

A STUDY ON DISTRIBUTION NETWORK OF HYBRID VEGETABLE SEEDS COMPANIES IN JAMMU DISTRICT

by
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(J-19-M-65-ABM)

**A Project submitted to
Faculty of Agriculture
in partial fulfillment of the requirements
for the degree of**

**MASTERS OF BUSINESS ADMINISTRATION
AGRI-BUSINESS MANAGEMENT**

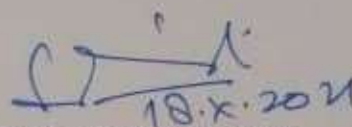


Division of Agricultural Economics and ABM
Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu
Main Campus, Chatha, Jammu - 180009
2021

CERTIFICATE-I

This is to certify that the project entitled "A Study on Distribution Network of Hybrid Vegetable Seeds Companies in Jammu District" submit in partial fulfillment of the requirements for the degree of MBA (Agri-Business Management), to the Faculty of Agriculture, Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu is original work and has similarities with published work not more than minor similarities as per UGC norms of 2018 adopted by the University. Further the level of minor similarities has been declared after checking the manuscript with URKUND software provided by the University.

This work has been carried out by **Mr. Shivam Gupta, Registration J-19-M-65-ABM**, under my supervision and guidance. No part of the project has been submitted for any other degree or diploma. It is further certified such help and assistance received during the course of investigation have been duly acknowledged.



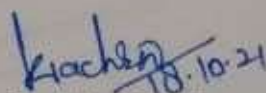
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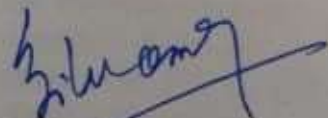
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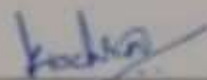

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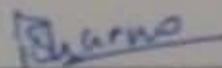
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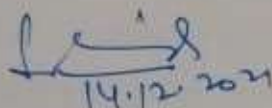
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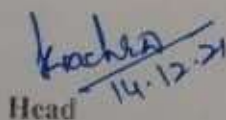
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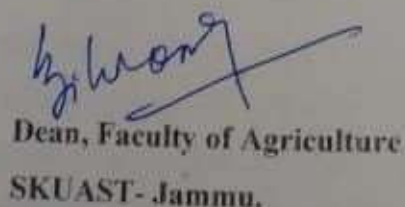
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Location: Jammu

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ABSTRACT

Title of the Project	: A Study on Distribution Network of Hybrid Vegetable Seeds Companies in Jammu District
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Major Subject	: Agri-Business Management
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Degree to be awarded	: MBA(ABM)
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Name of the University	: Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu

Abstract

The study aimed to evaluate the distribution network of different seed companies, which was dealing with hybrid vegetable seeds and compare among these companies which were having best and worst performance in distribution network, required by which the sales can be enhanced in the study area. For study, questionnaires were prepared to collect primary data from wholesalers, retailers and farmers. For interviewing, the respondents i.e. 5 wholesalers, 40 farmers and 5 retailers were selected. The parameters were as number of wholesalers, number of companies deal by wholesalers, with sales volume, wholesaler's width, wholesaler's depth, retailer's width, retailer's depth, push pull index. According to these parameters and response from distributors, each company was ranked on 1 to 5 scales. Study further revolved statistical tool i.e. weightage average, garret ranking and percentage method was selected to analysed the data collected from wholesalers and farmers of different seed companies. After analysed the data, it was found that the distribution network of Syngenta was best among all vegetable seed companies. Other seed companies were also having variations in different parameters of performance of their distribution system. Although, the ultimate goal of any company is to convince the consumer for buying their firm's product, in this regard strategies like increased retailers width as well as multi-channel distribution strategy can be used. Further, seed companies should convince its wholesalers to improve the product display in the shop as well as select the firm as their wholesalers whose presence in the market is since long time and good economic status and brand image in the market. It is clearly depict that vegetable seeds of Syngenta was having maximum pull i.e. (1.36 per cent) whereas vegetable seeds of Seminis was having maximum push by wholesaler i.e. (3.75 per cent) so it was clear that wholesaler of Seminis was more loyal and it might be due to more margins for endorsing the vegetables of Seminis i.e. (24 per cent). But when we see the case of Syngenta there was lot of pull means retailers or vegetable growers came to wholesaler shop and directly asked for the seeds of Syngenta i.e. (48 per cent) it means pull volume was all driven by vegetable growers.

Keywords: Wholesaler depth, Retailer depth, Wholesaler width, Retailer depth and Push-pull index


Signature of Major Advisor

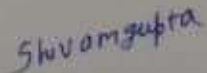

Signature of the Student

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List of Abbreviations

%	Per cent
\$	Dollar
USD	United states dollar
<i>et al.</i>	and other
CAGR	Compound annual growth rate
kg	Kilogram
F1	First generation
i.e.	That is
°c	Degree celsius
KSSC	Karnataka state seed corporation
ltd.	Limited company
HYV	High yielding variety
NGO	Non-governmental Organization
MNC	Multinational corporation
SKPC	Samarth kisan producer company
m ha	Million hectares
NHB	National Horticulture Board
rs	Rupees
ha	Hectare
Σ	Sigma
FAO	Food and Agriculture Organization
pp	Pages
No.	Number
viz	Namely
g	Gram

Chapter-1

Introduction

Introduction

1.1 Seed profile

Seed is the most fundamental and important ingredient for long-term agriculture. As a result, our primary concern and emphasis is on producing high-quality seed that allows us to extract more and more from less and less. All other inputs respond to seed quality to a considerable amount, and it is believed that quality seed alone contributes 15–20 per cent to overall yield, depending on the crop, and that this may be increased to 45 per cent with efficient management of other inputs. In the previous three decades, the government has taken a number of innovative and reformative initiatives to help the country's seed industry flourish. Agriculture is the economic backbone of rural areas. India's agriculture has grown significantly, and we are on the verge of a second green revolution thanks to contemporary agricultural technologies. A good grade seed is the most fundamental and important ingredient for sustainable agriculture. In the world, Indian seed industry is one of the most developed and vibrant, currently ranking sixth with revenue of about 9000 crores. The Indian Seed Industry has grown at a CAGR of 12 percent over the last five years, compared to a global growth rate of 6-7 per cent. Increased use of Bt cotton hybrids, single cross corn hybrids, and hybrid vegetables has resulted in significant value growth. Increased Seed replacement rate in crops like paddy and wheat has accounted for the majority of the volume increases. The Indian seed business is changing dramatically, with private seed companies playing a major role, international seed companies entering the market, Indian enterprises forming joint ventures with multinational seed companies, and consolidations. For the next four years, Indian seed industry is expected to develop at a CAGR of 17 per cent (*Singh et al. 2019*).

1.2 Indian seeds market

From 2011 to 2018, the Indian seed market was expected to be valued 4.1 billion dollars, with a compound annual growth rate of 15.70 per cent. From 2019 to 2024, it is expected to grow at a CAGR of 13.60 per cent, culminating in a market value of \$9.1 billion. India's seed business is experiencing new ideal models of growth and improvement, thanks to rising local interest and demand for high-quality seeds in various far-flung nations, particularly in Southeast Asia. The seed's image in India has

changed over time. Indian agriculture formerly relied on seeds left over from earlier harvests. The most radical seeds created by seed groups are already invading ranchers' crops. The wonder has established itself amid the ever-changing aspects of horticulture in India and throughout the world (*Department of Foreign Affairs and Trade*).

The Indian seed industry has grown rapidly and should continue to do so, allowing agriculture production to expand even further. The seed industry's role is to create a sufficient number of high-quality seeds while simultaneously achieving varietal variety. As Indian lifestyles and diets improve, companies that develop, manufacture, and market seeds will prosper. Farmers now have money in their hands and want to spend it on seeds that yield quicker, better harvests from the same kerchief-sized plots. With rising vegetable consumption, vegetable farmers and producers anticipate a brighter future. However, this increased output must be done with current or reduced land, water, labor, and other inputs, all while minimizing environmental impact. Among the few options for increasing vegetable production and productivity, the adoption of excellent quality seeds looks to be a realistic and easily adopted alternative for meeting future requirements. The number of players in the vegetable seed business is gradually increasing as they see a brighter future. The number of participants in the vegetable seed sector is progressively rising as they perceive a brighter future. Maintaining a consistent supply and distribution network of high-quality seeds is critical for achieving success in this competitive environment. With the aid of a distribution network analysis of hybrid vegetable seeds, a firm may determine its strengths and weaknesses, allowing it to capitalize on its strengths while overcoming its weaknesses.

1.3 Global hybrid vegetables seeds market

According to the International Seed Federation (ISF), the worldwide seed industry is anticipated to expand at a 9.40 per cent annual pace over the next five years. By 2020, the worldwide commercial seed industry is expected to reach USD 92 billion, driven largely by rising food demand in line with the world's growing population, improved farming standards, and widespread use of biotechnology in seed development. The worldwide seed business has risen by over 100 per cent in the previous ten years, reaching \$ 45 billion, and is expected to expand at the same rate by 2020 (*Agricultural and Processed Food Products Export Development Authority*).

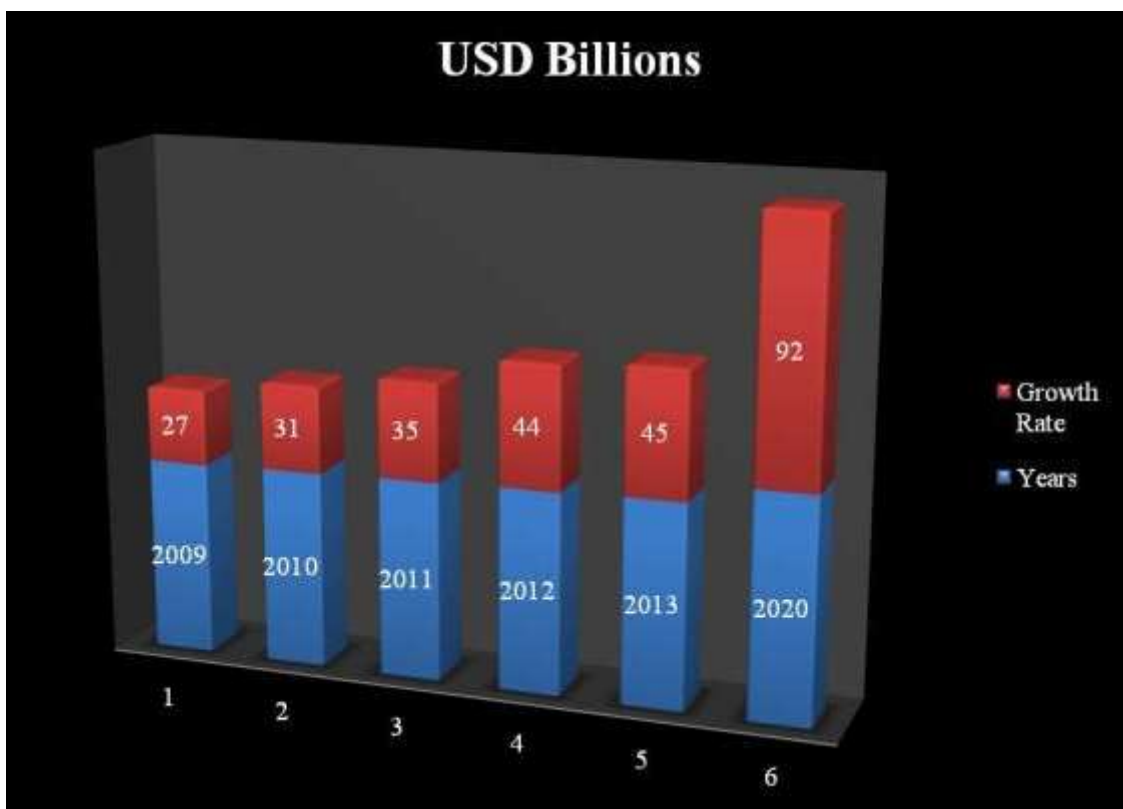


Figure 1.1 Global hybrids vegetable seeds market (APEDA)

1.4 India hybrids vegetable seeds market

Vegetable hybridization-driven increase was considerable in the previous decade. Hybrid vegetable output has increased from 88.62 million metric tons in 2001-02 to 178.17 million metric tons in 2016-17. Tomatoes, okra, and gourds, for example, accounted for a substantial percentage of the country's overall hybrid vegetable seed value in 2018, accounting for 9 per cent, 15 per cent, and 11 per cent, respectively. In the same year, vegetable hybrid seeds were valued at USD 397.21 million. Furthermore, the Indian government is promoting the use of hybrid seeds in vegetable production by assuring the availability of high-quality seeds, bridging the knowledge gap among farmers about improved practices, and creating supportive infrastructure in the nation. As a result, government assistance in the form of different policies and product launches by industry participants are expected to boost market growth over the forecast period (*GlobeNewswire*).

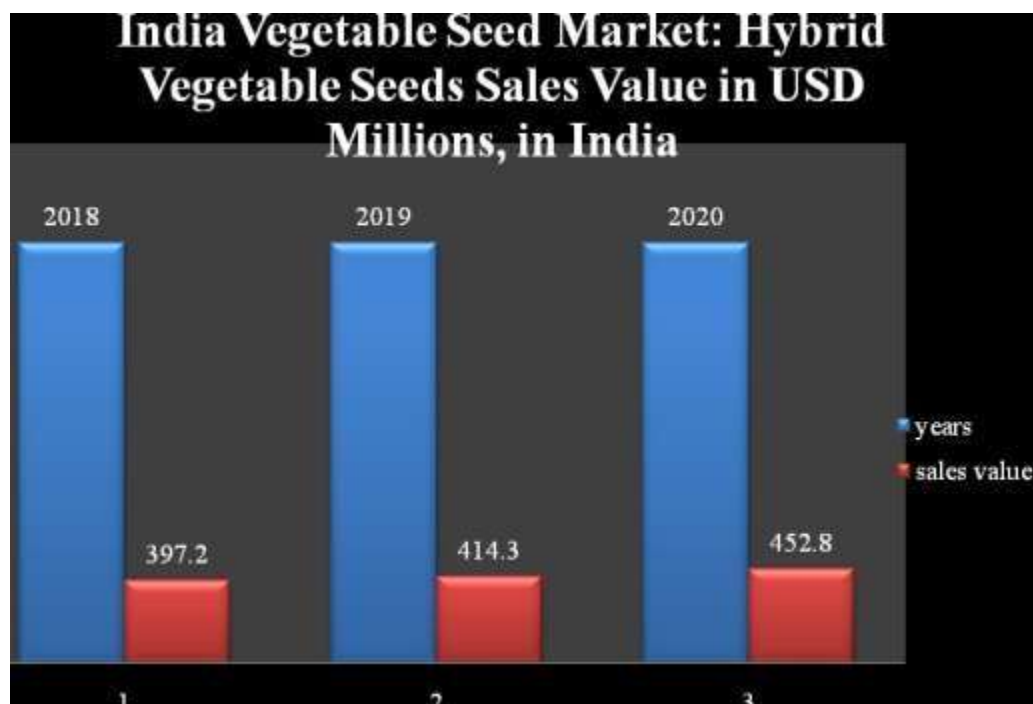


Figure 1.2 India hybrid vegetable seeds market (GlobeNewswire)

1.5 Hybrid vegetable seeds companies in Jammu district

As Indian lifestyles and diets become more severe, companies who grow and market seeds will gain. Farmers now have cash on hand and must invest it in seeds that produce higher, quicker, and more lucrative yields from equivalent hankies areas plots with increased vegetable usage. On the other side, vegetable growers and inventors predict a bright future. Over the last century, Indian hybrid seed market has seen significant changes. Farmers have developed agricultural techniques that rely on buying hybrid seeds from the market rather than using saved seeds from past harvests. Increased hybrid seed sales have come from farmers' greater understanding of hybrid seeds and their considerable impact on per hectare production.

Government measures to encourage the use of hybrid seeds, such as a 10 per cent reduction in hybrid seed pricing in 2017, have aided the hybrid seed market's expansion. Mostly seeds are used hybrid. India, being one of the world's leading agricultural producers, accounted for approximately 2 per cent of worldwide hybrid seed sales in 2016. One of the main causes for low hybrid seed exports and a higher percentage of imports is the lack of adequate reforms for the Indian seed sector. Since 2010, the hybrid seeds industry has been increasing due to a high rate of seed replacement and a developing supply chain of hybrid seeds to farmers based on the climate and soil type of an area (*Goldstein Market Intelligence*).

Table 1.1 Hybrid vegetable seed companies

S. No.	Company Name	Crop	Variety
1.	BEEJ SHEETAL (Rabi Season)	Broccoli Beans Cauliflower Coriander Cabbage Carrot Onion Radish Spinach Tomato	Fiesta Bss-1083 Snow Walker Caribe Bronco Samson Early Grano Korean Delta Manisha
2.	MONSANTO/SEMINIS	Cabbage Cabbage Cauliflower Onion Knol-Khol	Megha Barkha G-Flesh Gul Mohar SVJY-1213
3.	AMAZON VEGETABLE SEED	Radish Beans Cabbage	Ringo Sigma Atlantic
4.	CRYSTAL	Brinjal Cabbage Carrot Cauliflower Radish	Alok Royal Chalanger Victor Urvarshi Crystal Glory
5.	SYNGENTA	Radish	Lvory White
6.	GOLDEN SEED	Peas	GS-10
7.	BEEJ SHEETAL (Kharif season)	Bhindi Beans Brinjal Chilli Cucumber Pumpkin Radish Tomato Tomato Tomato	Indrani Avantika BSS-332 Anmol BSS-950 BSS-930 Korean Dhanraj Manisha Manisha Plus
8.	BIO SEED	Brinjal Bhindi Bottle Guard Cucumber	Mongli Avantika Malika G.Super

	MONSANTO
	AMAZON
	CRYSTAL
	SYNGENTA
	GOLDEN SEED
	BEEJ SHEETAL
	BIOSEED

Figure 1.3: Hybrids vegetable seed companies in Jammu districts

1.6 Distribution network of vegetable seed

The process of transferring seed from the shops after processing and packing to the farmer is known as distribution. If sales are made directly to farmers, this may be a single stage, or it may be a number of processes including intermediates, local agent, wholesalers, and retailers.

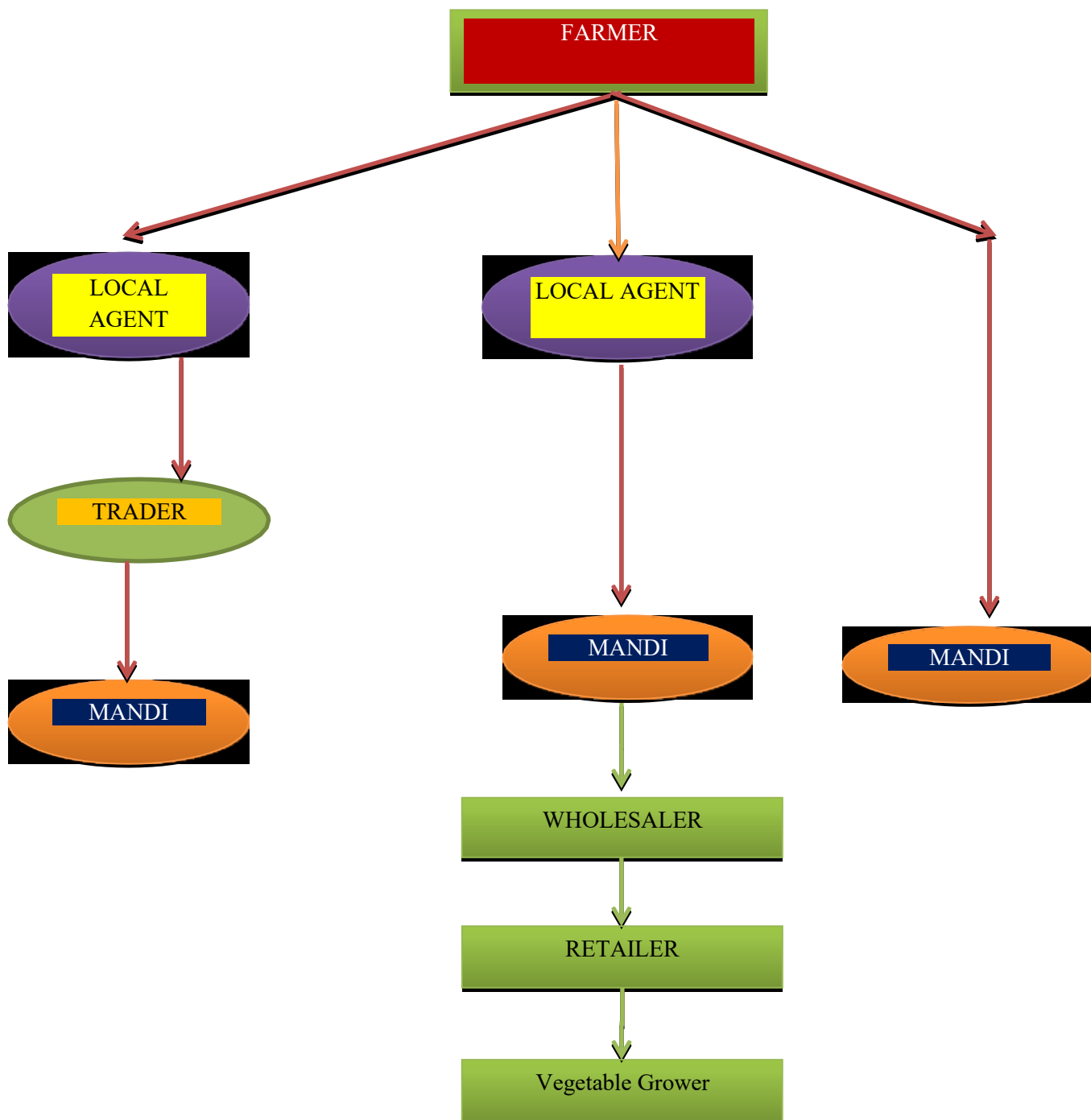


Figure 1.4 Distribution network of vegetable seed

Chapter-2

The Project

The Project

2.1 Title and statement of problem

The project work entitled “A Study on Distribution Network of Hybrid Vegetable Seeds Companies in Jammu District” was carried out in Jammu district of J&K during the year 2021.

A hybrid is created by crossing two different varieties of the same plant. Crossing involves taking the pollen from the male flower of one plant and transferring it to the female flower parts of a different plant. Once the ovary of the female flower is pollinated, it will begin to swell and form a fruit. The seeds that develop inside that fruit are hybrid seeds.

In general, hybrids vegetable offers some combination of these favorable traits:

Characteristics of hybrid vegetable seeds

- a. Dependability,
- b. Less required care,
- c. Early maturity,
- d. Higher yield,
- e. Improved flavor,
- f. Specific plant size,
- g. Better disease resistance.
- h. Hybrid vegetables typically look like the veggies you'd find at a supermarket.

2.2 Advantage of hybrid vegetables seeds

Hybrid seeds have some advantages: they are easier and faster to grow, they adapt better to stress, and they produce plants with larger fruit, higher yields, disease resistance, and longer shelf life than heirloom.

There are numerous advantages to using hybrid seeds in your garden:

- a. Hybrid seeds grow alike
- b. Hybrid seeds are easier and faster to grow
- c. Hybrid seeds are more vigorous, give higher yields, and store well

a. Hybrid seeds grow alike

Since all hybrid seeds in a packet have the same parent plants, they all have the same genes. This means that they will all grow into similar (some would say uniform)

plants. With hybrid seeds, you won't need to worry about undesirable characteristics, such as small or nonexistent fruit on your plants.

b. Hybrid seeds are easier & faster to grow

For many reasons, hybrid seeds are often easier and faster to grow than heirloom seeds. For one thing, many hybrid plant varieties have been bred for disease resistance. This means that plants grown from hybrid seeds are less likely to fall victim to bacterial, viral, or fungal infections that can slow their growth, reduce their yield, or kill them. A good example of hybrid seeds is tomato plants that are resistant to late blight (which also caused the Irish Potato Famine in the 1800's).

c. Hybrid seeds are bred for more vigor, better harvests & the ability to ship well

Hybrid seeds have been bred for vigor, meaning that some have resistance to disease, drought, or other environmental challenges.

Often, hybrid seeds are also bred to produce larger fruit and bigger yields, which can provide the same harvest with fewer plants grown in a smaller area.

This requires less work for farmers and gardeners. Fewer plants make it easier to sow seeds, care for plants, and harvest fruits and vegetables.

Hybrid varieties have been bred to produce more fruit and to ship well on long journeys to distant markets. Finally, many fruits and vegetables have been bred to ship well, in order to satisfy consumers in distant markets with fresh produce. For instance, some of the produce grown in California ends up on the east coast of the United States, in cities like New York, Boston, and Philadelphia.

The fruits and vegetables need to ship well in order to arrive fresh. Refrigerated transport helps, but breeding plants for good shipping is also a factor.

2.3 Market strategy of hybrid vegetables seeds

The productivity of major food grains had been increased during late sixties in the lower and middle Gangetic Zones due to the development of seed centered technology and it received huge momentum through the exploitation of ground water during mid-eighty onwards. The major thrust of the present study is to analyze the position and possibilities of seed industry in India. The efficiency of seed and other inputs are now gradually decreasing and thereby production and productivity are also in stagnant or in downing trend. The study revealed that seed replacement rate of field crops in the lower Indo-Gangetic regions are still very low and it is 18-26 per cent and for vegetables extends up to 83-99 per cent with a seed cost of maximum 10 per cent of

total cost except potato. Productivity in farm saved seeds is always lower than replaced seeds almost both for field and vegetables. The private seed production and replication units mainly concentrated their business on high value low volume vegetable crops. The study also examined the potentiality of seed production and distribution of high volume low value crops of food grains in local and regional basis as well as the relative merits and demerits of seed and grain production of paddy based on different levels of input intensity. The participatory system of seed production and distribution in local as well as for regional level would also helpful to the producer to get the seed in time. Under good governance, the private public partnership in seed sector have to be encouraged for the minimization of productivity gap in local basis, till the availability of genetic ally improved new seeds . Protection of farmers' right has to be maintained in production and business system in developing countries. Under existing technological back up of present varieties, the Indian seed industry may capable to produce high quality seeds due to wide variability of agro ecological situations in the country.

2.4 Other Factors influencing the growth of Vegetable seed market:

- a. Consumers demanding food items which contains higher nutritional properties and increased health benefits.
- b. Declining arable land, diversification of diets, technology-driven agriculture, and changing weather patterns in developing countries are some of the major factors in fuelling the growth of hybrid vegetable seeds in the market.
- c. With the use of hybrid vegetable seeds, vegetables can be prevented from major diseases and pests. Top Vegetable Seeds Importer Count

2.5 Importance of the study

The study provides guideline for further research on distribution network of hybrid vegetable seed companies. It primarily says about the different hybrid varieties of vegetable cultivated in Jammu district. The study is also important to measure the current market share of hybrid vegetable seeds. Furthermore, the study shows the present scenario of seed market in India. The study shows the upcoming opportunities of cabbage, okra and radish hybrid seed companies.

2.6 Objective of the study

- a. To identify different hybrid vegetables cultivated in Jammu district.
- b. To examine distribution network of hybrid vegetable seeds of different companies.

- c. To measure the current market share of hybrid vegetable seed under study area.

2.7 Limitations of the study

- a. Because the study mainly focuses on farmers in the Jammu city region of J&K, the findings cannot be considered representative of all farmers (total population).
- b. Respondents' personal prejudice might be a stumbling block.
- c. Respondents' ignorance of some questions acted as a roadblock to certain replies.
- d. Because I utilized a planned timetable, the respondents' replies were instantaneous and time-consuming. As a result, time constraints were al § 12
restraint in this investigation.
- e. In this investigation, the Covid - 19 is also a barrier. Despite the restrictions mentioned above, as a researcher, I did my hardest to extract as much information as possible while maintaining accuracy.

2.8 Scope of the study

- a. India is the world's second-largest vegetable grower, after only China. Vegetables are cultivated on 6.2 million hectares in India, with a total yield of 94 million tons. By 2020, our country's vegetable demand is expected to be 225 mt.
- b. To analyze market share and anticipate future demand in such a way that demand and supply are always equal.
- c. How to keep customer relationships strong in order to sustain market share for a longer length of time while making a profit.
- d. Determine client attitudes regarding various seed brands' awareness.
- e. Identifies the quality that the consumer desires and that the firm cannot deliver, so that the customer does not go to another brand. To acquire perspective and a sound image in the market, the firm should pay attention to such details.
- f. India boasts one of the world's most extensive agricultural research and development system.

Review of Literature

Review of Literature

The examination of literature aids in a better knowledge of the technique employed in previous research, as well as the limits of various estimating processes, databases, logical interpretation, and reconciling contradictory results. Evaluation of textual resources with better knowledge of the techniques used in previous research, as well as the limitations of the various methods of measurement, information, logical interpretation, and harmonization of conflicting results.

3.1 Identify the different hybrids vegetables cultivated in Jammu district

Cheema *et al.* (2004) the production of seasonal tomato crop under housing studies was started at Vegetable Research Farm, Punjab Agricultural University, Ludhiana (India). In the first year (2001-02), Avinash - 2 and Naveen breeds and varieties CLN 2026D were tested for total yield, adoption / other fruit seeds and insect infestations. Naveen performed very well in terms of fruit yield (2.87 kg / crop), commercial yield (2.77 kg / crop) compared to other inputs (1.76-2.08 kg / whole crop yield and 1.51-1.91 kg / crop fruit for sale). Fruit damage with *Spodoptera litura* only was found to be lower (3.00%) in Naveen compared to CLN 2026 D (9.64%).

Kumar *et al.* (2004) hybrid varieties play an important role in increasing vegetable production due to high yield strength, early ripening and high quality and resistance characteristics. Hybrid species have recently emerged in India and in many developed countries have been cultivated for many years' tomatoes, eggplant, peppers, cucumber, muskmelon, watermelon, cabbage, cauliflower, carrot, etc. It is an important plant whose seedlings are not only found but also found by Indian farmers to some extent. Currently, Karnataka, Maharashtra, Gujarat, Andhra Pradesh, Uttar Pradesh and Madhya Pradesh are the major hybrid tomato producing areas. The total production of cabbage in the southern parts of Maharashtra and West Bengal is less than F1 seed.

Peña and Hughes (2007) the institute has made significant contributions to the development of Chinese tomato and cabbage varieties that tolerate heat and subsequent extraction of flexible, tropical varieties worldwide. The key to achieving

high yields with heat-resistant plants is crossing genes into heat-tolerant genes and disease-resistant or winter-resistant species.

James (2008) this study investigated the history and survival of traditional vegetable plants in western North Carolina and documented 134 species of heirlooms that were still cultivated. He conducted interviews with 26 people from 12 states in western North Carolina. He used method to identify individuals or communities that kept heirloom vegetable varieties, and he used the "banking memory" of farmers' knowledge as a strategy to complement the collection of seed varieties.

Chohan and Ahmad (2008) this study revealed that tomatoes have become one of the most popular and widely grown vegetables in the world. Of the 15 vegetables listed in the FAO tomato list they are ranked sixth in terms of total land production per year. It is a very important vegetable, with a number of nutritious foods at very low prices compared to other vegetables. It is eaten in every home in a variety of ways, such as vegetables, salads, ketchup and other dishes. This study aims to explore the production methods used in tomato production at Danna Katchely. Farmers grow vegetable crops.

Tripathi (2008) this study revealed that F1 varieties of cauliflower have been found to have beneficial, fast and complete yields, better curd quality in terms of color consistency, uniform ripeness, pest resistance, disease and adverse weather conditions.

Weinberger and Srinivasan (2009) this study revealed that cabbage (*Brassica oleracea* var. *Capitata*) and cauliflower (*Brassica oleracea* var. *Botrytis*) are two major vegetables produced and eaten in India. Years ago, they were cultivated with great vigor. This has led to high levels of insect infections, especially the diamondback moth (*Plutella xylostella*) and the high use of pesticides. This in turn has contributed to pesticide resistance, environmental degradation, and human health impacts, which has led to a growing interest in alternative management.

Mishra *et al.* (2010) concludes that the design of polycarbonate and fiber-reinforced (FRP) seedling storage plants is found to be very suitable for the production of a permanent hybrid of tomatoes, capsicum, chilli, brinjal, gynacious hybrid cucumber and zucchini during the summer months from 2,4003,600 m high with leafy vegetables, i.e., Swiss chard, beet leaf, kale, lettuce, etc. in winter. At more

than 3,600 m, the selection of crops suitable for planting is changed as cabbage, cauliflower, seedling, turnip and temporary varieties such as Pusa Sadabahar and Sour-1.

Katoch (2012) this study revealed that the majority of respondents (83.33%) used HYV seeds. Also, the majority of respondents (58.33%) felt that tomato production was not profitable. The result shows that factors such as land, level of education, and labor affect the level of satisfaction of tomato growers. Farmers grow different varieties of tomatoes.

Javeed *et al.* (2013) this study revealed that potato farming is a lucrative business and in order to get live farmers to take over the potato business and the majority of respondents (57%) respondents were in the age group (40-52 years). It was found that 29.33 per cent of respondents were taught up to middle school level. Knowing the family plan that the integrated family plan does not lose its value in rural areas and can help potato growers use their family members to increase potato yields that 60 percent of respondents belonged to joint families and 68 percent of respondents had five to eight family members.

Bano and Sharma (2017) this study revealed that *Momordica charantia*, a large economically important pocket and represents two types namely. Plant variety charantia and wild variety muricata. Both species are similar in the whole morphology except for small var. vines. The muricata bears small leaves, flowers and fruits that have a sweet and savory taste and are much more nutritious than those found in var. charantia. In addition, the two species are closely related to having multiple pollen mother cells with 22 chromosomes linked as 11 bivalents, and fewer cells with 20-24 chromosomes.

Ummyiah *et al.* (2017) India has a wide range of agricultural conditions, but vegetable cultivation is limited to regional and annual needs only. Although production has risen to the level of 113.5 million tons from an area of 7.2 million hectares, the technology used and practices are largely traditional, resulting in low production and quality that does not match the size of the product. In the Himalayan mountains, there are cold desert climates where temperatures are very low (-5 to 30C) during the winter and many regions remain cut off from the rest of the country from November to March due to heavy snow. For this reason, people in these areas are

experiencing severe winter shortages of vegetables. Sometimes in winter, vegetables are airlifted to Srinagar and Laddakh and the cost of these vegetables is higher than the average person.

Mansoor *et al.* (2019) this study was conducted by Krashi Vigyan Kendra, Kargil in the province of Jammu and Kashmir to identify gaps in the use of high-yield vegetable varieties in Front Line exhibitions and farmer practices. The pretests were carried out on three types of vegetables namely Arkel (Pea), Red Coral (onions) and Mitra (Cabbage) from 2013-14 to 2015-16. The results show that the adoption of high yielding vegetable varieties has increased the production of vegetables in the region. Other returns from more productive varieties were indicating a sufficient size for vegetable growers in the region.

Selvakumar *et al.* (2019) protected cultivation of horticultural plants includes adaptation to the small climate of the plant in order to grow and develop outside of its normal season. Depending on the need and resources, this trick can be partial or complete. Protected farming practices at all levels of vegetable production around the world can be at home, community or business level. It helps the farmer to produce crops slowly and in some cases too early or too late in relation to the natural time of their production. This change in production time increases the chances of fetching large premiums in the market because the product protects glut time and in some cases holds less time.

Muhammad *et al.* (2021) temperate varieties of cause severe crop losses in vegetable crops in Azad Jammu and Kashmir. A detailed field survey was conducted in the vegetable production district of Sudhnuti district to measure the incidence and collection of vegetables targeted at RKN. A total of 65 sites were visited during the study, 47 sites were found to have 72% cases and a maximum weight of 2-8 points. Eggplant, tomato, cucumber, okra, beans, cucurbits, and peppers are considered local vegetables.

Parmanik *et al.* (2021) authorize the adoption of a protected plant as the end of all these difficulties. In recent days, protected or hot-growing cultivation of high value vegetables such as capsicum especially during the offseason has proven an increasing trend among small and low-scale farmers because it has a high value and low volume crop and produces high yields in many high quality areas.

3.2 To examine distribution network of hybrids vegetable seeds of different companies

Studies in the network of distributing different vegetable seeds are few in the literature. Therefore, an effort was made to review the related studies, namely, the distribution of a wide range of agricultural products in general and the studies related to vegetables.

Jagdish and Rajendra (1984) developed and attempted to evaluate the impact of a market development project on the construction and operation of the Jute market in Bihar. The concentration level was studied by Lorenz curve strategies and the magnitude of the Gini concentration was higher in the Jute market under investigation, which indicated an increase in imperfections in the jute market structure in Bihar.

Bhargave (1988) studied the demand impact of certified seed in the four districts of Madhya Pradesh and concluded that there should be a multi-channel distribution system involving co-operative communities. You've got insufficient irrigation, high prices and low uncertain availability of certified seeds.

Sujatha *et al.* (1989) analyzed the performance of market mediators in Bangalore-controlled markets in Karnataka. They used the Gini concentration measurement technique to describe the magnitude of the inequality in the distribution of business volume among traders. The Gini coefficient was found to be 0.33 and 0.45 grains of food compared to onions and potatoes.

Mohanty and Prusti (2002) hybrid vegetable growth and hybrid seed produce techniques are two important factors. Debt to grow integrated vegetables in India should go to private seed companies. However, it is suggested that future development of integrated hygiene should be entrusted to the public sector and commercial hybrid seed production should be carried out by the private sector.

Patil (2003) studied the management of seed distribution by Karnataka state seed corporation ltd. (KSSC), research has shown that KSSC has adopted a mixed distribution network containing its sales locations as follows

KSSC-Farmers

KSSC-Karnataka Agro Industries Corporation-Branches-Farmers

KSSC-Market-Branches-Farmers

KSSC-Private Seed Sellers-Farmers

Lipper *et al.* (2005) reported that the formal system was concerned with the formation and distribution of seeds of modern or improved varieties, while local farmers or land types were handled by an informal system. In addition, Ethiopia has made efforts by governments and NGOs to promote the production and distribution of high quality seeds through international market markets.

Hosmani (2007) conducted a study entitled “Advertising for Vegetable Seed in the Belgaum region Market Analysis and Farmer Preferences”. Belgaum is the second largest region of Karnataka in both the area and vegetable production near Kolar. To satisfy the ongoing demand for vegetable seeds by farmers, several seed companies in the company sector provide seeds in regions such as Namdhari seed, Seminis etc. The main result of this study was that farmers were more concerned with the quality and production of seeds and not the price.

William (2008) conducted a study to evaluate the roles of distributors in the product list and to evaluate its positive contribution. He found that the carrier should act as a push and pull border of the supply chain. The distributor, as a diminishing area, needs to address the excessive risks accumulated from the rising groups due to the level economy in the production process. On the other hand, the operator needs to provide fast delivery services and other small items as well to satisfy the needs of high availability from its lower sides by providing a service to relocate its partners to the chain.

Singh *et al.* (2010) process of creating a distribution line helps companies realize the strengths and weaknesses in their distribution system compared to market leaders. The tomato crop was deliberately selected to study as a tomato by volume; more than 95 percent of the seeds are hybrid varieties and are more expensive compared to other plants that affect R. 60,000 per kg. Second, tomatoes are one of the largest cash crops in the study area where there are 750 hectares of vegetables near Potato and Pea with cultivated area as 2421 and 1506 hectares respectively.

William and Bruce (2010) analyzed the potential for R&D investment, o the structure of the seed distribution sector using sets of previously used novels in which four sets of critical issues were described.

Kumar *et al.* (2011) conducted a study in the Samastipur region based on a study of seed producers, farmers, seed distributors, private seed companies and a public research center to understand the delivery method of maize seed by looking at quantity has highlighted the need for greater emphasis on the integration of the various stakeholders involved in the series.

Senapati Parthasarathi (2014) an impressive growth in agricultural production since independence has been produced through high input consumption; inputs purchased mainly and improved product production. Important inputs that have changed the state of agriculture in India include HYV (High Yielding Variety) seeds, chemical fertilizers, irrigation, pesticides, farm machinery and equipment, debt and labor. A special marketing effort is needed to reach farmers scattered throughout the nook and parts of the country. This paper seeks to expose the existing network of advertising and distribution of inputs used in agricultural production.

Kumar *et al.* (2014) the vegetable industry has a positive impact on the Indian economy in terms of profitability and performance and foreign exchange earnings in international rating. There are a few barriers such as high seed production costs, technical problems and stricter laws that put a break in the vegetable seed industry in India.

Stephan *et al.* (2016) the aim of this study was to analyze the distribution network of various vegetable seed companies in the tomato seed business and the scale of the leading distribution network. The Hassan region of Karnataka was selected for the study.

Hernández González *et al.* (2017) this research work proposes a hybrid model of building a food distribution network that maximizes the profitability of farmers in terms of quality delivered using a mixed number system model and simulation model for a different event under certain stochastic parameters. Dedicated to this paper is a model that assesses the quality of food in a complete and stochastic manner throughout the supply chain.

3.3 To measure the current market share of hybrids vegetable seed under study area

Tripathi and Kumar (2005) to increase vegetable production require the use of improved and more productive seeds. To test the market potential of vegetable seeds,

market shares of various companies & the farmer prefers the adoption of hybrid vegetable seeds.

Singh Divvy (2006) the most compacted vegetable seeds are dormant and should be awakened and regenerated. The hybrid seed market in the newly emerged majority of MNC focuses on market expansion strategy to promote the genetic market rather than instilling its hybrid variety.

Pichop and Mandinga (2007) concluded in “Essentials of Modern Marketing Management and Supply Chain System for Vegetable Seed Companies” that vegetable seed production and marketing are a technological and competent work. Vegetable seed production and marketing are important in our fight against poverty and food security and in sub-Saharan Africa, suggesting that small private companies be called to play a key role in this fight by providing high quality farmer-friendly seeds, and where and when they need them.

Sharma (2010) this study revealed that market for tomato seeds in madnapalle region 1000kg per volume and volume from which gold seeds are derived as 10% market share and 1000kg per volume and 6.59% market share and ₹ 1.20 crore per value of gold seed is 3rd and 5th the largest tomato seed player in madanpalle with volume and smart number respectively.

Shrikant (2010) seed market has attracted a large financial industry, a vegetable seed competition. The market in India is very widespread. Strong market forces through profit margins technology and policy barriers have made the seed industry a star in the agricultural industry.

Singh (2010) the study was conducted in the main vegetable region of Himachal Pradesh. This study focused on acquiring power in the vegetable seed market and production trend and market share of various companies in Himachal Pradesh.

Dattaling (2011) this study revealed that the role of the seed sector of agricultural farmers can increase productivity by planting improved seed varieties. The study was designed for market opportunities for Cole hybrid seed crops.

Shrindhigowda (2011) “Subeejam Shushereto Jaayat Sapadayaty” means good seed in a beautiful, productive field. Tomatoes are the largest vegetable crop in the world and are known as a preservative because of their special nutritional value

and widespread distribution. In 2003-04 the Indian vegetable seed market was estimated at \$ 40 million, with only tomatoes accounting for 20 per cent.

Singh (2013) vegetables are a cheap food source and play an important role in fighting hunger in a densely populated country. The location and production of vegetable crops in Shriganganagar region of Rajasthan is increasing steadily and therefore indicates that the region has an agreed market in the vegetable seed industry.

Cameron (2015) studied the market potential of four major crops for the district in which one of the largest seed producer companies in the state of Madhya Pradesh-the Samarth Kisan Producer Company (SKPC) is centered. The four crops investigated were soybean, gram, wheat and coriander.

Aditika *et al.* (2017) almost all types of public domain have evolved with a variety of special features in the normal breeding process but with the adoption of various biotechnological tools for genetic development, emphasis is placed on an integrated vegetable improvement process.

Sharma (2017) India is the second largest producer of the fruits and vegetables in the world after China. In India, vegetable crops are grown on an area of 8.99 million hectares (m ha) with an annual production of 156.33 million tons (NHB, 2011). To grow this vast area, high quality seeds are a basic necessity that only the public sector industry can meet. The private sector has begun to play an important role in the seed industry over the past few years.

Aher (2018) in this study studied the Kalas seed distribution system which is why we can identify problems in the Kalas seed distribution system and that is why we can identify problems in the Kalas seed distribution system. The market of Kalas Seed Company is highly.

Singh *et al.* (2019) India's seed industry is the fifth largest seed market in the world and has a value of more than Rs 2500 crores. The seed industry has grown steadily over the past forty years. Many changes have taken place in the sector over the past few decades such as increased access to the formal sector, more sustainable agricultural growth, more sophisticated agriculture, simplified lending facilities, increased export, increased use of seed and seed products and the growing role of the private sector in promotion, branding and marketing etc. The government has taken many ongoing steps and changes over the past three decades in the growth of the seed

sector in the country. In terms of global trade, India is almost rich in flowers, fruits and vegetables and seeds of field crops.

Sakthi *et al.* (2019) in their study concluded that improved quality seeds and high yielding varieties are among the most important agricultural features thanks to transforming the agricultural sector. Ensuring the availability of quality seeds to farmers is essential to achieve high agricultural production and productivity. It is estimated that the contribution of seed to production will be 20-25 per cent. The organized seed sector, which includes private and public companies, accounts for about 30-35 per cent of the total scattered seed in the country. Currently, India's share of the global seed market is less than 2 per cent.

Research Methodology

Research Methodology

A research methodology is usually a guideline system for solving a problem with specific components such as phases, tables, methods, techniques and tools. The main goal of this study is to examine the distribution network of hybrid vegetable seeds companies in Jammu district of J&K union territory.

4.1 Sampling Plan

- a. **Selection of District:** - The Jammu district was selected purposively based on study area.
- b. **Selection of Block:** - Out of 20 blocks Marh block was taken purposely as this is the nearby the block of Jammu city so that the block having maximum area under vegetable crop.
- c. **Selection of Village:** - The list of important vegetable growing villages was prepared with the help of concerned Agriculture Extension Officer then four villages will be selected randomly.
- d. **Selection of Sample:** -The list of vegetable growing farmer prepared with the help of 4 villages surpanch.
- e. **Selection of Samples:** -10 number of vegetable growing farmer from each village were select randomly to constitute a total no of 40 vegetable farmers.
- f. **Sample Size:** -A total no 50 samples were include comprising of 40 farmers, 5 wholesalers and 5 retailers.
- g. **Data Collection:** - Both primary and secondary data was collected for the study purpose. Primary data was collected with the personal interview method with structured interview schedule from the respondents. The secondary data was collected by preferring to articles, research papers, and various relevant websites.
- h. **Analysis of Data:** - The collected data was analysed using various statistical tools.

4.2 Analytical Tools

The following formula was used in the study to measure the current market share of hybrid vegetable seed under the study area:

Wholesaler width

$$\text{Wholesaler width} = \frac{\text{Number of wholesalers covered by particular company}}{\text{Total No of wholesalers in the district Jammu}} \times 100$$

Retailer width

$$\text{Retailer width} = \frac{\text{Number of retailers covered by particular company}}{\text{Total No of retailers in the district Jammu}} \times 100$$

Wholesaler depth

$$\text{Wholesaler depth} = \frac{\text{Company sales volume through wholesalers (kg)}}{\text{Total sales volume by all wholesalers (kg)}} \times 100$$

Retailer depth

$$\text{Retailer depth} = \frac{\text{Company sales volume through retailers (kg)}}{\text{Total sales volume by all retailers (kg)}} \times 100$$

Push pull index

$$\text{Push pull index} = \frac{\text{Average push volume (kg)}}{\text{Average pull volume (kg)}}$$

Results

Results

The result of the present study is given in chapter five. The data required to achieve the objectives were collected directly from “A Study on Distribution Network of Hybrid Vegetable Seeds Companies in Jammu District”. Random sampling procedure was adopted for the selection of respondents. Total of 50 respondents (40 farmers, 5 wholesalers, 5 retailers) were surveyed who gave valuable information. The collected data was analyzed by employing tabular analysis (percentages, garret ranking and weighted average ranking) to arrive at meaningful conclusions. The sequence of finding of the study is depicted in the form of tables and figures under the following headings:

5. Socio-Demographic profile of the farmers

5.1 Gender of the farmers

Figures 5.1 and Table 5.1 represent gender of the farmers. Out of 40 farmers, all farmers were male.

Table 5.1 Gender of the farmers

Gender (n=40)	Number of farmers	Percentage
Male	40	100.00
Total	40	100.00

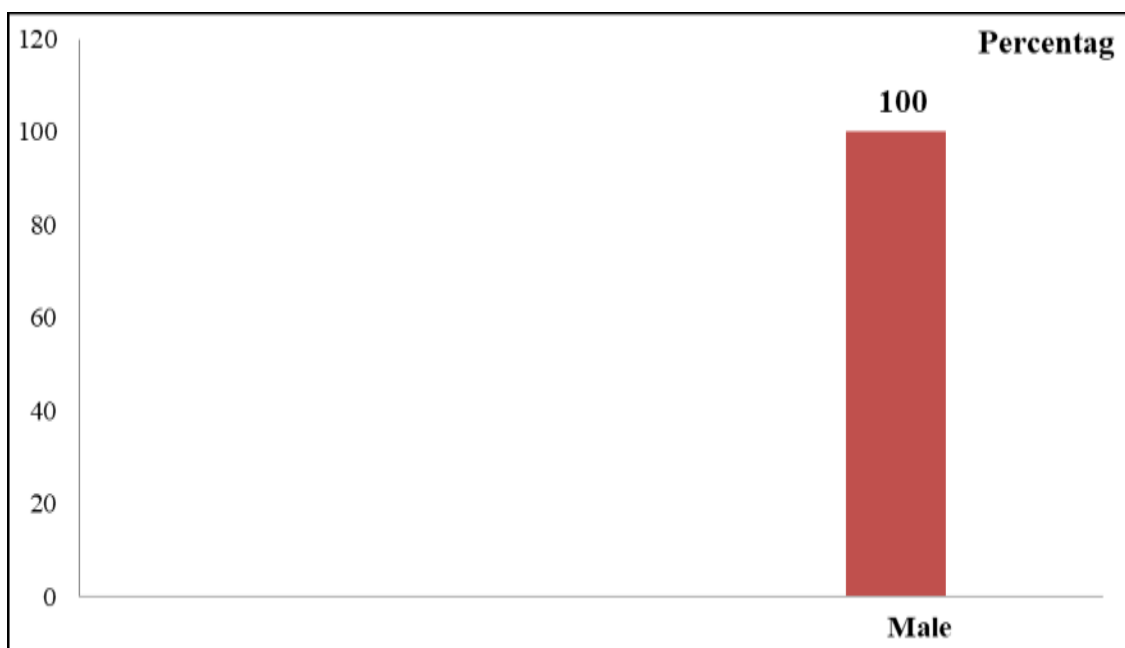


Figure 5.1 Gender of the farmers

5.2 Total land holding of farmers (in ha)

Figure 5.2 and Table 5.2 represent total land holdings of the farmers. Out of the 40 farmers, 8 farmers were marginal, who had less than one ha land, 18 farmers were small and who had 1-2 ha land and 13 farmers were medium, who had 2-4 ha land, followed by only 1 farmer was large who had more than 4 ha land.

Table 5.2 Total land holding of farmers (in ha)

Total Land Area (in ha) (n=40)	Number of Farmers	Area (in ha)	Percentage
Marginal Farmers (Less than 1 ha)	8	5.4	20.00
Small Farmers (1-2 ha)	18	23.85	45.00
Medium Farmers (2-4 ha)	13	29.85	32.50
Large Farmer (4-10 ha)	1	5	2.50
Total	40	64.1	100.00

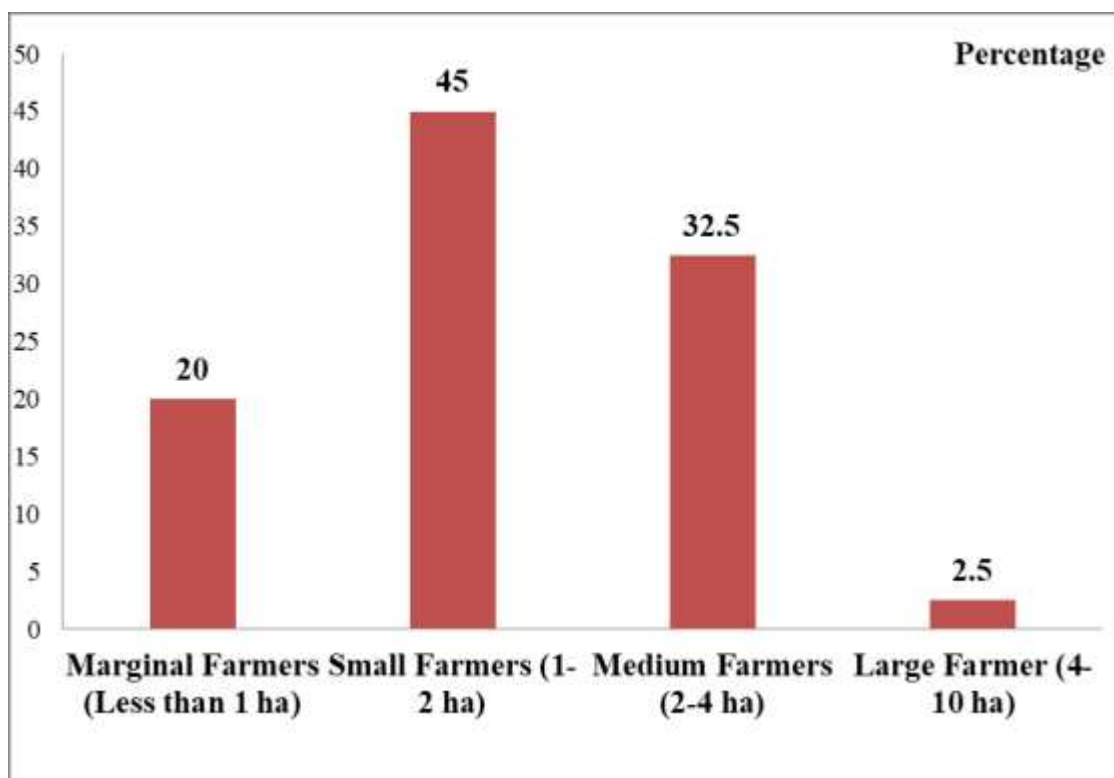


Figure 5.2 Total land holding of the farmers

5.3 Farmers land area under hybrid vegetable crops (in ha)

Figure 5.3 and Table 5.3 represent farmers land area under hybrid vegetable crops. Out of 40 farmers, 37 farmers were marginal who had less than 1 hectare cultivated land under hybrid vegetable crops and 3 farmers were small farmers who had 1-2 hectare cultivated land under hybrid vegetable crops.

Table 5.3 Farmers land area under hybrid vegetable crops (in ha)

Area under Vegetable (in ha) (n=40)	Number of Farmers	Area (in ha)	Percentage
Marginal Farmers (Less than 1 ha)	37	15.15	92.50
Small Farmers (1-2 ha)	3	3	7.50
Total	40	18.15	100.00

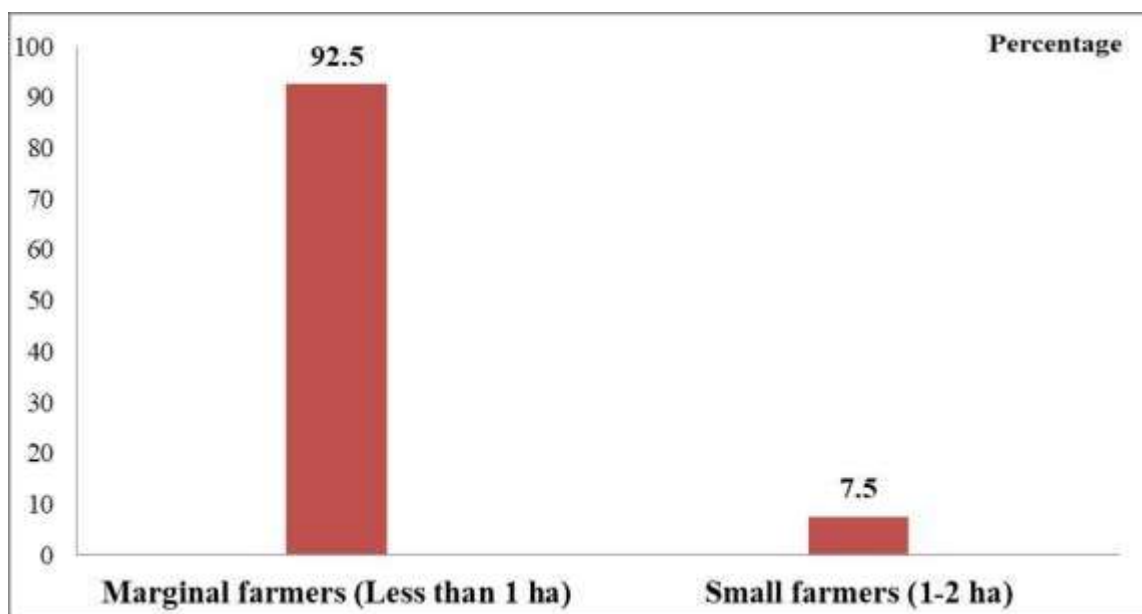


Figure 5.3 Farmers land area under hybrid vegetable crops (in ha)

5.4 Age of the farmers

Figures 4.4 and Table 4.4 represent age of the farmers. Out of 40 farmers, 8 farmers under the age group of 30 - 41 years, there were 26 farmers with followed by the age group of 42 – 67 years and there were 6 farmers with followed by the age group of 68 years with maximum.

Table 5.4 Age of the farmers

Age	Number of Farmers	Percentage
30-41	8	20.00
42-67	26	65.00
68 years & above	6	15.00
Total	40	100.00

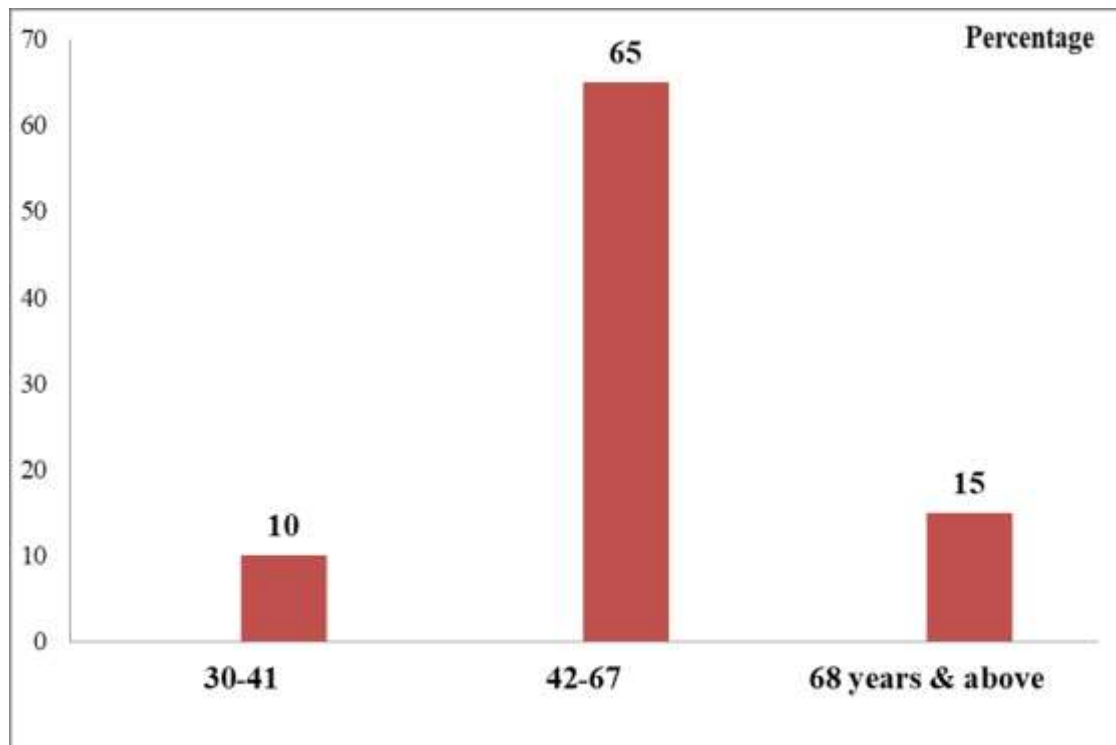


Figure 5.4 Age of the farmers

5.5 Educational qualification of the farmers

Figure 5.5 and Table 5.5 represent farmer educational qualification of the farmers. Out of the 40 farmers there were 4 farmers who were studied up to primary school, 6 farmers were studied up to middle school, 12 farmers were studied up to high school, 17 farmers were studied up to secondary school and only 1 farmer was graduation.

Table 5.5 Educational qualification of the farmers

Education (n=40)	Number of Farmers	Percentage
Primary School	4	10.00
Middle School	6	15.00
High School	12	30.00
Secondary School	17	42.50
Graduation	1	2.50
Total	40	100.00

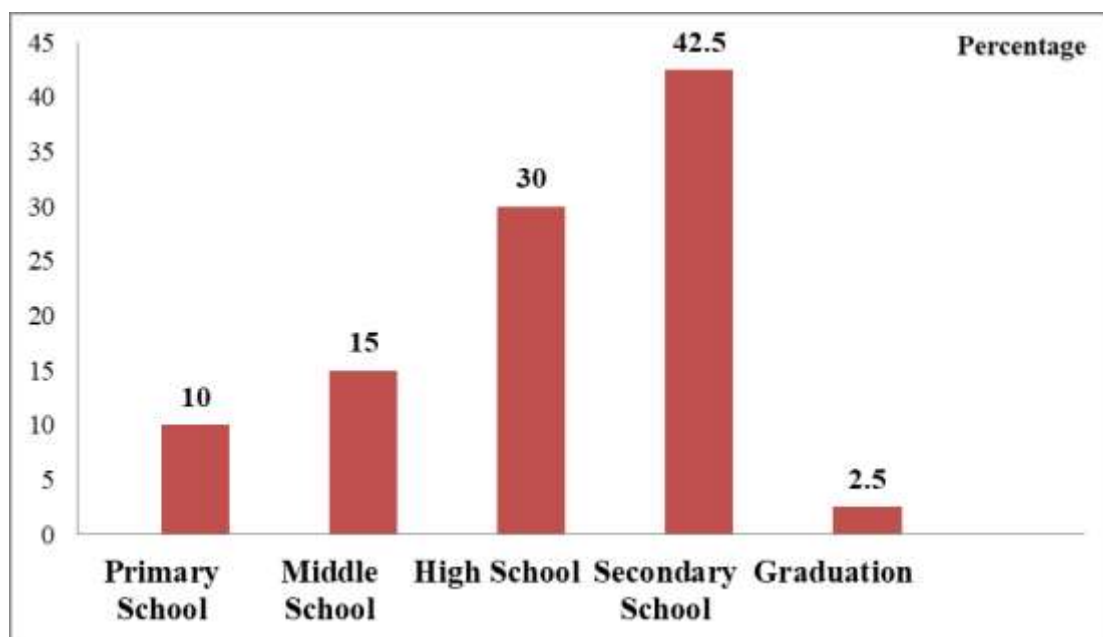


Figure 5.5 Educational qualification of the farmers

5.6 Most preferred cabbage hybrid vegetable seed companies by the farmers

Figure 5.6 and Table 5.6 represent the farmers who were using most preferred of cabbage hybrid vegetable seed companies. Out of 40 farmers, 11 farmers said that they most preferred hybrid vegetable seed of Sakata company, 7 farmers said that they most preferred use hybrid vegetable seed of Seminis company, 6 farmers said that they most preferred use hybrid vegetable seed of Syngenta company, 5 farmers said that they most preferred use hybrid vegetable seed of Golden Seed company, 4 farmers said that they most preferred use hybrid vegetable seed of Amazon company, 4 farmers said that they most preferred use hybrid vegetable seed of Vashudha company and only 3 farmers said that they use hybrid vegetable seed of Crystal company.

Table 5.6 Most preferred cabbage hybrid vegetable seed companies by the farmers

Name Companies (n=40)	Number of Farmers	Percentage
Amazon	4	10.00
Crystal	3	7.50
Golden Seed	5	12.50
Seminis	7	17.50
Syngenta	6	15.00
Sakata	11	27.50
Vashudha	4	10.00
Total	40	100.00

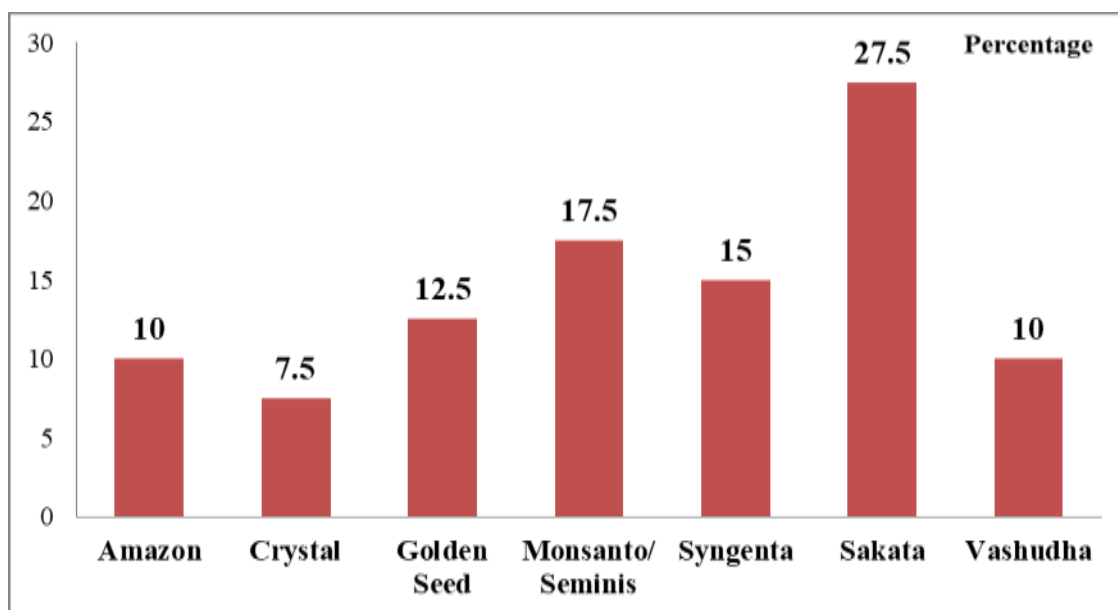


Figure 5.6 Most preferred cabbage hybrid vegetable seed companies by the farmers

5.7 Most preferred okra hybrid vegetable seed companies by the farmers

Figure 5.7 and Table 5.7 represent farmers who were most preferred okra hybrid vegetable seed companies. Out of 40 farmers, 10 farmers said that they most preferred use hybrid vegetable seed of Golden seed company, 8 farmers said that they most preferred use hybrid vegetable seed of Durga company, 6 farmers said that they most preferred use hybrid vegetable seed of Shriram Bioseed company, 5 farmers said that they most preferred use hybrid vegetable seed of BeejSheetal company, 4 farmers said that they use hybrid vegetable seed of Crystal company, 3 farmers said that they most preferred use of hybrid vegetable seed of Seminis company and 2 farmers use Dhanya and 2 farmers said that they use of hybrid vegetable seed of Khetibadi company.

Table 5.7 Most preferred okra hybrid vegetable seed companies by the farmers

Name of Companies (n=40)	Number of Farmers	Percentage
Beej Sheetal	5	12.50
Crystal	4	10.00
Dhanya	2	5.00
Durga	8	20.00
Golden Seed	10	25.00
Khetibadi	2	5.00
Seminis	3	7.50
Shriram Bioseed	6	15.00
Total	40	100.00

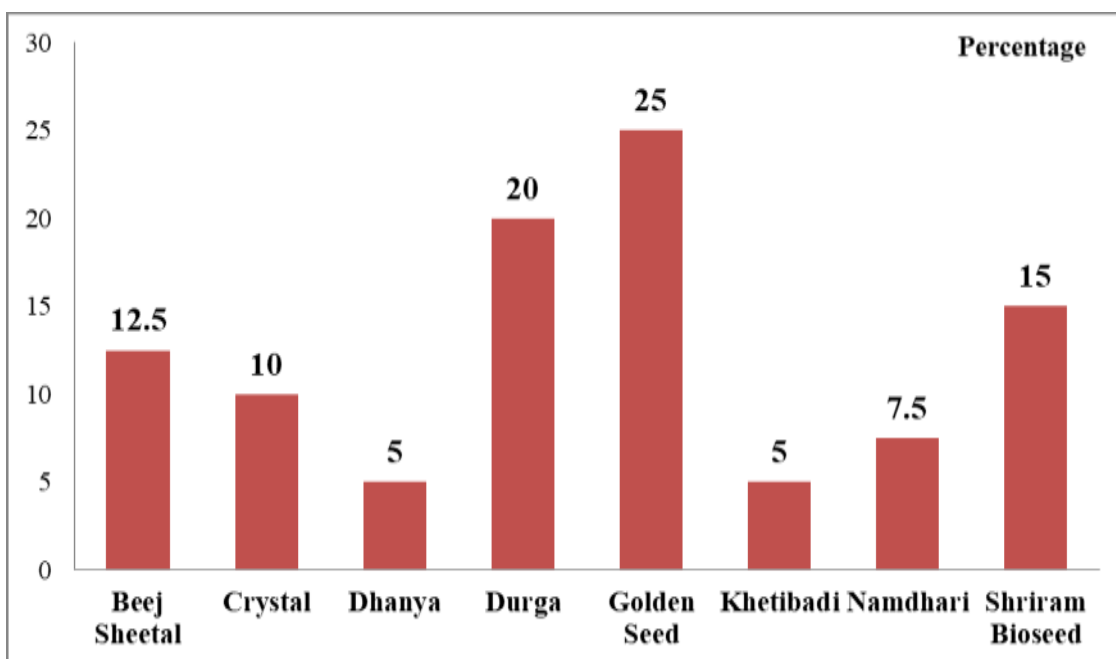


Figure 5.7 Most preferred okra hybrid vegetable seed companies by the farmers

5.8 Most preferred radish hybrid vegetable seed companies by the farmers

Figure 5.8 and Table 5.8 represent farmers most preferred radish hybrid vegetable seed companies. Out of 40 farmers, there were 16 farmers said that they most preferred use hybrid vegetable seed of Syngenta company, 7 farmers said that they most preferred use hybrid vegetable seed of Sakata company, 6 farmers said that they most preferred use hybrid vegetable seed of Asia Seed co. ltd company, 5 farmers said that they most preferred use hybrid vegetable seed of Taki Seed company, 4 farmers said that they use hybrid vegetable seed of Crystal company and 2 farmers said that they use of hybrid vegetable seed of Beej Sheetal company.

Table 5.8 Most preferred radish hybrid vegetable seed companies by the farmers

Name of Companies (n=40)	Number of Farmers	Percentage
Asia Seed	6	15.00
Beej Sheetal	2	5.00
Crystal	4	10.00
Sakata	7	17.50
Syngenta	16	40.00
Taki Seed	5	12.50
Total	40	100.00

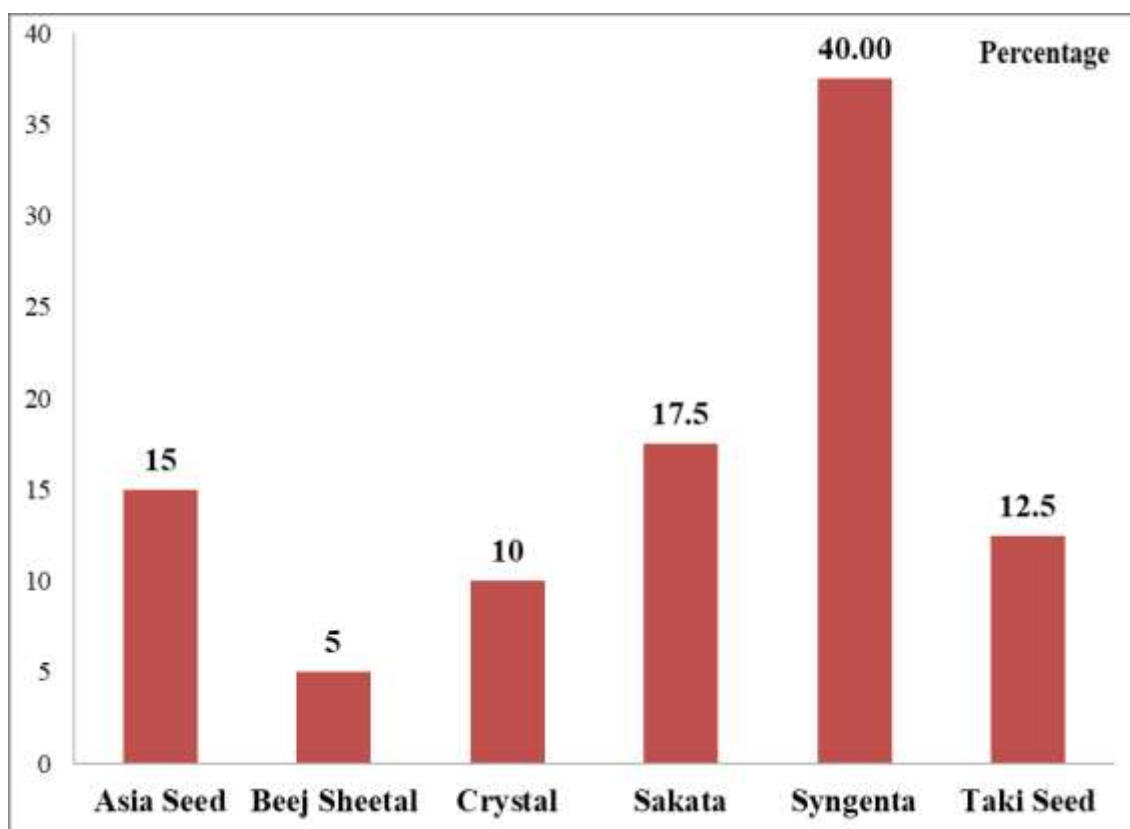


Figure 5.8 Most preferred radish hybrid vegetable seed companies by the farmers

5.9 Criteria while purchasing the hybrid cabbage seed from the retailers

Figure 5.9 and Table 5.9 revealed that Weightage average technique for criteria while purchasing cabbage seed from the retailers. The study concluded in terms of the quality of seed ranks number 1st followed by yield at rank 2nd, past experience at rank 3rd, Fellow farmers opinion at rank 4th, Dealer advice at rank 5th, Brand name of seed at rank 6th and Cost of seed at rank 7th.

Table 5.9 Criteria while purchasing the hybrid cabbage seed from the retailers

Factors (n=40)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Total	TWS	Rank
Quality of Seed	23	16	1	0	0	40	182	I
Percentage	57.50	40.00	2.50	0	00	100		
Yield	22	17	1	0	0	40	181	II
Percentage	55.00	42.50	2.50	0	00	100		
Past Experience	18	17	5	0	0	40	178	III
Percentage	45.00	42.50	12.50	0	00	100		
Fellow Farmers Opinion	21	13	5	1	0	40	174	IV
Percentage	52.50	32.50	12.50	2.50	00	100		
Dealer Advice	16	16	6	2	0	40	166	V
Percentage	40.00	40.00	15.00	5.00	00	100		
Brand Name of Seed	13	19	8	0	0	40	165	VI
Percentage	32.50	47.50	20.00	0	00	100		
Cost of Seed	4	13	18	5	0	40	136	VII
Percentage	10.00	32.50	45.00	12.50	00	100		

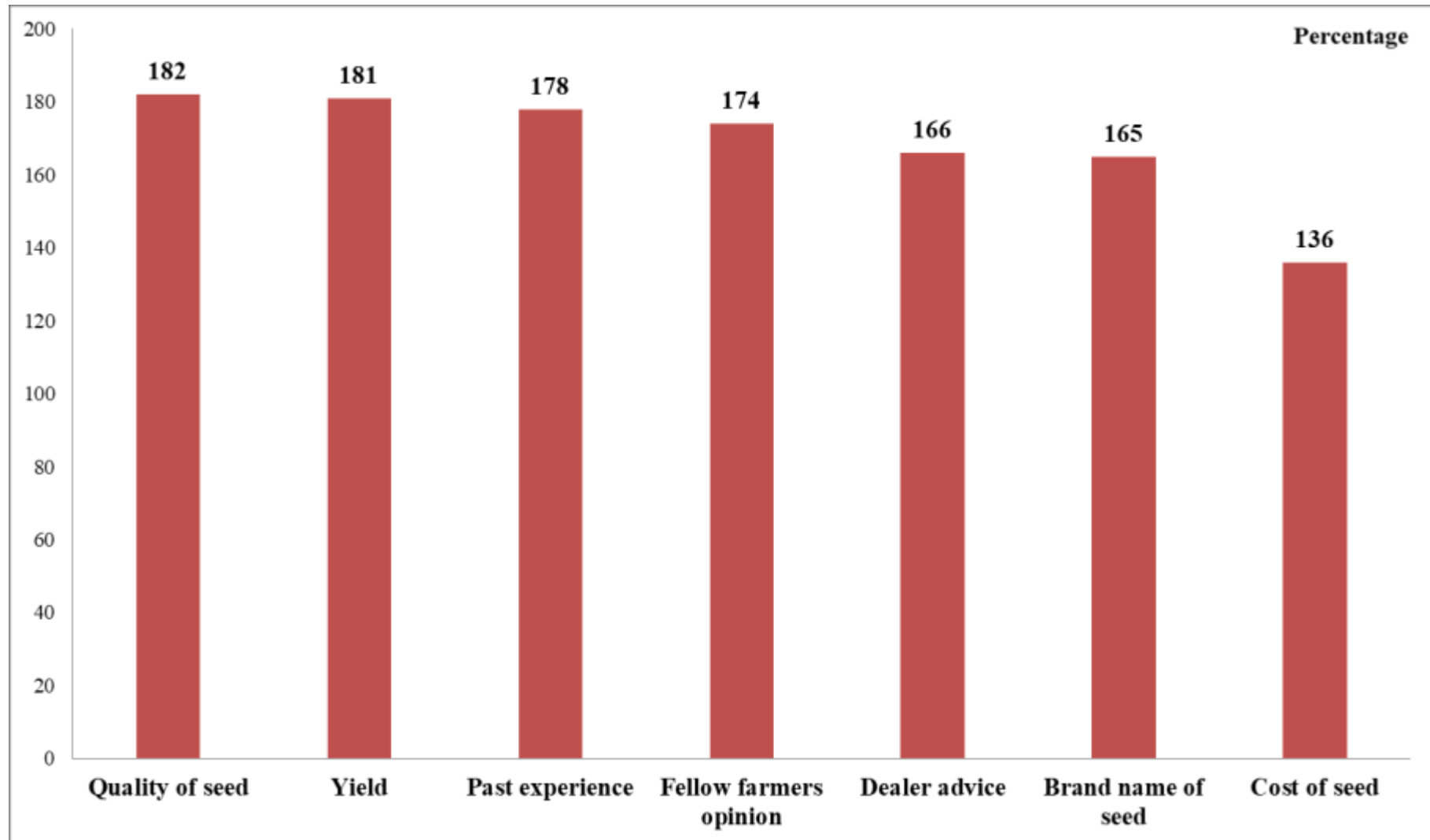


Figure 5.9 Criteria while purchasing the hybrid cabbage seed from the retailers

5.10 Criteria while purchasing the hybrid okra seed from the retailers

Figure 5.10 and Table 5.10 revealed that Weightage average technique for criteria while purchasing the okra seed from the retailers. The study concluded in terms of the Quality of seed ranks number 1st, followed by yield at rank 2nd, past experience at rank 3rd, Fellow farmers opinion at rank 4th, Dealer advice at rank 5th, Brand name of seed at rank 6th and Cost of seed at rank 7th.

Table 5.10 Criteria while purchasing the hybrid okra seed from the retailers

Factors (n=40)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Total	TWS	Rank
Quality of Seed	21	18	1	0	0	40	189	I
Percentage	52.50	45.00	2.50	00	00	100		
Yield	24	15	1	0	0	40	183	II
Percentage	60.00	37.50	2.50	00	00	100		
Past Experience	18	18	4	0	0	40	174	III
Percentage	45.00	45.00	10.00	00	00	100		
Fellow Farmers Opinion	19	14	6	1	0	40	171	IV
Percentage	47.50	35.00	15.00	2.50	00	100		
Dealer Advice	15	18	4	2	1	40	164	V
Percentage	37.50	45.00	10.00	5.00	2.50			
Brand Name of Seed	14	15	10	1	0	40	162	VI
Percentage	35.00	37.50	25.00	2.50	00	100		
Cost of Seed	4	13	19	4	0	40	137	VII
Percentage	10.00	32.50	47.50	10.00	00	100		

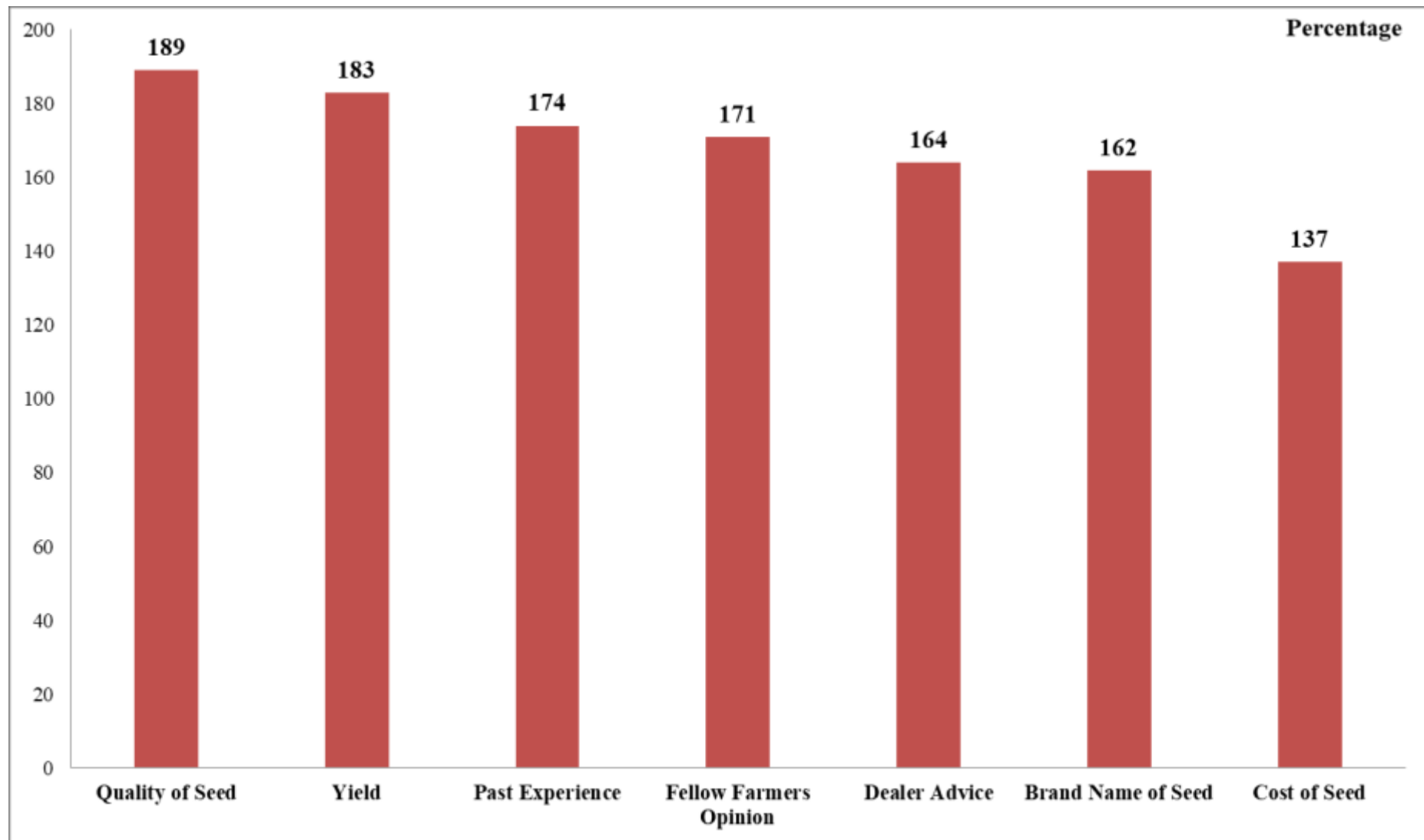


Figure 5.10 Criteria while purchasing the hybrid okra seed from the retailers

5.11 Criteria while purchasing the hybrid radish seed from the retailers

Figure 5.11 and Table 5.11 revealed that Weightage average technique for criteria while purchasing the radish seed from the retailers. The study concluded in terms of the Fellow farmers opinion ranks number 1st followed by Past experience at rank 2nd, Cost of seed at rank 3rd, Brand name of seed at rank 4th, Quality of seed at rank 5th, Yield, Brand name at rank 6th, Dealer advice at rank 7th.

Table 5.11 Criteria while purchasing the hybrid radish seed from the retailers

Factors (n=40)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Total	TWS	Rank
Fellow Farmers Opinion	18	12	7	3	0	40	181	I
Percentage	45.00	30.00	17.50	7.50	0	100		
Past Experience	19	17	4	0	0	40	178	II
Percentage	47.50	42.50	10.00	0	0	100		
Cost of Seed	7	9	19	5	0	40	175	III
Percentage	17.50	22.50	47.50	12.50	0	100		
Quality of Seed	21	16	3	0	0	40	169	IV
Percentage	52.50	40.00	7.50	0	0	100		
Yield	24	13	3	0	0	40	165	V
Percentage	60.00	32.50	7.50	0	0	100		
Brand Name of Seed	14	22	3	1	0	40	164	VI
Percentage	35.00	55.00	7.50	2.50	0	100		
Dealer Advice	19	10	9	0	2	40	138	VII
Percentage	47.50	25.00	22.50	0	5	100		

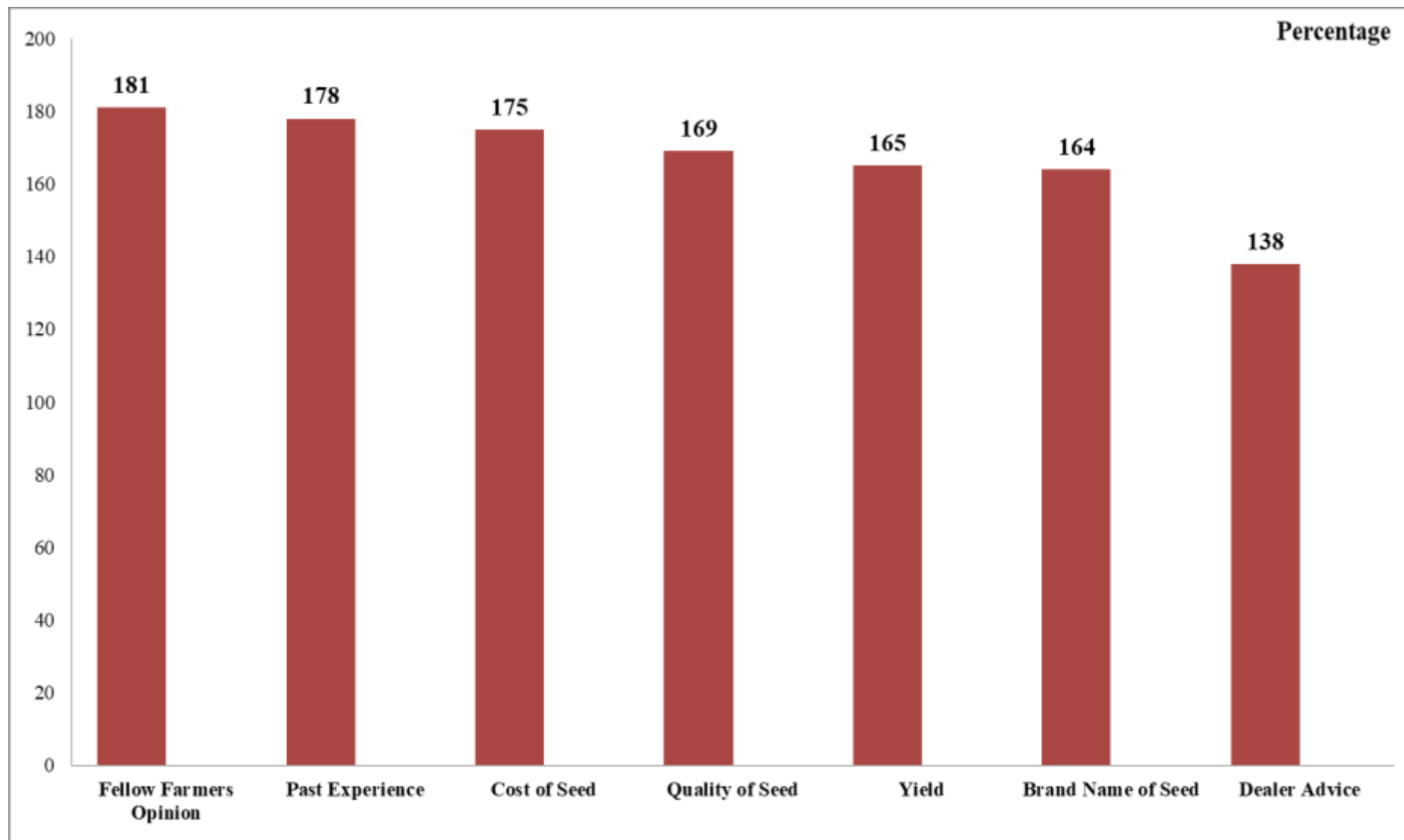


Figure 5.11 Criteria while purchasing the hybrid radish seed from the retailers

5.12 Farmers perceptions towards using hybrid cabbage

Figure 5.12 and Table 5.12 revealed that Garret ranking technique for the study farmers perceptions towards using hybrid cabbage concluded in terms of the price consistency ranks number 1st, followed by resistance of pest, resistance of disease, weather tolerant, brand name, higher yield and superior quality of seed at 2nd, 3rd, 4th, 5th, 6th, 7th positions respectively.

Table 5.12 Farmers perceptions towards using hybrid cabbage

Factors (n=40)	Total Score	Average (Percentage)	Rank
Price Consistency	2616	65.40	I
Resistance of Pest	2461	61.52	II
Resistance of Disease	2446	61.15	III
Weather Tolerant	2144	53.60	IV
Brand Name	2084	52.10	V
Higher Yield	1951	48.77	VI
Superior Quality of Seed	1925	48.12	VII

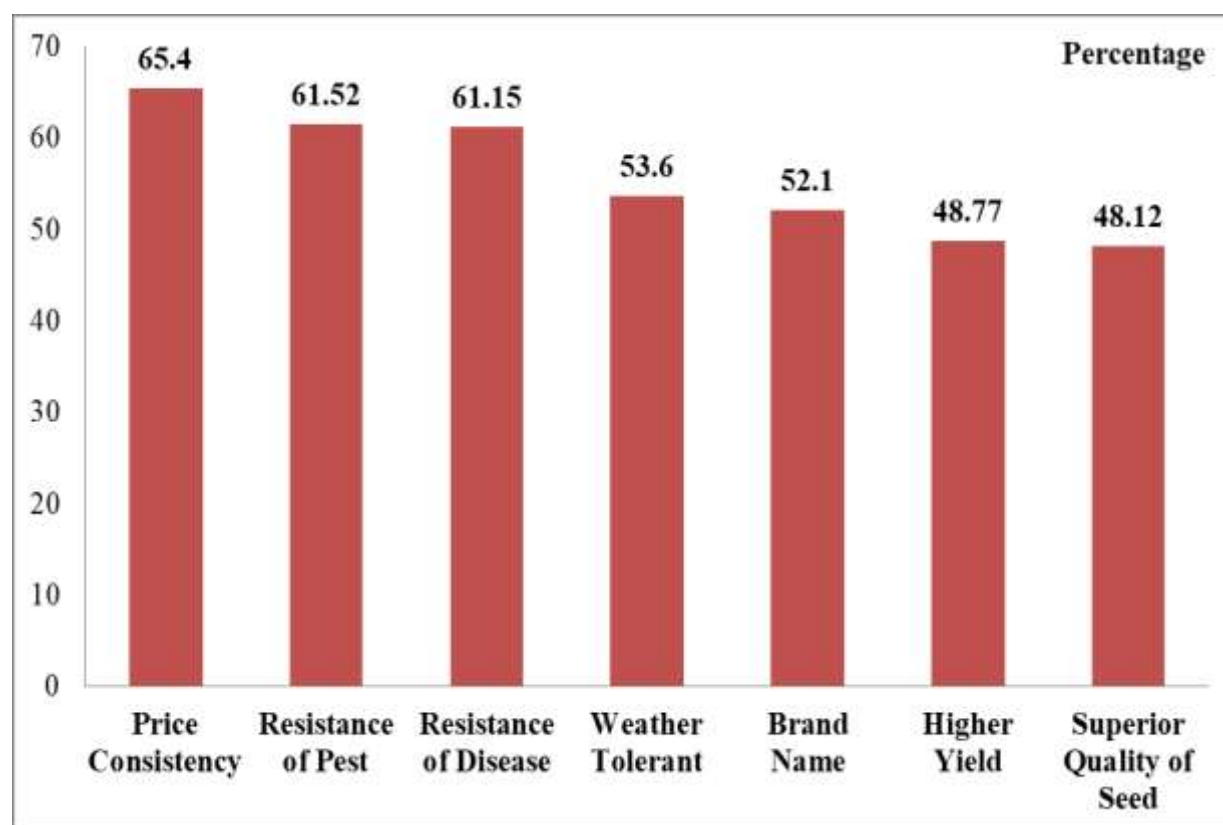


Figure 5.12 Farmers perceptions towards using hybrid cabbage

5.13 Farmers perceptions towards using hybrid okra

Figure 5.13 and Table 5.13 revealed that Garret ranking technique for the study farmers perceptions towards using hybrid okra concluded in terms of resistance of disease ranks number 1st, followed by resistance of pest, price consistency, brand name, weather tolerant, higher yield and superior quality of seed at 2nd, 3rd, 4th, 5th, 6th, 7th positions respectively.

Table 5.13 Farmers perceptions towards using hybrid okra

Factors (n=40)	Total Score	Average (Percentage)	Rank
Resistance of Disease	2586	64.65	I
Resistance of Pest	2579	64.47	II
Price Consistency	2523	63.07	III
Brand Name	2106	52.65	IV
Weather Tolerant	2065	51.62	V
Higher Yield	1966	49.15	VI
Superior Quality of Seed	1931	48.27	VII

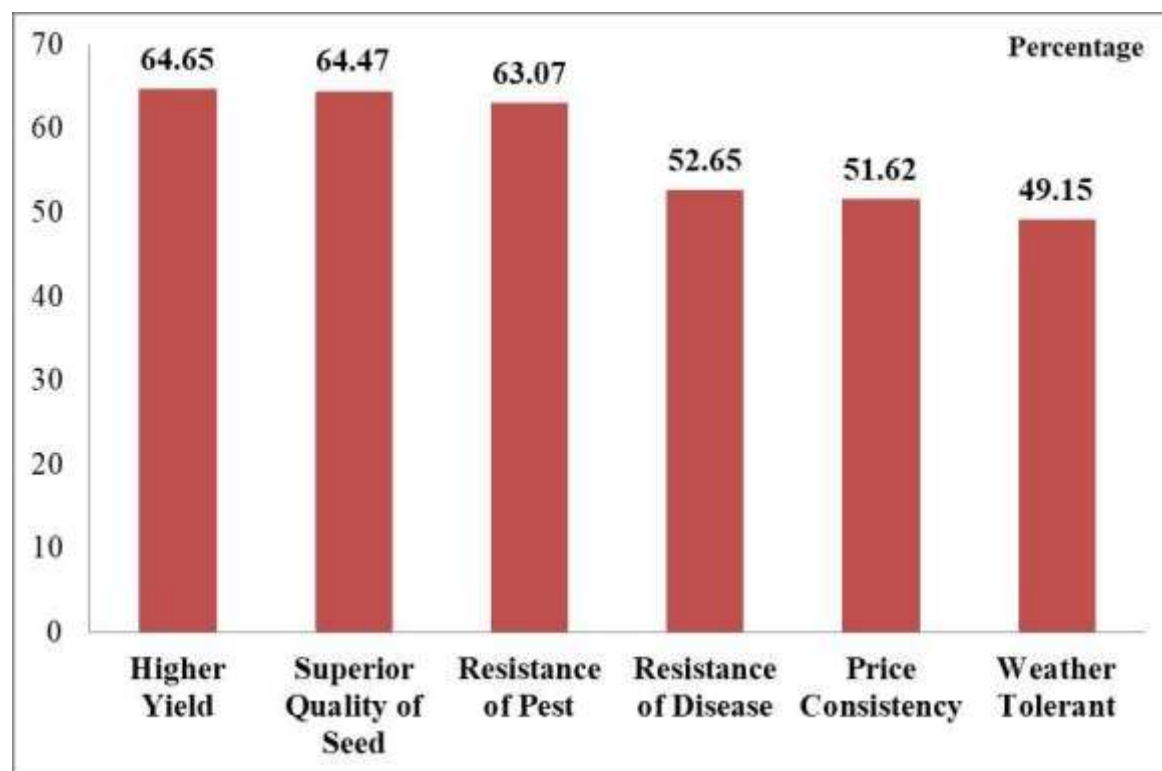


Figure 5.13 Farmers perceptions towards using hybrid okra

5.14 Farmers perceptions towards using hybrid radish

Figure 5.14 and Table 5.14 revealed that Garret ranking technique for the study farmers perceptions towards using hybrid radish concluded in terms of the price consistency ranks number 1st, followed by resistance of pest, resistance of disease, brand name, weather tolerant, higher yield and superior quality of seed at 2nd, 3rd, 4th, 5th, 6th, 7th positions respectively.

Table 5.14 Farmers perceptions towards using hybrid radish

Factors (n=40)	Total Score	Average (Percentage)	Rank
Price Consistency	2459	61.48	I
Resistance of Pest	2444	61.10	II
Resistance of Disease	2435	60.88	III
Brand Name	2165	54.13	IV
Weather Tolerant	2123	53.08	V
Higher Yield	1972	49.30	VI
Superior Quality of Seed	1925	48.13	VII

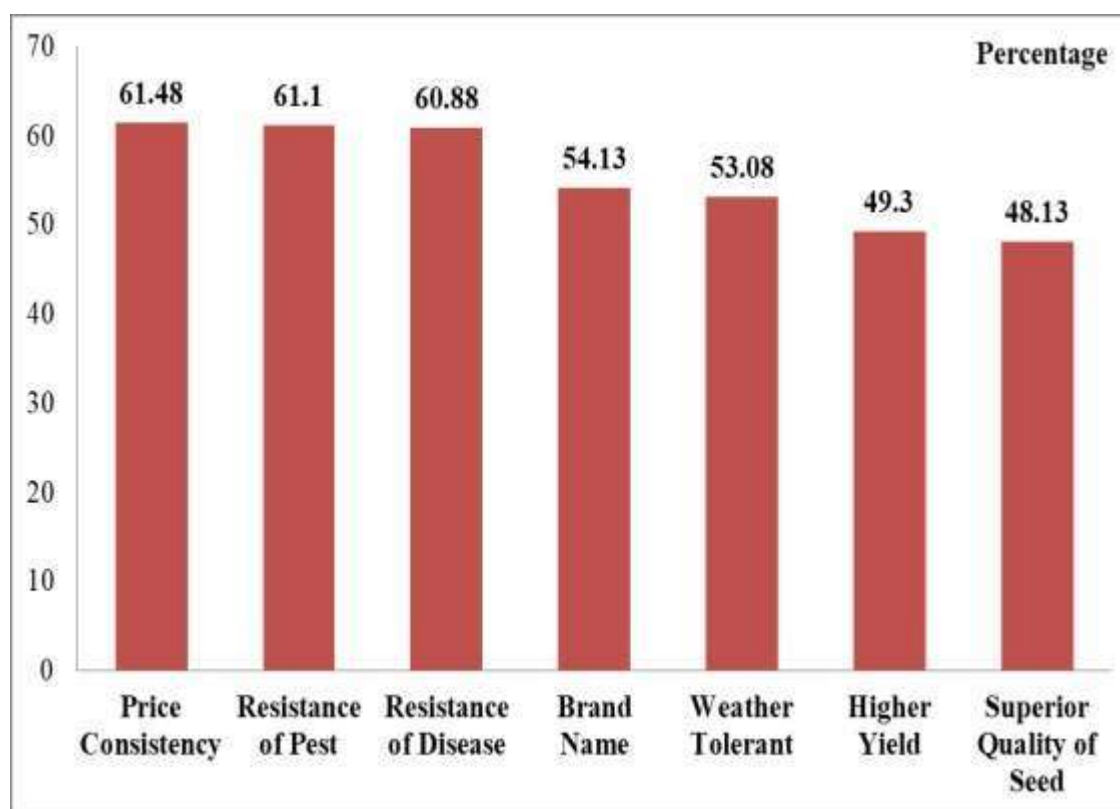


Figure 5.14 Farmers perceptions towards using hybrid radish

5.15 Selection of block

Distribution network is the route along which goods and services travel from procedure/manufacture through marketing intermediaries (such as wholesalers, retailers and farmers) to the final users. Distribution network provide downstream value by bringing finished products to end users. The network chosen by a company affect all other marketing decision. The result is often a business case for making changes in order to make improvements

The present study was undertaken to study the distribution network of hybrid vegetable seeds in Marh block of Jammu district.

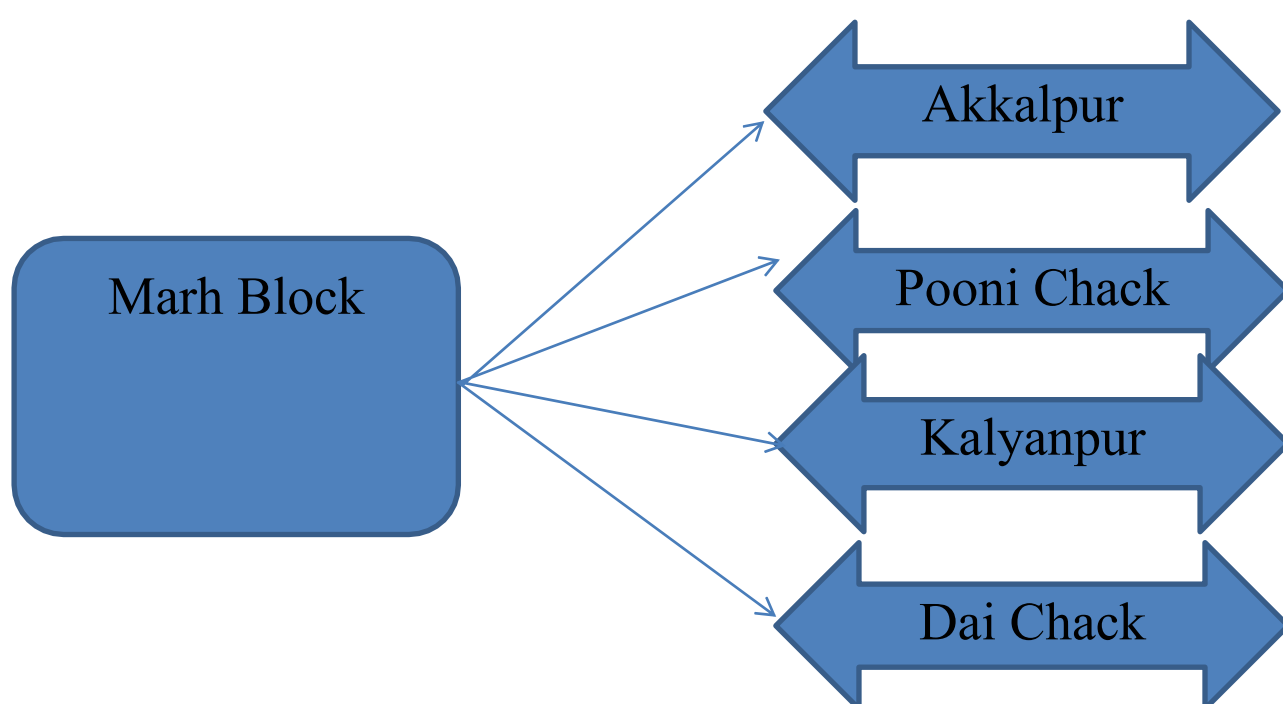


Figure 5.15 Different villages of Marh block

5.16 To identify different hybrid varieties of vegetables cultivated in Jammu district

There are different vegetables like okra, cucumber, brinjal, bottle guard, cabbage, cauliflower beans, spinach, bitter guard, onion, and radish. Thus it is clear from the data that cauliflower, cabbage, broccoli, okra, knol khol crops were the main vegetable crops of Jammu district.

Table 5.15 To identify different hybrid varieties of vegetables cultivated in Jammu district

Crops	Company	Varieties
Beans	Amazon	Sigma
	Beej Sheetal	Porva
	Crystal	CSA-10
	Monsanto	Phalguni
Broccoli	Beej Sheetal	Fiesta
	NSC	NSC- 105 B
Cabbage	Amazon	Atlantic
	Beej Sheetal	Bronco
	Monsanto	G-Flesh
	Noble	Champion
Cauliflower	Beej Sheetal	Snow Walker
	Crystal	Urvashi
	Monsanto	Barkha, Megha, Girja
	Noble	Himani
Knol Khol	Crystal	Seal Wall
	NSC	NSC-402 B
	Nursery Live	Kom
Okra	Amazon	Nemo, Versha
	Beej Sheetal	Trevani, Indrani, Avantika
	Durga	Bhindi Viroj
	Golden Seed	Navya, Radhika
Radish	Beej Sheetal	Korean
	Crystal	Crystal Glory
	Noble	White Queen
	Syngenta	Ivory White

From the above information, it is clear that, no company has monopoly in hybrid vegetable seed industry. A lot of seed companies existing in the market selling various quality hybrids vegetable. Among them Amazon, Beej Sheetal, Crystal, Durga, Golden Seed, Noble, Monsanto and Syngenta all sells almost all types of vegetables.

For estimating market share of different seed companies of Jammu district, 8 parameter were selected. These parameters were as number of wholesaler, number of companies deal by wholesaler, wholesaler depth, wholesaler width, retailer depth,

retailer depth, push pull index, wholesaler shop location. Every wholesaler interviewed of the basis of parameters. Different players were Amazon, Sakata, Beej Sheetal, Crystal, Golden Seed, Syngenta, Sakata, Vashudha, Dhanya, Durga.

5.17 To identify different hybrid varieties of vegetables cultivated in Jammu district

The existing channel of distribution of seed companies is as figure 5.16

Although the ultimate goal of a company is to have a consumer buy the firm's product, in this regard Multi-channel Distribution Strategy can be used. Multi-channel distribution system is a distribution system that uses more than one distribution channel. The multi-channel approach expands distribution and allows the company to reach wider market.

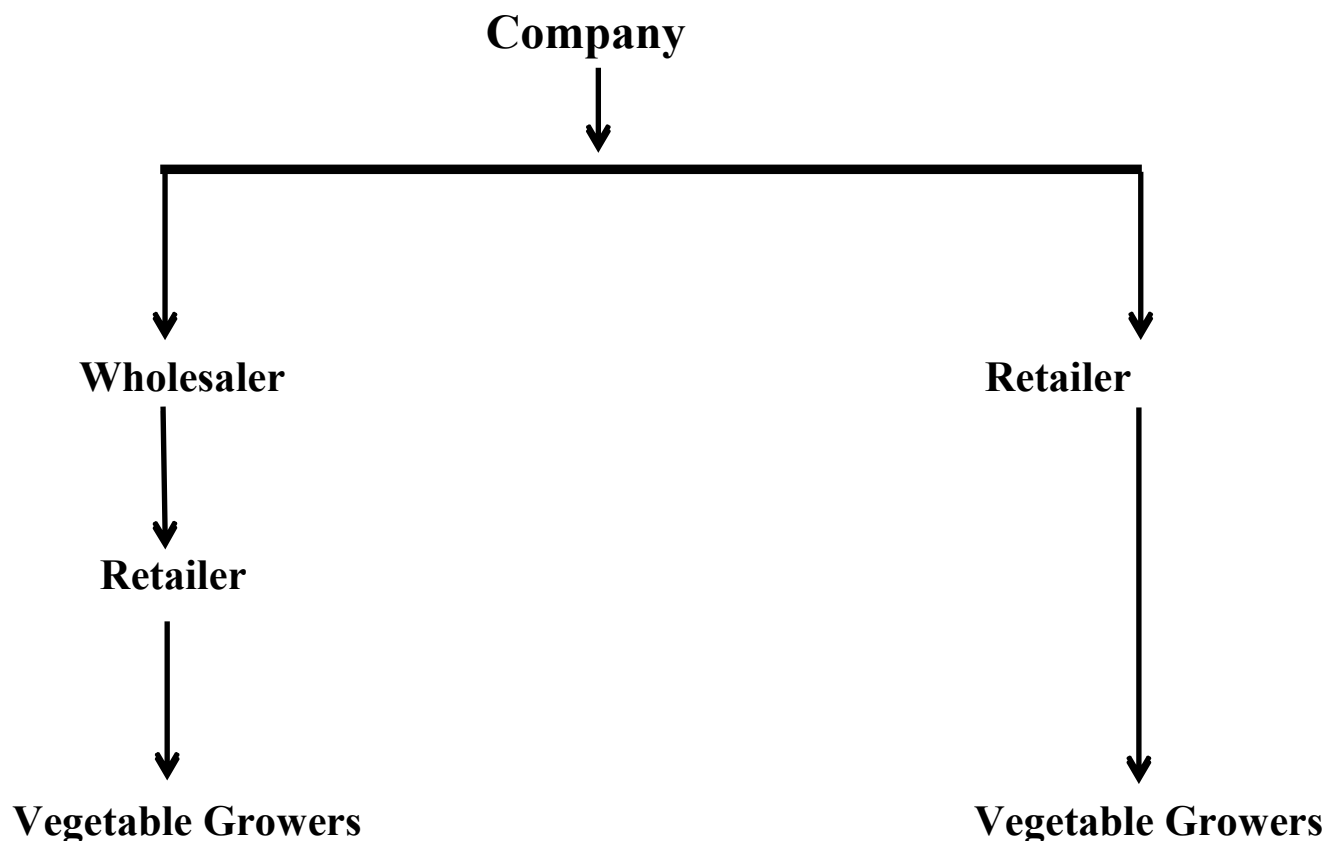


Figure 5.16 Distribution network of hybrid vegetable seeds

5.18 Current market share of hybrids vegetable seed companies under study area

Number of retailers is important criteria for judging the distribution practice of a company. Company with maximum retailers in an area will be the best and company having minimum retailers will be in lowest position.

Table 5.16 Number of retailer's different companies

(n=5)

Name of Company	Number of Retailers	Name of Shop	Place
Syngenta	5	Sai Seeds & Pesticides	Narwal Mandi
		Devraj Sharma & Sons	Pownichack
		Sharma Seeds & Pesticides	Bishna
		Gupta Seed Store	Narwal Mandi
		Viabhav Seeds & Pesticides	Jaswan Marh
Amazon	3	Sai Seeds & Pesticides	Narwal Mandi
		Sharma Seeds & Pesticides	Bishna
		Gupta Seed Store	Narwal Mandi
Sakata	2	Sai Seeds & Pesticides	Narwal Mandi
		Devraj Sharma & Sons	Pownichack
Durga	2	Sai Seeds & Pesticides	Narwal Mandi
		Devraj Sharma & Sons	Pownichack
Golden Seed	2	Sharma Seeds & Pesticides	Bishna
		Gupta Seed Store	Narwal Mandi
Khetibadi	1	Devraj Sharma & Sons	Pownichack
Monsanto/Seminis	1	Viabhav Seeds & Pesticides	Jaswan Marh
Namdhari	1	Viabhav Seeds & Pesticides	Jaswan Marh
Nufield	1	Devraj Sharma & Sons	Pownichack
Kalas	1	Gupta Seed Store	Narwal Mandi

5.18.1 Retailer's market share of different hybrids vegetable seed companies

Market share is an important criterion for checking of the penetration of any company among end users and market share of any company. If market share of any company is more it means the company having maximum penetration in the market among end users. Market share is also an indicator to check the loyalty of retailer. Company having maximum market share supposed to have best distribution system and company having least market share is having less developed distribution system.

Table 5.16 and Figure 5.17 shows that the Syngenta Company was having maximum market share of vegetable seeds in Jammu district. Because the quantity sold by the retailers of Syngenta was highest in the district. Share of all other companies like Golden seed, Khetibadi, Sakata, Amazon, Kalas, Seminas, Namdhari were less as compare to Syngenta. So, the market share of Syngenta seed was highest in Jammu district.

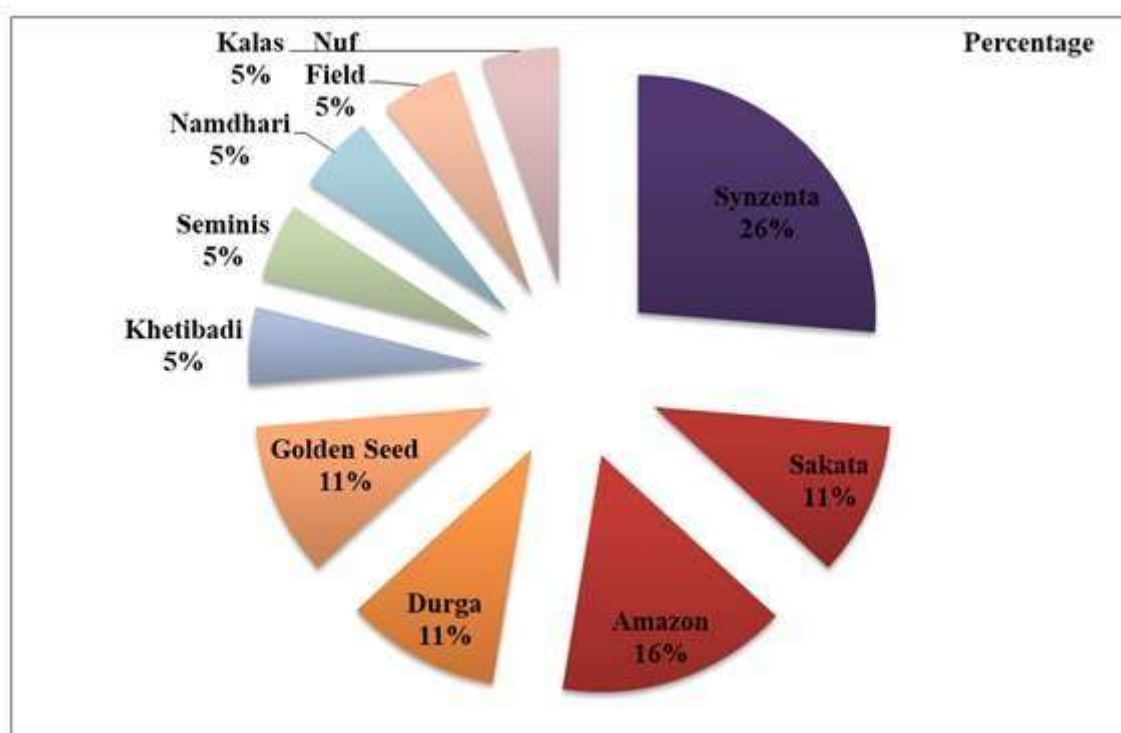


Figure 5.17 Retailer's market share of different hybrids vegetable seed companies

5.18.2 Number of wholesalers is one of the important criteria for judging the distribution practice of a company. Company with maximum wholesalers in an area will be the best and company having minimum wholesalers will be in lowest position.

Table 5.17 Number of wholesalers of different companies

(n=5)

Name of Company	Number of Wholesaler	Name of Shop	Place
Syngenta	5	Yuvika Enterprises	Narwal Mandi
		Akhil Pvt Ltd	Gandhi Nagar
		Jai Durga Pesticides, Seed and Fungicide	Rehal Road
		Mahajan Agriculture Store	Talab Tillo
		Agrwal Seed Store	Vikram Chowk
Amazon	4	Akhil Pvt Ltd	Gandhi Nagar
		Jai Durga Pesticides, Seed and Fungicide	Rehal Road
		Mahajan Agriculture Store	Talab Tillo
		Agrwal Seed Store	Vikram Chowk
Golden Seed	4	Jai Durga Pesticides, Seed and Fungicide	Rehal Road
		Mahajan Agriculture Store	Talab Tillo
		Yuvika Enterprises	Narwal Mandi
		Akhil Pvt Ltd	Gandhi Nagar
Sakata	4	Akhil Pvt Ltd	Gandhi Nagar
		Agrwal Seed Store	Vikram Chowk
		Jai Durga Pesticides, Seed and Fungicide	Rehal Road
		Mahajan Agriculture Store	Talab Tillo
Monsanto/ Seminis	3	Akhil Pvt Ltd	Gandhi Nagar
		Mahajan Agriculture Store	Talab Tillo
		Agrwal Seed Store	Vikram Chowk
Dhanya Seed	3	Yuvika Enterprises	Narwal Mandi
		Akhil Pvt Ltd	Gandhi Nagar
		Jai Durga Pesticides, Seed and Fungicide	Rehal Road
Durga	2	Mahajan Agriculture Store	Talab Tillo
		Agrwal Seed Store	Vikram Chowk
Crystal	2	Jai Durga Pesticides, Seed and Fungicide	Rehal Road
		Agrwal Seed Store	Vikram Chowk+
Namdhari	1	Yuvika Enterprises	Narwal Mandi
Nuf Field	1	Jai Durga Pesticides, Seed and Fungicide	Rehal Road
Kalas	1	Akhil Pvt Ltd	Gandhi Nagar

5.18.2 Wholesaler's market share of different hybrids vegetable seed companies

Market share is an important criterion for checking of the penetration of any company among end users and market share of any company. If market share of any company is more, then it means the company having maximum penetration in the market among end users. Market share is also an indicator to check the loyalty of wholesalers. Company having maximum market share supposed to have best distribution system and company having least market share is having less developed distribution system.

Table 5.17 and Figure 5.18 represent that Syngenta Company was having maximum market share of vegetable seeds in Jammu district. Because the quantity sold by the wholesalers of Syngenta was highest in the district. Share of all other companies like Golden seed, Khetibadi, Sakata, Amazon, Kalas, Seminas, Namdhari were less as compare to Syngenta. So, the market share of Syngenta seed was highest in Jammu district.

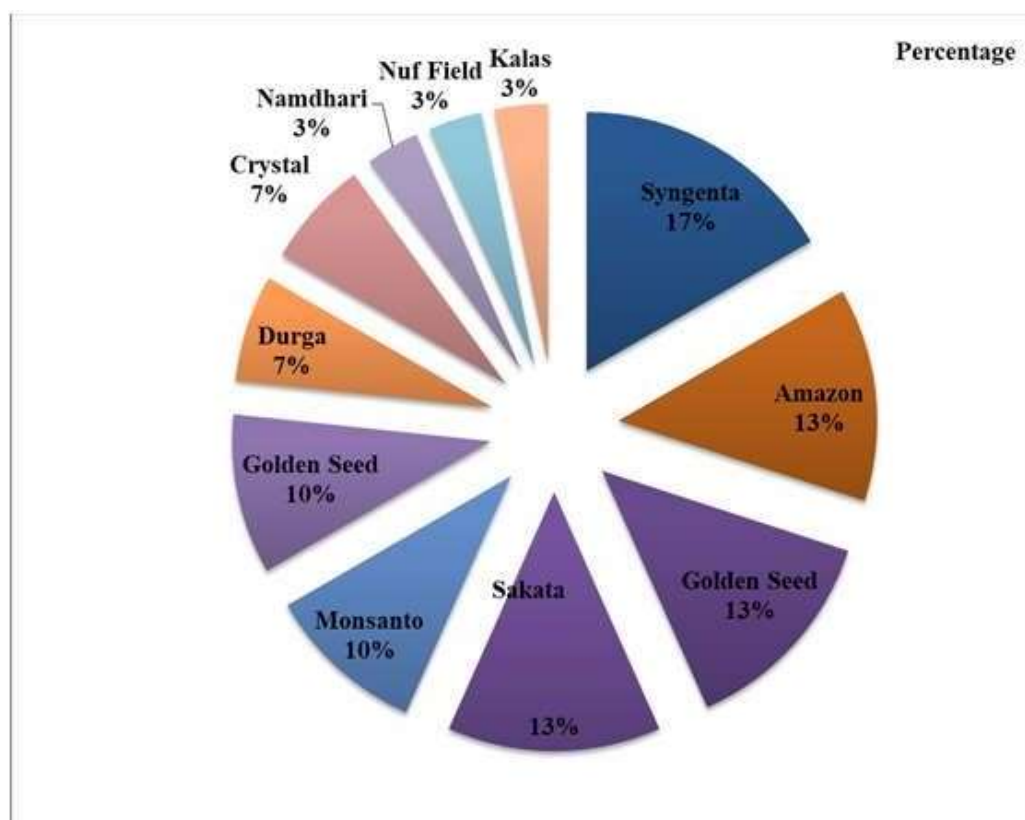


Figure 5.18 Wholesaler's market share of different hybrids vegetable seed companies in Jammu district

5.18.3 Current market share of hybrids vegetable seed companies under study area

Table 5.18 and Figure 5.19 represent the current market share of hybrid vegetable seed companies, Syngenta Company was having maximum market share of vegetable seeds in Jammu district. The quantity sold by the wholesalers and retailers of Syngenta was highest in the district followed by Amazon, Golden Seed, Sakata and Monsanto. Share of all other companies like Durga, crystal, Kalas, Dhanya Seed, Nufield were less as compare to Syngenta. So, the market share of Syngenta was highest in Jammu district.

Table 5.18 Current market share of hybrids vegetable seed companies under study area (n=5)

Name of Companies	Market Share (Percentage)
Syngenta	20.41
Amazon	14.29
Golden Seed	12.24
Sakata	12.24
Monsanto	10.20
Dhanya Seeds	10.20
Durga	6.12
Crystal	6.12
Kalas	4.08
Nuf field	4.08

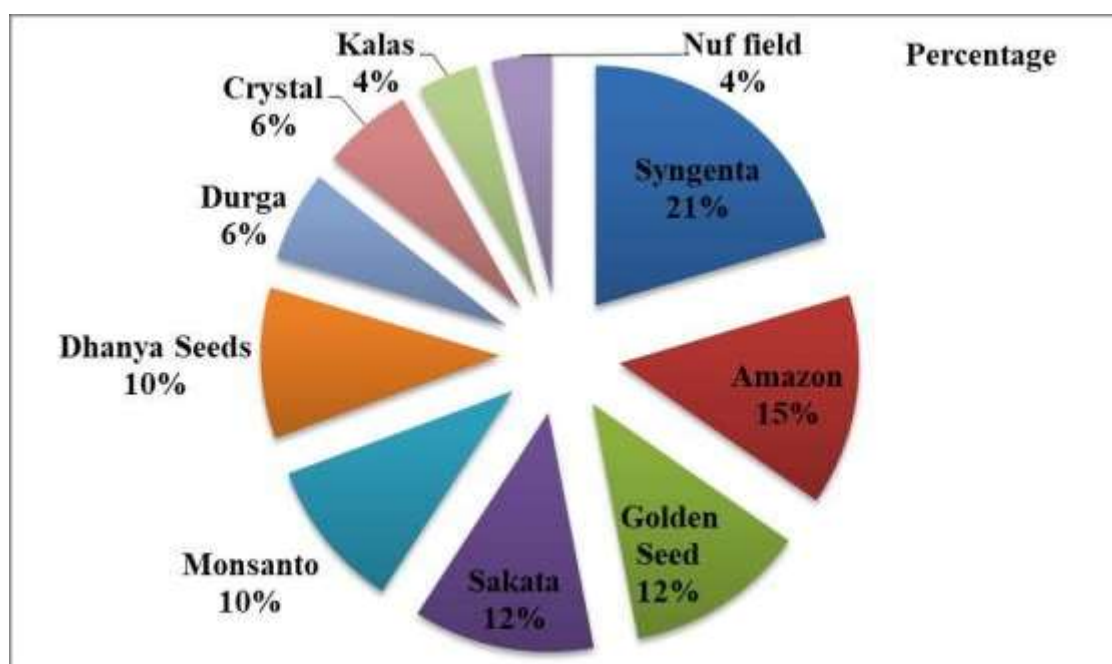


Figure 5.19 Current market share of hybrids vegetable seed companies under study area

5.19 Width of distribution system

Width of distribution system is an important parameter while comparing the distribution system of different companies. There are two types of width.

1. Wholesaler width
2. Retailer width

Distributor width of a company indicates the reach of a particular company among wholesaler. More wholesaler signifies better distribution network while different companies among retailers. Company having highest retailer width will be considered as a company having best distribution network.

5.19.1 Wholesaler width

$$\text{Wholesaler width} = \frac{\text{Number of wholesalers covered by particular company}}{\text{Total no of wholesalers in the district Jammu}} \times 100$$

Table 5.19 and Figure 5.20 shows that Syngenta seed possessed maximum wholesalers' i.e. 45 percent width and having maximum reach among wholesalers followed by Golden Seed, Sakata and Amazon 36.36 percent. Higher the wholesaler width betters the distribution network.

Table 5.19 Wholesaler width (n=5)

Name of Companies)	Number of Wholesaler	Wholesaler Width (Percentage)
Amazon	4	36.36
Dhanya	3	27.27
Durga	2	18.18
Golden Seed	4	36.36
Kalas	1	9.09
Monsanto/ Seminis	3	27.27
Namdhari	1	9.09
Nufield	1	9.09
Sakata	4	36.36
Syngenta	5	45.45

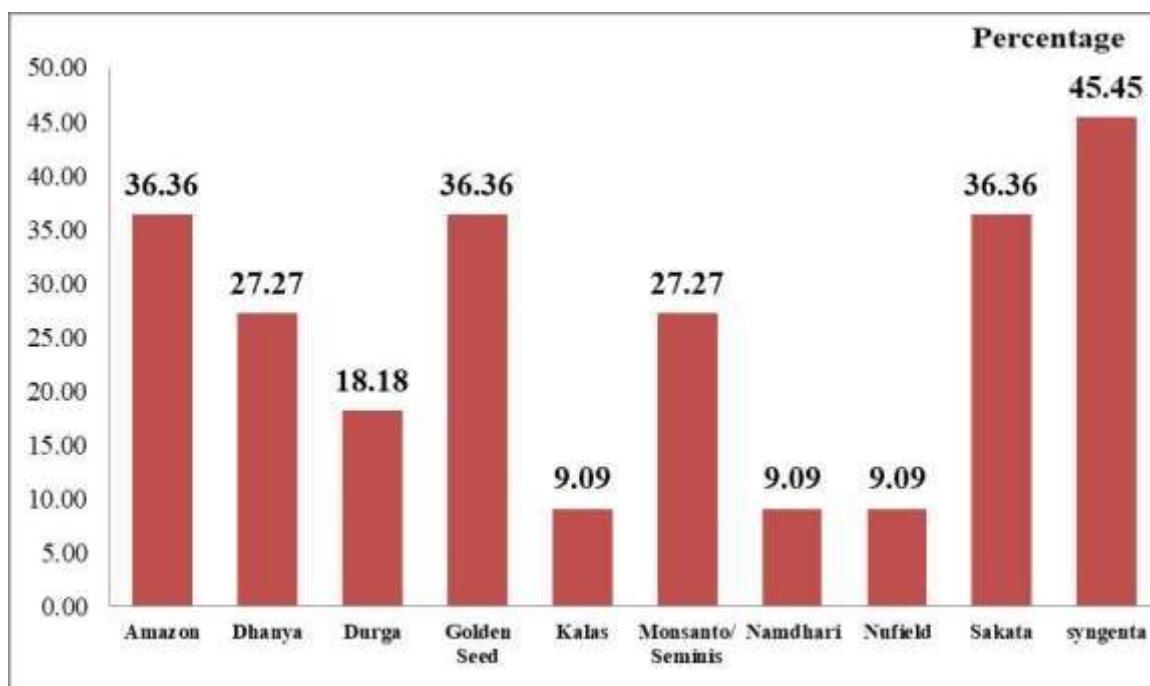


Figure 5.20 Wholesaler width of hybrids vegetable seed companies in Jammu district

5.19.2 Retailer width

Retailer width

$$\text{Retailer width} = \frac{\text{Number of retailers covered by particular company}}{\text{Total no of retailers in the district Jammu}} \times 100$$

Table 5.20 and Figure 5.21 shows that Syngenta possessed maximum retailer width maximum reach among retailers followed by Syngenta Seeds.

Table 5.20 Retailer width

(n=5)

Name of Companies	Number of Retailers	Retailer Width (Percentage)
Amazon	3	8.57
Dhanya	2	5.71
Durga	2	5.71
Golden Seed	4	11.43
Kalas	1	2.86
Monsanto/ Seminis	2	5.71
Namdhari	1	2.86
Nufield	1	2.86
Sakata	2	5.71
Syngenta	5	14.29

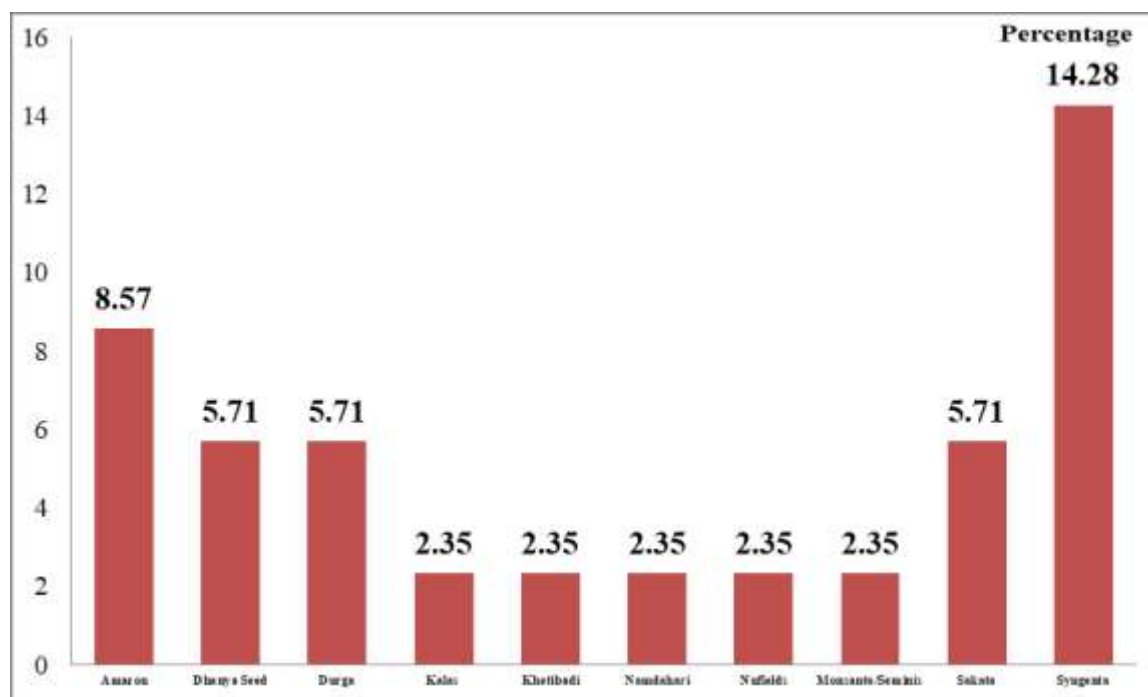


Figure 5.21 Retailer width of hybrids vegetable seed companies in Jammu district

5.20 Distribution Depth

Depth of distribution system indicates the market. There are two types of distribution depth.

1. Wholesaler depth
2. Retailer depth

Depth wholesaler depth states the penetration of a company among wholesaler and retailer depth of states the penetration of a company among retailers. For calculating the depth of distribution of a company, we took into consideration the sales volume of the company.

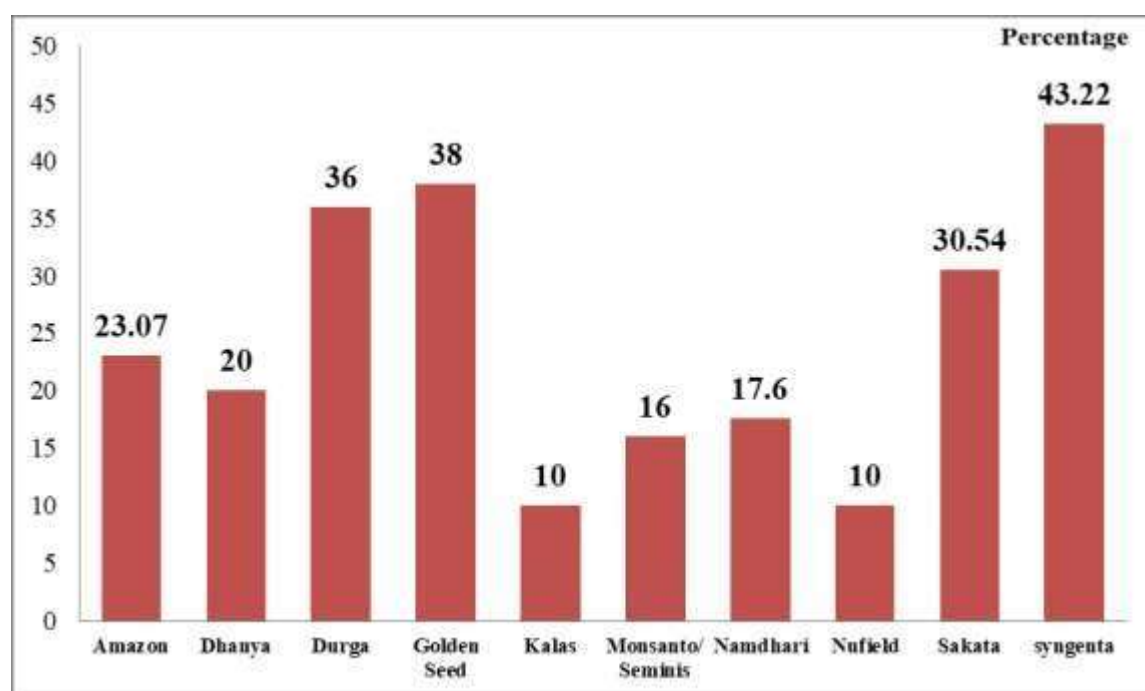
5.20.1 Wholesaler Depth

$$\text{Wholesaler depth} = \frac{\text{Company sales volume through wholesalers (kg)}}{\text{Total sales volume by all wholesalers (kg)}} \times 100$$

Table 5.21 and Figure 5.22 shows that wholesaler depth is highest for Syngenta company and the lowest for Kalas Company.

Table 5.21 Wholesaler Depth**(n=5)**

Name of Companies	Wholesaler Sale (kg)	Sale Volume of All Wholesalers (kg)	Wholesaler Depth (Percentage)
Amazon	15	65	23.07
Dhanya Seed	25	125	20.00
Durga	16	45	35.55
Golden Seed	20	58	34.48
Kalas	7	80	10.00
Namdahari	16	100	16.00
Nufield	19	110	17.27
Monsanto/Seminis	15	69	21.73
Sakata	18	59	30.50
Syngenta	55	134	41.04

**Figure 5.22 Wholesaler depth of hybrid vegetable seed companies in Jammu district****5.20.2 Retailer Depth**

$$\text{Retailer depth} = \frac{\text{Company sales volume through retailers (kg)}}{\text{Total sales volume by all retailers (kg)}} \times 100$$

Table 5.22 and Figure 5.23 depicts that retailer depth is highest for Syngenta. It meant that share of Syngenta was highest in total volume of hybrid seeds of vegetable (cabbage, okra, radish) sold at wholesalers as well as retailers shop.

Table 5.22 Retailer depth

(n=5)

Name of Companies	Retailer Sale (kg)	Sale Volume of All Retailers (kg)	Retailer Depth (Percentage)
Amazon	4	25	16.00
Dhanya Seed	8	35	22.85
Durga	9	20	45.00
Golden Seed	7	15	46.66
Kalas	2.5	9	27.77
Namdahari	8	25	32.00
Nufield	6	23	26.08
Monsanto/Seminis	15	35	42.85
Sakata	12	33	36.36
Syngenta	21.5	39	55.12

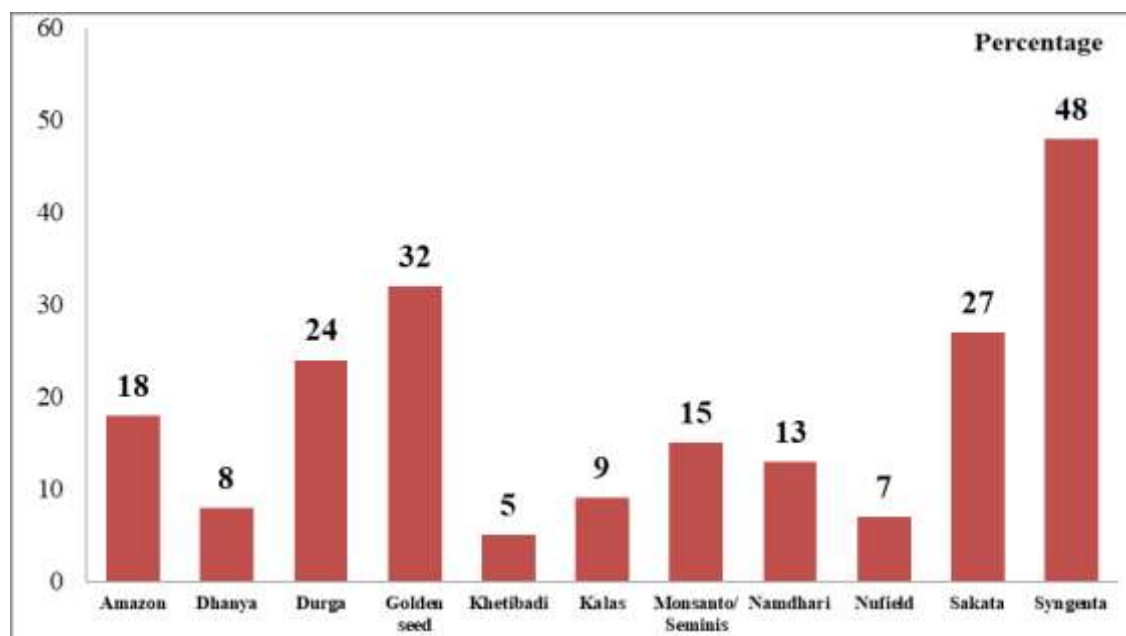


Figure 5.23 Retailer depth of hybrid vegetable seed companies in Jammu district

5.21 Push-pull index

Push pull index is an important criterion to judge the loyalty of wholesaler. If he had pushed more product of a company whose wholesaler ship was with him, means he was more loyal towards that company. Usually a wholesaler pushes the products of that company which gives him more margins. Each and every company wants to increase its sales value. Higher the value of push-pull index, more loyal is the wholesaler and it is good for that company. For the products which are more popular in the market and more liked by the customer, market pulls force acts it. To increase the sales volume of these products less effort are needed.

Push- pull index

$$\text{Push pull index} = \frac{\text{Average Push Volume (kg)}}{\text{Average Pull Volume (kg)}}$$

Table 5.23 and Figure 5.24 clearly depict that vegetable seeds of Seminis was having maximum push. But when we see the case of Syngenta, there was lot of pull means retailers or vegetable growers came to wholesaler shop and directly asked for the seeds of Syngenta, it means pull volume was all driven by vegetable growers.

Table 5.23 Push volume

Name of Companies	Quality (5)	Farmer Meeting (4)	Retailer Margin (3)	Awareness of the Farmer (2)	Gift Scheme (1)	TWS	Rank
Seminis	0	3	4	0	0	24	I
Golden Seed	3	0	0	1	0	17	II
Kalas	0	2	1	1	0	13	III
Amazon	1	1	0	0	1	10	IV
Syngenta	5	0	0	0	0	5	V

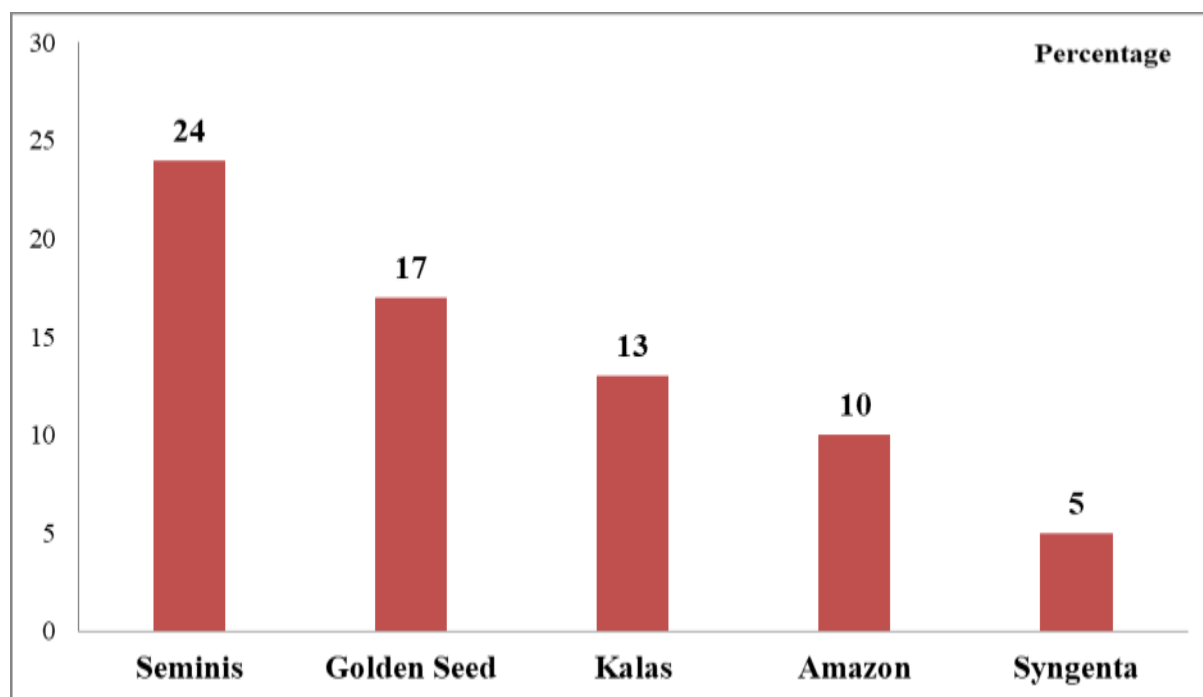
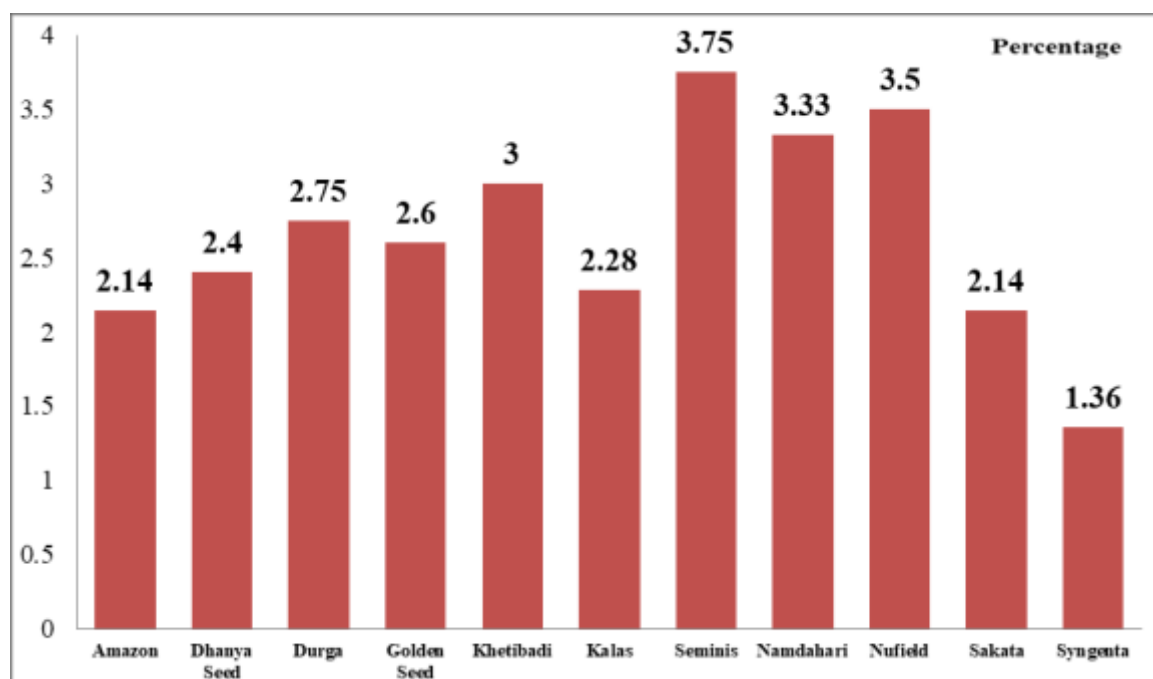


Figure 5.24 Push volume

Table 5.24 and Figure 5.25 clearly depict that vegetable seeds of Syngenta was having maximum pull whereas vegetable seeds of Seminis was having maximum push by wholesaler. So it was clear that wholesaler of Seminis was more loyal and it might be due to more margins for endorsing the vegetables of Seminis. But when we see the case of Syngenta, there was lot of pull means retailers or vegetable growers came to wholesaler shop and directly asked for the seeds of Syngenta, it means pull volume was all driven by vegetable growers.

Table 5.24 Push-pull index

Name of Companies	Average Push Volume	Average Pull Volume	Push-Pull Index
Amazon	15	7	2.14
Dhanya Seed	12	5	2.40
Durga	11	4	2.75
Golden Seed	8	3	2.60
Khetibadi	15	5	3.00
Kalas	16	7	2.28
Monsanto/Seminis	30	8	3.75
Namdahari	10	3	3.33
Nufield	7	2	3.50
Sakata	15	7	2.14
Syngenta	15	11	1.36

**Figure 5.25 Push-pull inde**

Photographs





Discussion

Discussion

There were maximum respondents' aware of Syngenta seed of cabbage, okra and radish hybrid seed. So, there is no need to create awareness towards of Syngenta, Sakata, Golden Seed and Amazon Seed Company.

6.1 To identify different hybrids vegetable cultivated in Jammu district

The first objective of the study represents the different hybrids vegetable varieties cultivated in Jammu district. It is noticeable that there are different vegetables like okra, cucumber, brinjal, bottle guard, cabbage, cauliflower beans, spinach, bitter guard, onion, and radish. Thus it is clear from the data that cauliflower, cabbage, broccoli, okra, knol khol crops were the main vegetable crops of Jammu district.

From the above information, it is clear that, no company has monopoly in hybrid vegetable seed industry. A lot of seed companies existing in the market selling various quality hybrid varieties of vegetable. Among them Amazon, Beej Sheetal, Crystal, Durga, Golden Seed, Noble, and Syngenta all sells almost all types of vegetables.

For estimating market share of different seed companies of Jammu district. These parameters were as number of wholesaler, number of companies deal by wholesaler, wholesaler depth, wholesaler width, retailer depth, retailer depth, push pull index, wholesaler sales volume (kg) and retailer sales volume(kg), number of companies. Every wholesaler interviewed of the basis of parameters. Different players were Amazon, Sakata, Beej Sheetal, Crystal, Golden Seed, Syngenta, Sakata, Vashudha, Dhanya, Durga.

6.2 To examine distribution network of hybrid vegetable seeds of different companies

Although the ultimate goal of a company is to have a consumer buy the firm's product, in this regard multi-channel distribution strategy can be used. Multi-channel distribution system is a distribution system that uses more than one distribution channel. The multi-channel approach expands distribution and allows the company to reach wider market.

6.3 Current market share of vegetable seed companies under study area

Current market share of hybrid vegetable seed companies, Syngenta Company was having maximum market share of vegetable seeds in Jammu district. The quantity sold by the wholesalers and retailers of Syngenta was highest in the district followed by

Amazon, Golden Seed, Sakata and Monsanto. Share of all other companies like Durga, Crystal, Kalas, Dhanya Seed, Nufield were less as compare to Syngenta. So, the market share of Syngenta was highest in Jammu district.

6.4 Wholesaler width

Syngenta seed possessed maximum wholesalers' i.e. 45 per cent width and having maximum reach among wholesalers followed by Golden Seed, Sakata and Amazon 36.36 per cent. Higher the wholesaler width better the distribution network.

6.5 Retailer width

Syngenta possessed maximum retailer width maximum reach among retailers followed by Syngenta Seeds. Kalas, Namdhari and Nufield possessed maximum retailer width minimum reach among retailers.

6.6 Wholesaler depth

Wholesaler depth is highest for Syngenta and the lowest for Kalas Company.

6.7 Retailer depth

Retailer depth is highest for Syngenta. It meant that share of Syngenta was highest in total volume of hybrid seeds of vegetable (cabbage, okra, radish) sold at wholesalers as well as retailers shop.

6.8 Push-pull index

A vegetable seed of Syngenta was having maximum pull whereas vegetable seeds of Seminis were having maximum push by wholesaler. So it was clear that wholesaler of Seminis was more loyal and it might be due to more margins for endorsing the vegetables of Seminis. But when we see the case of Syngenta, there was lot of pull means retailers or vegetable growers came to wholesaler shop and directly asked for the seeds of Syngenta, it means pull volume was all driven by vegetable growers.

Summary and Conclusions

Summary and Conclusions

7.1 Summary

The project entitled –A Study on Distribution Network of Hybrid Vegetable Seed Companies in Jammu District was carried out in Jammu region in 2021. A total of 50 sample respondents were selected from the sample area. Selection of sample 10 number of vegetable growing farmer prepared with the help of four villages. A total number of 50 sample will be included comprising of 40 farmer, 5 wholesalers and 5 retailers. The information was collected from the sample area. The data collected was subject to analysis for examining the objectives of investigation. The finding of the present investigation has been briefly summarized in this chapter.

7.1.1 To identify different hybrids vegetables cultivated in Jammu district

The study found that there are various different hybrid varieties of vegetable cultivated in Jammu district. Okra hybrid varieties of cultivated in Jammu district are Ridma, Treveni, Indrani, Avantika, Gomti, Namo, Versha etc . Cabbage hybrid varieties are G-Flesh, Champion and Atlantic etc. Radish hybrid varieties Korean, White queen, Crystal glory and most preferred variety of radish Ivory white etc. Spinach hybrid varieties are Delta, Green of green, and G- flesh. Bitter guard hybrid varieties are BSS-1083, Dragon, Harit etc. Bottle guard hybrid varieties are Maple, Early latoo, BSS-687 and Gaurav etc. Beans hybrid varieties are Porva, Sigma, Phalguni and CSA-10. Knol-Khol are only two hybrid varieties Seol ball, Kom. There are many preferences of vegetables grower towards *Syngenta* seed. They want the varieties of high yielding, better quality and disease resistance early maturity and suitable to their agro climatic region.

7.1.2 To examine distribution network of hybrids vegetable seeds of different companies

There are many companies in market and they have good share but the local seed has capture the market in some of vegetable crops. Hybrid vegetable seed companies should increase their retailer's width so that they can achieve more profit from selling their product to the end customers i.e. vegetable growers. Companies should convince

its wholesalers to improve the product display in the shop. Firstly company manufacture the seed then company distribute the seed two mode channel

- a. Company-- Wholesaler – Retailer—Vegetable growers
- b. Company – Retailer -- Vegetable growers

Mostly first channel use in distribution network.

7.1.3 To measure the current market shares of hybrids vegetable seed under study area

Weightage average technique method has been used to find out the influence/effect of various parameters on most preferred cabbage hybrid vegetable seed companies. Out of 40 farmers maximum 11 farmers (27.50 per cent) use Sakata company hybrid seed, 7 farmers (17.50 per cent) use Seminis company seed, 6 farmers (15.00 per cent) use Syngenta Seed Company, 5 farmers (12.50 per cent) use Golden Seed company and 4 farmers (10 per cent) use Amazon company, 4 farmers (10 per cent) use Vashudha seed company and 3 farmers (7.50 per cent) use Crystal seed company. The study revealed that out of 50 respondents (40 farmers, 5 wholesalers, 5 retailers). Weightage average technique method has been used to find out the influence/effect of various parameters on most preferred okra hybrid vegetable seed companies. Out of 40 farmers maximum 10 farmers (25.00 per cent) use Golden seed company hybrid seed, 8 farmers (20.00 per cent) use Durga company seed, 6 farmers (15.00 per cent) use Shriram BioSeed company, 5 farmers (12.50 per cent) use Beej Sheetal company and 4 farmers (10 per cent) use Crystal company, 3 farmers (7.5 per cent) use Namdhari seed company, 2 farmers (5.00 per cent) use Dhanya seed company and 2 famers (5.00 per cent) use Khetibadi seed company. The study revealed that out of 50 respondents (40 farmers, 5 wholesalers, 5 retailers). Weightage average technique method has been used to find out the influence/effect of various parameters on most preferred radish hybrid vegetable seed companies. Out of 40 farmers, 15 farmers (37.50 per cent) said that they mostly use hybrid vegetable seed of Syngenta company, 7 farmers (17.50 per cent) said that they mostly use hybrid vegetable seed of Sakata company, 6 farmers (15.00 per cent) said that they mostly use hybrid vegetable seed of Asia Seed co. ltd company, 5 farmers (12.50 per cent) said that they mostly use hybrid vegetable seed of Taki Seed company, 4 farmers (10 per cent) said that they use hybrid

vegetable seed of Crystal company and 2 farmers (5.00 per cent) said that they use of hybrid vegetable seed of Beej Sheetal company.

7.2 Conclusions

It was explicit from the study that the hybrid vegetable seed distribution network of Syngenta Seeds Company was the best in the study area and it is raising as benchmark on overall score. The study helped to understand the market preferred cabbage, okra and radish hybrid seed market in the district and it signifies that good quality of seed, yield and resistance to pest are majorly preferred. Because of higher firmness the demand of Jammu district cabbage, okra and radish hybrid seed in the processing industry was high. The hybrid seed company's seed was able to meet the needs of the vegetable seed market and this enabled them to attract the market. Research also shows that retailers and vegetable growers in the region prefer annual payment accounts rather than weekly or monthly bases. Syngenta Company hired a good professional as a sales manager and helped them reach the market, better sellers and a wide range of wholesaler.

Therefore, the result of study shows stiff competition among the seed companies to sell their product as no market concentration is noticed in vegetable seed distribution in Jammu district. The profitability and productivity of seed determinants of farmers' vegetable seed purchase decision. Companies use different promotional measure for increasing sales volume. However farmers opined that field days and demonstrations were effective in creating awareness about new products. Among the various companies Syngenta was best for the vegetable seeds in the study area emerging as benchmark based on overall score given by farmers, retailers and wholesaler. Cabbage, okra and radish seeds, the most preferred companies were Syngenta, Sakata, Golden Seed, Durga and Dhanya companies, respectively.

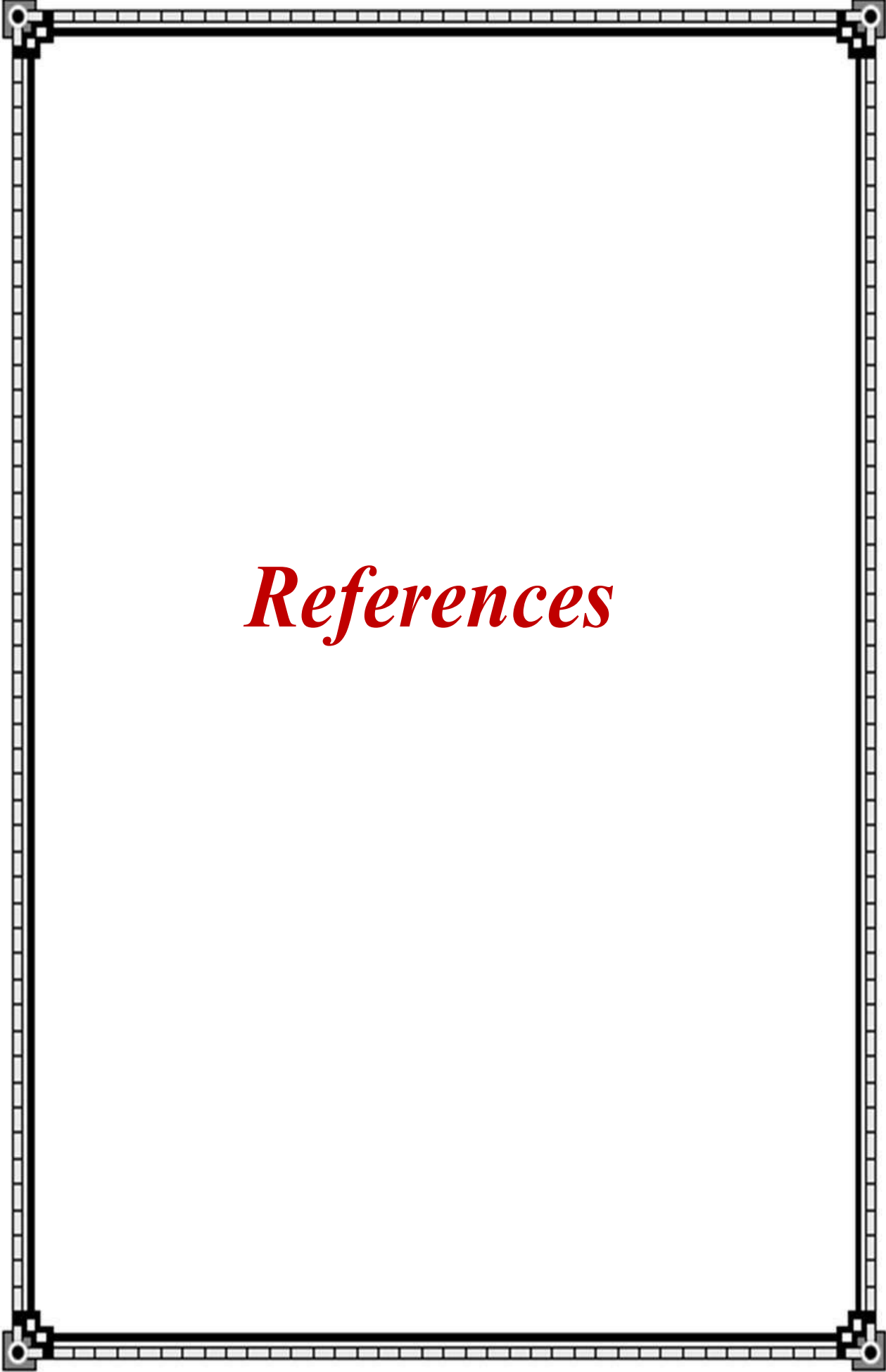
- a. It was explicit from the study that the distribution network of Syngenta was best for the vegetable seeds in the study area emerging as benchmark based on overall score. The study also strengthened the contemplation that seed marketing at micro level involves the matching of the farmers needs with timely seed supply.
- b. The determinants like availability of seed during the season, outlining the catchment area to be covered by specific varieties, adequacy of support system

including finance and stocking at different levels have great significance in making a strong distribution network.

- c. The study also revealed stiff competition among retailers for selling same products of the company leading to lower sales margin.
- d. The sales volume and payment habits were regarded as most important attributes for appraising the distribution practices.
- e. Retailers' width is an indicator of reach of the company which was the highest for Jammu district followed by Syngenta Company.
- f. Distribution depth was the highest for the highest for Syngenta followed Jammu district, which shows the market penetration of the companies.
- g. Push- Pull index values indicated that Syngenta had the highest push volume, while Seminis had the highest pull volume.

7.3 Recommendations

- a. Hybrid vegetable seed companies should increase their retailers' width so that they can achieve more profit from selling their product to the end customers i.e. vegetable growers.
- b. Companies should convince its wholesalers to improve the product display in the shop.
- c. There should be a proper coordination among wholesalers and company.
- d. Company should increase the product range with difference in quality to competing companies.
- e. Varieties of vegetable crops should be developed with the consideration of farmers' preference and specific agro climate situation.
- f. Conduct the farmers meeting and field day by the company to convince about the company products.



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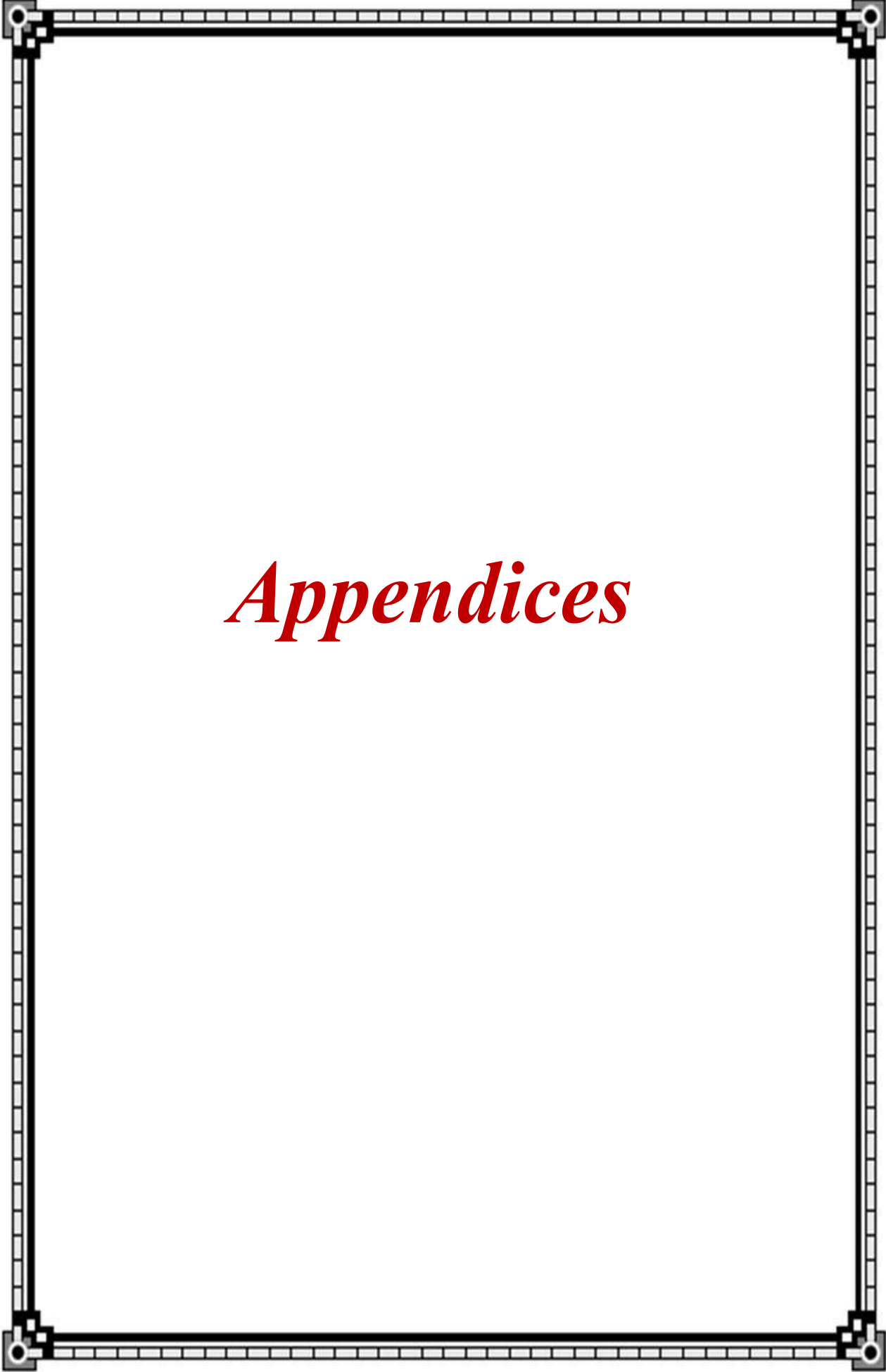
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Appendices



**Sher-e-Kashmir University of Agricultural Sciences and
Technology, Jammu
Division of Agricultural Economic and Agri-Business
Management**

SCHEDULE/QUESTIONNAIR

FARMER QUESTIONNAIRE

Farmer Name:			
No of Family Member:		Block:	
Village:		District:	
Mobile No.		Area:	

1) Total area (in acre)_____

Area under vegetables (in acre) _____

2) Age of the farmer:_____

3) Educational qualification of farmer:_____

4) Cropping Pattern:

a) Kharif:_____

b) Rabi:_____

c) Summer:_____

5) Season (Kharif/Rabi/Summer):

a) Cabbage:_____

b) Okra:_____

c) Radish:_____

6) Yield per acre:

a) Cabbage:_____

b) Okra:_____

c) Radish:_____

7) Which are the hybrids cabbage, radish and okra have you cultivated?

Cabbage		
S. No.	Company Name	Hybrid Name
1.		
2.		

Okra		
S. No.	Company Name	Hybrid Name
1.		
2.		

Radish		
S. No.	Company Name	Hybrid Name
1.		
2.		

8) What are the criteria's while purchasing hybrids cabbage, okra and radish?

Cabbage					
Criteria	Strongly Agree	Agree	Moderate	Strongly Disagree	Strongly Disagree
Past experience					
Quality of Seed					
Yield					
Brand name					
Cost of seed					
Fellow farmers opinion					
Dealer advice					

Okra					
Criteria	Strongly Agree	Agree	Moderate	Strongly Disagree	Strongly Disagree
Past experience					
Quality of seed					
Yield					
Brand name					
Cost of seed					
Fellow farmers opinion					
Dealer advice					

Radish					
Criteria	Strongly Agree	Agree	Moderate	Strongly Disagree	Strongly Disagree
Past experience					
Quality of seed					
Yield					
Brand name					
Cost of seed					
Fellow farmers opinion					
Dealer advice					

9) What are farmers' perceptions about various hybrids cabbage, okra and radish?

Cabbage					
Criteria/varieties	Strongly Agree	Agree	Moderate	Strongly Disagree	Strongly Disagree
Higher yield					
Superior quality of product					
Resistance to pest					
Resistance to diseases					
Price consistency					
Weather tolerant					

Brand name					
Okra					
Criteria/varieties	Strongly Agree	Agree	Moderate	Strongly Disagree	Strongly Disagree
Higher yield					
Superior quality of product					
Resistance to pest					
Resistance to diseases					
Price consistency					
Weather tolerant					
Brand name					

Radish					
Criteria/varieties	Strongly Agree	Agree	Moderate	Strongly Disagree	Strongly Disagree
Higher yield					
Superior quality of product					
Resistance to pest					
Resistance to diseases					
Price consistency					
Weather tolerant					
Brand name					

WHOLESALE QUESTIONNAIRE

Personal details:

Name of the Respondents:			
Agency Name:		Block:	
Email Id:		District:	
Mobile No.		Address	

1) Which company dealership you have?

S. No.	Company Name	Yes/No
1.	Nuziveedu seeds	
2.	Syngenta seeds	
3.	Dhanya seeds	
4.	Mahyco	
5.	Kaveri seed	
6.	Monsantoo seed	
7.	Mahabeej	
8.	Shriram bioseed	
9.	Zuari seed	
10.	Seed tech	
11.	Marvel seed	
12.	Pioneer seeds	
13.	Other company	

2) In your business, which companies sales are maximum (approx)?

S. No.	Company Name	Sales (in kg)	Reasons
1.			
2.			
3.			

3) Name the top 3 companies which are hold the maximum share in hybrid cabbage, okra and radish seed market.

Cabbage		
S. No.	Company Name	Share in %/position
1.		
2.		
3.		

Okra		
S. No.	Company Name	Share in %/position

1.		
2.		
3.		

Radish		
S. No.	Company Name	Share in %/position
1.		
2.		
3.		

4) Name the top hybrids cabbage, okra and radish sold in market with estimated market size.

Cabbage		
S. No.	Company Name	Volume sold (kg)
1.		
2.		
3.		

Okra		
S. No.	Company Name	Volume sold (kg)
1.		
2.		
3.		

Radish		
S. No.	Company Name	Volume sold (kg)
1.		
2.		
3.		

RETAILER QUESTIONNAIRE

- 1) Name.....
- 2) Address.....
- 3) No. of farmer visited daily.....
- 4) Major vegetable crop in your area?
 - a)
 - b)
 - c)
 - d)
- 5) Which company seed you are selling?

S. No.	Crop	Company	Company	High yield variety (Hybrid) in kg
1.	Cabbage			
2.	Okra			
3.	Radish			

- 6) Which of following factor influence the most while buying seed from you?
 - a) Price sensitive
 - b) Quality sensitive
 - c) Brand sensitive
 - d) Other

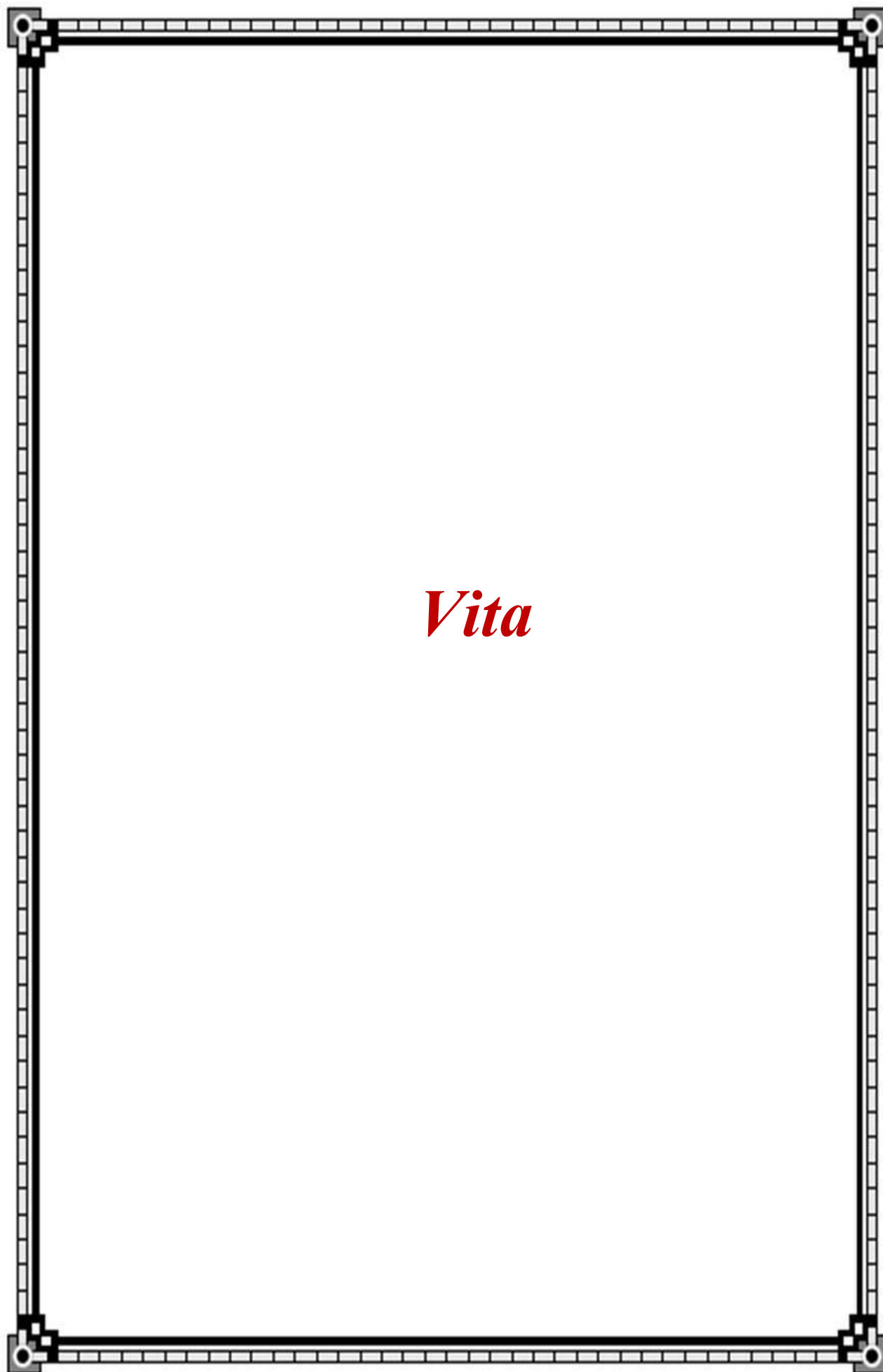
- 7) Rank the promotional activities according to your preference.

S. No.	Promotional Activities	Rank
1.	Gifts/Tour/Free samples	
2.	Advance booking	
3.	Discount price	
4.	Credit on payment	
5.	Lucky coupons	

8) Give best seeds company's name under each parameter.

S. No.	Parameter	Company Name
1.	Jeep campaigning	
2.	Quality	
3.	Farmer meeting	
4.	Retailer margin	
5.	Awareness among the farmer	
6.	Gift scheme	

9) What should be done to increase the sale of hybrid vegetable seed?



Vita

VITA

Name of the student :
Father's name : Shivam Gupta
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University and year of award : Bundelkhand University, Jhansi, 2019
OGPA / % marks : 72.8 %
Master's degree OGPA : 7.56 OGPA

CERTIFICATE-IV

Certified that all necessary corrections as suggested by the external examiner and advisory committee have been duly incorporated in the project entitled "A Study on Distribution Network of Hybrid Vegetable Seeds Companies in Jammu District", submitted by Mr. Shivam Gupta, Registration No. J-19-M-65-ABM.

[Signature]
29.12.2021

Dr. Sudhakar Dwivedi

(Major Advisor)

Place: Chatha, Jammu

Date: 29.12.2021

[Signature]

Head of the Division