Impact Assessment of Horticulture Development on Socio-Economic Conditions in Shopian, Jammu and Kashmir

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ABSTRACT

Horticulture has emerged as an inseparable part of agriculture and it plays a pioneering role in the agricultural development of Jammu and Kashmir. Shopian District is having a tremendous scope of horticulture; mainly equipped with best agro-climatic conditions suitable for temperate horticulture. Shopian become viable for production of some famous dry and fresh fruits in India and abroad. In the present paper, an attempt has been made to assess the impact of horticulture development on the socio-economic conditions of respondents. Present study is mostly based on primary sources of data collected through the intensive field work. Diversification of agriculture towards the high-value cash crops is becoming evident in the form of horticultural growth. Study revealed that growth in horticulture has largely and positively impacted the socio-economic standards of the local populace. It was found that households having more than half of their family members engaged with horticulture have positive but correlation at 1 per cent significance level at r = .966 with those who have above two lakh incomes from all the sources, in a similar way result also indicated that more the area under horticulture paves way for the positive change in the literacy levels and ownership of houses. So, keeping in view, the fruit industry has a vast potential and bears the potential to boost the socio-economic conditions.

KEYWORDS: Shopian, Horticulture, Socio-economic, Correlation

INTRODUCTION

Horticulture is the branch of agriculture that deals with the science and art of cultivating and producing fruits, flowers, vegetables, turf, and nuts. Meanwhile, Horticulture also has a close relationship with the propagation, processing, and marketing of these products. Thus, horticulture mainly deals with garden crops and vegetables rather than the field crops like grain crops. National Horticulture Board of India in its annual issue of the *Horticulture Statistics at a Glance 2017* enumerated horticulture crops as fruits, vegetables, spices plantation crops and flowers. At Global level horticulture plays a central role which is crucial for the economic upliftment as well as for the availability of the food and provides the nutritional security for its cultivators. Horticulture offers excellent scope for reducing poverty and provides ample opportunities for the generation of employment through its export of the production, thereby leading to the increment of the income (Weinberger 2007).

Horticulture in India is confined to the large farmers it has also brought prosperity to the small and marginal farmers of the nation. It expanded itself in such a way that it provides food and nutritional security to the vast expanding population. Its advantages like abundant farm income can validate the significance of Horticulture, much per unit yield, exceptional economic benefit, best usage of wasteland and undulating topography, and assuring the women empowerment through employment opportunities (Ravichandra 2014). Horticulture Division of Indian Council of Agriculture Research has estimated that horticulture has become a key driver for economic development in many of the states in the country, and it contributes 30.4 per cent to the GDP of agriculture. Horticulture production has shown remarkable improvement over recent years.

Horticulture remains the main pillar of socio-economic development of Jammu and Kashmir (Sheikh, 2016 Dar 2020). An area of about 211.8 thousand hectares in 2017-18 was under the fruits, while in the same period it produced 3178.19 thousand metric tonnes, and exported outside in lakh metric ton. The valley produces fruits mainly of the temperate type in them apple has dominance, and other vital fruits consist of Pear, Cherry, Apricot, Plum while in the category of dry fruits Walnut and Almont are chief crops. Horticulture has grown manifold and became a main industry offering widespread employment and revenue generation to the Jammu and Kashmir (Malik and Azhar, 2018). It engages more than 7 lakh families consisting of about 33 lakh people directly or indirectly associated with horticulture; besides these, an export worth INR 6500 Crore was reported during 2016-17.

Shopian District which has been selected as a study area lies in the Southern part of the Kashmir valley and has a vast a potential of Horticulture. Shopian produces various varieties of fresh and dry fruits among them apple, cherry, peach, walnut, almond etc are important (Bhat, 2014: Rather and Joseph, 2017). In 2018-19 horticulture covered an area of about 26231 hectares, which constitutes to be 12.08 per cent of the area of horticulture in the Kashmir Valley, in the same period, the production of horticulture in the study region was recorded as 295241 metric ton as 13.65 per cent share of the total production of Kashmir valley. Thus, Shopian differentiates it self from other areas in case of the horticulture development, which further provides employment and livelihood facilities to the numerous people residing there. The socio-economic fabric of this district is to a large scale attached to horticulture industry as it absorbs and engages farmers across all the sections of the society. Thus, keeping in mind, the importance of horticulture for the growth and development of the study area, it became compulsory to access and measure the impact of horticulture development on the overall socio-economic conditions of Shopian district.

Study Region

Shopian is one of the ancient towns of Kashmir and is located on the southern part of the valley of Kashmir. The district Shopian lies between 33.43° North latitude to 74.49° East longitude, respectively. In the valley of Kashmir, Shopian is situated in the South and South –West extremity. Shopian lies very close to the Pir Panjal mountain range (Husain. M, 1987). It is bounded by District Pulwama in the its north District Kulgam on its east and District Budgam on its North-West. On its South lies the District Rajouri and is surrounded by District Poonch in South -West. The area is drained by the Nallah Rambiara and by its tributaries, western part of the district is hilly and covered with lush green forests (Amin and Fazal, 2017: Khursheed and Taufique, 2021).

Figure 1: Locational Map of Study Area
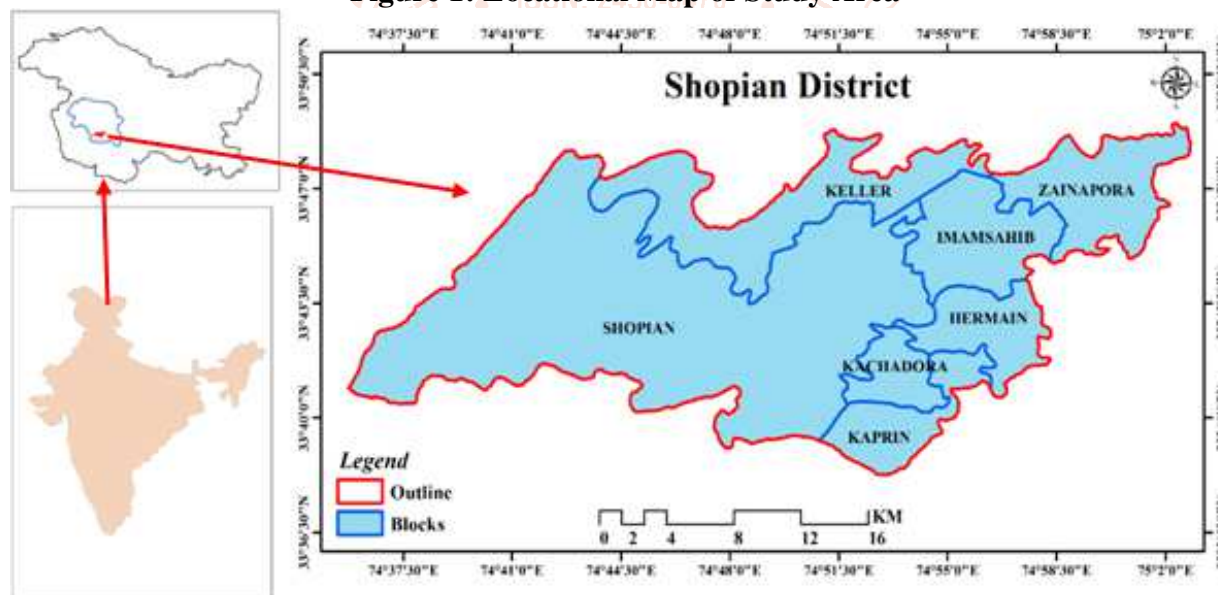
Database and Methodology

Present study is based on primary data collected though the field survey conducted from time to time between 2019 to 2020. As study area comprises of seven horticulture blocks thus as per the requirement of the study 30 respondents from each block at a random comprising of different socio-economic standards were selected. This in total information as collected from 210 respondents. For the analysis of this data a statistical method Karl Pearson's Correlation method through the SPSS software package (Version 20) has been brought under use. Karl Pearson's correlation method has been applied to examine the relationship between Horticultural

development and various parameters of socio-economic conditions in the study area. The formula for the Karl Pearson's Correlation is mentioned below (Blyth, 1994).

$$r = \frac{n\sum x_i y_i - \sum x_i * \sum y_i}{\sqrt{n\sum x_i^2 - (\sum x_i)^2} * \sqrt{n\sum y_i^2 - (\sum y_i)^2}}$$

Where,
r = coefficient of correlation
x, y = the two given variables

Results and Discussions

As per the requirement of the study, data was collected from the field survey and analysis was conducted which revealed outstanding results. Horticulture bears the potential to transform the economic and socio-economic conditions of the stakeholders who are part of the vast industry. Shopian bears the capacity to generate a considerable amount of financial benefit, which boosts the progress and prosperity of the people residing in this district. The study revealed that most of the farmers are engaged with horticulture. Because of this profession, their socio-economic standards have raised day by day to a satisfactory level. Some of the highlights of the horticulture sector along with the socio-economic conditions of the Shopian are discussed in the foregoing paragraphs.

Levels of Income

Income levels are extremely important to trace out the developmental scenario of any region. Income is one of the main attributes that determine social, economic and health condition of any society. For this generation of income and raising the economic standards of habitants horticulture has remained main source. A large-scale diversification in horticulture has led to a manifold increase in the income level of horticulturists. The same situation can be observed from **Table 1** that the horticulturists income generation was stratified into three classes. By taking the birds-eye view it is visible that 38.25 per cent of surveyed horticulture households recorded below INR 20000 per month, and in a very encouraging fashion 53.65 per cent of the households had income ranging from INR 20000-40000 and last but not the least 8.10 per cent of the horticulturists fall under the income level of INR 40000 monthly. Hence it is clear that a considerable chunk of the horticulturists has an income of above INR 20000. Thus, it can be understood how prosperous economically this horticulture industry is. This income generation level attracts the farmers to diversify their fields from the low-income agricultural food crops to the cash-rich fruits.

Apart from its overall view, another festive display of the income generation can be observed from the block-wise income generation's analysis. There is a significant variation across all the blocks in the category of less than INR 20000. A highest 65.56 per cent of horticulturists belong to the Zainapora block, while Kaprin has only 21.11 per cent of households lying under this category. In the same group, Keller has 60 per cent of their respondents under this category. Other blocks of Kachadora, Imamsahib, Hermain have 34.44 per cent 33.33 per cent and 30.00 per cent respectively.

In the category of monthly income between INR 20000 to 40000, the horticulturist's maximum share forms part. **Table 1** depict that 53.48 per cent of surveyed households are generating income between INR 20000 and 40000, the blocks of Kaprin 68.89 per cent and Shopian 67.78 per cent are areas who es income is found in this slab. This good income is because most of the land is devoted to horticulture, and their quality of fruits is so good that it fetches a handsome price. The performance of other blocks, Kachadora 57.78 per cent and Imamsahib 58.89 per cent are encouraging. Zainapora 26.67 per cent and Keller 33.33 per cent are two low-income blocks mostly infested with less land. Additionally, Zainapora has not a reasonable price of fruits compared to others.

It is evident from the above table that 8.12 per cent of the horticulturists generate income above INR 40000. Shopian and Hermain are leading blocks with an 8.89 per cent share. Zainapora, Imamsahib, and Kachadora have an equal contribution of 7.78 per cent, and the least contributor Keller with 6.70 per cent falls under this group.

Table 1: Income levels of the Respondents engaged in Horticulture

Blocks	Less Than 20000 (INR)	20000-40000 (INR)	Above 40000 (INR)
Shopian	23.33	67.78	8.89
Kachadora	34.44	57.78	7.78
Keller	60	33.3	6.7
Kaprin	21.11	68.89	10
Hermain	30	61.11	8.89
Imamsahib	33.33	58.89	7.78
Zainapora	66.66	26.67	6.67
Total	38.41	53.48	8.12

Source: Data Collected from Field Survey, 2019-20

Ownership of Houses

Housing is indeed a most important attribute that plays a crucial role in determining the socio-economic conditions of the households. It is yet

another positive development, where the impact of horticulture growth is visible on the ownership of the houses. The status of house ownership displayed in **Table 2** describes the success story and the positive image of the study area. It can be understood from **Table 2** that 95.08 per cent of the total surveyed households have their own houses. In comparison, only 4.92 per cent belong to the category where people live in rented homes or other accommodation sources. By taking stock of the block-wise scenario of the surveyed horticulture households respective to their ownership of houses, there is a considerable variation across the blocks. Kaprin has 97.78 per cent of households having their accommodation facilities, followed by Imamsahib 96.67 per cent and Hermain 95.56 per cent. In those blocks, people are economically well off and has an ampule share of income generated from horticulture. So resultant impact remains on all the variables of socio-economic character. Further, Shopian has 93.33 per cent of respondents who have their own houses comparatively lower share than other blocks. The reason is that this block also has a town and contains district headquarter; hence, some people do not have their own houses in this part of the district. Blocks of Keller 92.22 per cent and Zainapora 94.44 per cent live in their own homes. In the case of rented accommodation, Kaprin 2.22 per cent, Imamsahib 3.33 per cent, Kachadora 4.44 per cent, are some of the blocks which have the lowest percentage of households living in the rented houses, while Shopian with 6.67 per cent, Keller 7.78 per cent and Zainapora 5.56 are blocks having the highest percentage of rented houses.

Table 2: House Ownership

Blocks	Owned	Rented and Other
Shopian	93.33	6.67
Kachadora	95.56	4.44
Keller	92.22	7.78
Kaprin	97.78	2.22
Hermain	95.56	4.44
Imamsahib	96.67	3.33
Zainapora	94.44	5.56
Total	95.08	4.92

Source: Data Collected from Field Survey, 2019-20

Education

Education is the best tool by which a human being is carved into a good behaviour man and enriches his mentality with the blossom of knowledge. Lodge defines education as *"Whatever broadens our horizon, deepens our insight, refines our reactions, and stimulates our thoughts and feelings educates us"*. To achieve a targeted goal, education brings a lasting change in an individual's mind and ability.

Education is an asset that reasonably inculcates rationality, which is depictable in the overall development of society at a later stage. The ability to read and write is termed as education, and this same achievement acknowledges us with those thoughts which guide the people towards the path where they are capable of deciding what is right and what is wrong. Through this asset, the chances of uplifting the social fabric and its economic prosperity of any region get flourished. Hence, healthy and happy surroundings come into existence.

It can be viewed from **Table 3** that the educational level of the Shopian has vast variations. A significant proportion of the horticulturists belong to the category of illiterates, which accounts for 29.84 per cent of the total surveyed respondents. In contrast, the rest of the respondents have attained a place in any educational level categories. After the illiterates group, a significant portion of 21.27 per cent records their primary education presence. There were respondents also whose academic qualifications were up to the 10th standard and constitute about 19.37 per cent, while in the senior secondary group, 18.25 per cent were found. Higher qualified people are usually low in the agricultural practices in the study area. It was also found that 11.27 per cent had higher education.

Block wise analysis of the educational status shows that in the illiterate class some lagging behind blocks consists of Keller 41.11 per cent, Imamsahib 32.22 per cent, Kachadora 31.11 per cent are having a maximum ratio of respondents in this strata, while in the positive mode Zainapora 23.33 per cent and Kaprin 24.44 per cent are having lower rate under this category. In Primary education, Shopian 24.44 per cent, Kaprin and Zainapora 23.33 per cent each are leading blocks while Keller 17.78 per cent, Kachadora 18.89 per cent Imamsahib 20.00 per cent are in the category of intermediate level of education.

The secondary level was recorded at 19.37 per cent in the district where Kachadora 23.33 per cent, Zainapora and Kaprin 20.00 per cent are at the top position while Keller and Imamsahib 17.78 per cent each and, Hermain 18.89 per cent are worth mentioning.

In the study area **Table, 3** also shows that in the class of Senior secondary level education. Hermain and Kaprin 20 per cent each are the blocks with the highest number of respondents qualified up to that level. The blocks Shopian and Imamsahib 18.89 per cent each, Zainapora 17.78 per cent, Kachadora 16.67 per cent, and Keller 15.56 per cent have their share in the category of senior secondary level of education.

Graduation and above have been considered a higher qualification in the study area. It has shown a favourable and developing scenario that 11.27 per cent of the horticulture respondents belonged to that category. Block Zainapora with 15.56 per cent is with the highest portion in this literate group. Other blocks Hermain, Shopian, and Zainapora 11.11 per cent each and Kaprin has 12.22 per cent of respondents having their educational level graduation and above.

Table 3: Educational Status

Blocks	Illiterates	Primary Level	Secondary Level	Sr-Secondary Level	Graduation and Higher Education
Shopian	27.78	24.44	17.78	18.89	11.11
Kachadora	31.11	18.89	23.33	16.67	10.00
Keller	41.11	17.78	17.78	15.56	7.78
Kaprin	24.44	23.33	20.00	20.00	12.22
Hermain	28.89	21.11	18.89	20.00	11.11
Imamsahib	32.22	20.00	17.78	18.89	11.11
Zainapora	23.33	23.33	20.00	17.78	15.56
Total	29.84	21.27	19.37	18.25	11.27

Source: Data Collected from Field Survey, 2019-20

Family Members dependent on Horticulture

Horticulture is the principal activity or occupation carried by most of the households in Shopian District. No other activity is as common as horticulture is in the study region. Its brilliant potential and tremendous capability to support most of the local population by virtue of its outstanding and significant economic returns made it even more important in Shopian. In the entire Kashmir Valley, no other region is producing the rich quality of fruits as much Shopian is producing. The most common fruit is apple, produced by almost every household. Thus, it may be summarised that owing to its best favourability and the quality most of the farmers have shifted towards the horticulture and thus became dependent on, these crops. The study reveals that 81.58 per cent of the surveyed house has more than 50 per cent of the family members dependent on horticulture. By this, it can be imagined how much local population is dependent on horticulture. In blocks of Shopian and Kaprin, more than 90 per cent of the surveyed households were having above 50 per cent of the family members dependent on horticulture. Throughout the entire district, more than 60 per cent households have more than half of family deriving their livelihood from the horticulture sector. Just in those blocks where there are either small land holdings under horticulture or there is relatively lesser favourability of fruit culture can be discovered that they don't depend much on the horticulture, and those in the lower subordinate blocks, the horticulture practices have now begun to prosper the area.

Table 4: Family members engaged on Horticulture

Blocks	Percentage of Households having more than 50 per cent family members Engaged with Horticulture
Shopian	90.00
Kachadora	84.44
Keller	72.22
Kaprin	91.11
Hermain	81.11
Imamsahib	83.33
Zainapora	68.89
Average	81.58

Source: Based on Data collection through Field Survey,2019-20

Correlation analysis of Horticulture and Socio-economic Indicators

Correlation analysis in research is a statistical method used to measure the strength of the linear relationship between two variables and compute their association. Simply put - correlation analysis calculates the level of change in one variable due to the change in the other. A high correlation points to a strong relationship between the two variables, while a low correlation means that the variables are weakly related (QuestionPro 2021). In the current study the correlation between some independent variables related to horticulture development and dependent variable of socio-economic development were realized. Indicators pertaining to horticulture are Percentage of Surveyed households having more than

50 per cent family members engaged with Horticulture, Percentage of Surveyed households having more than INR 100000 income from Horticulture and Percentage of Surveyed households with more than 5 Kanal of Land under Horticulture while dependent variables of socio-economic conditions are Percentage of Surveyed households living in own house, Percentage of Surveyed households living in own house, Percentage of Surveyed households having more than 200000 incomes from all the sources. Results obtained from the statistical analysis are discussed below (Table 5 and Table 6).

Table 5: Indicators of Horticulture Development

Indicators	Definition
Y_1	Percentage of Surveyed households having more than 50 per cent family members engaged with Horticulture
Y_2	Percentage of Surveyed households having more than INR 100000 income from Horticulture
Y_3	Percentage of Surveyed households with more than 5 Kanal of Land under Horticulture

Table 6: Indicators of Socio-Economic Development

Indicators	Definition
X_1	Percentage of Surveyed households living in own house
X_2	Percentage literates
X_3	Percentage of Surveyed households having more than 200000 incomes from all the sources

Table 7 depicts that Y_1- Percentage of Surveyed households having more than 50 per cent family members engaged with Horticulture is positive but significantly correlated at 1 per cent significance level with X_3 (Percentage of Surveyed households having more than INR 200000 income from all the sources, r =.996). Y_1- (Percentage of Surveyed households having more than 50 per cent family members engaged with Horticulture) is positive but significantly correlated to X_1 – (Percentage of Surveyed households living in own house, r = .582), X_2 – (Percentage literates, r = .325).

The correlation analysis also exhibits that Y_2 – (Percentage of Surveyed households having more than 100000 incomes from Horticulture) is positively correlated but significant at 1 per cent level with X_3 - (Percentage of Surveyed households having more than INR 200000 income from all the sources, r = .922). Correlation analysis also reveal that Y_2 – (Percentage of Surveyed households having more

than INR 100000 income from Horticulture) is positive and significantly correlated to X_1 – (Percentage of Surveyed households living in own house, r =.348) and X_2 – (Percentage literates, r = .313)

While analysing the correlation between Y_3 - (Percentage of Surveyed households with more than 5 Kanal Land under Horticulture) with the other variables of socio economic development, the result indicate that there is a positive and significant correlation at 1 per cent of Y_3- (Percentage of Surveyed households with more than 5 Kanal Land under Horticulture) with X_3 - (Percentage of Surveyed households having more than INR 200000 income from all the sources, r = .983, and Y_3- (Percentage of Surveyed households with more than 5 Kanal land under Horticulture) is having positive correlation with X_1 – (Percentage of Surveyed households living in own house, r = 408), X_2 – (Percentage literates, r =.170).

Table 7: Correlation Matrix

	Y_1	Y_2	Y_3	X_1	X_2	X_3
Y_1	1					
Y_2	.935**	1				
Y_3	.977**	.957**	1			
X_1	.582	.348	.408	1		
X_2	.325	.313	.170	.517	1	
X_3	.996**	.922**	.983**	.550	.263	1

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Conclusion

In a general over view Jammu and Kashmir is embedded with diverse potential of horticulture and has made an exponential growth than the other parts of country. Shopian district attains top most spot because of its best suited conditions favourable for the fruit cultivation. Our study aimed at assessing the impact of horticulture on the socio-economic fabric of the study region. Present study has revealed that in fact the horticulture has a profound impact on the socio-economic conditions of this Shopian. It is pertinent to note that the educational as well as housing conditions and the income levels of the respondents have presented a positive association with the variables of area under horticulture, number of family members engaged with horticulture. It was found that those households whose more than half of the family members are engaged with horticulture have positive but significantly correlated at 1 per cent significance level with r =.996 to those households whose total family income is more than 2 lakh. Thus, it verifies that more the persons engaged with horticulture better will be their income standards. In a

similar way study also revealed that Percentage of Surveyed households with more than 5 Kanal Land under Horticulture are positively but significantly correlated at 1 per cent significance level with

families having income more than two lakh. Thus, more the land under fruits more will be the income. So, in nut shell the results depicted that horticulture plays a very crucial role in the overall socio-economic wellbeing of the people residing in the Shopian district of Jammu and Kashmir.

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