

A COMPARATIVE CONSUMER BEHAVIOUR STUDY OF INNOVATORS AND NON-INNOVATORS FOR VEGETABLE SEEDS AMONG FARMERS IN SAPROON VALLEY

Project Report

by

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(F-2002-MBA-25)**

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requirements for the degree of*

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CERTIFICATE-I

This is to certify that the project **“A comparative consumer behaviour study of innovators and non-innovators for vegetable seeds among farmers in Saproon valley”**, has been submitted to Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan (H.P) by **V. Rajesh Kumar Reddy (F-2002-MBA-25)** in partial fulfillment of **MBA(Agribusiness) programme**. This project has been done under my guidance and no part of this work has been submitted for any other degree or diploma.

The assistance and help received during the course of investigation and source of literature has been fully acknowledged.

Place : Nauni, Solan

Dated: 31-7-04



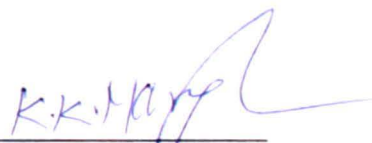
Project Advisor

CERTIFICATE-II

This is to certify that the project "**A comparative consumer behaviour study of innovators and non-innovators for vegetable seeds among farmers in Saproon valley**", has been submitted to Dr. Yashwant Singh Parmar University of Horticulture & Forestry, Solan (H.P.), by **V Rajesh Kumar Reddy (F-2002-MBA-25)** in partial fulfillment of MBA(Agribusiness) programme. This project has been approved by the examination committee after conducting an oral examination in collaboration with the external examiner.



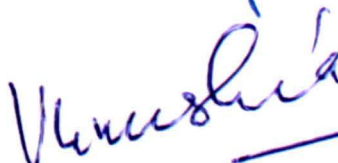
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V.R.K.Reddy.
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Chapter No	Title	Page no.
1.0	Introduction	1-10
2.0	Objectives of the Study	11
3.0	Methodology	12-14
4.0	Results and Interpretations	15-37
5.0	Marketing Implications	39
	References	
	Annexure	

List of Tables

4.1.	Consumer Behavior Characteristics of Innovators and Non-Innovators	15-23
4.1.1.	<i>Crops sown by Innovators and Non-Innovators</i>	16
4.1.2.	<i>Ranking of Factors</i>	17
4.1.3	<i>Source of purchasing the seeds</i>	18
4.1.4	<i>Brands used by Innovators and Non-Innovators</i>	19
4.1.5.	<i>Source of Information for farmers.</i>	20
4.1.6.	<i>Shops visited by the farmers before the purchase of seeds</i>	21
4.1.7.	<i>Brands compared by Innovators and Non-Innovators</i>	22
4.1.8.	<i>Time of purchase of seeds prior to sowing</i>	23
4.2	Demographic characteristics of Innovators and Non-Innovators	24-32
4.2.1.	<i>Age wise distribution of Innovators and Non-Innovators</i>	25
4.2.2.	<i>Educational Status of Innovators and Non-Innovators</i>	26
4.2.3.	<i>Occupation of Innovators and Non-Innovators</i>	27
4.2.4.	<i>Annual Income status of Innovators and Non-Innovators</i>	28
4.2.5.	<i>Land Cultivated by Innovators and Non-Innovators</i>	29
4.2.6.	<i>Irrigation Facilities available for the cultivated land</i>	30
4.2.7.	<i>Type of Families of Innovators and Non-Innovators</i>	31
4.2.8.	<i>Family size of Innovators and Non-Innovators.</i>	32
4.3.	Media Usage Characteristics of Innovators and Non-Innovators	33-37
4.3.1.	<i>Newspapers read by Innovators and Non-Innovators</i>	34
4.3.2.	<i>Magazines read by Innovators and Non-Innovators</i>	35
4.3.3.	<i>TV Programs watched by Innovators and Non-Innovators</i>	36
4.3.4.	<i>Radio programs heard by Innovators and Non-Innovators</i>	37

INTRODUCTION

1.0 Introduction

Farming practices and use of farm inputs in India is a 5 million year old concept, probably as old as farming itself. The Harappans first started domestication of plants. The practices used by them are still used in these days. (Agriculture Today, Dec 2001)

In India, farming practices are restricted largely to the traditional methods in the past. These have undergone a silent revolution now. After the achievement of Independence it became must to go for modern farm practices and inputs in order to attain self- sufficiency.

The introduction of new technology in Agriculture has been adopted slowly in India and its gradually coming of age. The use of farming practices and technologies suitable to Indian agricultural conditions is the most important factor today for the changes in the productivity levels. However, this change in the productivity level is not as fast as the technology is changing.

In the present scenario, due to the technological break through the farming has become hi-tech.. Inputs used in farming have become technological driven, with replacement of fertilizers with bio-fertilizers, pesticides with bio-pesticides, seeds with hybrid and GM seeds. Use of bio-control agents, bio-stimulants etc. are some of the examples of technological changes in farm input practices. These inputs have been changing the productivity levels very rapidly. If these technological changes are adopted properly, there can be a great revolution in the Indian agriculture, which faces the challenge of feed on ever-increasing population.

1.1 Need for Dynamic Seed Production:

In a country like India, to have a sustained growth in agriculture production is very important because our GDP relies heavily on Agriculture production. Agriculture sustains the livelihood of two-thirds of population. For the sustained growth in agriculture production, seeds play a very important role, as they are the vital input for sustained growth in Agriculture production. In the last three decades Indian seed has undergone a great revolution. As of now there are more than 200 seed companies in the country which includes small, medium and big companies (Agriculture Today, Feb 2003).

The quality of seeds has a great effect on the crop yield. From time immemorial, farmers have been saving their own seeds, doing their own selection and looking around for promising varieties. The development of modern agricultural science and modern processing technology has now made it possible for us to improve the quality of seeds as well as the characteristics of seeds in a systematic fashion. Earlier, we used to depend on the mercy of random mutations in nature. However, we should never forget that seed is normally meant for the farmer's use and it must further his interests.

The farmer is faced with bewildering varieties of seeds in the market, some are certified, some are not certified; some are from private sector and some are from public sector. It's not easy for him to distinguish seed quality. The seed certification system is the only third guarantee we have, which gives the farmers some reliable protection.

In order to solve the food problems because of the increasing population it's very necessary to have efficient agriculture. The arable land being limited, it is not possible to bring fresh areas under cultivation. Similarly, the available funds being limited, it would not be possible to keep extending subsidies indefinitely. Therefore, the only way to achieve agriculture growth is through increased productivity, which is possible only with the help of seeds of

1.2 CONSUMER INNOVATORS

Though the technology is changing very rapidly in seed industry and many superior varieties are available in the market, the adaptation of this technology is not fast. Farmers are very resistant to these changes happening in the technology. Till now most of the farmers go for the seeds of low quality and low vigor. Most of the farmers are mediocre and they don't want to take risk by going for new technology as it involves a little more investment when compared to the traditional practices, and the results of change are always doubtful.

Farmers under such risk always prefer the technology that is tested before and which was a success before. However, some farmers like to make use of that technology. Those farmers who introduce new technology for farm practices and farm inputs can be called as *Consumer Innovators*. These Innovators play an important role to make the technology adapted by others. They help to spread the information by being the first ones to try out a new farm input/practice.

Consumer Innovators can be defined as "*the relatively small group of consumers who are the earliest purchasers of a new product*".

Consumer Innovators are more interested to use the new products. They are more likely than Consumer Non-Innovators to seek information concerning their specific interests from a variety of informal and mass media sources. Consumer Innovators are more likely to give greater deliberation to the purchase of new products or services in their areas of interest than Consumer Non-Innovators.

known percentage, purity and viability. With out a strong support from seed industry, it's not possible to conceive the nation to face the productivity problems.

India possesses almost all the ingredients to produce high quality seeds. The country has scientific and technical manpower to produce good quality of seeds that have the capacity to give high yields due to which many good varieties of seeds arrived in the market. Though the seeds are available, there are a number of problems in ensuring that seeds reach all parts of the country. The consumption of seed is concentrated only in few progressive areas.

Though sometime the monetary value of a bag of seed appears to be low, it's the first essential input in agricultural production. With out seed its impossible to raise our productivity levels. The seed industry is not assessed in terms of its contribution to raising crop yield. With out such increased production it would not be possible to improve social and economic welfare of farmers.

1.1.1 Importance of Vegetable Seed Production in H.P

The vegetable cultivation in H.P. depends on exploiting the comparative advantage that has in producing fresh market vegetables at the time when these are not available in the plains. The vegetables grown during summer months therefore assume significant importance in hill horticulture. Vegetables such as tomato, capsicum, french bean, cabbage, cauliflower, peas, temperate carrot and cucumber assume strategic importance because all of them can be produced during summer month at one or other elevation and marketed in the plains. So in order to increase the profits arising due to off-seasonal production of vegetables its very important to have good variety of vegetable seeds so that production becomes high, so as the profits.

1.2.1 Personality Traits of Consumer Innovators and Non-Innovators

The personality traits of consumer Innovators and Non-Innovators as per Schiffman and Kanuk are

Dogmatic: Innovators tend to approach new or unfamiliar products with considerable openness and little anxiety whereas Non-Innovators find new products threatening to the point they prefer to delay purchase until the products success has been clearly established

Inner directed: Innovators rely on their own values or standards when making a decision about a new product.

Informative: Innovators are more likely to react favorably to informative or fact-oriented advertising in the product category that appeals to their strong interest and to readily evaluate the merits of a new product on the basis of their own personal standards. Non-Innovators react lately.

Perceived risk: It's the degree of uncertainty or fear about the consequences of a purchase that a consumer feels when considering the purchase of a new product.

Venturesomeness: It's a broad-based measure of consumer willingness to accept the risk of purchasing new products. Venturesomeness is more in the case of Innovators when compared to Non-Innovators.

Deal Prone: Consumer Innovators are likely to be deal-prone i.e., they take advantage of special promotional offers like free samples.

1.4 CONSUMER BEHAVIOR : A GENERAL OVERVIEW

Marketing is so basic that it can be considered separate function... it's the whole business seen from the point of view of its final result, that is from the customers point of view.

The importance of the consumers has grown with the growth of the marketing function. Marketing knowledge has substantially advanced thanks to the application of behavioral sciences such as psychology, sociology and economics and the use of many statistical and mathematical tools. Today there is growing realization that decision making by hunch or intuition must be replaced by scientific method based on facts and that there should be a better understanding of buyer behavior and better methodology for solving marketing problems. Research in the field of consumer behavior has assumed utmost importance and that is why study has been chosen.

Buying behavior is comparatively, a new field of study. It's the attempt to understand and predict human actions in the buying role. It has assumed growing importance under market – oriented or customer oriented marketing planning and management. Buyer's market for many products and the growth of consumerism and consumer legislation since 1960 have created special interest in consumer or buyer behavior and the formulation of marketing mixes to respond favorably buyer behavior in the market place.

Buyer behavior is defined as all psychological, social and physical behavior of potential customers as they become aware of products, evaluate purchases, consume and tell others about products and services.

A vital factor in marketing is to satisfy the customer, to leave him with the feeling that the seller has rendered valuable service which the buyer will be

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A vital factor in marketing is to satisfy the customer, to leave him with the feeling that the seller has rendered valuable service which the buyer will be

glad to use again. The success of marketing program depends on the products being tailor made to fit the final user.

The forces having an influence on consumer behavior is his personal motivational and environmental factors. For understanding the consumer, the marketers need to know why people buy things. For this Maslow's need hierarchy is very useful. Abraham Maslow sought to explain why people are driven by particular need at particular times. Maslow theory helps marketers understand how various products fit into the plans, goals and lives of potential consumers.

There are two distinct motives as to why people buy:

A) EMOTIONAL BUYING MOTIVES

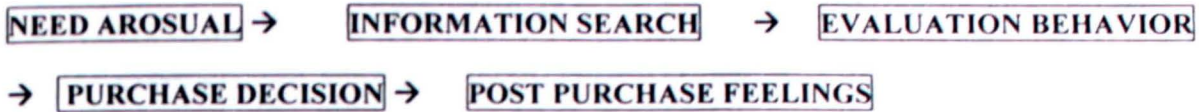
- Distinctiveness
- Emulation
- Economic Emulation
- Pride of personnel appearance
- Pride of appearance and prosperity
- Social achievements
- Proficiency
- Romantic instinct and so on

B) RATIONAL BUYING MOTIVES

- Handiness
- Efficiency in operation or use
- Dependability in quality
- Reliability
- Durability and so on

After having general background of why people buy things and before studying factors influencing buying decision, it will be fruitful to study the consumer decision process. The buying process can be summarized as follows

1.4.1 SIMPLIFIED BUYING BEHAVIOR



Consumer satisfies their demands and needs by purchasing a variety of goods and services. They have many reasons for buying and are influenced by many forces in the market place, in the home and in their everyday environment. Understanding behavior is essential for any marketing manager for marketing, planning and program. A marketing manger has to develop knowledge and insight, which is called buying habit and buying motives.

Buying habits are defined as the repeated patterns of behaviors followed by customers in the process of acquiring goods or services.

The buyers and their purchases can be categorized according to number of psychological dimensions. Woods (1960) has established the following breakdown about customers.

- a) A habit determined group of brand loyal consumers who tend to be satisfied with the last purchased product on brand.
- b) A cognitive group of consumers, sensitive too rational claims and only conditionally brand loyal.
- c) A price cognitive group of consumers who principally decide because of price.
- d) Impulse consumers who buy on the basis of physical appeal relatively insensitive to brand name.
- e) Emotional reactors are those who tend to be responsive to what product symbolizes and who are heavily swayed by image.

- f) A group of new consumers not yet satisfied with respect to the psychological dimension consumer behavior.

1.4.2 MODEL OF CONSUMER BEHAVIOUR

At one time marketers could understand consumers through the daily experience of selling to them. However, the growth of companies and markets has removed many marketing managers from direct contact with customers. Increasingly, managers have had to rely on the 7'O's framework for consumer research to answer the

Who contributes the market	Occupants
What does the market buy	Objects
Why does the market buy	Objectives
Who participate in buying	Organizations
How does the market buy	Operations
When does the market buy	Occasions
When does the market buy	Outlets

[Philip Kotler, 2000]

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1.3 Need of Study

Today farming has become technologically driven due to many hi-tech practices evolved, which results in good productivity levels. But only some people introduce this technology, so by this study it becomes easy to find out who is the first to use the technology.

There is great amount of resistance to the changes in technology. In order to reduce resistance to these changes its desirable to find out Consumer Innovators, as it becomes easy to make the farmers adopt technology by observing Consumer Innovators or by his word of mouth.

Companies when introduce new technology or product, they always find difficult to spread information regarding the product especially among farmers and to make that technology or product established is more difficult because most of the farmers want to adopt tested product or technology. So by finding Consumer Innovators and by studying their consumption behavior it becomes easy to spread the importance and information of technology to the farmers. This will also help in reducing wasteful marketing expenditure as effort at launch of new farm inputs/products can be directed at Consumer Innovators who are likely to yield results. By studying the consumer behavior of Innovators and Non-Innovators, it helps the marketer to easily find where the efforts should be made so that best results can be obtained.

2.0 Objectives of the Study:

- To find out the Consumer Innovators and Non-Innovators among farmers regarding vegetable seeds in Saproon valley.
- To compare the Consumer Behavior of Consumer Innovators and Non-Innovators among farmers of vegetable seeds in Saproon valley.
- To study the Demographic characteristics of Innovators and Non-Innovators.
- To study the media usage characteristics of Innovators and Non-Innovators.
- To compare the demographics and media graphic factors in relation to the consumer behavior of Innovators and Non-Innovators.

3.0 METHODOLOGY

3.1 Selection of the Study area:

Sapruon valley of Solap District was chosen out of 12 districts of the state for vegetable crops and major area of Solap District is Sapruon valley. Sapruon valley is a fertile valley.

METHODOLOGY

3.2 Sampling methods:

3.2.1 Random sampling:

Since the population is large, it was possible to use random sampling technique. The population was divided into agricultural and non-agricultural.

3.3 Sampling frame:

3.3.1 A list of villages:

3.4 Data collection:

3.4.1 The sample population:

30 innovative farmers were selected.

30 non-innovative farmers were selected.

was considered. Total sample size was 60.

valley is estimated to be about 1000. Thus we

we apply Chi-Square test to the data that was

3.0 METHODOLOGY

3.1 Selection of the Study area:

Sapruon valley of Solan District was purposively selected for the study, because out of 12 districts of the state, Solan district ranks first in area under vegetable crops and major area of Solan district under vegetable crops comes in Sapruon valley. Sapruon valley is famous for vegetable production and for quality seed production.

3.2 Sampling method:

Convenient sampling technique was used as the sampling method. Since the emphasis was comparing innovators and non-innovators, it was not possible to locate adequate number of innovators using random sampling techniques. Innovators were identified with the help of retailers dealing in agricultural inputs, and those conveniently approachable were approached.

3.3 Sampling Unit:

A farmer of Sapruon valley was selected as sampling unit

3.4 Sampling size:

100 farmers were taken as sample size for the study. In this a sample of 50 innovative farmers for seeds were determined and interviewed and the other 50 non-innovative farmers were also determined and interviewed. This sample was considered large enough as the total number of farmers in the Sapruon valley is estimated to be about 3000. This sample was considered large enough to apply Chi- Square test to the data that was collected for this study.

3.5 Collection of Data:

3.5.1 Primary data:

The primary data for the present study was collected through interview schedule.

First, to find out the Innovators a scale given by Ronald E. Goldsmith and Charles F. Hofacker was used in which there are six questions that helps to determine the Consumer Innovativeness. In the same way, Non-Innovators were also determined and interviewed with the help of an Interview schedule.

3.5.1.1. Interview Schedule:

The interview schedule consisted of Questions related to the consumer behavior of the farmers. It also had questions related to their demographics and media usage.

There after based on interview schedule, cross tabulation of innovators and non-innovators was done and to find out the significance of differences in their behavior chi-square test was applied to the cross tabulation.

3.5.2 Secondary Data:

The secondary information concerning to the study was collected from the Agriculture department, Solan which was a list of farmers residing in the Saproon valley.

3.6. Analytical Tool:

Chi-square was used to test the significance of the differences in behavior between Innovators and Non-Innovators.

3.6.1 Chi-square:

Chi-square test was applied to measure the degree to which a series of observed frequencies of the innovator and non-innovator groups are deviating from their corresponding expected frequencies.

If O_i ($i = 1, 2, 3 \dots n$) is a set of observed frequencies and E_i ($i = 1, 2, 3 \dots n$) is a set of Expected frequencies then

Chi-square is calculated by the formula

$$\text{Chi-square} = \sum \frac{(O-E)^2}{E}$$

Expected frequency is calculated by the formula : $R_1 \cdot C_1 / N$

Where, R is the row total,

C is the column total,

N is the overall total of responses

RESULTS & INTERPRETATIONS

4.0 RESULTS AND INTERPRETATION:

SECTION – I

4.1 Consumer Behavior characteristics of Innovators and Non-Innovators

Consumer Behavior study is very important for a marketer as it helps the marketer to know about the buying characteristics of the consumers. The consumer behavior study includes what the consumers buy, how they buy, why they buy and the promotional influences that persuade them to buy. By studying all these it helps marketer to take better strategic marketing decisions regarding a product.

The succeeding tables show the differences in buying behavior characteristics of Innovators and Non-Innovators

4.1.1 Crops that are grown by the farmers

Table 4.1.1. Crops grown by Innovators and Non-Innovators

Name of the crop	Innovators	Non-innovators
Tomato	50	50
Capsicum	42	44
Cabbage	46	38
Cauliflower	40	42
Peas	48	40
Radish	26	18
Carrot	32	22
Broccoli	36	24

Ho: There is no difference in the crops grown by Innovators and Non-Innovators.

H1: There is difference in the crops grown by Innovators and Non-Innovators.

χ^2 calculated: 9.5

χ^2 tabulated at 95% level of significance at 7 Degree of freedom : 14.067

Since calculated value of Chi- Square is less than tabulated value, H0 is accepted. That means there is no difference in the crops grown by Innovators and Non-Innovators. Both the farmers grow the crops like tomato, capsicum, cabbage, cauliflower, peas etc.

4.1.2. Important decision-making factors based on which Farmers buy Seeds.

Table 4.1.2 Decision-making Factors

The following table shows the factors that farmers prefer to have in seeds which drives them to buy seeds

Factors	Innovators	Non-Innovators
High Yielding Capacity	190	156
Demand for crop in the market	135	109
Easy Availability	135	176
Disease resistant	160	118
High productivity	145	174
Drought Resistant	120	12

H_0 : There is no difference in the Decision making factors based on which farmers buy the seeds

H_1 : There is difference in the decision making factors based on which farmers buy the seeds

χ^2 calculated : 84.91

χ^2 tabulated at 95% level of significance for 5 degree of freedom: 11.07

Since calculated value is greater than the tabulated value, H_1 is accepted.

Innovators buy the seeds mainly by looking for characteristics like high yielding capacity of the seeds and disease resistance towards the diseases of the seeds. Non-Innovators buy the seeds due to the easy availability and high productive capacity of the seeds.

4.1.3. Source from which Innovators and Non-Innovators purchase the seeds.

The table below gives the details about the source from which the Innovators and Non-Innovators are interested to buy the seeds

Table.4.1.3. Source of purchase

Source	Innovators	Non- Innovators
Dealer /Retailer	46	36
Govt. Department	10	23
Representatives	16	6
University	3	0

Ho: There is no difference between Innovators and Non-Innovators regarding the source from which they purchase the seeds

H1: Innovators mainly go for Dealer/Retailer and Marketing Representative's
Whereas Non-Innovators go mainly for Dealer/Retailer and Govt. department for the purchase of seeds.

χ^2 calculated : 12.47

χ^2 tabulated at 95% level of significance for 2 degree of freedom: 5.991

Since calculated value is greater than the tabulated value, H1 is accepted i.e., more Innovators purchase seeds from dealers/retailers as compared to non-innovators.

Some of the Innovators are also interested to buy the seeds from the University of Horticulture and Forestry.

4.1.4. Brands preferred by Innovators and Non-Innovators

Table4.1.4. Brands Preferred

Name of the brand	Innovators	Non- Innovators
Rallis	6	9
Seminis	5	5
Syngenta	4	4
Indo-American Seeds	30	45
Mahyco	14	13
Century	13	12
Pioneer	3	6
Shetobeejal	1	2
RK	3	6
Numhens	1	0
UHF	2	0

Ho: There is no difference between Innovators and Non-Innovators regarding the Brands purchased by them

H1: Innovators and Non-Innovators use Indo-American seeds and Innovators are also interested to use the seeds of University of Horticulture and Forestry

χ^2 calculated : 19.08

χ^2 tabulated at 95% level of significance at 6 Degrees of Freedom : 12.592

Since calculated value is greater than tabulated value, H1 is accepted. That means Indo-American seeds is the brand preferred by Innovators and Non-Innovators.

University produced varieties are also preferred by Innovators whereas Non-Innovators don't prefer university seeds.

4.1.5. Source of information for seeds used by the farmer before Purchase of seeds.

This table shows the source from which Innovators and Non-Innovators are likely to get information about seeds before their purchase

Table 4.1.5. Source of information

Source	Innovators	Non- Innovator
Other farmers	8	28
Govt. Departments	10	27
News papers	5	2
TV programs	5	0
Radio	9	5
Representatives	31	18
Dealer/Retailer	18	5
UHF	1	0

Ho: There is no difference between Innovators and Non-Innovators regarding the source of information for seeds.

H1: More Innovators go for Marketing Representatives and Dealers/Retailers whereas Non-Innovators go to other farmers and Govt. department for information regarding seeds

χ^2 calculated : 36.60

χ^2 tabulated at 95% level of significance at 5 Degree of Freedom : 11.07

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators go for Marketing Representatives and Dealers/Retailers whereas Non-Innovators go for other farmers and Govt. department for information regarding seeds.

4.1.6. Shops visited and compared by Innovators and Non-Innovators before the purchase of seeds

Table 4.1.6. Shops visited

Number of Shops	Innovators	Non- Innovators
One	15	24
Two	22	19
Three	7	6
Above Three	6	1

H₀ There is no difference between Innovators and Non-Innovators pertaining the number of shops visited and compared before the purchase of seeds

H₁ Innovators go to two or more shops where as Non-Innovators go mostly to one shop before the purchase of seeds.

χ^2 calculated : 6.11

χ^2 tabulated at 95% level of significance at 2 degree of freedom : 5.991

Since calculated value is greater than tabulated value, H₁ is accepted i.e., Innovators visit more than two shops whereas Non-Innovators go mostly to one shop before the purchase of seeds.

4.1.7. Brands compared by Innovators and Non-Innovators

Table 4.1.7. Brands compared

Number of Brands	Innovators	Non- Innovator
One	7	24
Two	21	18
Three	15	7
Above Three	7	1

Ho: There is no difference between Innovators and Non-Innovators regarding the Number of brands compared by them before the purchase of seeds.

H1: Innovators compare two or three brands where as Non-Innovators go for one brand at the time of purchase of seeds.

χ^2 calculated : 16.10

χ^2 tabulated at 95% level of significance at 2 Degree of Freedom : 5.991

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators compare two to three brands where as Non-Innovators go for one brand at the time of purchase of seeds.

4.1.8. Time of purchase of seeds prior to sowing.

Table 4.1.8. Time of purchase

Time	Innovators	Non- Innovator
1 week	6	12
15 days	37	21
20-25 days	6	17
1 month	1	0
Above 6 months	0	0

Ho: There is no difference between Innovators and Non-Innovators pertaining to the time prior the seeds are purchased before sowing

H1: Innovators purchase seeds, 15 days before sowing, whereas the Non- innovator may purchase seed any time between one week and 25 days prior to sowing time.

χ^2 calculated : 11.64

χ^2 tabulated at 95% level of significance at 2 Degree of Freedom: 5.991

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators purchase seeds, 15 days before sowing and Non-Innovators purchase the seeds at any time between one week and 25 days

SECTION- II

4.2 Demographic characteristics of Innovators and Non-Innovators

The demographic features are of vital importance, because they influence the organization and management of farms. The nature of owner ship of land, Irrigation facilities available to the land, family size, educational level, Income of the farmer have great bearing on the decision making process of the farmers.

The succeeding tables describe the demographic features of the Innovators and Non-Innovators.

4.2.1. Age wise distribution of Innovators and Non-Innovators

Table 4.2.1. Age-wise category

Age	Innovators	Non- Innovator
18-25 years	9	3
25-35 years	19	10
35-50 years	13	25
Above 50 years	9	12

Ho: There is no difference between Innovators and Non-Innovators pertaining to the age category in which they fall

H1: Majority of the Innovators fall in the age category of 25-35 years whereas majority of Non-Innovators fall in the age category of 35-50 years and 50 years plus.

χ^2 calculated : 9.68

χ^2 tabulated at 95% level of significance at 2 Degree of Freedom: 5.991

Since calculated value is greater than tabulated value, H1 is accepted i.e., Majority of the Innovators fall in the age category of 25-35 years whereas majority of Non-Innovators fall in the age category of 35-50 years and 50 years plus.

The above interpretation implies that majority of the Innovators are younger in age when compared to the Non-Innovators.

4.2.2. Educational Qualifications of Innovators and Non-Innovators

Table.4.2.2. Educational status

This table shows the educational qualifications of Innovators and Non-Innovators..

Educational Qualification	Innovators	Non- Innovator
Below matriculate	0	10
Matriculate	5	8
Intermediate	7	20
Graduate	29	12
PG	9	0

Ho: There is no difference in educational qualification between Innovators and Non-Innovators.

H1: Innovators are mostly graduates whereas Non-Innovators are mostly 10+2 qualified

χ^2 calculated : 27.12

χ^2 tabulated at 95% level of significance at 2 Degree of Freedom: 5.991

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators are mainly graduates whereas Non-Innovators are mostly 10+2 qualified.

This implies that level of education becomes more significant in vegetable farming, as it is one of the capital intensified enterprises in the farm. It helps to adopt farmers the latest techniques

Table 4.2.3. Occupation of Innovators and Non-Innovators

Table 4.2.3. Occupation

Occupation	Innovators	Non- Innovator
Agriculture	41	44
Others	9	6

Ho: There is no difference in the occupation between Innovators and Non-Innovators.

H1: There is difference in the occupation between Innovators and Non-Innovators.

χ^2 calculated : 2.14

χ^2 tabulated at 95% level of significance at 1 Degree of Freedom: 3.182

As the calculated value is less than the tabulated value H0 is accepted i.e., there is no difference in the occupation between Innovators and Non-Innovators.

Innovators and Non-Innovators are having Farming as their primary occupation

4.2.4. Annual Income range of Innovators and Non-Innovators from all the Sources

Table 4.2.4. Income status

The table below shows the annual income of the Innovators and Non-Innovators from all the sources. The income of the family also plays an important role in decision making process.

Income	Innovators	Non- Innovators
Below 50,000 rupees	2	10
RS 50,000-RS 1.00,000	12	24
RS 1,00,000-RS 2,00,000	28	11
Above RS 2,00,000	8	5

Ho: There is no difference in annual income between Innovators and Non-Innovators.

H1: Innovators chiefly earn between RS 1 lakh to 2 lakh per annum, whereas Non-Innovators earn between RS 50,000 and RS 1 lakh per annum.

χ^2 calculated : 16.46

χ^2 tabulated at 95% level of significance at 2 Degree of freedom: 5.991

Since calculated value is greater than tabulated value, H1 is accepted i.e., Majority of Innovators earns between RS 1 lakh to 2 lakh whereas Non-Innovators earn between RS 50,000 and RS 1 lakh.

The above table shows that farmers who are having high annual income are Innovators. As they have high annual income they are willing to take risk by going for the variety of seeds.

4.2.5. Land Cultivated by Innovators and Non-Innovators

Table 4.2.5. Area Cultivated

The table below depicts the land cultivated by the Innovators and Non-Innovators. It's an important parameter because the size of land holding enables the farmer to take risk by going for new techniques of crop cultivation

Size of Land	Innovators	Non- Innovator
Below 1 acre	9	24
1-5 acres	15	12
5-15 acres	12	9
15-30 acres	8	5
Above 30 acres	5	0

Ho: There is no difference between Innovators and Non-Innovators pertaining to the total cultivable land.

H1: Innovators cultivatable land is between 1-15 acres whereas Non-Innovators cultivable land is below 0-5 acres.

χ^2 calculated : 10.25

χ^2 tabulated at 95% level of significance at 3 Degree of Freedom : 7.815

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators cultivatable land is between 1-15 acres whereas Non-Innovators cultivable land is below 0-5 acres.

This implies that Innovators are having large land holding when compared to Non-Innovators and as the Innovators are having high land holding they are interested to take risk by going for new variety of seeds in a small area of land.

4.2.6. Irrigation Facilities available for the cultivated land of Innovators and Non-Innovators

Table 4.2.6. Irrigation facilities

Table 4.2.6. Irrigation facilities

This table shows the irrigation facilities available for the cultivated land. It's an important parameter because irrigation facilities play a important role in the crop productivity. Lands with good irrigation facilities have good production capacity.

Irrigation facilities	Innovators	Non- Innovator
Below 1 acre	10	29
1-5 acres	27	16
5-15 acres	11	5
15-30 acres	2	0
Above 30 acres	0	0

Ho: There is no difference in the irrigation facilities available to Innovators and Non-Innovators.

H1: Innovators have irrigation facilities for land between 1-5 acres where as non-Innovators got irrigation facilities for land below 1 acre

χ^2 calculated : 15.48

χ^2 tabulated at 95% level of significance at 2 degree of freedom : 5.991

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators have irrigation facilities for land between 1-5 acres where as non-Innovators got irrigation facilities for land below 1 acre.

This implies that Innovators are having better irrigation facilities than Non-Innovators.

4.2.7. Type of Families of Innovators and Non-Innovators

Table 4.2.7. Type of family

Type of family	Innovators	Non- Innovator
Joint	26	35
Nuclear	24	15

Ho: There is no difference in the type of families between Innovators and Non-Innovators.

H1: Majority of Non-Innovators are in joint families when compared to Innovators

χ^2 calculated : 2.9

χ^2 tabulated at 95% level of significance at 1 Degree of Freedom : 3.182

Since calculated value is less than the tabulated value, Ho is accepted. That means majority of Non-Innovators come in the category of joint family when compared to Innovators.

4.2.8 Family size of Innovators and Non-Innovators.

Table 4.2.8. Family size

Number of family members	Innovators	Non-Innovators
Greater than 5	31	36
Less than 5	19	14

Ho: There is no difference in the total number of family members among Innovators and Non-Innovators

H1: There is no difference in the total number of family members among Innovators and Non-Innovators

χ^2 calculated : 2.97

χ^2 tabulated at 95% level of significance at 1 degree of freedom : 3.812

Since calculated value is lesser than tabulated value, H1 is accepted i.e.,

There is no difference in the total number of family members among Innovators and Non-Innovators

SECTION – III

4.3 Media Usage characteristics of Innovators and Non-Innovators

The media usage of the Innovators and Non-Innovators helps to know where exactly the marketer should concentrate the communication efforts so that it becomes easy to spread the information to innovative farmers initially. By knowing the media usage characteristics it helps to find different media's used by the farmers. They include newspapers and magazines they read, TV programs watched and Radio programs heard by the farmers.

The following tables show the media graphic characteristics of the Innovators and Non-Innovators.

4.3.1: Newspapers read by Innovators and Non-Innovators

The table below shows the newspapers read by the Innovators and Non-Innovators. This helps to know which newspapers should be concentrated on in order to reach the right audience.

Table 4.3.1. News papers

Name of the Newspaper	Innovators	Non- Innovator
Dainik Bhaskar	0	2
Amar Ujala	11	14
Punjab Kesari	5	6
Dainik Jagaran	3	3
Giriraj	0	1
Divya Himachal	7	14
Tribune	14	5
Times of India	6	1
Hindustan Times	1	0
Indian Express	1	0

Ho: There is no difference in the newspapers read between Innovators and non-Innovators.

H1: More of Innovators read Tribune and whereas Non-Innovators read Divya Himachal. Amar Ujala has an equal readership among innovators and non-Innovators.

χ^2 calculated : 10.79

χ^2 tabulated at 95% level of significance at 4-degree level of freedom : 9.48

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators mostly read Tribune and Non-Innovators read Divya Himachal.

4.3.2: Magazines read by Innovators and Non-Innovators

Table 4.3.2. Magazines

Name of the Magazine	Innovators	Non- Innovator
Agriculture Related	21	11
General	18	6
Business related	6	5
Hindi weeklies (Regional)	1	2
Sports	1	2
Entertainment	1	8

Ho: There is no difference in the magazines read by Innovators and Non-Innovators.

H1: Innovators mainly read Agricultural and General magazines whereas non-Innovators read Agriculture and Entertainment magazines

χ^2 calculated : 15.59

χ^2 tabulated at 95% level of significance at 3 degree of freedom : 7.815

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators mainly read Agricultural and General magazines whereas Non-Innovators read Agriculture and Entertainment magazines

4.3.3: TV Programs watched by Innovators and Non-Innovators

The table below shows the TV programs watched by the Innovators and Non-Innovators. This helps to know the various TV programs watched by Innovators and Non-Innovators. By knowing the TV programs watched by the farmers it becomes easy to launch a product by giving advertisement in between the favorite programs watched by innovative farmers.

Table 4.3.3. TV programs watched

Programme	Innovators	Non- Innovator
News	30	16
Movie Related	10	18
Agriculture	26	16
Sports	12	6
Serials	12	20
Politics	8	8

Ho: There is no difference in the TV programmes watched by Innovators and non-Innovators.

H1: Innovators mainly watch NEWS and Agriculture related Programme programmes whereas Non-Innovators mainly watch serials and Movies.

χ^2 calculated : 12.97

χ^2 tabulated at 95% level of significance : 11.07

Degree of Freedom : 5

Since calculated value is greater than tabulated value, H1 is accepted i.e.,

Innovators mainly watch NEWS and Agriculture related Programme programmes whereas Non-Innovators mainly watch Serials and Movies.

4.3.4: Radio programs heard by Innovators and Non-Innovators

Table 4.3.4. Radio programs

Programme	Innovators	Non-Innovators
Agriculture Related	28	24
Entertainment	12	21
News	21	21
Regional Programs	10	8
National Programs	8	12

Ho: There is no difference in the radio programs heard by Innovators and Non-Innovators.

H1: Majority of Innovators hears NEWS and Agriculture related Programs whereas Non-Innovators hear Agriculture related and Entertainment Programs and Non-Innovators hear more National programs than Innovators.

χ^2 calculated : 12.97

χ^2 tabulated at 95% level of significance at 5 degree of freedom : 11.07

Since calculated value is greater than tabulated value, H1 is accepted i.e., Innovators mainly hear NEWS and Agriculture related Programs and whereas Non-Innovators mainly hear Agriculture related and Entertainment programs. Non-Innovators hear more National programs when compared to Innovators.

MARKETING IMPLICATIONS

5.0. MARKETING IMPLICATIONS

- Farmers with large land holdings are mostly interested to try new variety of seeds and hence large number of Innovators is having large land holdings. In the other context farmers with small land holdings go for the tried ones because they do not want to take risk
- Innovators buy a particular variety of seeds because of its disease resistance power and high yielding capacity whereas Non-Innovators buy because of high productivity of seeds.
- Innovators prefer to purchase the seeds from Dealer/Retailer and Marketing Representative's on the other side Non-Innovators go for Dealer/Retailer and Government Department for the purchase of seeds.
- Innovators and Non-Innovators purchase Indo-American brand mostly. Some of the Innovators are also interested to grow the seeds of University of Horticulture and Forestry
- Innovators consult Dealers/Retailers and Marketing Representatives for information about seeds before the purchase of seeds where as Non-Innovators consult Government Departments and Other farmers before the purchase of the seeds.
- Innovators visit two shops for comparison before the seeds are purchased whereas Non-Innovators visit only one shop before the purchase of seeds.
- Innovators purchase the seeds before 15 days prior the date of sowing and Non-Innovators may purchase the seeds at any time before 25 days

- Innovators mainly fall in the age category of 25-35 years i.e., Innovators are mainly young when compared to the Non-Innovators who fall in the age category of 35-50 years i.e., and Innovators are younger when compared to Non-Innovators.
- Innovators are well educated and they are mostly graduates whereas Non-Innovators are mostly +2 pass.
- Primary occupation for both Innovators and Non-Innovators is Agriculture.
- Innovators have large land holding when compared to the Non-Innovators who are having small land holdings.
- Innovators have better irrigation facilities when compared to the irrigation facilities of Non-Innovators.
- Innovators are having higher annual family income from all the sources in comparison to the annual income of Non-Innovators from all the sources.
- Innovators mainly hear NEWS and Agriculture related Programs on Radio, whereas Non-Innovators mainly hear Agriculture related and Entertainment programs.
- Innovators mainly watch NEWS and Agriculture related Programs whereas Non-Innovators mainly watch serials and Movies.
- Innovators mainly go for Agricultural and General magazines whereas Non-Innovators go for Agriculture and Entertainment magazines
- Innovators mainly read the newspaper "Tribune" whereas Non-Innovators mainly read "Divya Himachal".

By concentrating on the Innovators, it becomes easy for a marketer to easily establish a new product. As innovators are having high annual income, so at the launch of a new product they should be priced high as it helps the Innovators to assure that high price means good quality. The products should be placed at more shops i.e., there should be heavy point of purchases and the display should be high in the week prior to sowing at the point of purchase where the Innovators purchase most like Dealers, Representatives, University sale center. Advertisements should be given in English newspaper Tribune and Hindi newspaper Amarujala. In magazines, Agriculture related and General magazines should be preferred. In TV, the advertisements should be between NEWS and Agriculture related programs. In radio, the announcement regarding the products should be between NEWS and Agriculture related programs.

REFERENCES

References:

- Anwar Alam. (2001). Indian Farming: Driven by technological push. Agriculture Today: 60-61.
- Gupta.S.P.2000. Statistical Methods; 29th edition: New Delhi: Sultan Chand & publications.
- Kotler. Philip 2000. Marketing Management. 10th edition. New Delhi, Prentice Hall of India Pvt. Ltd.
- Leon G.Schiffman, Leslie Lazar Kanuk, Consumer Behavior: Diffusion of Innovation. 546-549.
- Ronald E.Goldsmith, Charles F.Hofacker, "Measuring Innovativeness". Journal of the academy of marketing science 19(1991);212.
- Vishal Rawat.(2003). Indian seed industry: Exploring new frontiers. Agriculture Today:24-25.

Annexure

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Dear Farmer,

We are doing a project on "A comparative consumer behavior study of consumer Innovators and Non-Innovators among farmers regarding seeds in Saproon valley". So please help me by filling the questionnaire.

1. Please indicate your extent of agreement with the statements a to f given below by ticking the word most appropriate in front of the statement
 - a. In general I am among the last in my circle of friends to buy new varieties of seeds when they are introduced
-Strongly agree -Agree -Neither agree nor disagree -Disagree
-Strongly disagree
 - b. If I heard that new varieties of seeds are available in the store, I would be interested enough to buy them
-Strongly agree - Agree -Neither agree nor disagree -Disagree
-Strongly disagree
 - c. Compared to others I use new varieties of seeds
-Strongly agree -Agree -Neither agree nor disagree -Disagree
-Strongly disagree
 - d. In general I am the last in my circle of friends to know about the new varieties of seeds
-Strongly agree -Agree - Neither agree nor disagree -Disagree
-Strongly disagree
 - e. I will buy a new variety even if I haven't heard it before
-Strongly agree - Agree -Neither agree nor disagree -Disagree
-Strongly disagree
 - f. I know the names of new variety of seeds before other people do
-Strongly agree -Agree -Neither agree nor disagree -Disagree
-Strongly disagree

2. Please mention the crops you have sown last time?

Name of the crop	Qty of seeds used per acre
Tomato	
Capsicum	
Cabbage	
Cauliflower	
Peas	
Others	

3. Please rank the factors below according to which you buy particular varieties of seeds?

Particulars	1	2	3	4	5
6					
a. Because of high yielding capacity					
b. Demand for the crop in the market					
c. Easy availability					
d. Disease resistant					
e. High productivity					
f. If others please specify _____					

4. Where did you buy the seeds last time? Please tick the Source.

- a. Dealer/Retailer
- b. Government Department
- c. Directly from company's sales persons
- d. Any others please specify _____

5. Please tick the brands you purchased last time.

- a. Rallis
- b. Seminis
- c. Syngenta
- d. Indo-American seeds
- e. Mahyco
- f. Century
- g. If others please specify _____

6. Whom you consult before the purchase of seeds? Please tick from the below

- a. Other farmers
- b. Government departments
- c. News Papers
- d. TV programs
- e. Radio
- f. Representatives of the company
- g. Dealer/retailer

- h. None
7. Please tick the number of shops visited and compared by you last time.
- One
 - Two
 - Three
 - Above Three
8. Please tick the number of brands compared by you last time.
- One
 - Two
 - Three
 - Above Three
9. How much time prior you purchase the seeds?
- 1 week
 - 15 days
 - 1 month
 - 6 months
 - Above 6 months
10. Please tick the age category in which you fall
-18 to 25 years -25 to 35 years -35 to 50 years - Above 50 years
11. Please tick your educational qualification
- Below metric
 - Matriculate
 - Intermediate
 - Graduate
 - Post-Graduate
12. Please tell us about your occupation
- Primary occupation _____
 - Secondary occupation _____
13. Please tick your annual income from all the sources
- Below RS 50,000
 - RS 50,000 to 1,00,000
 - RS 1,00,000 to 2,00,000
 - Above RS 2,00,000
14. Please tick to indicate the total land cultivated by you.
- Below 1 acre
 - 1-5 acres
 - 5-15 acres
 - 15-30 acres
 - above 30 acres

15. Please tick to indicate the amount of land which have irrigation facilities

- a. Below 1acre
- b. 1-5 acres
- c. 5-15 acres
- d. 15-30 acres
- e. above 30 acres

16. Please tick your family type

- a. Nuclear
- b. Joint

17. Please mention the total number of persons in your family _____

18. Please mention the newspaper you read last _____

19. Please mention the magazine you read last _____

20. Please tell us about any two TV programs you watched last time

- a. _____
- b. _____

21. Please tell us about the two radio programs you heard last

- a. _____
- b. _____

Name of the Farmer _____

Village _____

46380