
Horticulture And Its Role In The Economic development (An Empirical Study Of Kashmir Valley).

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Abstract

This paper draws our attention to the fact that the horticulture sector in the valley of Kashmir has lost its glory and pride. Kashmir was once home to a high quality fruit and the industry was booming, helping not only in the employment generation but also in driving the economy. The paper uses empirical study and is one of the first of its kind. The research uses statistical tests (chi-square test) to show what are the factors which are responsible for a fall in the horticulture sector. The paper also uses percentage analysis and rank analysis to come to conclusion.

Key Words:- Horticulture output, Economic development.

INTRODUCTION

Jammu & Kashmir is home to some world famous varieties of fruits, dry fruits, honey and saffron. Horticulture is one of the most vibrant sectors for the state economy.¹ Horticulture is the backbone of Jammu Kashmir's economy with a yearly turnover of Rs.1200 Crores. It provides direct and indirect employment to about 23 lakh people and has potential for further growth. Keeping this in view the state government has declared horticulture a thrust area and is taking a number of steps to boost it. Almost a century ago in the words of Sir Walter Lawrence, the European settlement commissioner of erstwhile Maharaja of Kashmir "Kashmir is the country of fruits, and perhaps no country has greater ambience for horticulture; as indigenous apple, pear, vine, mulberry, walnut, hazel, peach, apricot, raspberry, gooseberry, currant, and strawberry can come into possession without much trouble in most parts of the valley". If we analyze the sector now as almost 100 years have gone by, that definition begs a number of questions. Kashmir is not home now to that diverse and abounding fruit. The quality of fruit has diminished. In quantitative aspects the production might have gone up but the aroma, taste and size of fruit and the number of apples per plant has diminished. In other words the production might have escalated in the recent years but the productivity has abbreviated. The quantity of adjunct fruits has diminished. There is reduction in the juice concentrates, jams, jellies and marmalades. The prime reason for a fall in the number of processed fruits is the mismanagement of the sector. The horticulture sector is completely unorganized as a result of which the processing food industry which was once functional in the north of Kashmir is no more functional and not only that no steps are taken for future as well. If the industry is taken care of it can be a great source of employment and revenue generation and hence will help to drive the economy. The present paper aims to bridge the gap between what had been said and what was few decades ago and now. A lot has changed from then and Kashmiri fruit is a lack-luster fruit now.

LITERATURE REVIEW

In the last few years, there has been a growing awareness and a need to identify the factors which play a vital role in increasing the exports of the products in which the country is good at. The horticulture also demanded the same need. Varied studies have been done in the past related to such areas. Many experts have worked on and concluded that horticulture in Kashmir has ample opportunity for driving economy of the state but it is deeply overlooked. The report of planning Commission Govt of India reads that Kashmiri horticulturists have preferred to remain the suppliers of primary products rather than diversify into value-added finished products

1)Economic survey -Jammu Kashmir 2014

S. P. Ghosh in the research paper "Carrying capacity of Indian horticulture stresses on the fact that northern states of India" (J&K, Punjab, Uttar Pradesh, Himachal) are presently facing serious ecological and economic problems associated with soil health, groundwater depletion and unfavorable cost risk return structure. It points towards the need to change the very approach for sustainable growth by combining crops, to advance productivity in sempiternity, without the associated ecological harm. Horticulture should receive greater attention in the hills after taking care of proper soil and water-conservation measures.

In the report titled , "Impact Evaluation Report Of Horticulture Mission for North East And Himalayan States (HMNEH)" published By Agricultural Finance Corporation Ltd, it is mentioned that the horticulture processing sector is highly underdeveloped. In India less than 2 percent of horticulture produce is currently processed as compared to 65 to 80 percent in the developed countries. There is a need to encourage setting up of horticulture based processing units at different levels with due regard to the product quality and safety measures. Similarly, value addition is only 7 percent in India as against 88 percent in countries like UK. China's export competitiveness arises from low costs and a growing processing industry.

K.N. Nakshathr in the research report, "Development Of Horticulture: Challenges and Solutions Indian and Global perspectives" mentions about the farmer to consumer hurdles and talks about one of the major hurdles for farmers is that there are several layers of middlemen involved. The author also believes that the regulatory authorities are using outdated technologies which no longer help in developing the sector.

Fida Iqbal (2004), a researcher in the same field , discuss the importance of the horticulture and its opportunities and pointing out that the fruits of Kashmir is losing shine. The author believes that if proper measures are taken the sector is loaded with huge potential and hence can be a great source of revenue and employment.

OBJECTIVES

The following are the objectives of the study.

1. To study the history and development of horticulture in Kashmir.
2. To study the dependence of horticulture on the economy of Kashmir.
3. To study the problems faced by cultivators.
4. To analyze the factors which play spoilsport in production of fruits.
5. To recommend suitable measures for the rehabilitation of the horticulture sector.

HYPOTHESIS TESTED

- 1) There is no significant relationship between the climatic conditions and horticulture output.
- 2) There is no relationship between the plant food used and horticulture output.
- 3) There is no significant relationship between chemicals used and horticulture output.
- 4) There is no significant relationship between marketing middlemen and horticulture output.
- 5) There is no relationship between horticulture management and horticulture output.

METHODOLOGY

The present study is based on the primary and secondary data collected from the elements connected to the orchards spread over the Kashmir valley. The secondary data used in the research comprised of the data from books, magazines, journals, periodicals and websites. The study mainly focused on the primary data by administering the questionnaires and interviewing the sample elements. The present research has considered the convenient sampling technique having a size of 150 owners and 150 non stake holders(customers) for measuring the dip in horticulture sector.

SCOPE AND LIMITATION OF THE STUDY

The scope of the study includes all the fruits harvested in the Kashmir region. The present study is limited to the Kashmir valley having 300 respondents in the category of owners and customers. Besides there might be errors in the opinion of respondents. The study included both active and irregular customers.

ANALYSIS AND INTERPRETATION

The findings of the present study as well as relevant discussion have been summarized under following heads:

Tools applied for study: The following statistical tools were applied for this research and interpretations were made accordingly.

- A) Item-wise analysis.**
- B) Chi-square analysis.**
- C) Ranking analysis.**

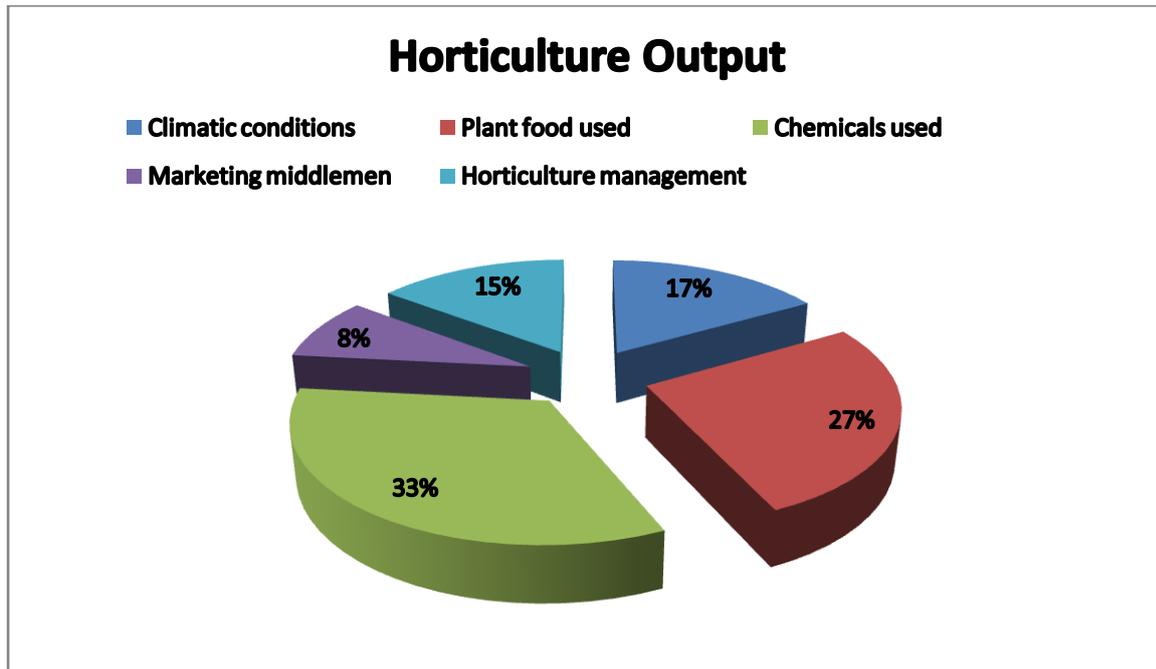
A)Item wise Analysis:-

In this section , the analysis was carried out separately on each and every factor present in the instrument (questionnaire and interview questions) which included age, gender, factors which influence horticulture output, occupation, income and locality. The section gives a glimpse of an idea about the reduction in the horticulture output as far as non stakeholders are concerned. The factors on which most of the respondents agreed upon became the variable factors for the statistical part in the later part of the paper. The various responses collected in the study are tabulated as:-

Factors which caused a reduction in output	No of respondents	Percentage
Climatic conditions	25	16.6
Plant food used	40	26.6
Chemicals used	50	33.3
Marketing middlemen	13	8.6
Horticulture management	22	14.6
Total	150	100.00

From the above table we can deduce that 16.6% respondents believe that climatic conditions are responsible for a fall in horticulture output while 14.6% opine that horticulture management is responsible for a decline in the output. The table shows most of the respondents (33.3%) blame chemicals used for a fall in output. After chemicals used the next big factor is the plant food used which is to say the quality of fertilizers. The same thing can be graphically put as:-

Analysis of non-stakeholders for a fall in horticulture output



B)CHI SQUARE ANALYSIS

The relationship between climatic conditions and horticulture output, quality of fertilizers used and horticulture output, brands of chemicals used and horticulture output, horticulture management and horticulture output and marketing middlemen hired and horticulture output have been analyzed and presented as:-

Climatic conditions and horticulture output:-

(1) There is no relationship between Climatic conditions and horticulture output.

Null Hypothesis (H₀):- The Null hypothesis indicated that there was no relationship between climatic conditions and horticulture output.

EXPECTED FREQUENCY.

Expected frequency (E) for each cell = $\frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$

Analysis On The basis of Climatic conditions and Horticulture Output .
Horticulture output

	Change	No change	Total
Climatic conditions	Same	32	62
	Changed	25	75
	Indifferent	3	13
	Total	60	150

Contingency table of expected frequencies

Horticulture Output

	Change	No Change
Same	37.2	24.8
Change	45	30
Indifferent	7.8	5.2

Climatic conditions

Arranging the observed and expected frequencies in Table 2 to calculate the value of χ^2 test-statistic.
Observed And Expected values

Observed (O)	Expected (E)	(O-E) ²	$\frac{(O-E)^2}{E}$
30	37.2	51.84	1.39
32	24.3	59.29	2.43
50	45	25	0.55
25	30	25	0.83
10	7.8	4.84	0.62
3	5.2	4.84	0.93
Total			6.75

Therefore,

$$\chi^2 = \sum \frac{(O-E)^2}{E} = 6.75$$

Degree of freedom:

The contingency table is of size 3*2, the degree of freedom would be

$$df = (n_0 \text{ of rows} - 1) (n_1 \text{ of column} - 1)$$

$$df = (3-1)(2-1)$$

$$df = 2*1=2$$

Level Of Significance.

$$\alpha = 5\% = 5.99.$$

$$\chi^2_{\text{Cal}} > \chi^2_{\text{Table}} ;$$

Therefore H_0 is rejected.

The table value of Chi-square for 2 degrees of freedom at 5% level of significance is 5.99. Since the calculated value is greater than the table value of Chi-Square, Null-Hypothesis is rejected and there is relationship between horticulture output and climatic conditions.

(2) There is no relationship between Plant food used and horticulture output.

Null Hypothesis (H_0):- Let Null hypothesis be such that there is no relationship between plant food used and horticulture output.

The table value of Chi-square for 2 degrees of freedom at 5% level of significance is 5.99. Since the calculated value (26.13) is greater than the table value of Chi-Square, Null-Hypothesis is rejected and there is relationship between fertilizers used and horticulture output.

(3) There is no relationship between dosage of Chemicals used and horticulture output.

Null Hypothesis (H_0):- Let Null hypothesis be such that there is no relationship between Chemicals used and horticulture output.

The table value of Chi-square for 2 degrees of freedom at 5% level of significance is 5.99. Since the calculated value (7.16) is greater than the table value of Chi-Square, Null-Hypothesis is rejected and there is relationship between dosage of chemicals used and horticulture output..

(4) There is no relationship between marketing middlemen and horticulture output.

Null Hypothesis (H_0):- Let Null hypothesis be such that there is no relationship between marketing middlemen and horticulture output.

The table value of Chi-square for 2 degrees of freedom at 5% level of significance is 5.99. Since the calculated value (8.67) is greater than the table value of Chi-Square, Null-Hypothesis is rejected and there is relationship between fertilizers used and horticulture output.

(5) There is no relationship between horticulture management and horticulture output.

Null Hypothesis (H_0):- Let Null hypothesis be such that there is no relationship between horticulture management and horticulture output.

The table value of Chi-square for 2 degrees of freedom at 5% level of significance is 5.99. Since the calculated value (7.74) is greater than the table value of Chi-Square, Null-Hypothesis is rejected and thus there is relationship between horticulture management and horticulture output.

Overall Result Of Chi square analysis

Chi Square test

Association between	Calculated chi square value	Degree of freedom	Table value	Result
Climatic conditions and horticulture Output	6.41	2	5.99	Rejected
Plant Food used and horticulture Output	26.13	2	5.99	Rejected
Chemicals used and horticulture Output	7.16	2	5.99	Rejected
Marketing middlemen and horticulture output	8.67	2	5.99	Rejected
Horticulture management and horticulture output	7.74	2	5.99	Rejected

C) Ranking Analysis:- The factors which influence the horticulture output most are climatic conditions(increase in temperature),type of plant food used, chemicals used, marketing middlemen and horticulture management. Table below (Table 2) shows the opinion of stake holders(orchard owners) . Table 2 shows the rank based on the factors influencing the horticulture output. Chemicals used scored the first rank followed by the plant food used and climatic conditions as second and third rank respectively. On the basis of the experiment conducted management was placed at fourth rank and marketing middlemen got the last rank.

Ranking of problems faced by farmers:-

The problems which are faced most by the orchard owners are access to better quality of fertilizers, lack of awareness about the chemicals used, misguidance about the selling of products(apples), inefficient management by local authorities and poor transportation.. Table 3 shows the rank of problems faced by respondents. Lack of awareness scored the first rank, misguidance about the selling of products occupied the second rank, inefficient management by local authorities got third, access to better quality of fertilizers got fourth and poor transportation got fifth rank.

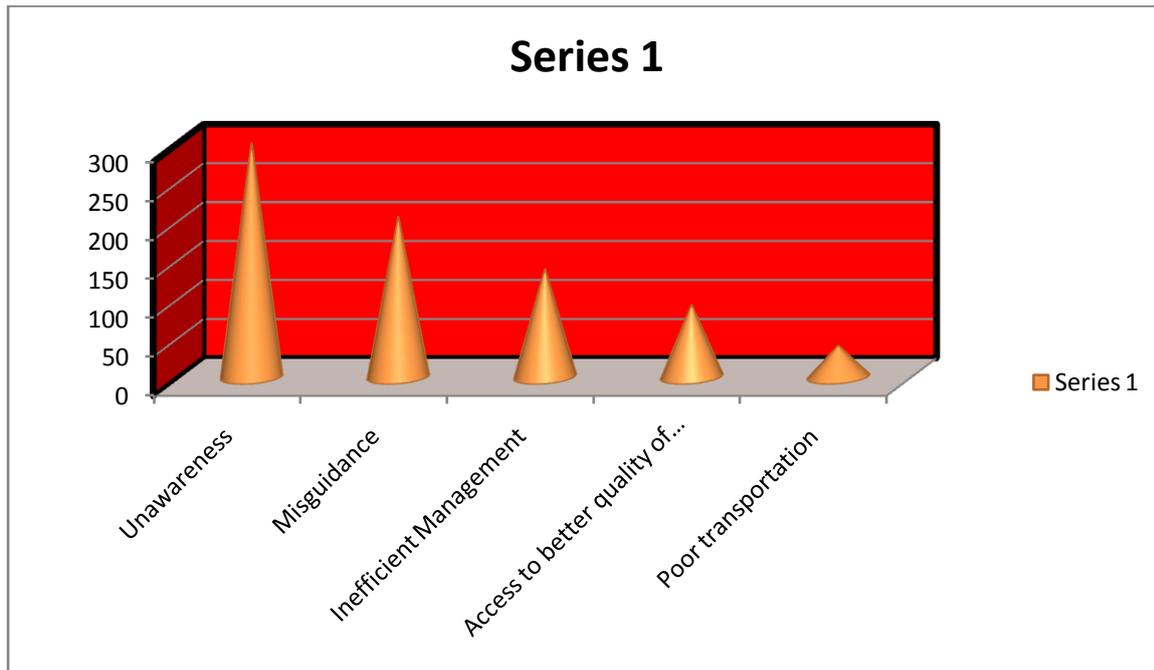
Table 2

Ranking of factors influencing the horticulture output							
Factors	1(5)	2(5)	3(3)	4(2)	5(1)	Weight age	score
Climatic Conditions	30	30	20	30	30	140	III
Palnt Food used	25	35	40	40	38	178	II
Chemicals used	65	50	55	50	42	262	I
Middlemen	10	15	15	10	12	62	V
Horticulture management	20	20	20	20	28	108	IV

Table 3

Problems faced by the farmers							
Problems	1(5)	2(5)	3(3)	4(2)	5(1)	Weight age	Score
Unawareness	65	60	55	50	70	300	I
Misguidance	35	40	50	40	40	205	II
Inefficient management	25	28	30	25	30	138	III
Access to better quality of fertilizers	20	22	15	20	15	92	IV
Poor transportation	5	10	5	15	5	40	IV

The same thing can be explained graphically as:-



Major conclusions:

On the basis of data collected and the results of analysis, following major conclusions can be drawn:

- It is observed that there are factors which have clouded the performance of horticulture sector. The factors like global warming, use of more fertilizers and less manure, supererogatory use of pesticides and inefficient supply chain have contributed to defile the horticulture sector. The results have been shown empirically using Chi square analysis. The need of the hour is to use high quality fertilizers equivalent of manure (bio-fertilizers) or manure itself so that the soil nutrients will not be lost and quality of fruit remains same. The use of surplus pesticides also has resulted in deteriorating the quality of horticulture output. It was observed in the paper that there is a significant relationship between horticulture management and horticulture output. Development of horticultural sector should be accompanied by the growth of the agro processing industry. The opportunity exists to promote the industry by intensifying production of a required, appropriate variety of fruits for the products like jam, juice, marmalade and pickles. If the management is proper, the processing industry can be developed which will help not only in increasing revenues but at the same time will help to drive the economy as whole.
- The state for the last few years is facing a huge unemployment crisis. The horticulture sector has an immense potential of generating employment. The major employment can be generated by developing the horticulture based agro processing units. This sector needs to be developed as an organized industry and has to be run collectively by all the stakeholders.
- There is a strong need to strengthen the research on horticultural crops to develop demand-driven technology by improved variety, pest management, etc., in both public and private sectors. These technologies should be quickly disseminated through appropriate channels by encouraging farmers' participation and upgrading their technical capabilities. The best way to find an alternative to Pest management control is to educate farmers because lack of knowledge is a major factor which tempts farmers to use superfluous pesticides without worrying about the long term effects.
- The use of lengthy chain of middlemen has to be reduced. Having a long supply chain not only makes the selling of fruit by farmers difficult but at the same time the farmer gets very less amount of the actual money paid. If efficient management is put into practice farmers will get better returns as a result motivation for cultivating more fruits gets boosted.

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