

## **Sustainability of Commercial Vegetable Cultivation : A Multidimensional Analysis**

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### **ABSTRACT**

*The present study was conducted in Thiruvananthapuram district of Kerala. One hundred farmers engaged in commercial vegetable cultivation were selected based on the maximum area under commercial vegetable cultivation. Sustainability was the dependent variable of the study. Sixteen independent variables were selected based on judges' relevancy rating. A well-structured interview schedule was used for data collection from the respondents. Majority of the respondents belonged to medium category with respect to sustainability. Economic dimension of sustainability contributed seventy two percent of the total sustainability, followed by socio- psychological dimension, environmental dimension, technological dimension and temporal dimension.*

**Keywords :** Sustainability; Commercial vegetable cultivation; multidimension; knowledge; adoption

### **INTRODUCTION**

Vegetables are important constituents of Indian agriculture and nutritional security. India is the second largest producer of fruits and vegetables in the world which accounts for a total of 6.2 million hectares forming three per cent of the total cropped area which is 15 per cent of the world's production. Commercial vegetable cultivation can be defined as the large scale production of vegetables for sale or vegetables grown for market. In Kerala, vegetables are being cultivated as a commercial crop only in the recent past. However, sustainability of commercial vegetable cultivation is an

unexplored area and hence this study was taken up. Sustainability of commercial vegetable cultivation is operationally defined as the ability of commercial vegetable growers to profitably maintain vegetable production over time. With this background, the study was undertaken.

### **METHODOLOGY**

Thiruvananthapuram district was selected for the study because of the presence of College of Agriculture, Vellayani from where many of the high yielding vegetable varieties are released and distributed. Kerala Agricultural University (KAU) in Thiruvananthapuram district is one of the major producers

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of the vegetables and these vegetables from the district usually fetch higher price in the foreign market. Selection of respondents was through random sampling procedure. From the list of 11 blocks based on larger area under commercial vegetable cultivation, two blocks based on area under commercial vegetable cultivation were selected, viz., Pallichal and Neyyattinkara. From each block, two *panchayats* were selected having maximum area under vegetable cultivation. From Pallichal block, two *panchayats* namely Pallichal and Kalliyoor were selected and Kottukal and Venganoor were selected from Neyyattinkara block. In the next stage, a list of twenty five farmers engaged in commercial vegetable cultivation having at least 20 cents of land under vegetable cultivation and having five years of experience in vegetable cultivation was prepared with the help of respective Krishibhavans, thus making a total of hundred farmers as respondents. Thus 25 farmers from each *panchayat* were interviewed for data collection.

Sustainability encompasses various dimensions and those dimensions relevant for the current study were identified based on review of literature and discussion with experts in the respective disciplines. Thus, five dimensions namely economic dimension (ED), socio-psychological dimension (SD), environmental dimension (END), technological (TCD) and temporal dimensions (TPD) were selected for the study. The operational definitions for each dimensions and statements contributing to each dimensions of sustainability were identified and included in the interview schedule. Finally, the sustainability of commercial vegetable cultivators was measured using sustainability index, and the relationship between sustainability and independent variables were calculated.

## FINDINGS AND DISCUSSION

The distribution of respondents based on sustainability indices is provided in Table 1.

**Table 1.**  
**Distribution of Respondents according to Sustainability Indices (n = 100)**

Category	Percentage				
	Economic Dimension	Socio-Psychological Dimension	Environmental Dimension	Technological Dimension	Temporal Dimension
Low(<Q1)	16.00	9.00	27.00	24.00	24.00
Medium (Q1 – Q3)	12.00	55.00	66.00	71.00	72.00
High(>Q3)	72.00	36.00	7.00	5.00	4.00

Q1 = 16.64, Q3 = 22.90

A perusal of Table 1 reveals that, among these five dimensions of sustainability, economic dimension of sustainability had contributed seventy two per cent of the total sustainability followed by socio – psychological dimension (36 %), environmental dimension (7 %), technological dimension (5 %) and temporal dimension (4 %).

The results depicted that majority (72 %) of the respondents had high rate of economic sustainability, which points towards the economic well-being of the commercial vegetable growers with the optimum level of production, efficient and eco-friendly use of resources, assured market and stable per capita income. The result also showed that, a commercial vegetable farmer become sustainable only if he had higher level of economic sustainability. Thirty six percent of the respondents belonged to the high category with respect to socio – psychological dimension which indicates that the commercial vegetable growers gives importance to the recognition, prestige and status they got from the society.

Table 2 shows that more than half (55 %) of the respondents belonged to medium category in respect to sustainability of commercial vegetable cultivation, whereas it was twenty three per cent in high category and twenty two per cent in low category. Majority of the commercial vegetable cultivators of Thiruvananthapuram district had

**Table 2.**  
**Distribution of Respondents**  
**According to Total Sustainability**

(n = 100)

Category	Frequency	Percentage
Low (<Q1)	22	22.00
Medium ( Q1 – Q3)	55	55.00
High (>Q3)	23	23.00

Q1 = 13.20, Q3 = 15.47

medium level of sustainability which was possibly due to the higher economic stability and social satisfaction they got from being a commercial vegetable grower.

While comparing the four *panchayats* in terms of sustainability, the results showed that the F value of ANOVA table was 0.3988 which was less than F critical value (2.6993), indicating that there was no significant difference in relation to sustainability of commercial vegetable cultivation in these four *panchayats*. The respondents from the four *panchayats* had similar level of economic stability with optimum level of production, stable per capita income, and assured market.

### **Relationship between Profile Characteristics and Sustainability**

The relationship between the profile characteristics of the vegetable growers and sustainability is presented in Table 3.

**Table 3. Correlation between Sustainability and Independent Variables**

(n=100)

<b>Independent variables</b>	<b>Correlation co - efficient</b>
Age	-0.122
Annual income	0.27**
Educational status	0.11
Knowledge about KAU practices	0.25**
Adoption of KAU practices	0.24*
Perception towards feasibility of organic vegetable cultivation	-0.22*
Farming experience	0.23*
Economic motivation	0.21*
Credit orientation	-0.19
Extension agency contact	-0.13
Market orientation	0.22*
Exposure to mass media	0.20*
Entrepreneurial behaviour	0.27**
Risk orientation	0.16
Trainings undergone	0.25**
Incentives received	0.22 *

\* Significant at 5 percent level

\*\* Significant at 1 percent level

Sustainability of commercial vegetable cultivation was positively and significantly correlated with annual income, knowledge about KAU practices, adoption of KAU practices, farming

experience, economic motivation, market orientation, exposure to mass media, entrepreneurial behaviour, trainings undergone and incentives received for commercial vegetable cultivation and it was negatively and significantly correlated with perception about the feasibility of commercial vegetable cultivation.

A farmer with high innovativeness would be curious enough to use all improved practices related to commercial vegetable cultivation and initiate an enterprise of his/her own for income generation. This would have encouraged them to continue in commercial vegetable cultivation. Trainings attended showed a significant and positive relationship with sustainability. Trainings help the farmers to get aware and motivated about the economic and social advantages of commercial vegetable cultivation and would have led to sustainability.

Perception about feasibility of commercial organic vegetable cultivation had a negative but significant correlation with sustainability. Factors such as less market options & profits might have been in the mind of the vegetable growers on organic vegetable cultivation, leading to this negative relationship.

## CONCLUSION

The sustainability of commercial vegetable cultivation in Thiruvananthapuram district was found to be medium. Economic dimension of sustainability stands first among the various dimensions affecting

sustainability of commercial vegetable cultivation. To maintain the sustainability of commercial vegetable cultivation in Thiruvananthapuram district a comprehensive strategy is needed focusing on productivity enhancement and market-led extension approach. More investment in research and extension should also be undertaken to meet the upcoming challenges of commercial vegetable cultivation especially for pest and disease incidence.

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