cardamom successfully.

Keywords: Large cardamom, cash crop, sustainable livelihood, socio-economic impact, explicability.

1. INTRODUCTION

Large cardamom is one of those important spice crops of our country which constitutes a major share in the foreign earnings

through export. For instance, India produced 3,316 metric tonnes of large cardamom which fetched around USD 47.54 million during 2010/11 [1]. And, within India, Sikkim is the highest large cardamom producing state that contributes around 88% of the total production of the country. During 2013, annual production of large cardamom in Sikkim was 3863 MT from 26,459 ha [2]. Hence, it can easily be assumed that large cardamom cultivation would occupy a significant position in the overall agriculture scenario of the state. Most of the farmers in Sikkim are involved in large cardamom cultivation because its cultivation is cost-effective compared to other farming systems and has high international market potential. Besides, large cardamom farming has strong social acceptance for its greater economic viability and ecological sustainability. Large cardamom cultivation in Sikkim forms a substantial part of people's livelihoods and food security and, for many families, is the only source of cash income. Large cardamom contributes USD 500–1,700 to annual household cash income in Sikkim, depending on the landholding size and farm management efforts [3]. Another important revelation of similar kind of study was that the gross income of households was almost double in large cardamom-dominated systems, compared to traditional mixed-forest systems [4]. Therefore, it needs not mention that large cardamom plays an important role in the socio-economic development of the farmers engaged in large cardamom enterprise.

Now a days, the scientific production and management of any agricultural and horticultural crops need a concerted effort to ensure profitable margin from that agro-enterprise. On the other hand, the growers have to depend on the whims and fancies of weather to sustain the productivity and profitability of their crop enterprises. In this perspective, it is worth mentioning that the maintenance of livelihood in a sustainable manner requires a strong perception about the climate issues

like rainfall, temperature etc. Moreover, the spice crop namely large cardamom is very much vulnerable to the changes in any of the climatic factors. For example, changes in climatic factors like irregularity of seasonal rainfall, drying up of high altitude spring and subsequent decrease in pollinator species has led to a decrease in the actual area under large cardamom in Sikkim from 22,714 ha in 2003 to 12,500 ha by 2007/08 with a decline of 45% [5]. Such changes have a devastating impact on both the socio-economic security of mountain farmers and the ecological resilience of the system itself. Therefore, under this complex situation, there is strong need for appropriate strategies to cope with the changing climate to ensure its contribution to the livelihoods of the large cardamom growers in a sustainable manner.

But, any strategy formulation always starts with situational analysis of the related topic or content. Here, in the present study, large cardamom cultivation has been identified as a potential agri-enterprise in Sikkim which can support the farmers significantly in the improvement of their socio-economic status. Hence, there is a strong need to sensitize the farmers regarding the beneficial impact of large cardamom enterprise on their socio-economic development and thereby, motivate the farmers to adopt and sustain their large cardamom farming as a profitable enterprise.

Under such a research climate, the present study has been conducted to assess and analyse the socio-economic impact of the large cardamom farming and thereby explore different attributes of the farmers associated with large cardamom enterprise to improve its contribution to their socio-economic development.

2. METHODOLOGY

The study was conducted in Regu block of East Sikkim District in Sikkim. The block Regu was selected purposively and the Gram Panchayat Units and Gram Panchayats were randomly selected. Multistage and random sampling procedures were followed for the final selection of respondents. Finally, hundred number of large cardamom growers were selected randomly from an exhaustive list of the heads of the large cardamom growing families. In the present study, contribution of the large cardamom enterprise to economic livelihood of the large cardamom growers has been conceptualized and operationalised in terms of its socio-economic impact which has been considered as the dependent variable and eighteen socio-economic, socio-psychological, socio-personal and communication related attributes of the respondents were considered as the independent, antecedent and predictor variables. The data were collected with the help of the structured schedule constructed for the study through personal interview method. The important statistical measures used to analyze the survey or research data were frequency, percentage, range, mean, standard deviation, coefficient of variation, coefficient of correlation, multiple regression.

3. RESULTS AND DISCUSSION

Table 1: Distribution of the respondents according to the variable socio-economic impact of large cardamom cultivation (Y)

Category	Score	Frequency	Percentage	Statistics
Low	32.00-36.33	34	34	Range = 32.00-45.00 Mean = 37.67 , SD=2.74 CV= 31.66
Medium	36.34-40.67	56	56	
High	40.68-45.01	10	10	

Table 6.21 presents the distribution of the large cardamom growers in Sikkim according to their impact of large cardamom cultivation on socio-economic. The results show that majority of the respondents are under the medium group of 36.34-40.67 (56%) followed by low group of 32.00-36.33 (34%) and high group of 40.68-45.01 (10%) respectively. The mean score of total distribution is 37.67 and standard deviation of the distribution is 2.74. The coefficient of variation value within the distribution 31.66% signifies the very high consistency level of the distribution for the variable 'socio-economic impact of large cardamom cultivation'.

Table 2: Correlation Coefficient of socio-economic impact of large cardamom cultivation (Y) with 18 causal variables:

Variables	Correlation Coefficient (r)
Age (X ₁)	-0.151
Caste (X ₂)	0.069
Family size(X ₃)	0.028
Education (X ₄)	0.351**
Family Education Status (X ₅)	0.320**
Family Annual Income (X ₆)	0.001
Annual expenditure(X ₇)	-0.050
Land Holding (X ₈)	-0.128
Farm power (X ₉)	-0.101
Asset Possession (X ₁₀)	-0.077
Livestock possession (X ₁₁)	-0.284**
House type (X ₁₂)	-0.118
Social participation(X ₁₃)	0.108
Extension contact(X ₁₄)	0.128
Mass media exposure(X ₁₅)	0.263**
Management orientation(X ₁₆)	0.552**
Risk orientation (X ₁₇)	0.591**
Innovativeness(X ₁₈)	0.636**

*Significant at 5% level of significance, ** Significant at 1% level of significance

Table-2 reflects coefficient of correlation among the dependent variable, decision making ability of large cardamom growers with the eighteen casual variables. The result shows that the variable education (X₄), family education status (X₅), mass media exposure(X₁₅), management orientation (X₁₆), risk orientation (X₁₇), innovative (X₁₈) are positively and significantly associated with the dependent variable decision making ability of the large cardamom growers in case of livelihood contributions in changing

climate. The variable livestock possession (X_{11}) of the large cardamom growers is negatively and significantly associated with the decision making ability of the large cardamom growers in case of livelihood contribution in changing climate.

4. EDUCATION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Education provides people opportunities to expose themselves to different situations so that they can acquire knowledge, experience and develop cognitive attributes through manifestation of the creativity within themselves towards addressing a problematic situation. In the present study, the large cardamom growers need to be aware of various issues related to their vocation to manage and orient large cardamom farming in a profitable way. Education would help them to update their knowledge and skill so that they can mitigate the challenges faced by large cardamom cultivation through adopting and applying appropriate coping strategies. Consequently, the remunerative income coming from large cardamom cultivation would aid in the improvement of their socio-economic status. That is why the variable 'education' is positively and significantly associated with the socio-economic impact of large cardamom cultivation.

5. FAMILY EDUCATION STATUS AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Family education status of an individual reflects the present formal educational exposure of the family members in a given period of time. Family supports an individual to develop personalities, behaviour and attitude to be exercised in the outer environment. The education helps in gathering knowledge, acquiring degrees, developing experiences and creating analytical mindset. In the present study, with the help of education rather to say the formal education, the large cardamom growers has acquired knowledge, developed attitude and critical vision to make the large cardamom enterprise more profitable and sustainable by overcoming the risks associated with it. It is also discernible that the family education status is paying a critical role for improving the socio-economic status of large cardamom growers. That is why the variable 'family education status' is positively and significantly associated with the socio-economic impact of large cardamom cultivation.

6. MASS MEDIA EXPOSURE AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Mass media exposure provides an individual with up-to-date information regarding various important issues. Similarly, in case of large cardamom growers, mass media like radio, television, news paper, etc. offers them with latest knowledge about current issues and events related to their farming. This would help them to identify and adopt appropriate

technologies to cultivate large cardamom efficiently and profitably. Again, the profit generated from large cardamom cultivation would lead to improvement of their socio-economic status. Therefore, mass media exposure plays a crucial role in capacity building of the large cardamom growers for improving their socio-economic status with the help of their large cardamom enterprise. That is why the variable 'mass media exposure' is positively and significantly associated with the socio-economic impact of large cardamom cultivation.

7. MANAGEMENT ORIENTATION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Management orientation is conceptualized as one of the psychological variables in the present study. Management orientation plays a pivotal role in case of planning, production and marketing of the products. This orientation reflects the managerial ability of an individual in operating the enterprise smoothly and effectively. As it has a strong impact on human psyche creates a psychic environment towards making a decision in favour of any object after critically evaluating them on the basis of their resources endowment. Therefore, proper orientation in managing the large cardamom cultivation by the farmers will be helpful to minimize the risks and maximize the profit. Hence, practicing the large cardamom farming with proper management orientation facilitates the profit making of the farmers from their enterprise. This, in turn, catalyses the development of the large cardamom growers in their socio-economic aspect. That is why the variable 'management orientation' is positively and significantly associated with the socio-economic impact of large cardamom cultivation.

8. RISK ORIENTATION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Risk orientation is a psychological attribute of an individual which influences one's way of making decisions positively and profitably after understanding and perceiving the risk or uncertainty associated with any venture. Risk orientation always tries to keep abreast with the new information which is needed to develop an attitude for overcoming new challenges coming in the way of making the enterprise more profitable and sustainable. In the present study, the large cardamom growers, after analyzing the risk associated with large cardamom enterprise, orient their enterprise in an appropriate way to cultivate large cardamom profitably and sustainably. The enhanced income generating from the large cardamom cultivation facilitates them to improve their socio-economic status. That is why the variable 'risk orientation' is positively and significantly associated with the socio-economic impact of large cardamom cultivation.

9. INNOVATIVENESS AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

The innovativeness requires creativity in an individual. Innovativeness is the inherent characteristics of an individual to make invention much more in the field of agricultural development. Innovativeness encourages an individual to go along with the new scientific practices for its fullest use in the rural areas. Moreover, creativity along with risk taking ability, scientific orientation and managerial ability would help the entrepreneur run their enterprise successfully. In the present study, large cardamom cultivation has been selected as a potential enterprise for improving the economic livelihood security of the farmers. And, in this direction, innovativeness could be utilized as motivating force for taking up scientific large cardamom cultivation as an enterprise by the farmers. That is why the variable 'innovativeness' is positively and significantly associated with the dependent variable, socio-economic impact of large cardamom cultivation.

10. LIVESTOCK POSSESSION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Livestock possession indicates the actual possession of livestock within a family. In the present study, the analysis has been made to identify the impact of large cardamom cultivation on the socio-economic condition of the farmers. The large cardamom growers are also maintaining their livelihood with the help of scientific large cardamom cultivation. It is the scenario of the research area. But, whenever, large cardamom growers are shifting to the vocation of livestock farming that means the large cardamom enterprise cannot influence the socio-economic status in a better way. As a result, the growers are taking livestock farming as an alternative livelihood. That indicates the importance of livestock farming over the large cardamom enterprise. It may be concluded that increased livestock possession is lowering the rate of influence of large cardamom enterprise on socio-economic development of the large cardamom growers. That is why the variable 'livestock possession' is negatively and significantly associated with the dependent variable, socio-economic impact of large cardamom cultivation.

Table 3: Multiple regression analysis of socio-economic impact of large cardamom cultivation (Y) with predictor variables

Variables	Standardized regression coefficient (β)	Unstandardized regression coefficient (B)	S.E of 'B'	t-value
Age (X_1)	0.023	0.005	0.023	0.208
Caste (X_2)	-0.001	-0.006	0.310	-0.019

Family size(X_3)	0.092	0.226	0.204	1.106
Education (X_4)	0.040	0.065	0.207	0.313
Family Education Status (X_5)	0.063	0.197	0.312	0.633
Family Annual Income (X_6)	0.438	0.043	0.018	2.373*
Family Annual expenditure(X_7)	-0.413	-0.066	0.029	-2.255*
Land Holding (X_8)	-0.157	0.151	0.105	-1.440
Farm power (X_9)	0.028	0.096	0.308	0.310
Asset Possession (X_{10})	0.026	0.048	0.176	0.273
Livestock possession (X_{11})	-0.188	-0.745	0.321	-2.323*
House type (X_{12})	-0.128	-0.699	0.469	-1.491
Social participation(X_{13})	-0.308	-1.525	0.486	-3.136*
Extension contact(X_{14})	0.037	0.051	0.144	0.353
Mass media exposure(X_{15})	0.068	0.090	0.152	0.592
Management orientation(X_{16})	0.180	0.100	0.054	1.867*
Risk orientation (X_{17})	0.225	0.207	0.095	2.174*
Innovativeness(X_{18})	0.415	0.385	0.099	3.884*

*Significant at 1% level of significance, ** Significant at 5% level of significance, $R^2=0.625$

Table-3 delineated the multiple regression analysis of socio-economic impact of large cardamom cultivation with the eighteen predictor variables. The result shows that family annual income (X_6), management orientation (X_{16}), risk orientation (X_{17}) and innovativeness (X_{18}) are the indicative variables that positively and significantly contribute in case of characterizing the socio-economic impact of large cardamom cultivation. Another set of variables namely annual expenditure (X_7), livestock possession (X_{11}) and social participation (X_{13}) in presence of other predictor variables is contributing negatively and significantly towards characterizing the socio-economic impact of large cardamom cultivation.

Family annual income and socio-economic impact of large cardamom cultivation

Annual income is the economic indicator of an individual. It also helps to acquire respect and values in the society. Higher family annual income helps an individual to become economically sound and have the capability to take risk to administer their enterprise in a successful manner. In the present study, it is found that the high family annual income

group gained profit from their large cardamom enterprises as because they can invest more to make profit in the extreme limit from their large cardamom enterprise with the help of modern and scientific technology. Consequently, their capacity is built towards functioning their large cardamom enterprise profitably and sustainably which, in turn, facilitates the improvement of their socio-economic standards. That is why the variable family annual income is positively and significantly contributing in case of characterizing the predicted variable, socio-economic impact of large cardamom cultivation.

It is found in the present study that the variable family annual income is directly contributing 43.80% in case of characterizing the impact of large cardamom cultivation on socio-economic status. One unit change of the variable family annual income is delineating the 0.043 unit change in the predicted variable, socio-economic impact of large cardamom cultivation.

11. ANNUAL EXPENDITURE AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Annual expenditure implies the total amount of expenses made by an individual or a family in maintaining its family affairs and also the livelihood activities. From a family's annual income and annual expenditure, one can easily assess the level of savings by calculating the difference between these two components. Now, any enterprise involves expenditure in running the enterprise smoothly and profitably. Similarly, the present study has made an attempt to assess the annual expenditure of the large cardamom growers and thereby identify how it affects the impact of large cardamom cultivation in their living standards. It can be easily understood from the fact that a higher amount of expenditure will negatively impact the socio-economic standards of the large cardamom growers' family because with increase in the expenditure, they will find no scope to further invest in the improvement of their socio-economic condition. This situation is further aggravated by the increasingly changing climate and its adverse consequences on their large cardamom enterprise. Therefore, the variable annual expenditure is negatively and significantly contributing in case of characterizing the predicted variable, socio-economic impact of large cardamom cultivation.

The variable annual expenditure is directly contributing 41.30% in case of characterizing the impact of large cardamom cultivation on socio-economic status of large cardamom growers in the changed climate. One unit change of the variable annual expenditure is delineating the 0.066 unit change in the predicted variable.

12. LIVESTOCK POSSESSION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Livestock possession indicates the availability of livestock resources with an individual. Livestock possession promotes economic affluence of an individual. Now, one can utilize his/her livestock possession to get a profitable earning from the livestock farming. Now, in the present study, it has been found that due to some climate change phenomena last year, there has been a huge loss in the large cardamom production which compelled the farmers to search for alternative option to earn a living out of that one. This encouraged their shifting from large cardamom farming as primary occupation to livestock farming. Therefore, they developed a unfavourable attitude towards large cardamom cultivation and a favourable attitude towards livestock farming. Consequently, the impact of large cardamom cultivation on their socio-economic development gets reduced with the increased level of participation in the livestock farming. That is why the variable livestock possession contributes negatively and significantly in case of characterizing the predicted variable, socio-economic impact of large cardamom cultivation.

The variable livestock possession is directly contributing 18.80% in case of characterizing the impact of large cardamom cultivation on socio-economic status of large cardamom growers in the changed climate. One unit change of the variable livestock possession is delineating the 0.745 unit change in the predicted variable.

13. SOCIAL PARTICIPATION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Social participation is the process through which the members of the social system involve physically in the social institutions as member or office bearer. The participation of the large cardamom growers in social institutions engage them within the institutional activities. As a result, they do not get time to spare in practicing scientific farming operations to combat climate change. The less involvement leads to the poor productivity of large cardamom enterprise. As a result, the large cardamom enterprise does not contribute efficiently in their socio-economic status. That is why the variable social participation contributes negatively and significantly in case of characterizing the predicted variable, socio-economic impact of large cardamom cultivation.

The variable social participation is directly contributing 30.80% in case of characterizing the impact of large cardamom cultivation on socio-economic status of large cardamom growers in the changed climate. One unit change of the variable social participation is delineating the 1.525 unit change in the predicted variable.

14. MANAGEMENT ORIENTATION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Management orientation is the psychological pursuit of individual to become conversant for managing his enterprise in effective manner. Management orientation is a goal directed psychological trait of an individual. The goal of the enterprise is to maximize the profit for its future sustainability. With the help of management inclination an entrepreneur develops his analytical capacity through skill, knowledge and reasoning ability. In the present study, it is found that the large cardamom growers after critically analyzing existing situation in light of the climate change scenario can take appropriate management strategy for making their large cardamom enterprise a success in terms of production and profit. It is also discernible that successful management of the enterprise would help the large cardamom growers generate higher profit and utilize those increased income to the betterment of their socio-economic status. That is why the variable management orientation is significantly and positively contributing in case of characterizing the predicted variable, socio-economic impact of large cardamom cultivation.

The variable management orientation is directly contributing 18.00% in case of characterizing impact of large cardamom cultivation on socio-economic status. One unit change of the variable management orientation is delineating the 0.100 unit change in the predicted variable.

15. RISK ORIENTATION AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Risk orientation is the psychological attribute of an individual to take risk and bear the risk for development of any new enterprise. For an entrepreneur risk taking ability plays the pivotal role in proper development and management of enterprise for its sustainability. Risk orientation of an individual directs his/her enterprise to reach to the highest peak of profit. Similarly, in the present study, it has been witnessed that risk orientation of the large cardamom growers stimulates their information seeking for analyzing various risks arising from the changing climate and affecting their large cardamom cultivation. Therefore, risk orientation helps them identify appropriate climate change mitigating strategy and thereby, managing and practicing their large cardamom farming profitably and sustainably. This ultimately enhances their capacity to invest more towards improvement of the socio-economic status. That is why the variable risk orientation is positively and significantly contributing in case of characterizing the predicted variable, socio-economic impact of large cardamom cultivation.

The variable risk orientation is directly contributing 22.50% in case of characterizing the impact of large cardamom cultivation on socio-economic status of large

cardamom growers in the changed climate. One unit change of the variable risk orientation is delineating the 0.207 unit change in the predicted variable.

16. INNOVATIVENESS AND SOCIO-ECONOMIC IMPACT OF LARGE CARDAMOM CULTIVATION

Innovativeness of an individual stems from his/her creativity in doing any job. Innovativeness stimulates the information seeking behaviour of an individual for knowledge generation for effectively converting an invention into innovation through applying it in his/her real life situation. Innovativeness prepares the mentality to go along with the new scientific practices for its fullest use in the rural areas. It is found in the present study that the large cardamom growers through their innovativeness can modify their enterprise according to the need of the changing climate situation through adopting and applying appropriate technologies. In this way, through mitigating the climate change impacts on the large cardamom cultivation, the farmers can make this enterprise a sustainable source of income. Then, they can invest more in the improvement of their socio-economic status. That is why the variable innovativeness is positively and significantly contributing in case of characterizing the predicted variable, socio-economic impact of large cardamom cultivation.

The variable innovativeness is directly contributing 41.50% in case of characterizing the impact of large cardamom cultivation on socio-economic status of large cardamom growers in the changed climate. One unit change of the variable innovativeness is delineating the 0.385 unit change in the predicted variable.

The R^2 value being 0.625, it is to infer that the eighteen predictor variables put together have explained 62.50% variation embedded with the predicted variable impact of large cardamom cultivation on socio-economic status. Still 37.50% variable embedded with predicted one are unexplained. Thus it would be suggested that inclusion of some more contextual variables possessing direct bearing on the impact of large cardamom cultivation on socio-economic status could have increased the level of explicability.

17. CONCLUSION

The need of the hour is to delineate an impact pathway for economic development of peasants in rural areas in a sustainable way towards achieving the sustainable development goals. The secondary agriculture and income generation are the two pillars of up scaling the livelihood status through rural business in any country. In this perspective, the state of Sikkim has a potential for developing and managing the large cardamom enterprise due to its weather variability. The market orientation of the peasants in case of supplying the product of large cardamom enterprise is not well documented in that region. The present study paves the way of sensitizing the large cardamom growers regarding

the upscaling of economy through large cardamom enterprise. The socio-economic factors like education, family education status, mass media exposure, management orientation, risk orientation and the innovativeness of the large cardamom growers impacted on a large scale in case of their economic upliftment through large cardamom enterprise.

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