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A case study on demographical status of vegetables growers in Kaushambi District of Uttar Pradesh

¹ Pritesh Dwivedi, ² Ameesh John Stephen and ³ Victoria A. Masih

¹ Ph.D. (Research Scholar), SHUATS, Prayagraj, Uttar Pradesh, India

² Assistant Professor, SHUATS, Prayagraj, Uttar Pradesh, India

³ Professor, SHUATS, Prayagraj, Uttar Pradesh, India

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Corresponding Author: Pritesh Dwivedi

Abstract

The present study was conducted in the Sarswan, and Newada, block of Kaushambi, district Uttar Pradesh with the sample size of 200 respondents to know the demographical status of the vegetable growers in which primary and secondary data were used for the analysis with the different analytical tools and it was observed that the categorization of growers based on age, education, experience, income, occupation, and family size reveals significant associations with farm sizes, underlining the intricate dynamics of the agricultural landscape. Chi-Square tests confirm the statistical significance of these relationships.

Keywords: Chi square, percentage, and average

Introduction

Vegetable play an important role in agriculture and industrial economy. These crops, which come among the perishable commodities, are important ingredients of human diet. Moreover, in a country like India, where about 40% of the population is vegetarian, the need of vegetables in our diet is evident. Almost all vegetables contain varying amount of food contents, such as carbohydrates, fats, protein, vitamins, minerals, etc. Apart from the health improvements, the production of vegetables improves the economy of a country as these very good sources of income and employment. The contributions of vegetables remain highest (59-61%) in horticulture crop productions over the last five years. The nutritional intake from vegetables are higher among urban population than that of rural population. Along with urbanization, people are likely to increase their calorie intake at a higher pace through vegetables. The increase of calorie intake is more than 15% in urban area whereas is nearly 3.89% in rural area over the period from 2014-15 to 2019-20 (NHB report 2022).

Uttar Pradesh is the third largest producer of vegetables in India, contributing 9.8% in total production of vegetables. However, the vegetables produced in the state are mostly consumed in fresh form and only a negligible quantity is commercially processed. The marketing systems for vegetables in the state lacked systems approach. Traditional trading and marketing structure is prevalent consisting of long chain of intermediaries. Most of the vegetables growers in the state sell their produce at the farm level. The long marketing channels are detrimental to quality and safety of vegetables, which are highly perishable. The long chain of

intermediaries between producers and consumers adds costs but no value to the products. (Agricultural Statistics at a Glance 2021)

Research Methodology

Methodology, whether logical or statistical, is an important part of research that examines the materials and methods used in analysis. The survey was conducted in the districts of Kaushambi (3 Tehsil and 8 blocks). Agricultural production in the district is very mild compared to the rest of the state.

Sampling design

Selection of Districts

Eastern Uttar Pradesh consist 26 districts in which Kaushambi districts was selected purposively for the study.

Selection of Block

In order to selection of block, a complete list of blocks was obtained from the Block Development Office of Kaushambi. Out of 8 blocks in Kaushambi, Newada and Sarsawan bock was selected purposively for the Present study on the basis of highest production of selected vegetables.

Selection of Villages

A complete list of Tomato, Vegetable growers were obtained from Block Development Office i.e., Agriculture office of Kaushambi district, Gram Panchayat Office e.t.c.

Selection of Respondents

A complete list of all Growers of selected villages was obtained from Village Pradhan, Villages Panchayat development officers. Out of 10 present vegetables growers was Randomly selected from all the selected villages was categorized on the basis of land holding i.e. Marginal, Small, Semi-medium, Medium and large size groups.

Data and Its Sources

This survey includes both secondary and primary data. Secondary data will survey the agricultural economics of the study area, as well as vegetable cultivation across districts, federal states, and countries.

Analytical Tools

Chi-square Test - A test that evaluates how well a model matches real observed data is the chi-square (2) statistic. A chi-square statistic can only be calculated with data that is random, unprocessed, mutually exclusive, obtained from independent variables, and drawn from a sizable enough sample.

The Formula for Chi-square test-

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where,

χ^2 = Chi Squared

O_i = Observed Value

E_i = Expected Value

Averages

The average used in the present study relates to the simple

average.

Average was calculated by applying the following formula:

$$Average = \frac{\sum_{i=1}^n X_i}{n}$$

Where,

$\sum X_i$ = sum of independent variables

n = number of observations in data

Percentages

The percentage is the number or ratio expressed as a fraction of a hundredth. It is denoted using the percent sign “%”. It is computed as;

$$Percentage (\%) = \frac{X}{N} * 100$$

Where,

X = Respondents of desired class

N = Total number of respondents

Findings

This study aims to delve into the socio-economic status of vegetable growers in a specific study area, shedding light on the various facets that influence their lives, including economic well-being, living conditions, access to resources, and participation in wider community dynamics. Understanding the socio-economic conditions of vegetable growers is a crucial step towards informed policymaking, the development of sustainable agricultural practices, and the enhancement of the overall quality of life for these individuals and their communities.

Table 1: Age distribution of vegetable growers in study area

Sl. No.	Age Groups (Years)	Numbers of Respondents (Percent)					Grand Total	X ² =19.213 Dof = 8 Sig = 0.013
		Marginal (<1 Ha)	Small (1-2 Ha)	Semi Medium (2-4 Ha)	Medium (4-10 Ha)	Large >10 Ha		
1	20-35 Years	29 (14.5)	16 (8)	3 (1.5)	0 (0)	0 (0)	48 (24)	
2	36-50 Years	41(20.5)	32 (16)	22 (11)	13 (6.5)	2 (1)	110 (55)	
3	>50 Years	23 (11.5)	7 (3.5)	9 (4.5)	2 (1)	1 (0.5)	42 (21)	
	Total	93 (46.5)	55 (27.5)	34 (17)	15 (7.5)	3 (1.5)	200 (100)	

Source: Data collected and computed by the researcher

Table 2: Educational distribution of vegetable growers in study area

Sl. No.	Education	Marginal (<1 Ha)	Small (1-2 Ha)	Semi-Medium (2-4 Ha)	Medium (4-10 Ha)	Large >10 Ha	Grand Total
1	Illiterate	21 (10.5)	13(6.5)	2 (1)	0 (0)	0 (0)	36 (18)
2	Primary Level	27 (13.5)	18 (9)	7 (3.5)	0 (0)	0 (0)	52 (26)
3	10 th	19 (9.5)	9(4.5)	11 (5.5)	4 (2)	1 (0.5)	44 (22)
4	12 th	16 (8)	9 (4.5)	8 (4)	2 (1)	0 (0)	35 (17.5)
5	Graduation	8 (4)	5 (2.5)	4 (2)	6 (3)	1 (0.5)	24 (12)
6	Post- Graduation	2 (1)	1 (0.5)	2 (1)	3 (1.5)	1 (0.5)	9 (4.5)
	Total	93 (46.5)	55 (27.5)	34 (17)	15 (7.5)	3 (1.5)	200 (100)

X²=46.653, Dof = 20, Sig= 0.000
1. Source: Data collected by researcher

Table 3: Distribution of vegetable growers according to their Farming Experience

S. No.	Farming Experience in Years	Marginal (<1 Ha)	Small (1-2 Ha)	Semi-Medium (2-4 Ha)	Medium (4-10 Ha)	Large >10 Ha	Grand Total
1	<5 Years	14 (7)	9 (4.5)	3 (1.5)	3 (1.5)	0 (0)	29 (14.5)
2	05 to10 Years	23 (11.5)	13 (6.5)	8 (4)	7 (3.5)	1 (0.5)	52 (26)
3	10 to20 Years	37 (18.5)	26 (13)	17 (8.5)	4 (2)	2 (1)	86 (43)
4	>20 Years	19 (9.5)	7 (3.5)	6 (3)	1 (0.5)	0 (0)	33 (16.5)
	Total	93 (46.5)	55 (27.5)	34 (17)	15 (7.5)	3 (1.5)	200 (100)
$X^2=19.216, \text{Dof} = 8, \text{Sig} = 0.013$							
1. Source: Data collected by researcher							

Table 4: Average Income Level Wise Distribution of the Sample Respondents (Rupee/Year)

Sl. No.	Income in Rupee/Year	Marginal (<1 Ha)	Small (1-2 Ha)	Semi-Medium (2-4 Ha)	Medium (4-10 Ha)	Large >10 Ha	Grand Total
1	<100000 Rupee	53 (26.5)	17 (8.5)	8 (4)	2 (1)	0 (0)	80 (40)
2	100000-250000 Rupee	27 (13.5)	25 (12.5)	9 (4.5)	3 (1.5)	0 (0)	64 (32)
3	250000-500000 Rupee	12 (6)	9 (4.5)	12 (6)	7 (3.5)	2 (1)	42 (21)
4	>500000 Rupee	1 (0.5)	4 (2)	5 (2.5)	3 (1.5)	1 (0.5)	14 (7)
	Total	93 (46.5)	55 (27.5)	34 (17)	15 (7.5)	3 (1.5)	200 (100)
$X^2=47.956, \text{Dof} = 12, \text{Sig}=0.000$							
Source: Data collected by researcher							

Table 5: Distribution of the Respondents According to their Occupation

Sl. No.	Occupation	Marginal (<1 Ha)	Small (1-2 Ha)	Semi-Medium (2-4 Ha)	Medium (4-10 Ha)	Large >10 Ha	Grand Total
1	Agriculture	49 (24.5)	29 (14.5)	16 (8)	8 (4)	0 (0)	102 (51)
2	Animal Husbandry	19 (9.5)	13 (7.5)	3 (1.5)	1 (0.5)	1 (0.5)	37 (18.5)
3	Salaried	9 (4.5)	4 (2)	7 (3.5)	4 (2)	1 (0.5)	25 (12.5)
4	Business	16 (8)	9 (4.5)	8 (4)	2 (1)	1 (0.5)	36 (18)
	Total	93 (46.5)	55 (27.5)	34 (17)	15 (7.5)	3 (1.5)	200 (100)
$X^2 = 14.206, \text{Dof} = 12, \text{Sig} = 0.008$							
Source: Data collected by researcher							

Table 6: Distribution of the Respondents According to Number of Family Members

Sl. No.	Family Size	Marginal (<1 Ha)	Small (1-2 Ha)	Semi-Medium (2-4 Ha)	Medium (4-10 Ha)	Large >10 Ha	Grand Total
1	Small (1-2 Members)	32 (16)	17 (8.5)	6 (3)	5 (2.5)	0 (0)	60 (30)
2	Medium (2-5 Members)	43 (21.5)	24 (12)	17 (8.5)	6 (3)	2 (1)	92 (46)
3	Large (>5 Members)	18 (9)	14 (7)	11 (5.5)	4 (2)	1 (0.5)	48 (24)
	Total	93 (46.5)	55 (27.5)	34 (17)	15 (7.5)	3 (1.5)	200 (100)
$X^2 = 5.912, \text{Dof} = 8, \text{Sig} = 0.007$							
Source: Data collected by researcher							

Discussions

The study divides vegetable growers into three age groups: 18 to 25, 25 to 50, and over 50. The bulk of responders (55%) are between the ages of 25 and 50, followed by 24% between the ages of 18 and 25, and 21% beyond the age of 50. The chi-square test shows a substantial relationship between age groups and farm sizes. Respondents are classified according to their academic level: illiterate, primary level, 10th, 12th, graduation, and post-graduate. Primary schooling is most common (26%), followed by high school (22%). The chi-square test indicates a substantial relationship between education levels and farm size. Respondents' farming experience is divided into four categories: <5 years, 5-10 years, 10-20 years, and >20 years. The bulk of respondents (43%) had between 10 and 20 years of farming experience. The chi-square test shows a strong relationship between farming experience and farm size. The study looks at the respondents' income levels, which are divided into several income bands. The vast majority of

respondents (40%) earn less than 100,000 Rupees per year. The chi-square test reveals a substantial correlation between income levels and farm size. Respondents are divided into occupational categories, which include agriculture, animal husbandry, salaried work, and business. The majority of respondents (51%) work in agriculture, with animal husbandry accounting for 18.5%. The chi-square test shows a strong relationship between occupation and farm size. Respondents are classified according to their family size: small (1-2 members), medium (2-5 members), and big (>5 members). The majority (46%) of respondents live in a medium-sized family (2-5 persons). The chi-square test reveals a substantial relationship between family and farm sizes.

Conclusion

In conclusion, this study offers a comprehensive understanding of the multifaceted factors influencing vegetable farming and marketing in the Kaushambi region.

The categorization of growers based on age, education, experience, income, occupation, and family size reveals significant associations with farm sizes, underlining the intricate dynamics of the agricultural landscape. Chi-Square tests confirm the statistical significance of these relationships.

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