JADAV AKASHKUMAR NAGINBHAI M.B.A. (INTERNATIONAL AGRIBUSINESS) 2017

A STUDY ON MARKET POTENTIAL AND FARMERS' PURCHASING BEHAVIOUR TOWARDS 'MAGIC GRO SUPER' FOR OKRA IN VYARA TALUKA OF TAPI DISTRICT OF GUJARAT

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A STUDY ON MARKET POTENTIAL AND FARMERS' PURCHASING BEHAVIOUR TOWARDS 'MAGIC GRO SUPER' FOR OKRA IN VYARA TALUKA OF TAPI DISTRICT OF GUJARAT

A PROJECT REPORT

Submitted by

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Reg. No.: 04-2777-2015

In partial fulfilment for the award of the degree

Of

MASTER OF BUSINESS ADMINISTRATION

INTERNATIONAL AGRIBUSINESS

UNDER THE GUIDENCE

OF

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To Whomsoever It may Concern

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Project Title:

"A study on market potential and farmers' purchasing behaviour towards 'Magic Gro Super' for okra in Vyara taluka of Tapi district of Gujarat".

The duration of the project training was for Four months, from Jan 9th 2017 to May 9th 2017.

He had been a regular and responsible project trainee during the period.

We wish him all the best for all the future endeavors.

Regards,

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CERTIFICATE

This is to certify that the project entitled "**A STUDY ON MARKET POTENTIAL AND FARMERS' PURCHASING BEHAVIOUR TOWARDS 'MAGIC GRO SUPER' FOR OKRA IN VYARA TALUKA OF TAPI DISTRICT OF GUJARAT**." of M.B.A. (International Agri-business) embodies bonafide research work carried out by **Mr. JADAV AKASHKUMAR NAGINBHAI** under the guidance and supervision and that no part of this project work has been submitted for any other degree. The assistance, guidance and help received during the course of investigation have been fully acknowledged.

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DECLARATION

I hereby that the project entitle "**A STUDY ON MARKET POTENTIAL AND FARMERS' PURCHASING BEHAVIOUR TOWARDS 'MAGIC GRO SUPER' FOR OKRA IN VYARA TALUKA OF TAPI DISTRICT OF GUJARAT**." submitted for the M.B.A. (International Agri-business) degree is my original work and this has not formed the basis for the award of any degree, associateship or other similar titles.

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ABSTRACT

Rampant use of chemical fertilizers has put the ecosystem and agriculture in danger, risking the sustainability of agriculture. To minimize the effects of these chemicals, stress is nowadays laid upon the use of organic inputs in agriculture comprising of bio-fertilizers, compost manures, plant growth regulators, vermi-compost.

Bio fertilizers are microbial inoculants or carrier based preparations containing living or latent cells of efficient strains of nitrogen fixing, phosphate is solubilizing and cellulose decomposing microorganisms intended for seed or soil application and designed to improve soil fertility and plant growth by increasing the number and biological activity of beneficial microorganisms in the soil.

Farmers nowdays rely heavily upon the chemical inputs for increasing the agricultural production, and are least interested in the use of organic inputs given the lack of awareness and unavailability of organic products in the local market. Hence it is need of the hour to aware the farming community about the organic inputs. This project has been undertaken to find the awareness among the selected farmers regarding use of the bio-fertilizer Magic Gro Super, which is entirely new product in the concerned area and needs in-depth market study viz. consumer behaviour, promotional strategies.

The project titled," A Study on Market Potential and Farmers' Purchasing Behaviour towards 'Magic Gro Super' for Okra in Vyara Taluka of Tapi District of Gujarat " was undertaken for Organica Biotech Pvt. Ltd. Based at Mumbai with the following specific objectives that are To study the awareness about the bio fertilizers among farmers, To study the factors affecting the purchasing of bio fertlizers by farmers ,To find out the competitor Analysis of the Magic Gro Super, To find out the Market Potential of the

Magic Gro Super and To find out the promotional strategies for concept selling product Magic Gro Super

The area of study included Vyara taluka of tapi districts of Gujarat. In Vyara taluka five villages were selected purposely. Further, 200 farmers as were selected from the study area. From the each village 40 farmers were selected. The primary data was collected with the help of pre tested semi structured schedule, for the year 2017. The data was analyzed using descriptive statistics and relevant marketing methodology.

Out of the surveyed farmers, only 91% (182) were aware about bio fertilizer. Of those who were aware, only 41% (74) purchased the bio fertilizer. Most of them purchased bio fertilizer on the basis of recommendation of different company representatives, dealers and co-farmers. It was observed during the survey that the major factor that can affect during purchasing bio fertilizer is the quality followed by Price, Substitute Product Quantity, Brand and Offers.

At present, Most of farmers prefer to use chemical fertilizer due to higher yield and for better results. In Vyara taluka of Tapi district, Total area under cultivation of okra is around 10980 ha. Recommended doses as per Organica bio tech Pvt. Ltd. is 0.666 ltr and for it price is 1998 Rs. Market potential of bio fertilizer in the study area was analyzed was valued around Rs 1.46 crores annually. While major competitor for bio fertilizer in study area were 'Biostadt' and, other market players are Krishi Rasayan, Bayer Crop Science Limited, Sumitomo Chemical India Pvt Ltd, KRIBHCO, Dow Agroscience India Pvt Ltd, Arise Agro Limited, GSFC and GNFC.

it was seen during the survey that the best suitable promotional strategy was field demonstration followed by farmers meetings, Radio, TV, Newspapers, Hoardings and others. Further some more promotional strategy included that are through sales executive, Remote vehicle, krushi mela etc.

From the study, it could be concluded that farmers in the study area possess awareness about the bio fertilizer but the farmers were reluctant to use the product citing price, application knowledge, less product reliabilty as the reasons for the not using the bio-fertilizers product. So comapany needs a different marketing approach than chemical fertilizers. At the time of purchase the farmers consider quality, price, substitute product, quantity and brand as major factors while purchasing bio fertilizer. So the company needs to consider these factors regarding biofertilizer while framing the marketing strategies for the biofertlizer product. Organica Biotech Pvt Ltd. Finds major competitor for its bio fertilizer in study area named as 'Biostadt' , other market players existing in the area were Krishi Rasayan, Bayer Crop Science Limited, Sumitomo Chemical India Pvt Ltd, KRIBHCO, Dow Agroscience India Pvt Ltd, Arise Agro Limited, GSFC and GNFC. Field demonstration is by far the most effective promotional strategy for the product as it gives the farmers a first hand experience of the product, its application method, dosage etc. Market communications related to the product can best be communicated by farmer meetings, radio, TV, newspaper, hoardings (as per farmers response). Company has a decent annual market potential worth 1.46 crores for the okra crop in the area that gives clear indication of better business opportunities for the company and its product.

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LIST OF ABBERVIATIONS

GOI	Government of India
mm	Millimeter
M.T	Million Tonnes
Mt	Metric Tonnes
M. mt	Million Metric Tonnes
ha	Hacter
gm	Gram
ltr.	Liter
ml.	Milli liter
Rs.	Rupees
Kg.	Killogram
FYM	Farm Yard Manure
OMIC	Overseas Merchandise Inspection Company
INM	Integrated Nutrient Management
GSFC	Gujarat State Fertilizer Corporation Limited
R & D	Research and Development
HYV	High Yield Variety
VAM	Versicular Arbuscular Mycorrhizae
Pvt.	Private
Ltd.	Limited
TSS	Total Suspended Solids
WAM	Weighted Average Mean
LPH	Liter per Hour

1. INTRODUCTION

1.1 INTRODUCTION

India is the world's second largest producer of rice, wheat and cotton after China and the second largest producer of sugarcane, after Brazil. It is also the second largest global producer of horticultural products. Moreover, India is the world's second largest importer of vegetable oils besides being the largest producer, consumer and importer of pulses. However, productivity of these crops is far lower than that of developed countries. To meet the demands of an increasing population and avoid food imports, crop productivity in India needs major improvements, which can be attained by identifying the constraints that hinder fanners in achieving high yields.

Total vegetable production in India before independence was 15 million mt and since Independence for decades the growth rate was stabilized around 0.5%. The impetus on vegetable research and policy intervention to promote vegetable crops witnessed a sudden spurt in growth rate of 2.5%, a hike of five times during the last decade. Major vegetables grown in India are Potato, Onion, Tomato, Cauliflower, Cabbage, Bean, Egg Plants, Cucumber and Garkin, Frozen Peas, Garlic and okra.

The Total area and production under okra is reported to be 1148.0 thousand ha and 7896.3 thousand tons. It is mainly grown in India, Nigeria, Sudan, Pakistan, Ghana, Egypt, Benin, Saudi Arabia, Mexico and Cameroon. Largest area and production is in India followed by Nigeria. The area has increased from 396.0 thousand ha to 498.0 thousand ha and the production has increased from 4070.0 thousand tons to 5784.0 thousand tons. Major producing States with production of Last Three Years are Andhra Pradesh is the leading okra producing state which has production of around 1184.2 thousand tons followed by West Bengal (862.1 thousand tons). Then comes Bihar (788.3 thousand tons). Some of the important varieties of okra are Pusa Makhmali, Pusa Sawani, IIHR 20-31, Pujab Padmini, Arka Anamika, Parbhani Kranti, Selection-2, Arka Abhey etc.For export purposes, mostly hybrid varieties are used.

1.2 BIOFERTLIZERS

Biofertilizers are microbial inoculants or carrier based preparations containing living or latent cells of efficient strains of nitrogen fixing, phosphate is solublizing and cellulose decomposing microorganisms intended for seed or soil application and designed to improve soil fertility and plant growth by increasing the number and biological activity of beneficial microorganisms in the soil.

The objects behind the application of Biofertilizers /microbial inoculants to seed, soil or compost pit is to increase the number and biological / metabolic activity of useful microorganisms that accelerate certain microbial processes to augment the extent of availability of nutrients in the available forms which can be easily assimilated by plants. The need for the use of Biofertilizers has arisen primarily due to two reasons i.e. though chemical fertilizers increase soil fertility, crop productivity and production, but increased / intensive use of chemical fertilizers has caused serious concern of soil texture, soil fertility and other environmental problems, use of Biofertilizers is both economical as well as environment friendly. Therefore, an integrated approach of applying both chemical fertilizers and Biofertilizers is the best way of integrated nutrient supply in agriculture.

Biofertilizers are artificially multiplied cultures of certain soil organisms that can improve soil fertility and crop productivity. Although the benefits of legumes in improving soil fertility was known since ancient times and their role in biological N-fixation was discovered more than 100 years ago, commercial exploitation of such biological processes is of most interest and practice. Latent cells of efficient strains of nitrogen fixing, phosphate solubilizing or cellulolytic micro-organisms are used for application to seed, soil or composting areas with the objective to increase the number of such micro-organisms and accelerate those microbial processes which augment the availability of nutrients that can be easily assimilated by plants.

1.2.1 Indian Bio-Fertilizer Industry

Around 170 organizations in 24 countries are engaged in commercial production of Biofertilizers. NifTAL (U.S.A) has played a major role in the popularization of *Rhizobium* inoculants. In such circumstances, the price of Biofertilizers along with the risk and responses will be weighed with those of chemical fertilizers, and promotion of technology for environmental reasons would call for some degree of protection to minimize the inter-fertilizer price distortion. Australia has taken the lead role in the quality control of different commercial products. Philippines implemented the National Azolla Programme (NAAP) in 1982 to develop farm-based technology for the use of Azolla fertilizer for rice. The current global market or organically raised agricultural products is valued at around US$ 30 billion with a growth rate of around 8%. Nearly 22 million hectares of land is now cultivated organically. The organic cultivation represents less than 1% of the world's conventional agricultural production and about 9 percent of the total agricultural area.

This only highlights the tremendous potential in the growth of biofertilizers. Now, there are 60 production units producing 10-115 tons per unit per year. Different State governments also provide subsidies sometimes up to 50% of the sales realization but the manner of subsidization is rather unsystematic. In many cases, the discrimination and manipulation in subsidizing lead to a lot of intra industry variation in prices.

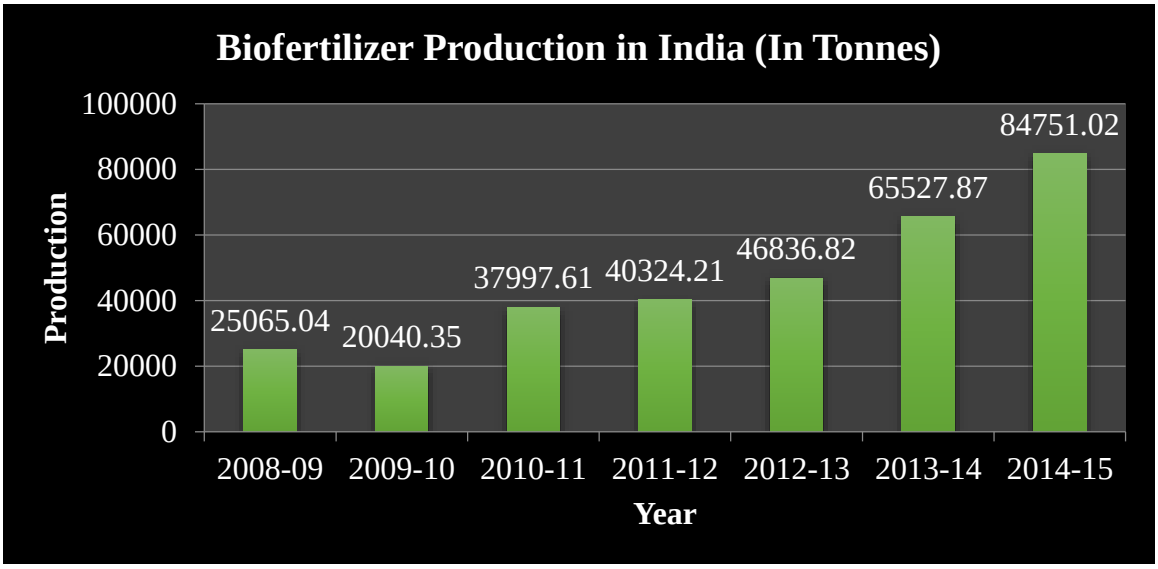
One of the main barriers faced by the producers and investors is inadequate demand and the inconsistent and seasonal nature of the existing demand. It may be recalled that the technology is as yet nascent and evolving. The rice dominated eastern region remains a non-starter and the wheat and rice growing north has not shown much interest. Research on developing efficient, temperature tolerant and hardy strains is a vital step to the actual success of the technology. In particular, there can be some focus on the potentials of the technology in rice and cereals in general although its significance for crop diversification is of equal concern. The government also plays a dominant part in marketing Bio fertilizers in three possible channels: (a) State government via District level Officers and Village level

workers to farmers, (b) State Marketing federation via cooperative bodies to farmers and (c) State Agro-industries 7 Corporations via Agro service Centre to farmers. The producers are, however, free to sell through their own sales network or through market. Over the period of four years the number of units went up by 53% from 62 to 95 and further to 122 in 2002. The total capacity expanded by 12% going by the information on units reporting their capacities. New private units joined the industry improving their numeric share while the public sector, after the initial burst slowed its pace. However, a deeper look would be more illuminative.

The distribution of Bio fertilizers, and its adoption rate has not consistently grown over time and has slowed down in the late nineties. Starting from a small base one would have expected a faster and possibly accelerating growth performance as the input finds greater acceptance. Secondly, although there have been more and more new entries in the market, the average capacity came down characterizing the industry by a large number of small units. While size adjustment in infant industry is normal, it must be borne in mind that distribution of an agro-input also calls for substantial sales networking and a deep understanding of the field reality in agriculture.Whether the smaller units will have the necessary expertise and incentive for meeting farm demands or synergistic associations with bigger producers or simply distribution agents or local bodies would be the desired institution is a matter of review. There has practically been no diffusion of the technology despite the central government's interventions and the distribution among units has tended towards greater concentration especially in Maharashtra and other states of the west and south.

Govt. of India and the different State Governments have been promoting use of Bio fertilizers through grants, extension and subsidies on sales with varying degrees of emphasis With time farmers to learn about the technology forming their perception on the basis of agronomic realities of their regions, the knowledge gained from experiences of farmers around them and including themselves and the information provided by different disseminating agents and form their own decisions of adoption. GOI has providing the National Bio fertilizers Development Centre act Ghaziabad with six regional centres at Bangalore, Bhubaneswar, Jabalpur, Hisar, Imphal and Nagpur. In the absence of reported

information on farm level use of the inputs, this can help in understanding the progress of the technology and its adoption in India. The Biofertilizers industry has many players, (small, medium, and large) however the industry is dominated by a few major companies such as National Fertilizers Limited, Madras Fertilizers Limited, Gujarat State Fertilizers & Chemicals Ltd. Other players such as T. Stanes & Company Limited, Camson Bio Technologies Limited, Rashtriya Chemicals & Fertilizers Ltd. also have a strong presence in the market.



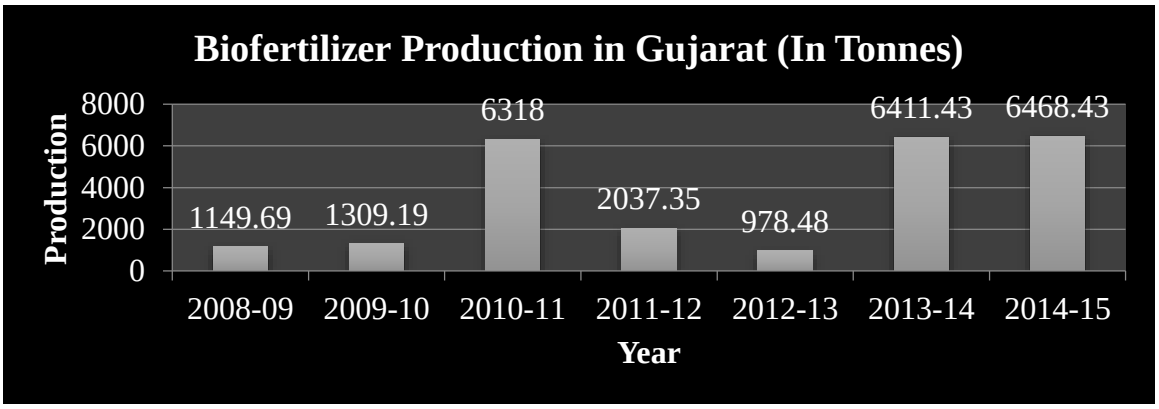
Source: www.indiastat.com

Figure 1.1 Biofertilizer Production in India

1.2.2 Biofertilizer Industry: Gujarat Scenario

The production of biofertilizer in Gujarat was 6,468.43 tonnes in 2014-15. The fluctuation is seen in the production of biofertilizer from 2008-09 to 2014-15.

The major players of Gujarat for biofertilizers are Gujarat State Fertilizer Corporation, Cadila Agro Division/Cadila Pharmaceutical Ltd, Darshan Bio Tech, Tata Chemicals Ltd, Agriland Biotech Limited.



Source: www.indiastat.com

Figure 1.2 Biofertilizer Production in Gujarat

1.2.3 Types of Biofertilizers

The various types of biofertilizers which help the plant to grow at different levels of its growth are:

1. Nitrogen Fixing Biofertilizers
2. Phosphate Biofertilizers
   - **a.** Phosphorous Solubilizing Biofertilizers
   - **b.** Phosphorus Mobilizing Biofertilizers
3. Biofertilizers for Micro-nutrients
4. Plant Growth Promoting Rhizobacteria
5. Compost

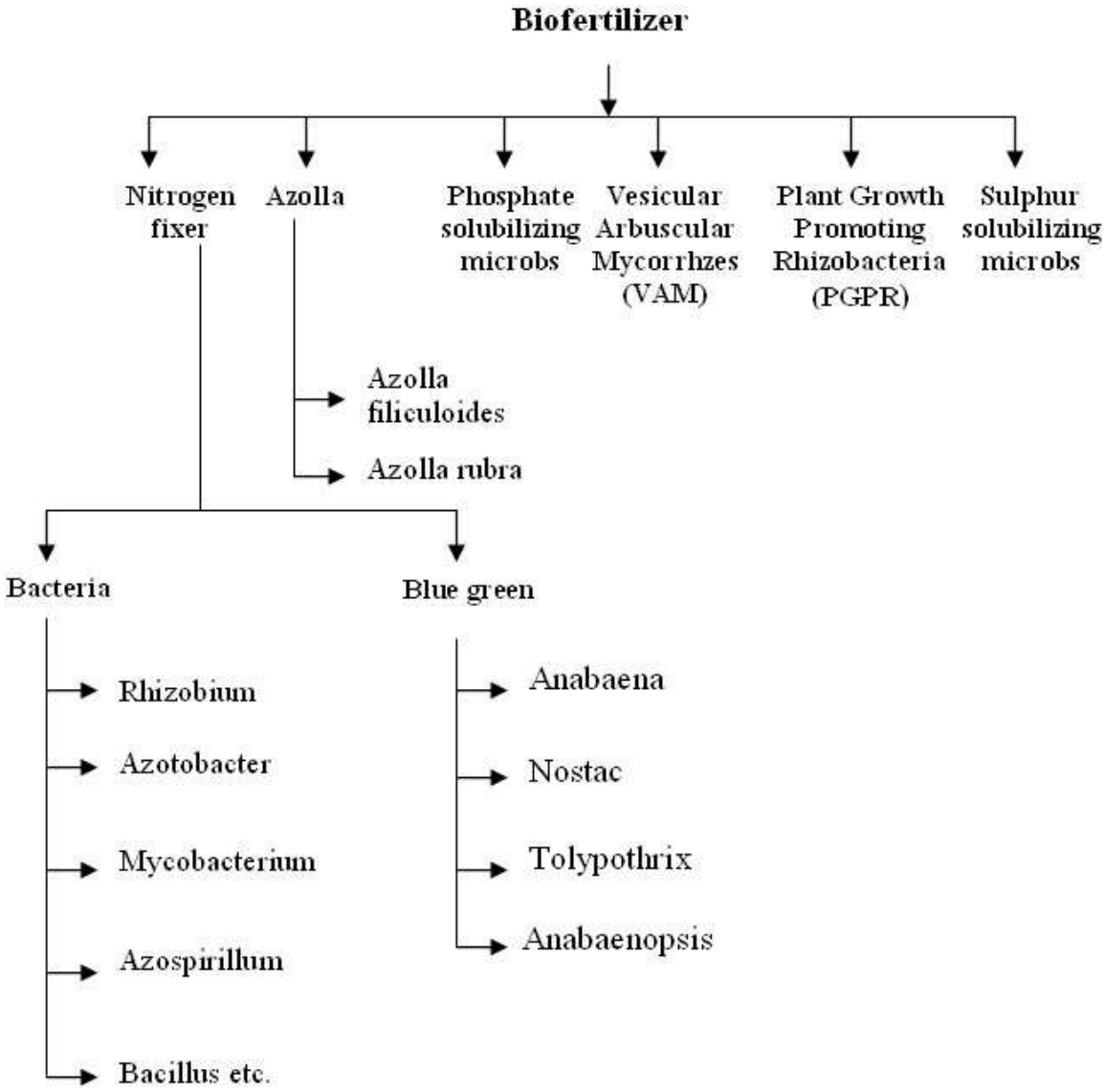


Figure 1.3 Types of Biofertilizer

1.2.4 Importance of Bio-fertilizers

(i) They increase the yield of plants by 15-35%.

(ii) Bio-fertilizers are effective even under semi-arid conditions,

(iii) Farmers can prepare the inoculum themselves,

(iv) They improve soil texture,

(v) Bio-fertilizers do not allow pathogens to flourish,

(vi) They produce vitamins and growth promoting bio-chemical's,

(vii) They are non-polluting

1.2.5 Environmental Limitations for Application of Bio-fertilizer

1. Unavailability of suitable carrier Resource constraint
2. Market level constraints and lack of awareness of farmers
3. Lack of quality assurance and limited resource generation for Biofertilizers production
4. Seasonal and un assured requirement
5. Soil and climatic factors and inadequate experienced staff
6. Native microbial population, faulty inoculation
7. techniques and mutation during fermentation

1.3 SALIENT FEATURES OF STUDY AREA

It is proposed to discuss in brief the physical features, land use and cropping pattern of district and tahsil, and socio-economic background of sample households together with salient features of selected markets. The knowledge about physical features and economic background of the district would facilitate better understanding of the problem under investigation

Figure 1.4 Tapi District Map

1.3.1 Location and Geographical Area

Tapi district is one of the 26 districts of Gujarat state. It is located in the southern part of Gujarat. On 27th September 2007, the district of Tapi was bifurcated into two new districts, viz. Tapi district with its headquarter at Tapi and Tapi district consisting five talukas viz. Vyara, Songadh, Uchchal, Nizar and Valod. Vyara and Songadh with its headquarter at Vyara. Tapi district covers an area of 3434.64 Sq Km. It is located 73.5degree to 74.23 degree East (Longitude) 21.0 degree to 21.23 degree North (Latitude). The district receives an average rainfall of 1926 mm. maximum temperature raises upto 45 degree Centigrade. Tapi district is bordered by four rivers, Tapi, Midoda, Purna and Ambika. The newly constituted Tapi district consists of five talukas viz. Vyara, Songadh, Uchchal, Nizar and Valod. Vyara and Songadh in Tapi district are known for dense forests with a major production of bamboos. The district shares border with Maharashtra. Some of the important tourist destinations in Tapi are: Fort of Songadh, Gaumukh, Dosvada Dam, Hindustan Bridge, Tapi River, and Ukai Dam. Songadh Fort. Other religious tourist destinations are: Rokadia Hanuman Mandir, Parsuramji and Suryatapeshwar Mandir, Kalyanraiji Mandir, Gayatrimata Mandir, Saibaba Mandir, Firangi Mataji - Jalaram Mandir, Mari Mata Mandir.

1.3.2 Topography

The district enjoys dry climate throughout the year except during Monsoon season. The Temperature various between 11.2 c and 38.4 c. The South west monsoon brings rains to the district and rainy season extends from Middle June to the end of October. Average Annual rain fall from the district is 2000 mm.

1.3.3 Atmosphere and Rainfall

Highest temperature is 45 degree centigrade in summer and lowest temperature comes down to 10 degree in winter season. Average Rainfall is 1000-1200 mm. in Tapi district during the monsoon season.

1.3.4 Rivers

There are nine continuously flowing rivers in Tapi district. The main river is Tapti. The main and huge river Tapti becomes dangerous during monsoon season, which, serves as vital source of irrigation.

1.3.5 Population

Table 1.1 Population in Tapi District

Description	No.
Population	Total : 8,07,022 Person
	Male : 4,02,188 Person
	Female : 4,04,834 Person
Population density	257 persons per sq. km
Rural Population	7,27,535 Person
Urban Population	79,487 Person
Population increase rate (Decadal)	12.14%
Male- female ratio	1000:1007
Scheduled Caste population	8,168 Person
Scheduled Tribe population	6,79,320 Person
Labour force population	4,50,902 Person
Source : District Industrial Potentiality Survey Report of Tapi District 2016-17	

1.3.6 Availability of Minerals

The Tapi district is very poor in mineral based products. there are minor mineral like, Black trap, ordinary sand, ordinary soil, Hard Muhrrum.

1.3.7 Forest

The density of the forest cover of Vyara division ranges from 0.4 to 0.8. The area of the division ranges from flat to undulating surface with western side being more or less flat, whereas the eastern side is undulating with continuous hill ranges varying in height from

45 m to 575 m and are interspersed with few rivers and streams. The district has a forest area of 74025 hectors. The State Government through Forest Department Authority has undertaken various concrete steps relating to forestry and waste land development. The Forest Department is having network of nurseries in all the taluka for supplying of seeds. The taluka wise area under forest is as under:

Table 1.2 Taluka of Tapi District

Sr. No	Taluka	2014-15 Hector
1	Nijar	332
2	Uchhal	23447
3	Songadh	31751
4	Vyara	78495
5	Valod	0
Source : District Industrial Potentiality Survey Report of Tapi District 2016-17		

1.3.8 Agriculture

The district has captured a share of 15.24% of the total fruit production in Gujarat by becoming the largest producer of papaya and second largest producer of banana in the State. The region contributes 10.39% to the total production of spices in Gujarat as it is the largest producer of turmeric and second largest producer of ginger and chilly in the State.

1.3.9 Type of land

There are mainly three types of available land in the district as given below.

1. Goradu.
2. Black.
3. Salty

1.3.10 Land Utilization

Description of land utilization is given as below:-

Table 1.3 Land Utilisation of Tapi District

Sr. No.	Type of land	Hector
1.	Forest Area	36,680
2.	Barren land	10,167
3.	Non agricultural use of land	38,903
4.	Grazing land	16,968

5.	Cultivable land	3,37,296
6.	Other land having various trees	1,110
7.	Current Fallow land	8,831
8.	Net Area sawn	2,85,671
9.	Multiple Cropping land	30,016
10.	Average Area under cultivation	3,15,687
Source : District Industrial Potentiality Survey Report of Tapi District		

1.3.11 Agricultural Production and Marketing

Table 1.4 Agricultural Production of Tapi District

SR. No	Name of Crop	Area Hector	Production	Productivity
1.	Rice (I)	1452	4610	6693
2.	Wheat(I)	6233	3942	24570
3.	Juwar	6305	1723	10863
4.	Maize	882	2174	1874
5.	Val	824	871	718
6.	Tur	1085	1230	1335
7.	Moong Summer	1653	663	1096
8.	Chana	1453	878	1276
9.	Other kathol	338	426	144
10.	Ground Nut	409	2176	890
11.	Sugar Cane	81676	92540	7558297
12.	Castor seed	32	1823	58
13.	Sesame	77	1186	91
14.	Vegetable	9368	NA	NA
Source : District Industrial Potentiality Survey Report of Tapi District 2016-17				

1.3.12 Infrastructure for the Sale of Agriculture Produces:

According to Agriculture Department Well developed infrastructure exists in the district for the sale of agriculture produces. Various agriculture produces are sold through Marketing yards only in the district. There are fourty co-operative Societies and 124 Consumer Societies operates for the sale of fruit/vegetables in the district.

1.3.13 Cropping Pattern

The average cultivable area is 3,27,296 hector in Tapi district. Wheat, Paddy, Maize and Bajra are the major food crops. Besides, Chana, Moong, Tur and Udad crops are also grown in the district. Moreover zeera and isubgul are grown by the farmers in the district. Mango, Chiku, Banana, Lemon and Coconut are the important crops in plantation and horticulture

in the district. Medicinal and aromatic crops are gradually produced at higher scale during the last decade. Hence, there also high potential exists for establishing new fruit processing industry in the distric

1.3.14 Irrigation

Water Resource projects can be classified into three categories (a) Major irrigation projects where cultivable command area is more than 10000 hector, (b) Medium irrigation projects where cultivable command area is between 2000 to 10000 hector and, (c) Minor irrigation projects where cultivable command area is below 2000 hector. The minor irrigation assumes greater importance for sustainable development of agriculture sector in the district. The Monetary Institutional activities are to be emphasized for bank financing schemes for ground water exploitation, water lifting devices, lift irrigation and micro irrigation schemes. The ground water potential of the district is as under.

1.3.15 Horticulture

Good production of spices, fruits and vegetables is taken in horticulture during the year in the district. Mangoes, banana, chiku, and kharek are the main crops in fruit. Besides, onion, potato and guwar are main crops in the vegetables. Besides, guwar, papdi, parwal patal etc. are produced at satisfactory level in the district. Hara dhania, garlic, chili and turmeric are produced in satisfactory quantity in the district under head spices. Production of various fruits in the district during the last two years is as under: (Production in M.T.)

Table 1.5 Horticulture Production of Tapi District

SR. No	Name of Fruit	Hector	Production (MT)	Productivity
1.	Mango	9143	76253	8.00
2.	Chiku	2132	23452	11.00
3.	Citrus	90	692	8.00
4.	Banana	7660	526625	69.00
5.	Papaya	615	36900	60.00
6.	Guvava	52	598	50.00
7.	Pomegranate	42	393	9.00
8.	Coconut	232	1953	8.00
Source : District Industrial Potentiality Survey Report of Tapi District 2016-17				

Production of Vegetables is as under: (Production in M.T.)

Table 1.6 Vegetables Production of Tapi District

Sr. No.	Name Vegetables	2014-15		
		Hector	Production	Productivity
1.	Onion	0	0	0.00
2.	Brinjal	5160	99330	19.00
3.	Cabbage	820	15851	19.00
4.	Cowpea	1560	18642	12.00
5.	Tomato	1645	38016	23.00
6.	Cauliflower	1340	27135	20.00
7.	Cluster bean	1470	11099	8.00
8.	Cucurbit	4880	66856	14.00
9.	Okra	10980	145705	13.00
10.	Other vegeta	4930	92438	19.00
Source : District Industrial Potentiality Survey Report of Tapi District 2016-17				

Production of Spices is as under: (Production in M.T.):

Table 1.7 Spices Production of Tapi District

Sr. No.	Name of Spices	2014-15		
		Hector	Production	Productivity
1.	Coriander	0	0	0.00
2.	Ginger	192	3446	18.00
3.	Turmeric	220	4567	2.00
4.	Fenugreek	82	128	1.56
Source : District Industrial Potentiality Survey Report of Tapi District 2016-17				

Production of Flowers is as under: (Production in M.T.):

Table 1.8 Flowers Production of Tapi District

Sr. No.	Name of Flowers	2014-15		
		Hector	**Production**	**Productivity**
1.	Rose	167	1585	9.00
2.	Marigold	482	4850	10.00
3.	Mogra	7	30	4.00
4.	Lilly	122	1205	10.00
5.	Others	184	1685	9.00
Source : District Industrial Potentiality Survey Report of Tapi District 2016-17				

1.4 OKRA

1.4.1 General Information

Table 1.9 Okra Information

Botanical Name	*Abelmoschus esculentus*
Plant Type:	Vegetable
Sun Exposure:	Full Sun
Soil Type:	Loamy
Flower Color:	White, Yellow
Bloom Time:	Summer

Okra, or Ladies finger, which is also known as ' *Bhindi* ', is one of the important vegetables of India. It is grown throughout the tropical and sub-tropical regions and also in the warmer parts of the temperate regions. The nutritional value of 100g of edible okra is characterized 1.9 g protein, 0.2 g fat, 6.4 g carbohydrate, 0.7 g minerals and 1.2 g fibers. Okra has a good potential as a foreign exchanger crop and accounts for 60% of the export of fresh vegetables. It is cultivated in 0.349 M ha area with the production of 3.344 M mt and productivity of 9.6 mt/ha. The major okra producing states are Uttar Pradesh, Bihar, Orissa, West Bengal, Andhra Pradesh and Karnataka. In West Bengal, 0.662 M mt of Okra is

produced from 58,400 ha with an average productivity of 11.4 mt/ha. The crop is also used in1. paper industry as well as for the extraction of fiber.

1.4.2 Crop Varieties

Okra (*Abelmoschus esculentum* (L.) Moench.) plant belongs to the family Malvaceae. The crop varieties are Kamini, Pusa Mukhamali, Parbhani Kranti, etc. are commonly cultivated varieties.

1.4.3 Conventional Practices

Generally farmers grow locally available varieties with check basin or furrow method of irrigation. Standard practices of nutrient and plant protection measures are rarely adopted.

1.4.4 Suitable Agro Climatic Conditions

Okra can be grown on a wide range of soils, having good internal drainage. Soils with high organic matter are preferred. Application of lime or dolomite may be done in acid soil to bring the pH in the range of 6.0 - 6.5.

1.4.5 Preparation of Land

Intensive tillage is required for the land preparation of Okra. Deep (20-25 cm) ploughing followed by cross harrowing is done to make the soil friable and loose. One or two plankings are also needed to make the soil surface smooth and level.

1.4.6 Soil Sterilization

The sterilization of the soil can be achieved by both physical and chemical means. Physical control measures include treatments with steam and solar energy. Chemical control methods include treatments with herbicides and fumigants. Soil sterilization can also be achieved by using transparent plastic mulch film, which is termed as soil solarization. During soil solarization, the

incoming solar radiation penetrates the transparent plastic film and is absorbed in the soil. The absorbed radiation converts into heat energy, which raises the soil temperature and kills many soil-borne organisms including plant pathogens and pests

1.4.7 Planting

Sowing is done in two seasons: end of January for the summer crop and end of May for the rainy season crop. The seed rate for the summer crop is 18 to 20 kg /ha and 10 to 12 kg /ha for the rainy season crop. A spacing of 60 x 45 cm or 60 x 30 cm is generally adopted.

1.4.8 Irrigation Scheduling

The crop requires adequate moisture in the soil during summer months for faster growth. Drip irrigation is most suitable to the crop as it provides uniform moisture throughout the season. The daily water requirement of Okra crop is 2.4 l/day/4 plants during early growth stage and 7.6 l/day/4 plants during the peak growth stage. The irrigation system should be operated daily for 75 minutes during initial growth stage and for 228 minutes during peak growth of the crop with an emitter capacity of 2 lph. Irrigation on each day or on alternate days with On-line type of drippers is preferred.

1.4.9 Application of Fertilizers

In order to maximize the yield about 30 t of FYM, 350 kg Super phosphate, 125 kg Murate of Potash and 300 kg Ammonium sulphate should be applied in the rows before sowing for one hectare of land. Nitrogen should be applied through fertigation in three split doses.

1.4.10 Weed Control

As Okra is harvested over a long period, weed control happens to be an important cultural operation. Shallow rooted inter-row cultivation and hand weeding may be used to minimize weeds in the inter row zone. Black plastic

mulch may be used to suppress weed growth. The black plastic mulch also keeps the soil warm and encourages plant growth.

1.4.11 Harvesting, Yield and Quality Control

Okra is harvested in 60 to 70 days after planting when pods are 2 to 3 inches long. At this stage the pods are still tender. Larger okra pods will tend to be tough and fibrous. Round-podded okra varieties remain tender at larger pod sizes and are good to use for slicing and freezing. Since, Okra grows very fast, it should be harvested every two days. The pods should not be allowed to mature on the plant because this will inhibit more pods from developing and reduce the productivity of the plant. Handling of okra should be done carefully because the pods bruise easily. The yield of Okra varies from 5 - 7 t/ha in summer to 8 - 10 t/ha in the rainy season.

1.4.12 Post Harvest Handling and Storage

Okra has a short storage life. A fresh good pod can be stored for 7-10 days at 7-10 0 C temperature and 90-95% relative humidity. At temperatures below 7 0 C Okra is subjected to chilling injury, which results in surface discoloration, pitting and decay.

1.4.13 Cost Economics

Area: 1 ha.

Planting geometry: 60cm x 30cm.

Fixed cost of drip system: Rs. 99,366

Rate of interest 10.5%, Life of system 7.5 years

Annual cost of drip System: Rs. 14,287

Cost of cultivation: Rs. 11,500

Expected yield: 17 t/ha

Expected Benefit Cost ratio: 2.2

1.5 COMPANY PROFILE

Figure 1.5 Organica Biotech Pvt. Ltd.

The history of Organica Biotech Pvt. Ltd. can be traced back to 2000. Technocrats, highly conversant in their fields, laid the foundation of this firm with the central aim of sustainable development. Company products are certified by various national and international agencies. Company are an ISO 9001 & 14001 certified company. Organica Biotech Pvt. Ltd strongly believes in adding value to the environmental, economic and social spheres of the world. Organica Biotech Pvt. Ltd believe in cultivating partners for life and paving a way for the world's sustainable future. Organica Biotech Pvt. Ltd have R&D center and technologically advanced manufacturing facility have enabled us to diversify into developing enzyme formulations, stabilized microbial consortia, proprietary herbal formulations and probiotics. Organica Biotech Pvt. Ltd provide specialized products for the realms of agriculture, aquaculture, bio remediation and animal health care. Organica Biotech Pvt. Ltd – A complete solution! According to OMICs Company Survey- 2016, Organica Biotech is listed as one of the top 20 Environment Biotech companies in the world.

In the wake of recent environmental concerns jeopardizing the future of the world, Organica Biotech, a company using ecologically conscious biotechnology based environment solutions, based in Mumbai, India, has championed the cause of providing indigenous solutions for wastewater treatment, aquaculture, agriculture, lake bioremediation, animal health care and solid waste management. The novelty and efficiency of our products have gained appreciation worldwide.

1.5.1 Product Range

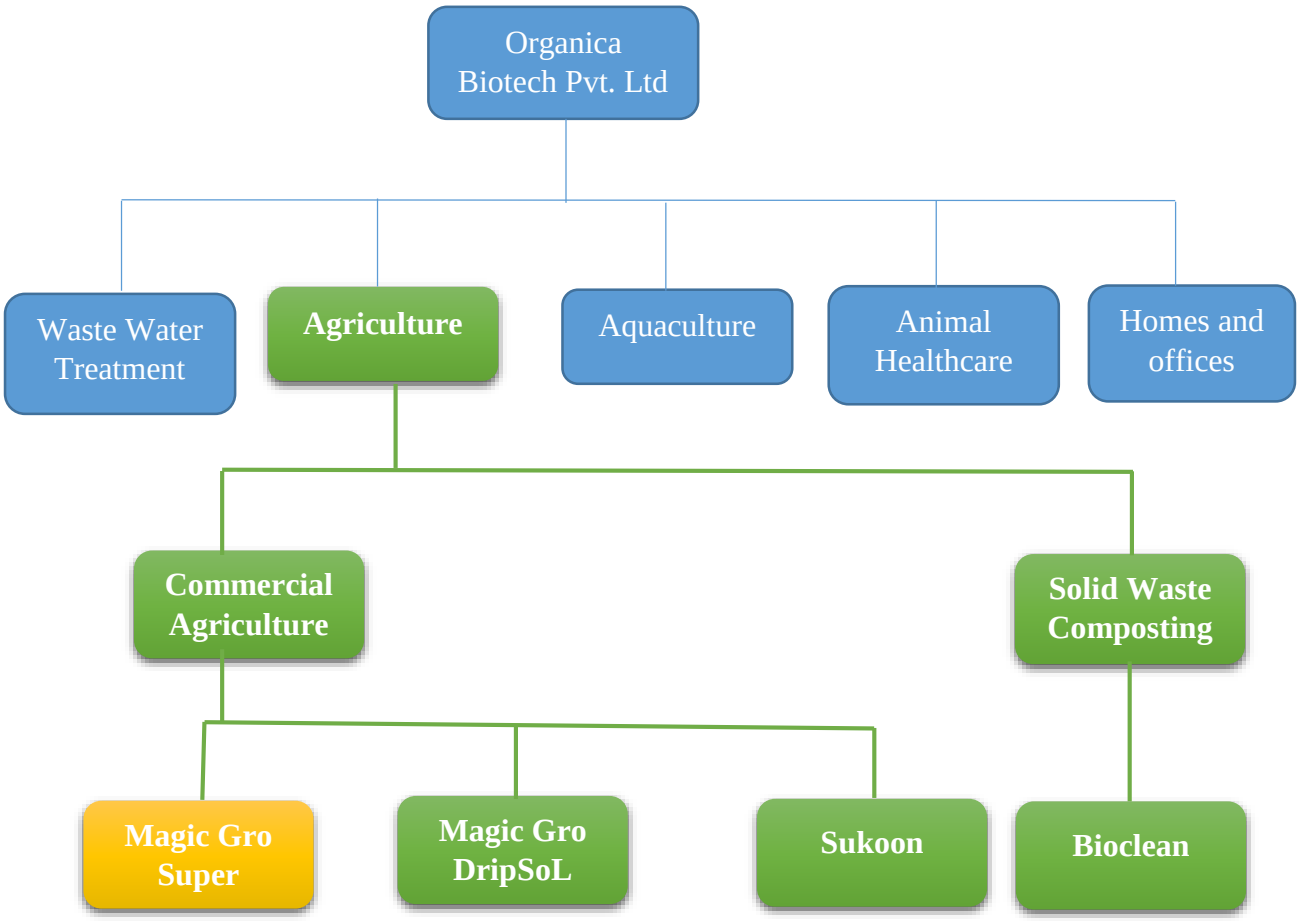


Figure 1.6 Product Range Organica Biotech Pvt. Ltd.

1.5.2 Magic Gro Super

Commercial agriculture is marred with issues of humongous increase in food demand, poor irrigation practices and increased susceptibility of crops to be infected with pathogens. These cumulatively deter the soil quality and adversely affect the total crop yield.

Organica Biotech Pvt. Ltd has developed an array of products, which are especially tailored to meet all your agricultural based needs. Magic-gro embodies a proprietary blend of microbial and enzymatic system, which is specially designed to facilitate growth and development of crops. These are proficient at making the unavailable nutrients in the soil

into available forms and secrets enzymes and amino acid fractions which are useful to plant growth.

The governing principles of this technology are 'biosensors' and 'bioactivators.' Biosensors sense the nutrient deficiencies in the plant system and activate the bioactivators which transport the micro nutrients such as minerals, enzymes, amino acids and growth hormones, from the local environment into the plant system. Magic-gro facilitates the availability of essential ingredients e.g. vitamins, amino acids, plant growth hormones, micro nutrients, plant stress relievers and essential enzymes to plants This specialized product caters to all the nutrient requirements of the soil and stabilizes the conditions of the microbial niche in the soil.

Magic-gro® is certified by ECOCERT, France as an organic product which is highly competent for use in organic and inorganic farming. It is a completely secure product which confers the virtue of improved immunity to the growing plants. Magic gro can be employed in various agricultural farms in all weather conditions. Magic gro DripSOL is a unique product which can be effectively employed for drip irrigation. It ameliorates the uptake of nutrients by the plant thereby increasing the overall productivity.

Magic gro Super is ideal for spray application. It bestows upon plants the ability to fight various infectious agents. It enhances the immunity of plants to biotic and abiotic stresses. It combats flower and fruit droping. Magic gro Super also improves the photosynthetic activity and leaf area index of crops. Magic-gro Plus is an amalgamation of unique benefits of both Magic-gro DripSOL and Super.

Magic-gro confers added benefits of increasing seed viability, enhancing buffering properties of soil and improving root respiration. Magic-gro is not a substitute for fertilizer. Fertilizers provide the requisite nutrients to the crops including N, P and K, which are imperative for plant growth.

Figure 1.7 Magic Gro Super

Application Procedure:

- Foliar spray application as well as Root application can be done with Magic-Gro. It is compatible with drip irrigation systems, petrol spray pumps, power spray pumps and hand spray pumps.
- Magic-Gro if applied on a late or a cloudy day, would have stronger activity than on a bright sunny day. The product is most effective when applied before 10.00 am and after 4.00 pm.
- Avoid pesticide or insecticide application before and after 48 hours of Magic-gro application.

Advantages:

1. Improves diseases resistance in crops.
2. Increases leaf index .
3. Early maturity & improved quality
4. High concentration.
5. Stress buster (biotic & a-biotic stress)
6. Ideal for improving cell size and cell elongation.

Dosage:

- Apply 250 gm per acre per application
- Take 2 to 5 gm of Magic-Gro per liter of water.
- Soil application and/or Foliar spray and/or Drip irrigation.
- Seed treatment with Magic-Gro ensures healthy and faster germination.

1.6 OBJECTIVES OF THE STUDY

- To study the awareness about the bio fertilizers among farmers
- To study the factors affecting the purchasing of biofertlizers by farmers
- To find out the competitor Analysis of the Magic Gro Super
- To find out the Market Potential of the Magic Gro Super
- To find out the promotional strategies for concept selling product Magic Gro Super

2. REVIEW OF LITERATURE

Efforts have been made to quote reviews concerning to the present investigation by scanning the relevant literature. The research studies relating to marketing of fertilizers particularly bio fertilizers have been referred and the relevant literature has been scanned.

Fertilizer is one of the important element in modern agricultural practices particularly in crop production. Therefore studies regarding its use, consumption, prices, marketing outlets etc., are of prime importance to agriculturists and researchers alike.

Considering the objectives, the review of literature related to the present investigation has been presented under following sections.

Sen (1981) studied some aspects of fertilizer use by small farmers. He found that the farmers operating marginal holding form the largest group of fertilizer users. The second largest group of fertilizer users was that of small farmers. The marginal farmers used largest quantity of fertilizers per unit of land and the small farmers, the second highest, while the quantity in case of other farmers was the lowest. If taken singly the share of marginal and small farmers in fertilizer consumption was the least as compared to large farmers. But by taking marginal and small farmers together their share in the total fertilizer consumption was larger than that of operators of large foldings.

Singh (1983) attempted to identify factors influencing fertilizer consumption in India in the past by using regression model. As indicated by the results the main factors influencing the fertilizer consumption were irrigation area under high yielding variety crops and credit availability to the farmers. Rainfall and size of land holding do not show any significant effect on it.

Boxer and Wensely (1986) have advocated that managers within an organization must develop the organization's promotional strategy in response to the competitive environment and organizational performance.

Parthasarathy and Sinha (1986) studied the determinants of fertilizer use in Andhra Pradesh and they observed that the level of fertilizer use depended essentially upon two facts that is fertilizer product-price ratio and particularly on productivity of fertilizers. The shift in response to the use of fertilizer caused by a number of factors, these include HYVS seeds, shifts in cropping pattern and increase in area under rabi season (The response to fertilizer use is expected to be higher in rabi). These may be said the shifters of demand for fertilizers. Besides these, fertilizer use may influenced by access to credit and also by the extent to which responses of fertilizers use are influenced by the location of cultivator, whether in high fertilizer using or low fertilizer using.

Ramaswami (1988) in his book 'A study of marketing of biofertilizers' opined that marketing is a fundamental business philosophy. It is, therefore, rightly said that marketing improvements and development should proceed production at planning stage. Judicious combination of public, private and co-operative marketing enterprises is an ideal solution to the complex problems of marketing.

Sankari (1991) identified that credit availability, distance from farm to dealer location, price of the product, peer group influence and availability of preferred brand were the factors contributing to the dealer loyalty of farmers.

Subba Rao (1992) revealed that applied work relating to biofertilizers has been done in India on a large scale with legumes as well as non-legumes. In many instances the yield increases due to these BF may be marginal but poor country can ill afford to neglect any low cost input which can bring corresponding dividends to the farmers where labour is not as expensive as it is in advanced countries.

Magar (1992) in his study on "constraints in the fertilizer use for principal crops" concluded that the action of farmer in regard to the use of fertilizer was found to be associated with educational, technical knowledge, size of farm, irrigated area, availability of irrigation water, area under commercial crop and farm income and with this some policy implications are made by him as such, fertilizers should be made available to

farmers at subsidized rate by the government. The village co-operative should ensure the availability of fertilizer to *its* farmer members during the period of crop season.

Kute and Patil (1994) concluded that the increase in crop production by the use of biofertilizers over and above the chemical fertilizers indicate the improvement in fertilizer use efficiency. Gujarat states fertilizer company Ltd. is maintaining the high quality products standards as per the ISI specifications. GSFC has a strong R & D network and at present the experiments to increase the shelf life of biofertilizers and to find out the best suitable alternate carrier to lignite are under progress. Inspite of the fact, that the biofertilizers have played a vital role as a low cost agriculture input in increasing crop production, certain limitations and constraints particularly related to shelf life, high temperature, transportation and timely distribution in remote areas, etc., restrict the rapid growth of biofertilizer market,uniform price policy, standard packing and quality testing by Central/State Governments will help the manufacturer to develop healthy market in the country.

Tilak and Gita Singh (1994) revealed that use of BF is restricted to certain crops and locations. There is a future scope to popularize these biofertilizers by importing/strengthening transportation, distribution and storage infrastructure coastal regions may responded positively because of thejr moderate temperature regimes. Low level of exchange at farmer level is because of slow nutrient release from biofertilizers. Dramatic yield increase, obtained by mineral fertilizers applications are not seen in the case of biofertilizers. Dual or multiple inoculation with appropriate type (suitable) combination of bioinoculants is likely to supply a number of nutrients. Selection of dizotrophs/strains depending upon their compatibility with crop cultivars is of vital importance to provide potentially beneficial BF to the consumers, strict quality control measures, efficient extension activity through demonstration and by creating awareness among farmers are the other requirements for full exploitation of biofertilizers.

Sivakumar *et al.* (1994) analysed buying behaviour of farmers with respect to pesticides, considering the factors influencing loyalty of farmers towards dealer and brand. Friends,

neighbours and relatives were the major source of information about dealers. In case of brands, it was extension personnel of the Department of Agriculture. The price, quality and advertisements of the brand contributed significantly to brand loyalty. Credit availability, advertisements and price of products available with dealer contributed significantly to dealer loyalty.

Berad (1996) concluded that in recent years, liquid fertilizers are used as a strong alternative to solid fertilizers. The major advantage of liquid fertilizers is that they are completely soluble in water and can be applied through drip system with an ease, without any harm. It contains the major essential nutrients in rapidly available form it ultimately increases the fertilizer use efficiency by increasing the nutrient uptake and minimizing the loss.

Ghosh and Naik (1999) in their research paper published in fertilizer news revealed that Biozyme (Liquid biofertilizer) is a biotechnological innovation from vegetable origin-sea weed *{Ascophyllum nodusum),* an algae. It basically and inherently contains the plant growth promoters like cytokinin auxin, precureson, enzymes and amino acids (leucin, alanin and glutanic acid.). Suitably of biozyme has been tested in a few crops like capsicum but the information for groundnut is yet to be explored. Therefore a field experiment was conducted during summer season of 1996. The results revealed that biozyme spray significantly recorded higher pod yield over non biozyme application. Biozyme and fertilizer**.** reaction was significant only for pod yield. Biozyme also improved N, P, K uptake by the groundnut. This indicates that the biozyme spray on groundnut helped in better root and shoot development and resulted in increased nutrient absorption and translocation, which in turn, resulted in higher yield,. It's application gave 253 kg. more \ yield over it non application and increment.

Reddy and Raju (1999) studied about buying motives of rural consumers towards purchase of seeds. Different sources of information about brands with regard to seeds. Factors influencing brand loyalty of farmers were dealers suggestion, quality product and

co-farmers. The problems faced byfarmers with regard to seed are supply of poor quality of seed, higher private, adulteration and irregular supply of seeds.

Kanade (2000) The study was undertaken in order to study use levels of liquid biofertilizer on sample farms in Pune district, to study various reasons for negligence to use it, to know about active competitors in market, and it's awareness.

Jaykumar (2012) studied the market potential and market strategies for organic pesticides in Navsari and Valsad district with the objective of to find market potential and market strategies of organic pesticides for Penshibao Wang Pvt. Ltd. He also studied the purchase behaviour of the farmer for organic pesticides of above organisation. He surveyed various retailers based on their revenue generation through sells of different pesticides for vegetable crops. The study concluded that vegetables were the main crop in study area and there was huge potential for pesticides due to attacks by different sucking type pests. The study suggested that the organisation should have add more range of pesticides to capture more market share.

Verma (2013) studied that M. P. vindhya jaivik & herbal development foundation with is a name associated with Eco-friendly agro-input products essential for Organic Farming. The promoters of M.P.vindhya jaivik & herbal development foundation are one of the pioneers in developing Neem based pesticides in the country. The bio-fertilizer needs a different marketing approach than chemical fertilizer. The market needs to be segmented and most profitable segment to be targeted with appropriate positioning strategy .For promoting the sale of bio-fertilizers marketing strategies viz., marketing segmentation, product positioning, pricing, sales and usage promotion and publicity and training are necessary for development as industry. M.P. vindhya jaivik & herbal development foundation had realized the impotence of organic farming and bio-fertilizer and it has started marketing for promotion in bio-fertilizer. M.P. vindhya jaivik & herbal development foundation is very useful input for soybean, paddy, and vegetable crops.

3. RESEARCH METHODOLOGY

The study entitled **"A Study on Market Potential and Farmers' Purchasing Behaviour towards 'Magic Gro Super' for Okra in Vyara Taluka of Tapi District of Gujarat"** was carried out during 9th Jan, 2017 to 9th May, 2017.

Objectives of the study were:

- To study the awareness about the bio fertilizers among farmers
- To study the factors affecting the purchasing of biofertlizers by farmers
- To find out the competitor Analysis of the Magic Gro Super
- To find out the Market Potential of the Magic Gro Super
- To find out the promotional strategies for concept selling product Magic Gro Super

3.1 NATURE OF DATA

The research includes, interviewing of respondents by means of Schedule based on above mentioned objectives and analyzing their responses with the help of statistical tools. The research will cover the selected villages of Vyara taluka. Primary as well as secondary data will be collected to meet the stipulated objectives of the study

3.1.1 Primary Data

Primary data were collected by the survey done through interview with different farmers, with the help of structured schedule. Farmers, i.e. Respondents; were the targeted population for collecting the data.

3.1.2 Secondary Data

Secondary data were collected from different websites from Internet, literature, Private and Government publications.

3.2 RESEARCH DESIGN

3.2.1 Type of Research

The research type used in study was descriptive research.

3.2.2 Sampling Method

Non-Probability sampling method was used for research work.

3.2.3 Sampling Technique

Purposive sampling technique was used at all stages of sampling among the population for research work.

3.2.4 Sample Unit

Farmers who were aware about bio-fertilizer were interviewed as respondents at various villages in vyara taluka of tapi district.

3.2.5 Sample Size

In this survey, vyara taluka of tapi district were selected and from the different villages 200 farmers were selected..

3.2.6 Sampling Area

Vyara taluka of Tapi district were selected for the entire research work. This was provided by the organization.

3.2.7 Research Instrument

Considering the nature of study, it was decided to collect information through structured schedules prepared by the interviewer, with the help of college guide, company guide and pilot survey which was carried out earlier.

3.2.8 Analytical Tools

Due care was taken to check the data for it’s accuracy after scrutinizing each response schedule was filled and a master chart was prepared in which all responses relating to

variables were included. Therefore, relevant tables for the purpose of analysis were prepared and simple statistical techniques such as percentage, averages and weighted average mean were used for analyzing the information and finding differences in the responses. The statistical tools and methods used for the present study for analysis of data were given as below:

1. To study the awareness about the bio fertilizers among farmers

   Percentage

   Percentage to determine the magnitude of the responses to the schedule. Frequencies and then percentages were calculated for depicting simple comparisons. To calculate the percentage the frequency of particular category was multiplied by hundred and divided by total number of the Respondent farmers.

   Thus,

   $$\% = (n / N) \times 100$$

   Where:

   N = Total number of respondents

   n = Number of responses

2. To find out the Market Potential of the Magic Gro Super

   Market Potential

   $$MP = N \times P \times Q$$

   Where:

   MP = market potential

   N = Total area under cultivation of Okra

   P = Per ha. Recommended Dose Price

   Q = Per ha. Recommended Dose

3. To study the factors affecting the purchasing of biofertlizers by farmers

Likert Scale

In order to use the Likert-scale for interpretation, weighted mean to represent each question will be computed. To compute for the weighted mean, each value must be multiplied by its weight. Products should then be added to obtain the total value. The total weight should also be computed by adding all the weights. The total value is then divided by the total weight. Statistically, the weighted mean is calculated using the formula below:

Weighted Average Mean (X) = (F1X1 + F2X2 + F3X3 + F4X4 + F5X5) / Xt

Where:

F = Weight given to each response

X= Number of responses

Xt= Total number of responses

Garrett Ranking

Garett's Ranking Technique:

- **First stage:** Ranking given by 150 respondents for each attribute were analyzed.
- **Second stage:** Thus, ranks assigned by the individual respondents were converted into percent position value by using the formula.
- **Percent position=** 100(Rij-0.5)/Nj
- Where, Rij stands for rank given for ith factor by the jth individual.Nj stands for numbers of factors ranked by jth individual.
- **Third stage:** for each percent position scores were obtained with reference to Garrett's ranking conversation Table and each percent position value was converted into scores by reference to Garrett's Table.
- **Fourth stage:** Summation of these scores for each factor was worked out for the numbers of respondents who ranked for each factor. Mean scores were calculated by dividing the total score by the numbers of respondents.
- **Fifth stage:** overall ranking was obtained by assigning ranks 1, 2, 3 ,4 and 5 in the descending order of the mean score.

3.3 DETAILED INFORMATION OF THE SAMPLE OF VYARA TALUKA OF TAPI DISTRICT

Table 3.1 Detailed Information of the Sample is as given below in Vyara Taluka of Tapi District

Sr. No.	Type of Respondent	Taluka	Village	No of Sample
1	Farmers	Vyara	Unai	40
2			Bardipada	40
3			Padamdungri	40
4			Karankej	40
5			Junawadi	40
	Total			200

3.4 SCOPE OF THE STUDY

- The study would be helpful to understand the purchasing behavior of biofertilizer among the farmers.
- The study would be useful to find out Present level of awareness about biofertilizer in farmers in the Vyara taluka of Tapi district of Gujarat.
- The study would be useful to find out the Market Potential of Magic Gro Super in the Vyara taluka of Tapi district of Gujarat.
- The study helped to find out the importance of various factors which can affect the purchase Magic Gro Super in the Vyara taluka of Tapi district of Gujarat.
- The study would be useful to find out the competitor of Magic Gro Super in the Vyara taluka of Tapi district of Gujarat.
- The study would useful for the f ind out best promotional strategy for the concept selling product Magic Gro Super Super in the Vyara taluka of Tapi district of Gujarat.
- Collected Information might be helpful to the organization while making marketing strategy for Magic Gro Super.

3.5 LIMITATIONS OF THE STUDY

- The results have been totally derived from the respondent's answers. There might be a difference between the actual and projected results.
- The study would be confined to one Region only, therefore the results and conclusion should not be replicated to other regions.
- The sample size for the survey of farmers were limited to 200 respondents in area, which might not be representing the whole scenario.
- Uneven availability and limited amount of secondary data from various sources would be another limitation of the study.
- A small amount of bias on part of the researchers may also exist. Given all these constraints, an effort will made to minimize all limitations and to make this study more meaningful and objective.

4. RESULTS AND DISCUSSION

The study has been conducted to find out **"A Study on Market Potential and Farmers' Purchasing Behaviour towards 'Magic Gro Super' for Okra in Vyara Taluka of Tapi District of Gujarat".** The information was collected from the primary as well as secondary data. Primary data were collected by structured schedules based survey and secondary data with the help of Internet and literature reviewed. The results were analyzed mainly with respect to the response of the farmers. The results so obtained are incorporated in this chapter.

The results obtained has discussed under the following heading as per the different variables studied:

4.1 Basic Information of Farmers
4.2 Type of Fertilizers Which is Mostly Used in Okra?
4.3 Do you Aware About Bio Fertilizers?
4.4 Have you Purchased Any Bio-Fertilizer?
4.5 Reasons for not Purchasing the Bio-Fertilizer?
4.6 Why do you Use Bio-Fertilizers?
4.7 How did you Come to know about the Bio-Fertilizers?
4.8 Which Company Bio-Fertilizers do you Purchased?
4.9 Reasons for Purchasing that Company Product?
4.10 Factor Affecting Purchasing Bio Fertilizer
4.11 Does Promotional Activity Affect Purchase?
4.12 Which Medium do you feel is best Suitable to Communicate the various Promotional Schemes?
4.13 Do you Aware about "Magic Gro Super" Product of the Company?
4.14 Do you Purchase "Magic Gro Super" Product of the Company?
4.15 Reasons for Using Chemical Fertilizer
4.16 Market Potential of Magic Gro Super.
4.17 Competitor's Analysis for Magic Gro Super.

4.1 BASIC INFORMATION OF FARMERS

The study was conducted in Vyara Taluka of Tapi District of Gujarat. Basic information of the farmers was collected during survey, which contains the age, gender, educational, land holding of farmer, Variety of okra and source of irrigation. The data regarding basic information were as following:

4.1.1 Age of Farmers

Table 4.1: Age of Farmers

Age	Frequency	Percentage (%)
20-30	55	27
31-40	90	45
41-50	46	23
Above 50	9	5
Total	200	100

According to survey Vyara Taluka of Tapi District of Gujarat researcher found that Out of total sample size of 200 farmers, the result shows that 27% (55) of the farmers comes under age group of 20 to 30 years and 45% (90) farmers were from age group of 31 to 40 years 23% (46) farmers were in the age group of 41 to 50 years and Only 5% (9) farmers were of the age of above 50 years.

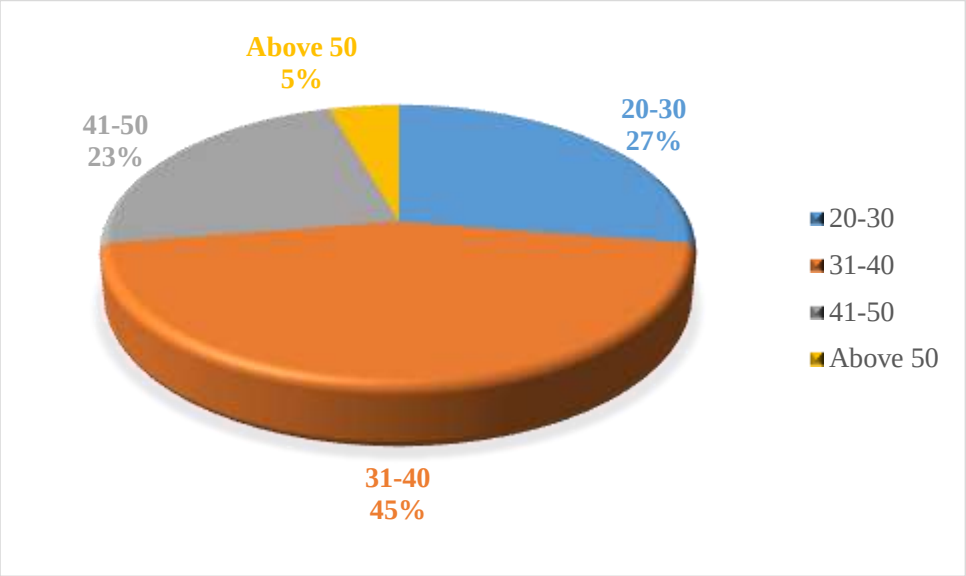


Figure 4.1: Age of Farmers

4.1.2 Gender of Farmers

Table 4.2: Gender of Farmers

Gender	Frequency	Percentage (%)
Male	195	97
Female	5	3
Total	200	100

During the survey, researcher found that out of 200 farmers 97% (195) Farmers were male and 3% (5) were Female.

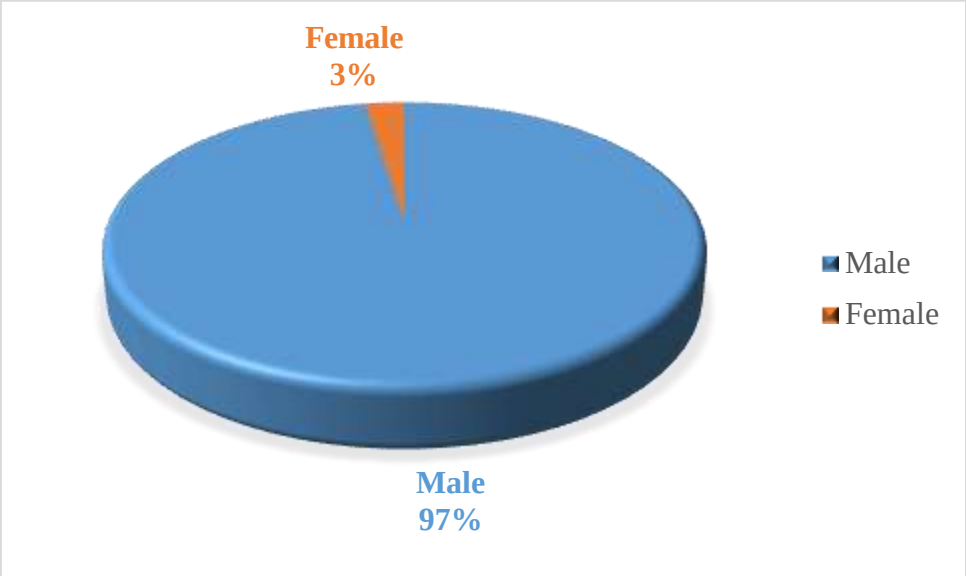


Figure 4.2: Gender of Farmers

4.1.3 Education of Farmers

Table 4.3: Education of Farmers

Education	Frequency	Percentage (%)
Primary	123	61
Secondary	43	22
Diploma & Graduation	28	14
Post-graduation	6	3
Total	200	100

According to survey Vyara Taluka of Tapi District of Gujarat researcher found that Educational background of the farmers varies from primary to post graduation. Out of total, 61% (123) farmers were primary and 22% (43) were Secondary,14% (28) farmers were having education till diploma & Graduation and 3% (6) farmers, who have studied till Post graduation.

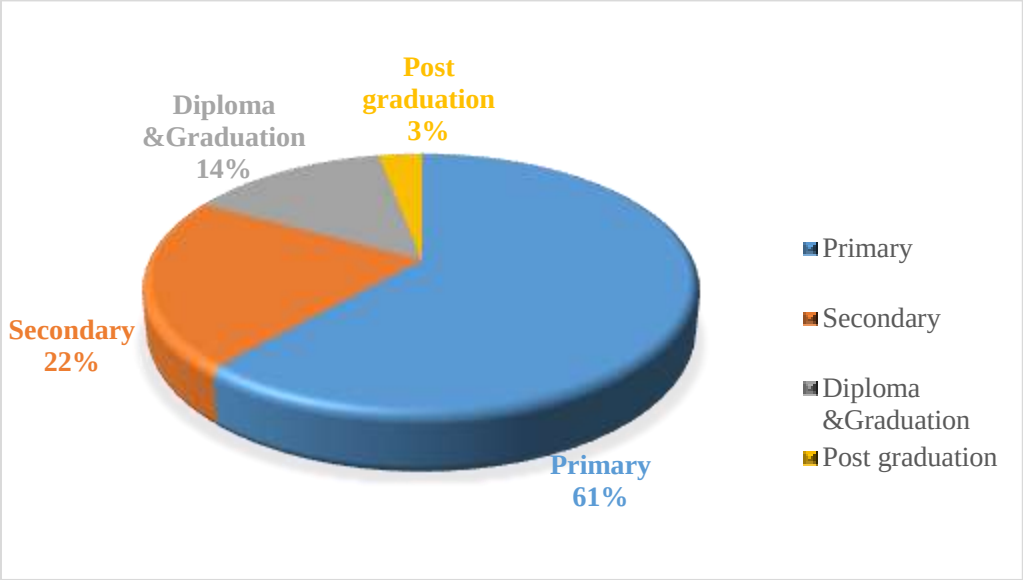


Figure 4.3: Education of Farmers

4.1.4 Land Holding of Farmers

Table 4.4: Land Holding of Farmers

Land Holding (In Hectare)	Frequency	Percentage (%)
Less than 1	68	34
1 to 2	92	46
2 to 4	39	19
4 to 10	1	1
Total	200	100

It was seen during the survey that the total land holding is even or distributed equally. Bio fertilizers were mostly used by the farmers. Although these farmers do not use it on whole area but used it on limited area and mostly on fruit crops and vegetables. According to survey In Vyara Taluka of Tapi District of Gujarat researcher found that farmers were divided in to classes as per his Land Holding out of 200 farmers among them 34 % (68) having Less than 1 hectare followed by 46% (92) have 1-2 hectare 19%(39) 2-4 hectare and 1% (1) have 4-10 hectare.

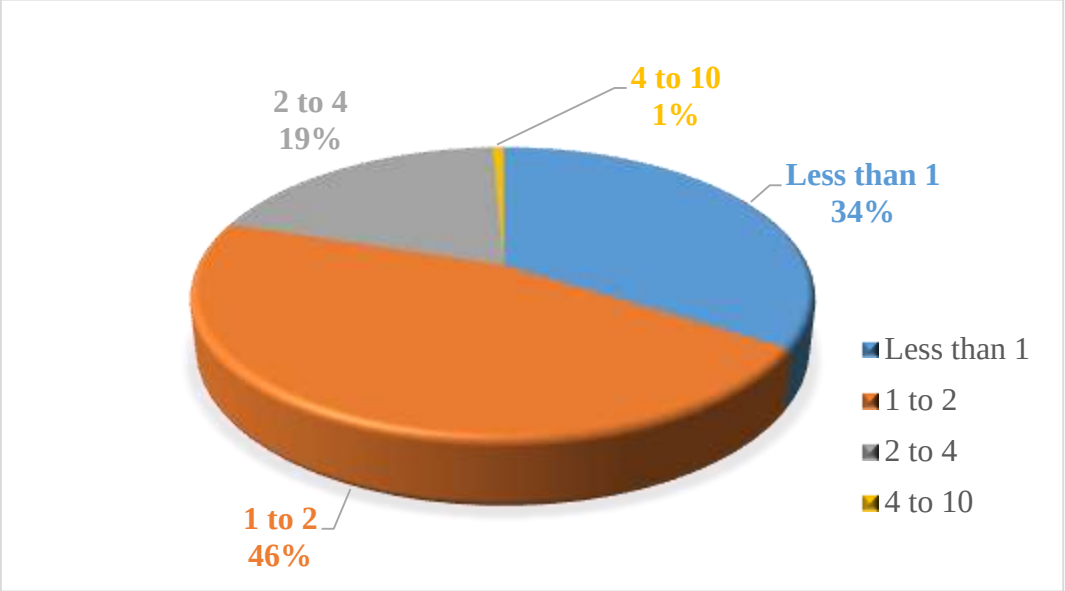


Figure 4.4: Land Holding of Farmers

4.1.5 Source of Irrigation

Table 4.5: Source of Irrigation

Source of irrigation	Frequency	Percentage (%)
Tube well	33	16
Well	37	18
Canal	3	2
Through River	127	64
Total	200	100

It was seen during the survey that the main source of irrigation is river. out of 200 farmers among them 64 % (127) have irrigate his land through River, followed by 18% (37) through well, 16%(33) through tube well and 2% (3) through canal.

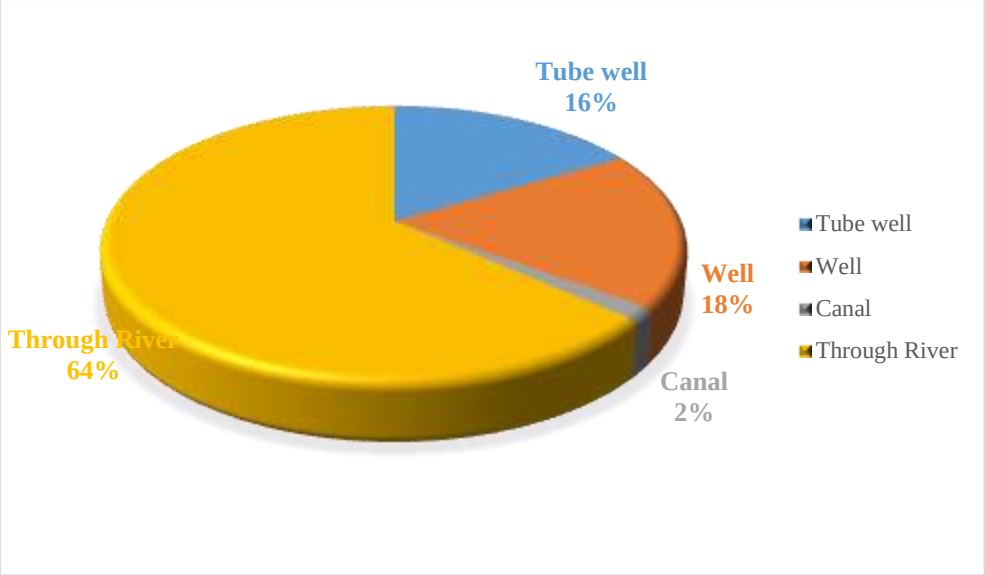


Figure 4.5: Source of Irrigation

4.1.6 Variety of Okra

Table 4.6: Variety of Okra

Variety	Frequency	Percentage (%)
Samrat	66	33
Taj	58	29
UPL	28	14
Sartaj	32	16
Shakti	16	8
Total	200	100

During survey researcher found that farmer were grown various variety of okra. Out of 200 farmers, 33% (66) were grown samrat variety, while 29% (58) were grown taj variety and 14% (28) were grown UPL company product, 16%(32) were grown Sartaj and Only 8% (16) farmers were grown shakti.

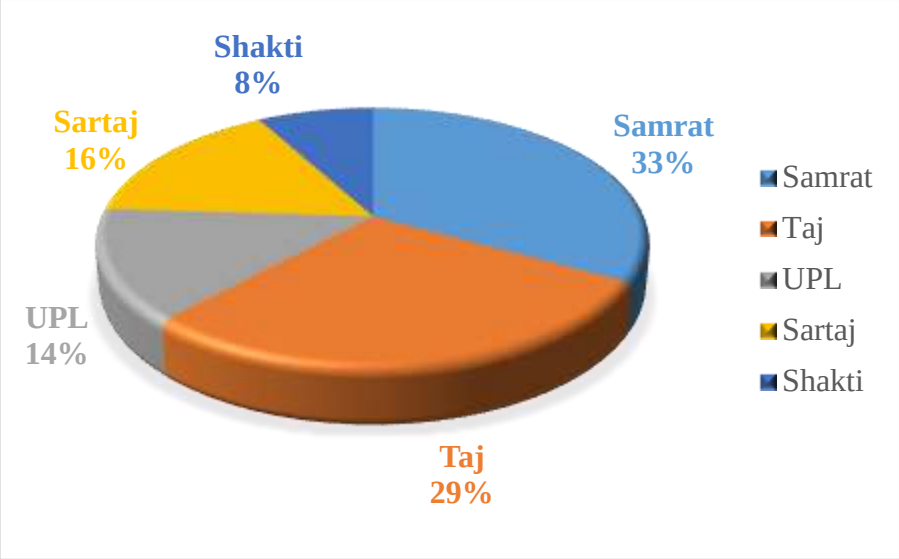


Figure 4.6: Variety of Okra

4.2 TYPE OF FERTILIZERS WHICH IS MOSTLY USED IN OKRA?

Table 4.7: Type of Fertilizers mostly used in Okra

Type of fertilizers	Frequency	Percentage (%)
Organic	8	4
Chemical	126	63
Both	66	33
Total	200	100

It was found during the survey that the most of farmers that were using chemical fertilizer and some of farmers were using both chemical and organic. There is a less use of oraganic fertilizer. Out of 200 farmers among them 63 % (126) were used chemical fertilizer followed by 33% (66) were used both chemical and organic and 4%(8) only used organic fertilizer.

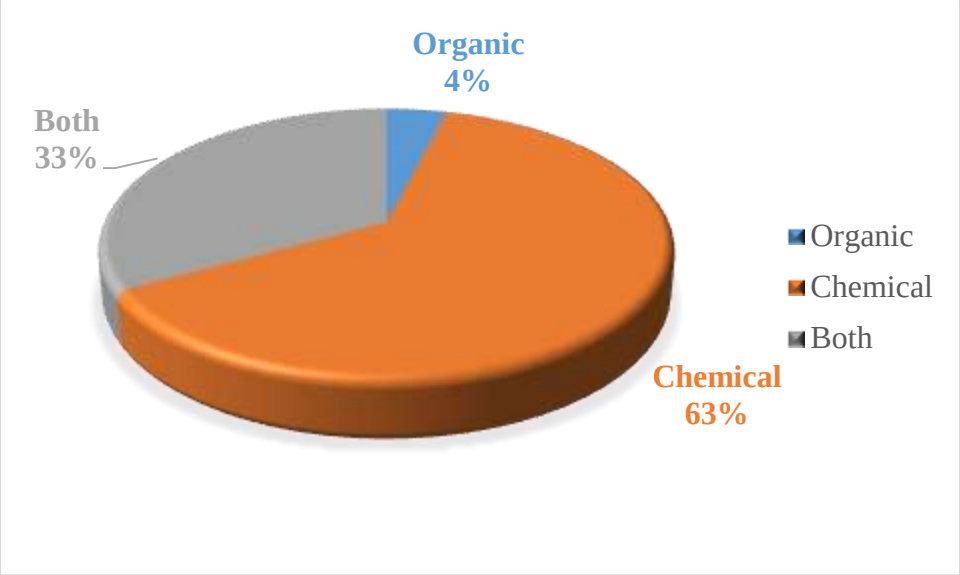


Figure 4.7: Type of Fertilizers mostly used in Okra

4.3 DO YOU AWARE ABOUT BIO FERTILIZERS?

Table 4.8: Awareness about Bio Fertilizer

Awareness	Frequency	Percentage (%)
Yes	182	91
No	18	9
Total	200	100

According to survey researcher found that farmers were highly aware about the bio fertilizer. out of 200 farmers 91 % (182) farmers were aware about the bio fertilizer and 9% (18) farmers were not aware about the bio fertilizer.

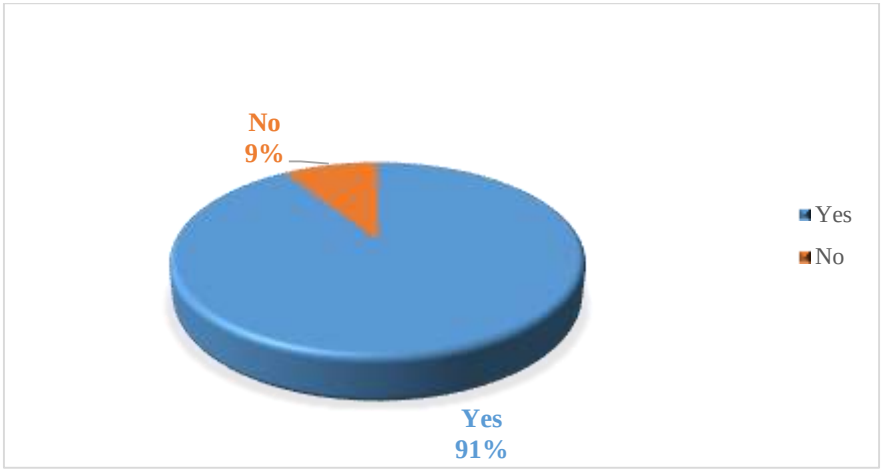


Figure 4.8: Awareness about Bio Fertilizer

4.4 HAVE YOU PURCHASED ANY BIO-FERTILIZER?

Table 4.9: Purchased any Bio-fertilizer

Purchased	Frequency	Percentage (%)
Yes	74	41
No	108	59
Total	182	100

According to survey In Vyara Taluka of Tapi District of Gujarat researcher found that adoption of bio fertilizer in farmers is very much less. Out of 200 farmers 91% (182) farmers were about bio fertilizer among them 41 % (74) were purchased bio fertilizer and 59% (108) were not purchased bio fertilizer.

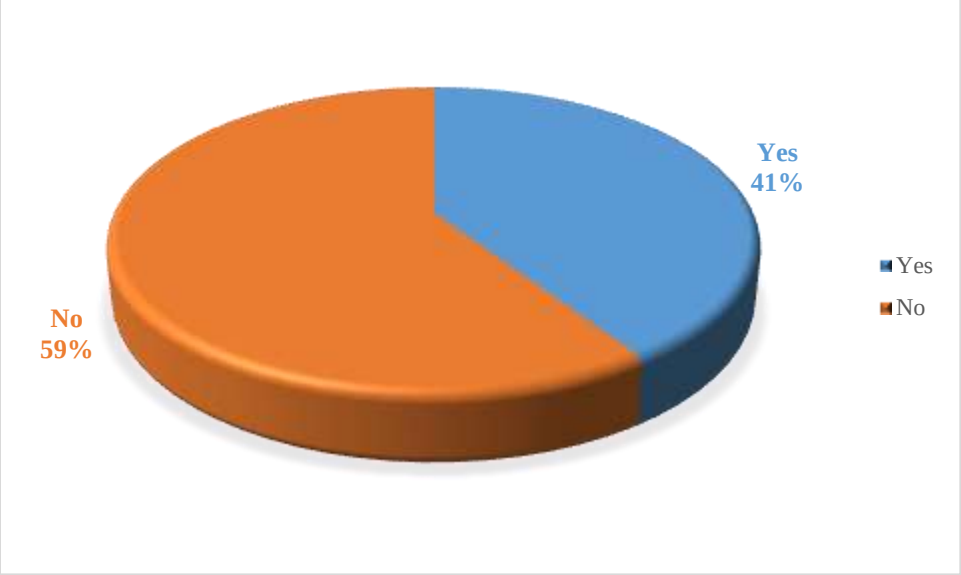


Figure 4.9: Purchased any Bio-fertilizer

4.5 REASONS FOR NOT PURCHASING THE BIO-FERTILIZER?

Table 4.10 Reasons for not Purchasing the Bio-Fertilizer?

Reasons for not purchasing bio fertilizer	Strong Agree	Agree	Indifferent	Disagree	Strong Disagree	WAM
Less product reliability	16	14	54	6	18	3.04
Slow Effect	3	14	48	17	26	2.55
higher Price	45	23	20	10	10	3.77
Several applications needed	27	13	51	5	12	3.35
Don't know method of application	9	24	48	19	8	3.06
Note : Strong Agree=5 , Agree=4, Indifferent=3, Disagree=2 and Strong Disagree=1						

It was seen that only 59% (108) of the surveyed farmers were not purchasing bio fertilizers. Farmers responded in various ways to this question such as they don't know method of application, don't know method of application, higher Price, etc. The respondent farmers in accordance with the reasons for the not purchase bio fertilizers were given in above table.

It was observed during the survey that the major factor for not purchasing bio fertilizer is that the price of the bio fertilizer is higher and the another factors that can followed by several applications needed, don't know method of application, Less product reliability and Slow Effect

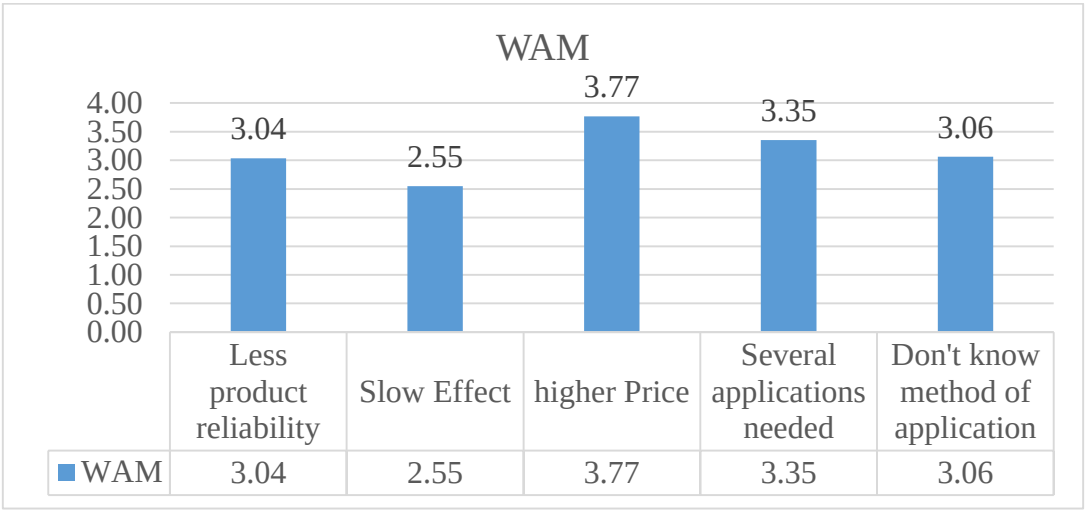


Figure 4.10 Reasons for not Purchasing the Bio-Fertilizer?

4.6 WHY DO YOU PURCHASE BIO-FERTILIZERS?

Table 4.11 Why do you Purchase Bio-Fertilizers?

Factors	Frequency	Percentage (%)
Faster growth of plants.	10	13
Enhancement in soil health fertility	22	30
Better quality yield	17	23
To minimize chemical fertilizer use	25	34
Total	74	100

During the survey researcher found that there are certain factor that affected purchasing bio fertilizer that are shown in above table. Out of 200 farmers 91 %(182) farmers aware about bio fertilizer among them 41% (74) purchasing the bio fertilizer. In that 34 %(25) farmers purchase bio fertilizer for the minimize chemical fertilizer use, followed by 30% (22) Enhancement in soil health fertility.23% (17) Better quality yield and 13% (10) Faster growth of plants.

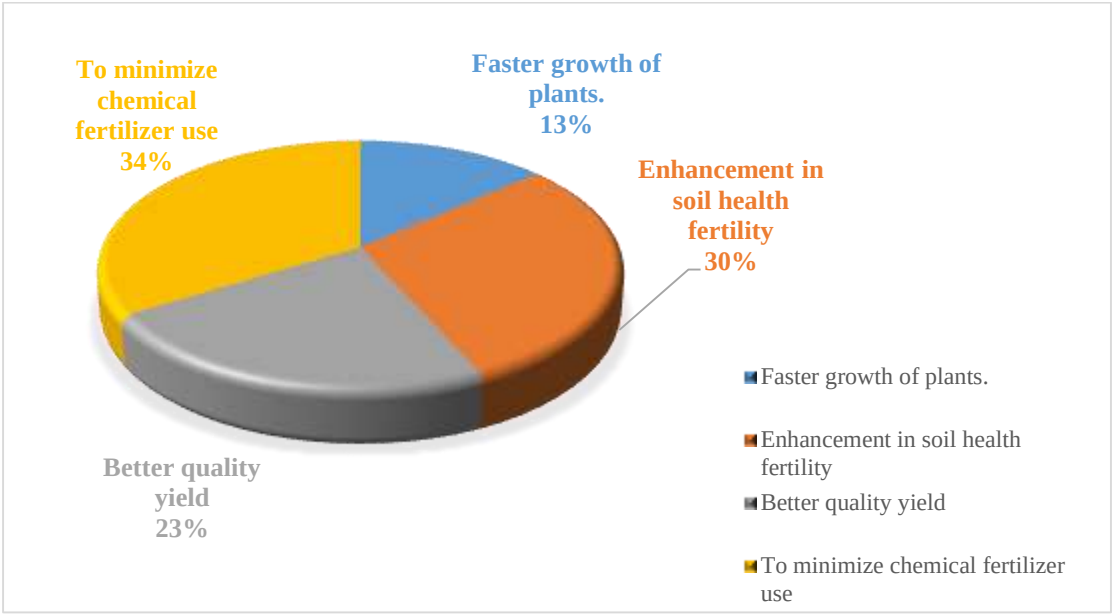


Figure 4.11 Why do you Purchase Bio-Fertilizers?

4.7 HOW DID YOU COME TO KNOW ABOUT THE BIO-FERTILIZERS?

Table 4.12 How did you come to know about the Bio-Fertilizers?

Know From	Frequency	Percentage (%)
Dealer	86	47
Fellow Farmer	24	13
Pamphlet/poster	42	23
Field Demonstrations	22	12
Radio/TV Advertisements	2	1
Newspapers	6	4
Total	182	100

According to the survey Out of 200 farmers 91% (182) were aware about bio fertilizer and Above table shows how farmer come to know about bio fertilizer. Out of 182 farmers, 47% (86) farmers were came to know from dealer, followed by 23% (42) through Pamphlet/poster,13%(24) through Fellow Farmer, 12%(22) through Field Demonstrations, 4%(6) through Newspapers and 1% (2) through Radio/TV Advertisements.

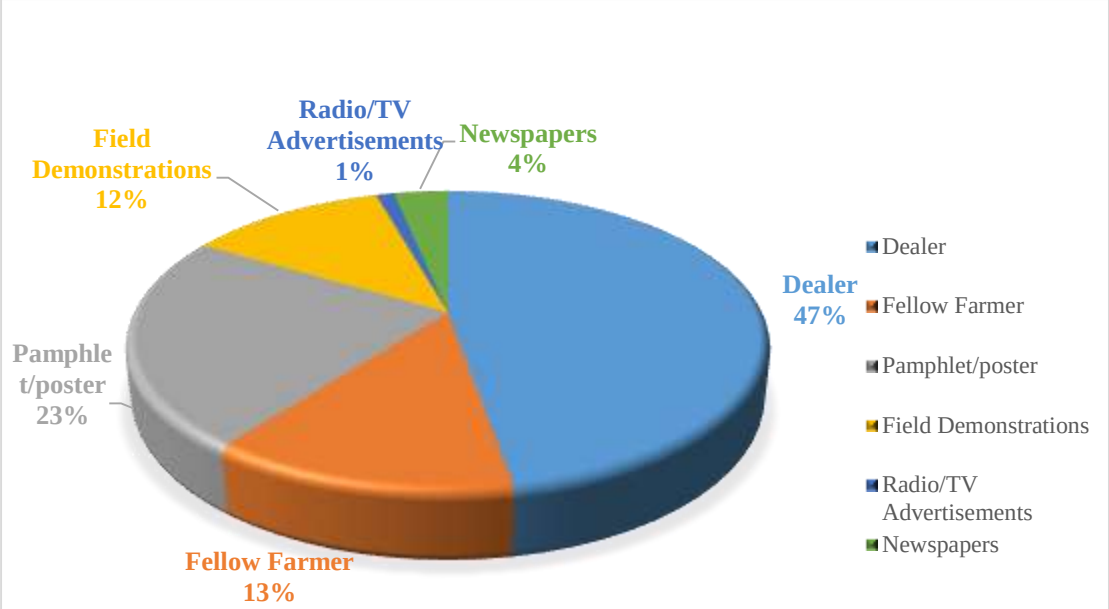


Figure 4.12 How did you come to know about the Bio-Fertilizers?

4.8 WHICH COMPANY BIO-FERTILIZERS DO YOU PURCHASED ?

Table 4.13 Which Company Bio-Fertilizers do you Purchased?

Company	Frequency	Percentage (%)
GSFC	3	4
GNFC	2	3
KRIBHCO	3	4
Krishi Rasayan	11	15
Biostadt	23	31
Sumitomo Chemical India Pvt Ltd	9	12
Bayer Crop Science Limited	11	15
Dow Agroscience India Pvt Ltd	7	9
Arise Agro Limited	5	7
Total	74	100

During survey It was seen that Out of 200 farmers 91%(182) were aware about bio fertilizer among them 41% (74) purchase bio fertilizer and Above table shows which company bio fertilizer were purchased by farmers .

According to survey among 41% (74) farmers, 31% (23) farmers says that they were purchased Biostadt, followed by Krishi Rasayan 15% (11) , Bayer Crop Science Limited 15% (11), Sumitomo Chemical India Pvt Ltd 12 % (9), Dow Agroscience India Pvt Ltd 9% (7), Arise Agro Limited 7% (5),GSFC 4% (3), KRIBHCO 4% (3) and 3% (2) farmers were purchased GNFC.

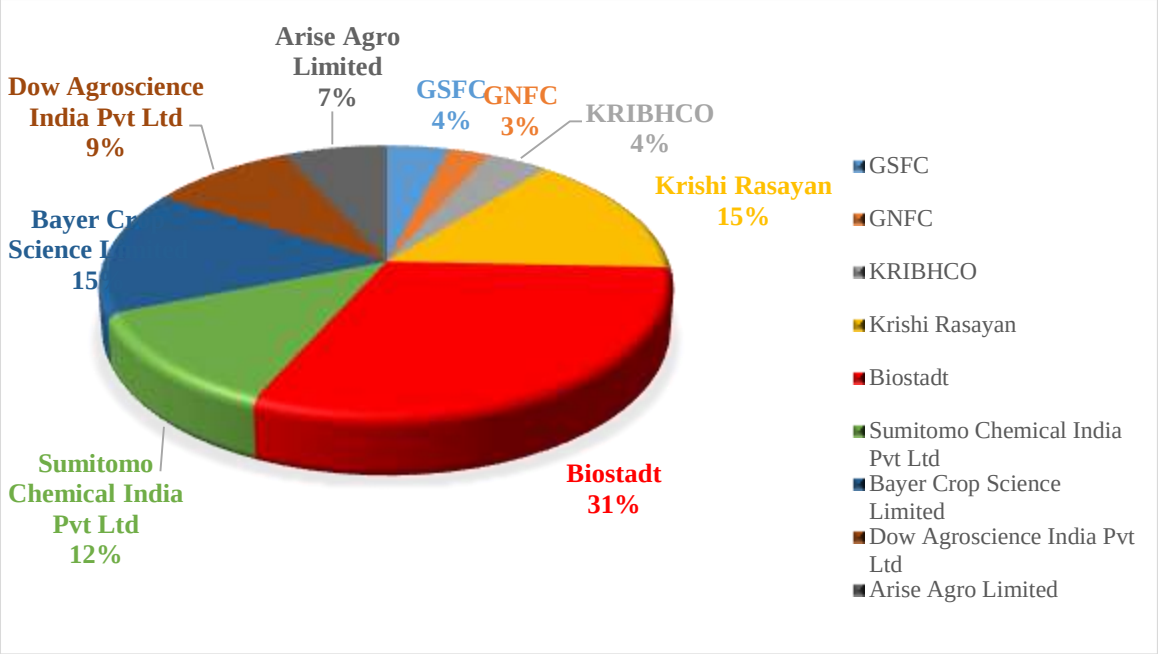


Figure 4.13 Which Company Bio-Fertilizers do you Purchase ?

4.9 REASONS FOR PURCHASING BELOW COMPANY PRODUCT ?

4.9.1 Bayer Crop Science Limited

Table 4.14 Reasons for Purchasing Bayer Company Product ?

Factors	Garret Score	Rank
Lower Price	41.3	5
Increase yield	54.9	2
Easily available	50.5	3
Quantity	47.7	4
Good Quality	55.7	1

Farmers were asked to give reason regarding the purchasing Bayer company product. The reason was converted to Garrett's score using Garrett's ranking technique. At the aggregate level it was found that for the company Bayer, Good Quality got highest Garrett's score (55.7) and followed by Increase yield (54.9), Easily available (50.5), Quantity (47. 7) and lower price (41.3)

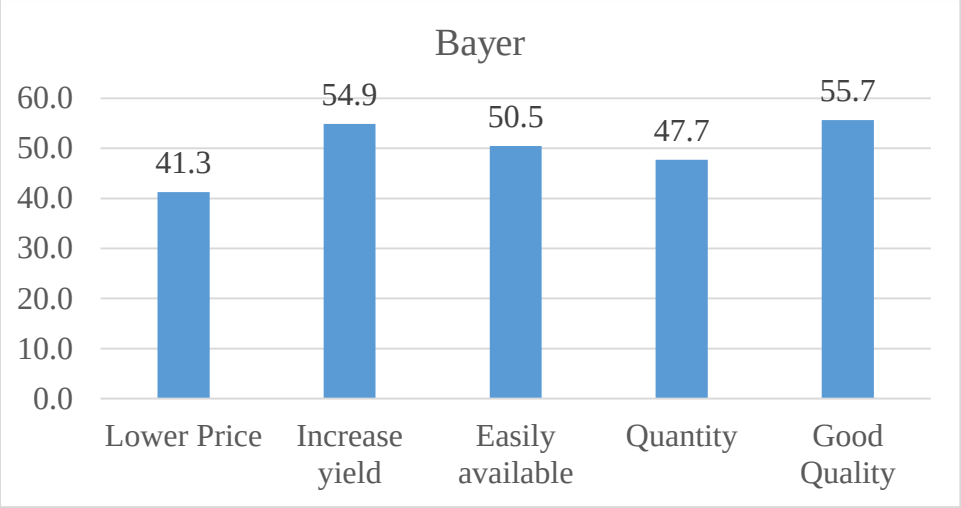


Figure 4.14 Reasons for Purchasing Bayer Company Product ?

4.9.2 Sumitomo Chemical India Pvt Ltd

Table 4.15 Reasons for Purchasing Sumitomo Company Product ?

Factors	Garret Score	Rank
Lower Price	57.4	2
Increase yield	50.3	3
Easily available	44.7	4
Quantity	39.7	5
Good Quality	58.0	1

At the aggregate level it was found that for the company Sumitomo, Good Quality got highest Garrett's score (58.0) and followed by Lower Price (57.4), Increase yield (50.3), Easily available (44.7) and Quantity (39.7)

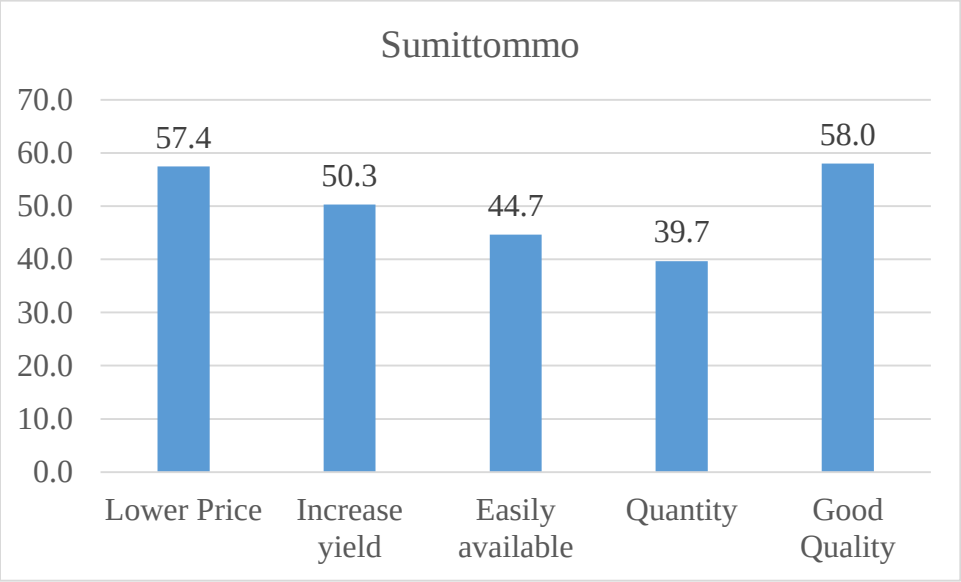


Figure 4.15 Reasons for Purchasing Sumitomo Company Product ?

4.9.3 Biostadt India Limited

Table 4.16 Reasons for Purchasing Biostadt Company Product ?

Factors	Garret Score	Rank
Lower Price	53.6	2
Increase yield	46.6	3
Easily available	44.1	5
Quantity	60.2	1
Good Quality	45.5	4

According to survey for the company Biostadt, Quantity got highest Garrett's score (60.2) and followed by Lower Price (53.6), Increase yield (46.6), Good Quality (45.5) and Easily available (44.1)

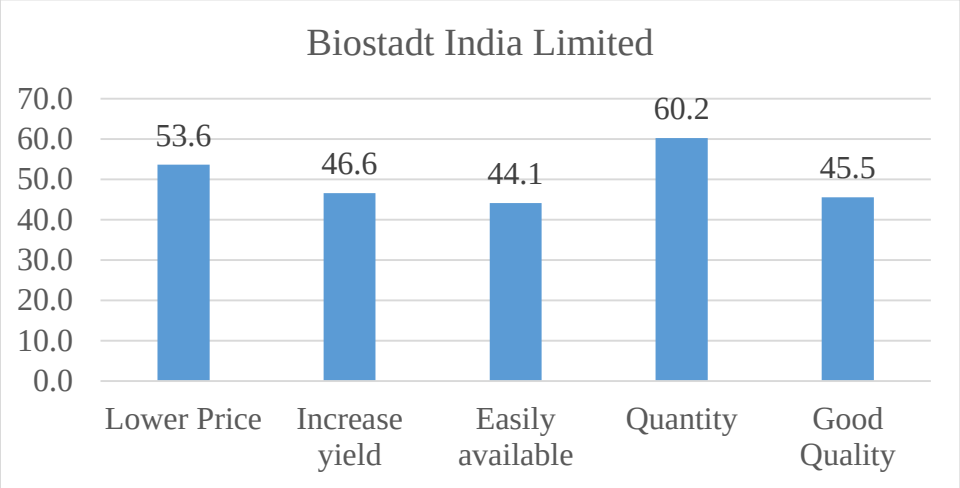


Figure 4.16 Reasons for Purchasing Biostadt Company Product ?

4.9.4 Dow Agroscience India Pvt Ltd

Table 4.17 Reasons for Purchasing Dow Company Product ?

Factors	Garret Score	Rank
Lower Price	40.4	5
Increase yield	54.7	2
Easily available	59.7	1
Quantity	48.4	3
Good Quality	46.8	4

At the aggregate level it was found that for the company Dow Agroscience, Easily available got highest Garrett's score (59.7) and followed by Increase yield (54.7), Quantity (48.4), Good Quality (46.8) and Lower Price (40.4)

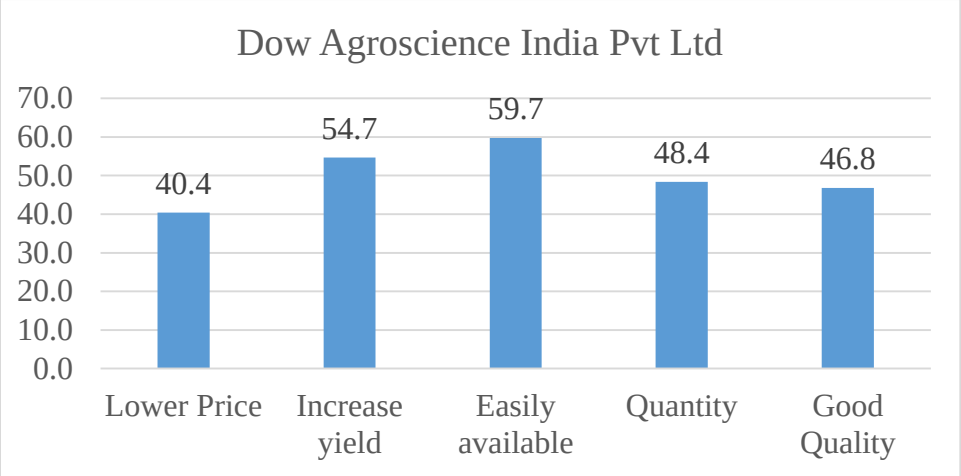


Figure 4.17 Reasons for Purchasing Dow Company Product ?

4.9.5 Arise Agro Limited

Table 4.18 Reasons for Purchasing Arise Company Product ?

Factors	Garret Score	Rank
Lower Price	54.1	2
Increase yield	56.5	1
Easily available	39.2	5
Quantity	48.4	4
Good Quality	51.8	3

Farmers were asked to give reason regarding the purchasing Arise Agro science company product. The reason was converted to Garrett's score using Garrett's ranking technique. At the aggregate level it was found that for the company Arise Agro science, Increase yield got highest Garrett's score (56.5) and followed by Lower Price (54.1), Good Quality (51.8), Quantity (48.4) and Easily available (39.2)

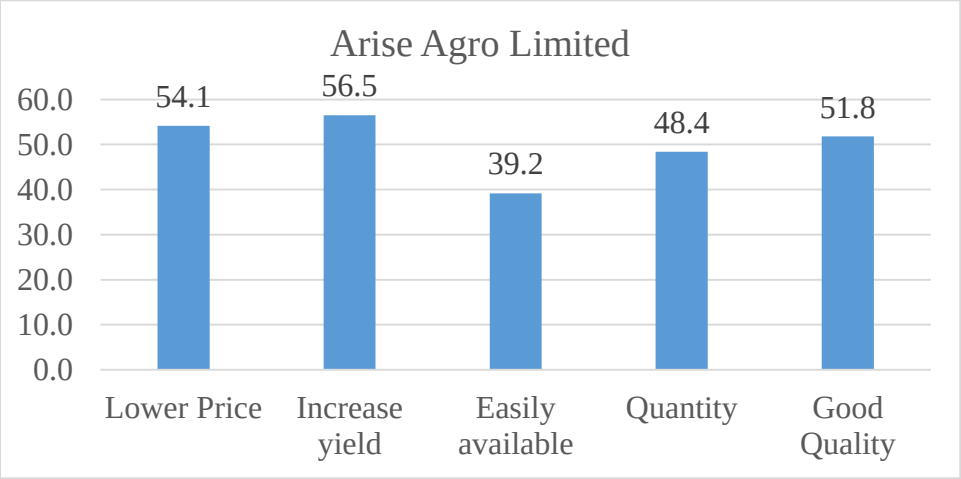


Figure 4.18 Reasons for Purchasing Arise Company Product

4.10 FACTOR AFFECTING PURCHASING BIO FERTILIZER

Table 4.19 Factor Affecting Purchasing Bio Fertilizer

Factors	Strong Agree	Agree	Indifferent	Disagree	Strong Disagree	WAM
Brand	11	32	95	25	19	2.95
Quality	28	75	62	17	0	3.63
Quantity	5	35	106	31	5	3.02
Price	13	67	96	6	0	3.48
Offers	0	0	88	61	33	2.30
Substitute Product	15	25	124	18	0	3.20
Note : Strong Agree=5 , Agree=4, Indifferent=3, Disagree=2 and Strong Disagree=1						

It was seen that during the survey 91 % (182) people are aware about bio fertilizer as compare to this adoption of the bio fertilizer is 41%(74) Only. For that Researcher ask that question to the farmers that which factor is more affected during purchasing bio fertilizer. the factors were shown in the above table.

It was observed during the survey that the major factor that can affect during purchasing bio fertilizer is that quality and the factors that can followed by Price, Substitute Product, Quantity, Brand and Offers.

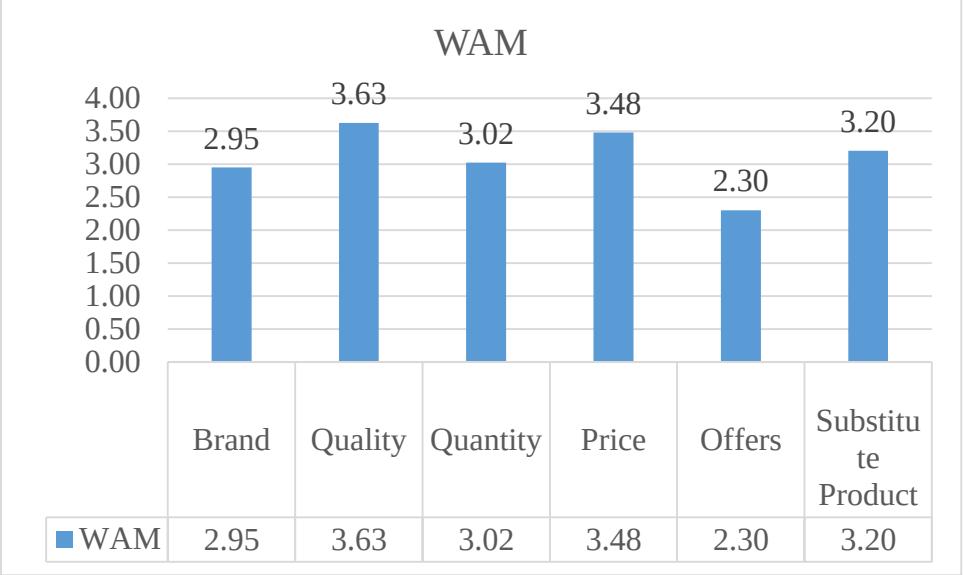


Figure 4.19 Factor Affecting Purchasing Bio Fertilizer

4.11 DOES PROMOTIONAL ACTIVITY AFFECT PURCHASE?

Table 4.20: Does Promotional Activity Affect Purchase?

Response	Frequency	Percentage (%)
Yes	188	94
No	12	6
Total	200	100

According to survey Vyara Taluka of Tapi District of Gujarat researcher found that Out of total sample size of 200 Farmers, the result shows that 94% (188) of the farmers said that the promotional activity affect to purchase bio fertilizer and 6% (12) said no.

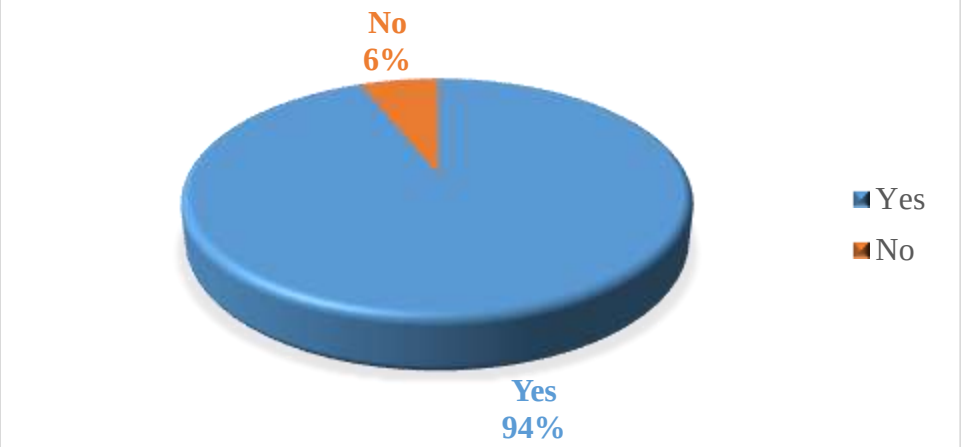


Figure 4.20: Does Promotional Activity Affect Purchase?

4.12 WHICH TOOL DO YOU FEEL IS BEST SUITABLE TO COMMUNICATE THE VARIOUS PROMOTIONAL STRATEGY?

Table 4.21 Tools Which Best Suitable for Promotional Strategy

Promotional Strategy	Frequency	Percentage (%)
Field Demostration	79	39
Farmers Meeting	39	19
Radio	5	2
Tv	2	1
Newspapers	7	4
Hoarding	53	27
Others	15	8
Total	200	100

According to survey, Out of 200 Farmers best suitable promotional strategy was field demonstration 39% (79) followed by farmers meetings 19%(39) , Radio 2%(5),TV 1%(2),Newspapers 4%(7),Hoardings 27%(53) and others 8%(15)

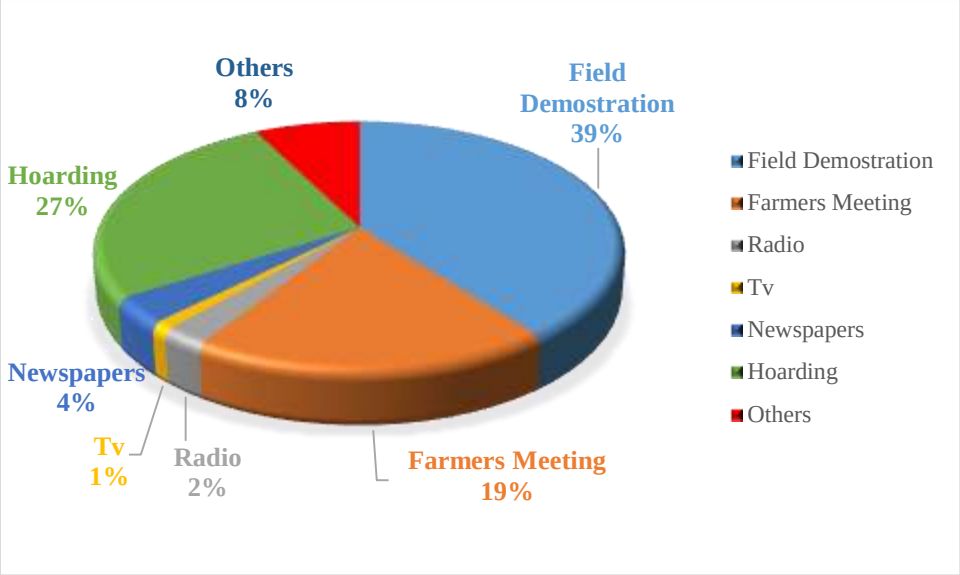


Figure 4.21 Tools Which Best Suitable For Promotional Strategy

4.13 DO YOU AWARE ABOUT "MAGIC GRO SUPER" PRODUCT OF THE COMPANY?

Table 4.22 Do you Aware about "Magic Gro Super" Product of the Company?

Aware	Frequency	Percentage(%)
Yes	22	12
No	160	88
Total	182	100

During survey It was found that out of 200 farmers 91% (182) farmers were aware about bio fertilizer among them 12%(22) farmers were aware about the Magic Gro Super company product and 88%(160) were not aware in the study area.

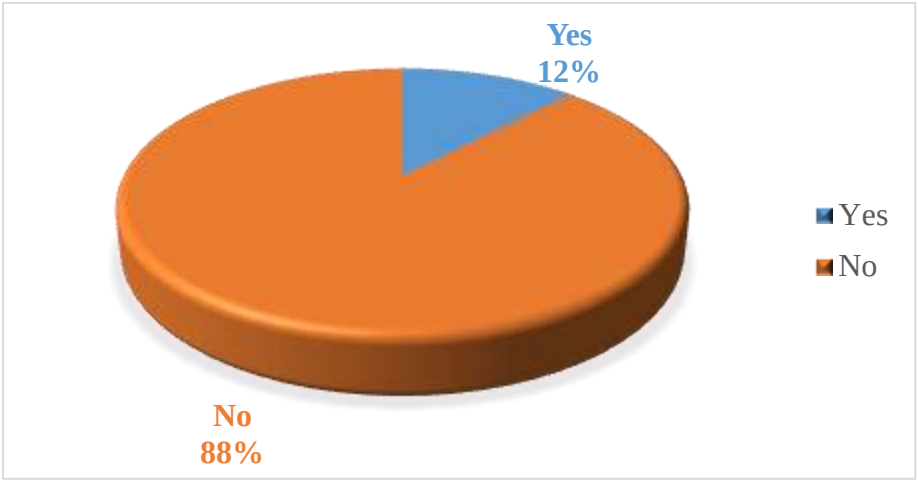


Figure 4.22 Do you Aware about "Magic Gro Super" Product of the Company?

4.14 DO YOU PURCHASE "MAGIC GRO SUPER" PRODUCT OF THE COMPANY?

Table 4.23 Do you Purchase "Magic Gro Super" Product of the Company?

Purchasing Magic Gro	Frequency	Percentage (%)
Yes	6	27
No	16	73
Total	22	100

According to survey out of 200 farmers 91%(182) farmers were aware about bio fertilizer among them 12%(22) farmers were aware about the Magic Gro Super company product in that 27% (6) were purchase and 73% (16) were not purchase.

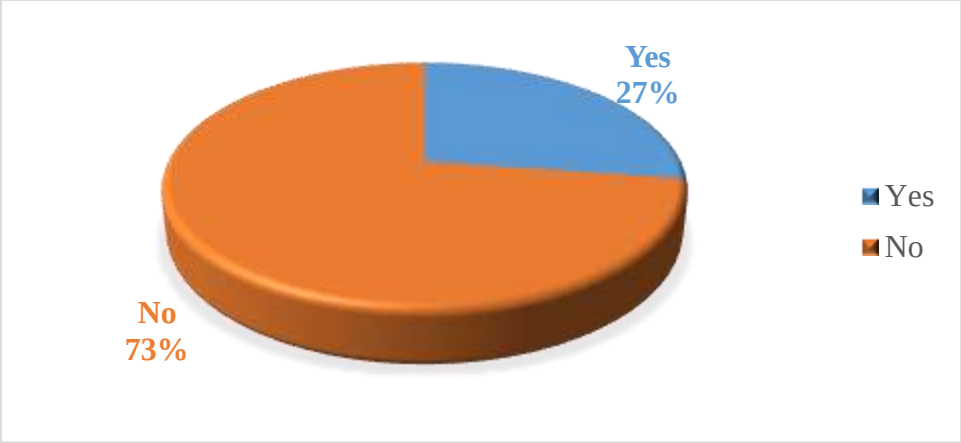


Figure 4.23 Do you Purchase "Magic Gro Super" Product of the Company

4.15 REASONS FOR USING CHEMICAL FERTILIZER

Table 4.24 Reasons for Using Chemical Fertilizer

Factor affecting purchasing chemical fertilizer	Strong Agree	Agree	Indifferent	Disagree	Strong Disagree	WAM
Lower Price	47	24	87	20	14	3.36
Increase yield	59	47	76	10	0	3.81
Easily Avaliable	31	22	118	14	7	3.29
Quantity	21	34	47	36	54	2.65
Easily applicable	14	37	68	32	41	2.74
Note : Strong Agree=5 , Agree=4, Indifferent=3, Disagree=2 and Strong Disagree=1						

It was observed during the survey that farmers are more using the chemical fertilizer, out of 200 farmers 63% (126) farmers are using chemical fertilizer and other farmers also used chemical fertilizer and organic both .it was seen during the survey that farmers were more reliable on the chemical fertilizer. For that Researcher ask that question to the farmers that factor affecting purchasing chemical fertilizer .factors were shown in the above table.

It was seen during the survey that the major factor that can affect during purchasing bio fertilizer is that Increase yield and another factors that can followed by Lower Price, Easily Available, Easily applicable, and Quantity.

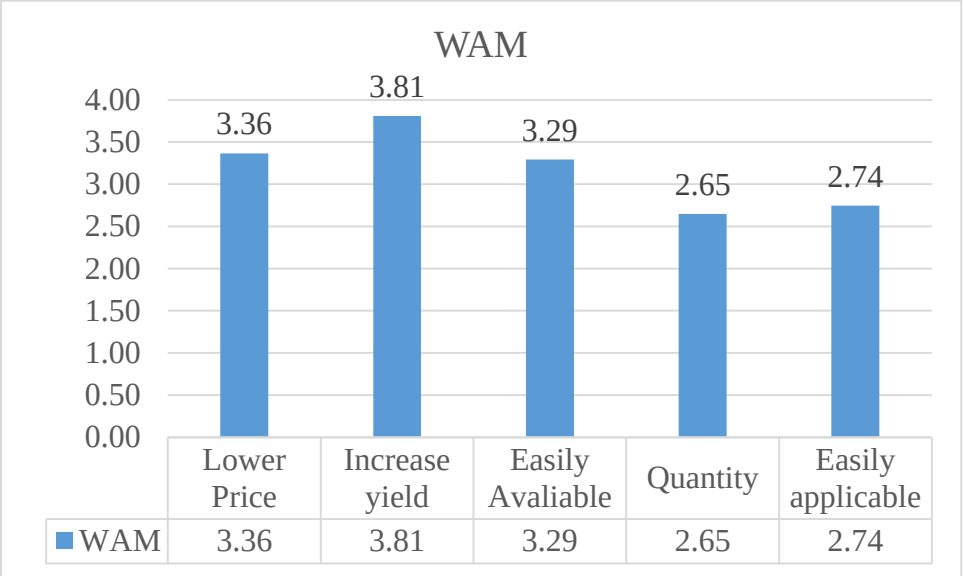


Figure 4.24 Reasons for Using Chemical Fertilizer

4.16 MARKET POTENTIAL

Table 4.25: Market potential

Total area under cultivation of Okra	**10980 ha.**
Per ha. Recommended Dose	0.666 liter
Per ha. Recommended Dose Price	Rs. 1998
Potential sales (Rs)	14610735
Source : **District Industrial Potentiality Survey Report of Tapi District 2016-17**	

Market Potential

= Total area under cultivation of Okra * Per ha. Recommended Dose* Per ha. Recommended Dose Price

= 10980 * 0.666 * 1998

=1,46,10, 735 Rs.

The table shows that in Vyara taluka of Tapi district, Total area under cultivation of okra is around 10980 ha. Recommended doses as per Organica bio tech Pvt. Ltd. is 0.666 liter and for it price is Rs. 1998. Market potential of Magic Gro Super in the study area was analyzed was valued around Rs. 1.46 crores annually. The market potential seems good and if company keeps progressing at a good rate, it may realize larger returns in the study area.

4.16 COMPETITOR'S ANALYSIS FOR MAGIC GRO SUPER.

Magic Gro Super products price comparison with Top competitors of Bio fertilizer in study area.

Table 4.25: Competitor's Analysis for Magic Gro Super.

Company Name	Brand Name	Dose	Net Weight	Price
Biostadt India Limited	Biozyme Vegetables Granules	20-40 kg/Hectare	8 kg	Rs. 465/-
Biostadt India Limited	Biozyme Power+Granules	15 kg/Hectare	6 kg	Rs. 450/-
Biostadt India Limited	Rejoice	500gm/Hectare	200 gm	Rs. 490/-
Sumitomo Chemical India Pvt Ltd	ProGibb (Powder)	-	5 gm	Rs. 370/-
Bayer Crop Science Limited	Planofix (Liquid)	7 ml/15 litre water	100 ml	Rs. 95.50/-
Dow Agroscience India Pvt Ltd	Humicil (Liquid)	1 litre/Acre	1 Litre	Rs. 850/-
Arise Agro Limited	Agronaa (Liquid)	100 ml/200 litre	1 litre	Rs. 483/-
Organica Biotech Pvt. Ltd	Acetobacter, Nitrobacter, Nitrosomonas Lactobasiliusspp. , Arthrobacter Magic Gro Super	250 gm per acre	250 gm	Rs. 750/-

The table shows top companies dealing in Bio fertilizer . The main competitors in the region were Biostadt India Limited, Sumitomo Chemical India Pvt Ltd, Dow Agroscience, and Arise Agro Limited. For Plant Growth Regulator, Biostadt Company had more no. of products as compared to other company in the study area.

During survey It was seen that Out of 200 farmers 91%(182) were aware about bio fertilizer among them 41% (74) purchase bio fertilizer .According to survey among 41% (74) farmers, 31% (23) farmers says that they were purchased Biostadt, followed by Krishi Rasayan 15% (11) , Bayer Crop Science Limited 15% (11), Sumitomo

Chemical India Pvt Ltd 12 % (9), Dow Agroscience India Pvt Ltd 9% (7), Arise Agro Limited 7% (5),GSFC 4% (3), KRIBHCO 4% (3) and 3% (2) farmers were purchased GNFC.

Above table shows the price comparison and net weight packet size in bio fertilizer products along with with competitor brands. Here it is quite evident that Magic Gro Super is priced higher than all competitor brand but just because of less awareness about the Magic Gro is experiencing less sales. It is also important to mention that the Magic-gro Super comes with a blend of five bacterial bio-fertilizer strains that gives it much effectiveness than the competitor products.

5. SUMMARY AND CONCLUSION

The market survey for bio fertilizer was carried out for the Organica Biotech Pvt. Ltd. for the Vyara taluka of Tapi district.

The major objective of the survey was to study the levels of awareness for bio fertilizers, Competitor analysis, Market potential and factor affecting purchasing biofertilzer, and identify which promotional strategy suitable for bio fertilizer in Vyara taluka of Tapi district.

The survey was carried out over a period of four months. It was confined to Vyara taluka of Tapi district. 200 farmers were selected as per convenience for the sample study.

The sampling method used was a Purposive sampling technique. The survey used both personal interview as well as schedule method to cover the sample size of two hundred. The second half of the survey involved analysis of the findings. The survey revealed that Organica Biotech Pvt. Ltd. poised for a growth in the coming years and it is definitely an area where this company should enter.

This study was conducted for Organica Biotech Pvt. Ltd.. On "**A Study on Market Potential and Farmers' Purchasing Behaviour towards 'Magic Gro Super' for Okra in Vyara Taluka of Tapi District of Gujarat"**, with the following specific objectives,

- To study the awareness about the bio fertilizers among farmers
- To study the factors affecting the purchasing of biofertlizers by farmers
- To find out the competitor Analysis of the Magic Gro Super
- To find out the Market Potential of the Magic Gro Super
- To find out the promotional strategies for concept selling product Magic Gro Super

5.1 MAJOR FINDING

It was seen during the survey that the total land holding is even or distributed equally. Bio fertilizers were mostly used by the farmers. Although these farmers do not use it on whole area but used it on limited area and mostly on fruit crops and vegetables. According to survey In Vyara Taluka of Tapi District of Gujarat researcher found that farmers were divided in to classes as per his Land Holding out of 200 farmers among them 34 % (68) having Less than 1 hectare followed by 46% (92) have 1-2 hectare 19%(39) 2-4 hectare and 1% (1) have 4-10 hectare.

During survey It was found during the survey that the most of farmers that were using chemical fertilizer and some of farmers were using both chemical and organic. There is a less use of oraganic fertilizer. Out of 200 farmers among them 63 % (126) were used chemical fertilizer followed by 33% (66) were used both chemical and organic and 4%(8) only used organic fertilizer.

According to survey researcher According to the survey Out of 200 farmers 91% (182) were aware about bio fertilizer. Out of 182 farmers, 47% (86) farmers were came to know from dealer, followed by 23% (42) through Pamphlet/poster,13%(24) through Fellow Farmer, 12%(22) through Field Demonstrations, 4%(6) through Newspapers and 1% (2) through Radio/TV Advertisements.

It was found that farmers were highly aware about the bio fertilizer. out of 200 farmers 91 % (182) farmers were aware about the bio fertilizer and 9% (18) farmers were not aware about the bio fertilizer.

It was observed that adoption of biofertlizer bio fertilizer in farmers is very much less. Out of 200 farmers 91% (182) farmers were about bio fertilizer among them 41 % (74) were purchased bio fertilizer and 59% (108) were not purchased bio fertilizer.

During survey It was seen that Out of 200 farmers 91%(182) were aware about bio fertilizer among them 59% (74) purchase bio fertilizer. According to survey among 41% (74) farmers, 31% (23) farmers says that they were purchased Biostadt, followed by Krishi Rasayan 15% (11) , Bayer Crop Science Limited 15% (11), Sumitomo Chemical India Pvt

Ltd 12 % (9), Dow Agroscience India Pvt Ltd 9% (7), Arise Agro Limited 7% (5),GSFC 4% (3), KRIBHCO 4% (3) and 3% (2) farmers were purchased GNFC.

Farmers were asked to give reason regarding the purchasing particular company product.in that for company Bayer, major factor to be consider were Good Quality and Increase yield, for company Sumitomo major factor to be consider were Good Quality and Lower Price, for company Biostadt major factor to be consider were Quantity and Lower Price, for company Dow Agro Science major factor to be consider were Easily available and Increase yield and for company Arise Agro science major factor to be consider were Increase yield and Lower Price.

It was seen that during the survey 91 % (182) people are aware about bio fertilizer as compare to this adoption of the bio fertilizer is 41% (74) Only. For that Researcher ask that question to the farmers that which factor is more affected during purchasing bio fertilizer. the factors were shown in the above table. It was observed during the survey that the major factor that can affect during purchasing bio fertilizer is that quality and the another factors that can followed by Price, Substitute Product Quantity, Brand and Offers.

According to survey In Vyara Taluka of Tapi District of Gujarat researcher found that Out of total sample size of 200 Farmers, the result shows that 94% (188) of the farmers said that the promotional activity affect to purchase bio fertilizer and 6% (12) said no.

During to survey, Out of 200 Farmers best suitable promotional strategy was field demonstration 39% (79) followed by farmers meetings 19%(39) , Radio 2%(5),TV 1%(2),Newspapers 4%(7),Hoardings 27%(53) and others 8%(15)

It was observed during the survey that farmers are more using the chemical fertilizer, out of 200 farmers 63% (126) farmers are using chemical fertilizer fertilizer and other farmers also used chemical fertilizer and organic both .it was seen during the survey that farmers were more reliable on the chemical fertilizer. For that Researcher ask that question to the farmers that factor affecting purchasing chemical fertilizer. It was seen during the survey that the major factor that can affect during purchasing bio fertilizer is that Increase yield and another factors that can followed by Lower Price, Easily Avaliable, Easily applicable, and Quantity.

In Vyara taluka of Tapi district, Total area under cultivation of okra is around 10980 ha. Recommended doses as per Organica bio tech Pvt. Ltd. is 0.666 liter and for it price is Rs. 1998. Market potential of Magic Gro Super in the study area was analyzed was valued around Rs. 1.46 crores annually. The market potential seems good and if company keeps progressing at a good rate, it may realize larger returns in the study area.

5.2 MINOR FINDING

According to survey Vyara Taluka of Tapi District of Gujarat researcher found that Out of total sample size of 200 farmers, the result shows that 27% (55) of the farmers comes under age group of 20 to 30 years and 45% (90) farmers were from age group of 31 to 40 years 23% (46) farmers were in the age group of 41 to 50 years and Only 5% (9) farmers were of the age of above 50 years.

During the survey, researcher found that out of 200 farmers, 97% (195) farmers were male and 3% (5) Female.

According to survey Vyara Taluka of Tapi District of Gujarat researcher found that Educational background of the farmers varies from primary to post graduation. Out of total, 61% (123) farmers were primary and 22% (43) were Secondary,14% (28) farmers were having education till diploma & Graduation and 3% (6) farmers, who have studied till Post graduation.

It was found during the survey that the main source of irrigation is river. Out of 200 farmers among them 64 % (127) have irrigate his land through River, followed by 18% (37) through well, 16%(33) through tube well and 2% (3) through canal.

During survey researcher found that farmer were grown various variety of okra. Out of 200 farmers, 33% (66) were grown samrat variety, while 29% (58) were grown taj variety and 14% (28) were grown UPL company product, 16%(32) were grown Sartaj and Only 8% (16) farmers were grown shakti.

During the survey, It was seen that only 59% (108) of the surveyed farmers were not purchasing bio fertilizers. Farmers responded in various ways to this question such as they don't know method of application, don't know method of application, higher Price, etc. It

was observed during the survey that the major factor for not purchasing bio fertilizer is that the price of the bio fertilizer is higher and followed by several applications needed, don't know method of application, Less product reliability and Slow Effect.

Out of 200 farmers 91 %(182) farmers aware about bio fertilizer among them 41% (74) purchasing the bio fertilizer. In that 34 %(25) farmers purchase for the minimize chemical fertilizer use, followed by 30% (22) Enhancement in soil health fertility, 23% (17) Better quality yield and 13% (10) Faster growth of plants.

During survey It was found that out of 200 farmers 91% (182) farmers were aware about bio fertilizer among them 12%(22) farmers were aware about the Magic Gro Super company product and 88%(160) were not aware in the study area.

According to survey out of 200 farmers 91% (182) farmers were aware about bio fertilizer among them 12%(22) farmers aware about the Magic Gro Super company product in that 27% (6) were purchased and 73% (16) were not purchased.

5.3 OBJECTIVE ANALYSIS

5.3.1 To Study the Awareness about the Bio Fertilizers among Farmers

From the survey studies it was revealed that farmers were highly aware about the bio fertilizer. After interviewing 200 farmers, it was noticed that among them 91 % (182) farmers were aware about the bio fertilizer and 9% (18) were not aware about the bio fertilizer.

5.3.2 To Study the Factors affecting the Purchasing of Bio Fertilizers by Farmers

It came to obsevation during the survey that 91 %(182) people are aware about bio fertilizer whereas the adoption/usage of the bio fertilizer is 41%(74) Only.. It also was observed during the survey that the major factors that can affect during purchasing of bio fertilizer is the quality, followed by price, substitute product, quantity, brand and offers.

5.3.3 To Find Out the Competitor Analysis of the Magic Gro Super

During the survey studies it was seen that out of 200 farmers 91%(182) were aware about bio fertilizer among them 41% (74) actually purchased the bio fertilizer . Further, among the 41% (74) farmers, 31% (23) farmers says that they were purchased Biostadt, followed by Krishi Rasayan 15% (11) , Bayer Crop Science Limited 15% (11), Sumitomo Chemical India Pvt Ltd 12 % (9), Dow Agroscience India Pvt Ltd 9% (7), Arise Agro Limited 7% (5),GSFC 4% (3), KRIBHCO 4% (3) and 3% (2) purchased GNFC product.

5.3.4 To Find Out the Market Potential of the Magic Gro Super

Presently, the scenario is that most of farmers prefer to use chemical fertilizer due to higher yield and for better results. In Vyara taluka of Tapi district, Total area under cultivation of okra is around 10980 ha. Recommended doses as per Organica bio tech Pvt. Ltd. is 0.666 liter and for it price is Rs. 1998. Market potential of Magic Gro Super in the study area was analyzed was valued around Rs. 1.46 crores annually. The market potential seems good and if company keeps progressing at a good rate, it may realize larger returns in the study area.

5.3.5 To Find Out the Promotional Strategies for Concept Selling Product Magic Gro Super

During the survey, Out of 200 Farmers 94% (188) said that the promotional activity affect to purchase bio fertilizer among them, 39% (79) respondents found best suitable promotional strategy as field demonstration followed by farmers meetings 19%(39) , Radio 2%(5), TV 1%(2), Newspapers 4%(7), Hoardings 27%(53) and others 8%(15)

5.4 CONCLUSION

From the study, it could be concluded that farmers in the study area possess awareness about the bio fertilizer but the farmers were reluctant to use the product citing price, application knowledge, less product reliabilty as the reasons for the not using the bio-fertilizers product. So comapany needs a different marketing approach than chemical fertilizers. At the time of purchase the farmers consider quality, price, substitute product, quantity and brand as major factors while purchasing bio fertilizer. So the company needs to consider these factors regarding biofertilizer while framing the marketing strategies for the biofertlizer product. Organica Biotech Pvt Ltd. Finds major competitor for its bio fertilizer in study area named as 'Biostadt' , other market players existing in the area were Krishi Rasayan, Bayer Crop Science Limited, Sumitomo Chemical India Pvt Ltd, KRIBHCO, Dow Agroscience India Pvt Ltd, Arise Agro Limited, GSFC and GNFC. Field demonstration is by far the most effective promotional strategy for the product as it gives the farmers a first hand experience of the product, its application method, dosage etc. Market communications related to the product can best be communicated by farmer meetings, radio, TV, newspaper, hoardings (as per farmers response). Company has a decent annual market potential worth 1.46 crores for the okra crop in the area that gives clear indication of better business opportunities for the company and its product.

5.5 SUGGESTIONS

- It was found that most of the farmers in the study area get influenced by Dealers suggestions. So the company should build a trustworthy relations with dealer.
- According to primary data it was found that farmers mostly considered parameters like Quality, price and substitute product while purchasing bio fertilizer. So, the company should concentrate on quality and price as per the farmers requirement for getting major benefits from the market.
- According to survey,company should focus on the conduct of field demostration and farmers meeting regular basis.
- As farmers are unaware about the bio fertilisers the organization should firstly concentrate on advertisement of product and explain the farmers about the advantage of bio fertilisers.
- Special campaign need to be driven for the promotion. Few demos should be given to farmers at farms.
- Due to the high price the low income class farmers are avoiding the purchase of product hence the price of product should be reduced.

REFERENCES

- Anonymous (1986). "Biofertilizers in Indian Agriculture", A Book, FAI publication, Pp. 27-59.
- Anonymous (1994). "Demand of Fertilizer and Marketing", A Book, FAI publication, Pp. 25-50.
- Anonymous (2016). Distirct Industrial Potentiality Survey Report of Tapi District 2016-17, MSME- Development Institute Government Of India
- Amit Babanrao Kanade (2000), Marketing Of Plantozyme Liquid Biofertilizer In Pune District, Department of Agricultural Economics, Mahatma Phule Krishi Vidyapeeth, Rahuri
- Berad, S.M. (1996). "Use of liquid fertilizer through drip irrigation to Banana", M.Sc. (Ago.) thesis, MPKV, Rahun. Pp. 20-30.
- Boxer, P.J. and J.R.C. Wensely (1986). “The need for middle-out development of Marketing Strategy”, *Journal of Management Studies*, Vol.23, pp. 189-204
- Ghosh, P.K. and Naik, P.R. (1999). "Effect of Biozyme on fertilizer use efficiency", Fertilizer news, Vol. 44(7), Pp. 53-54.
- Jaykumar Patel (2012). Market potential and marketing strategies for organic pesticides for vegetables crop in Navsari and Valsad Districts. Unpublished report, Dhirubhai Ambani Institute of Informtion and Communication Technology.
- Kute, S.B. and Patil, B.J. (1994). "Production technology and marketing of BF by GSFC", Fertilizer News. Vol. 39(4), Pp. 59-62.
- Lalit Kumar Verma (2013). Market share and market potential of Bio-fertilizerin Jabalpur district of Madhya Pradesh with reference to M.P. Vindhya Jaivik & Herbal Development Foundation, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur,Madya Pradesh
- Magar, B.N. (1987). "Constraints in Fertilizer use for Principal Crops in Selected Region of Western Maharashtra", M.Sc. (Agri.) thesis, MPKV, Rahun. Pp. 20-30,57

- N. Suman Kumar and D.V. Rao (2012). Competitors' analysis of water purifiers: An empirical study with reference to Pure-It (Hindustan Unilever Ltd.) at Warangal-Andhra Pradesh. *International Journal of Marketing, Financial Services & Management Research*, Volume 1, Issue 8.
- Parthasarathy and Sinha. (1986). "Green revolution and weaker section," Book by Ignatieff, FAO (Rome). Pp. 20-45.
- Ramaswami, V.S. (1988). "A study of the marketing of Biofertilizers in India", A Book. Madras Hope Press Publication. Pp. 15-18.
- Reddy and Raju (1999). Rural consumer behaviour for seeds, Journal of Agricultural Marketing, 29(7-10): 14-23.
- Sen, B. (1981). "Some aspects of fertilizer use by small farmers, a review." Fertilizer News. 26(12) : 13-30.
- Singh, (1983). " Identification of factors influencing fertilizer consumption in India", Fertilizer News. Vol. 28 (4), Pp. 69-71.
- Subba Rao. (1992). "Biofertilizers in Agriculture". A Book. Oxford and IBH publishing Co. Pvt. Ltd. Pp. 42-60.
- Sivakumar (1994). Buying behaviour of farmers with reference to pesiticides; *Journal of Agricultural Marketing*, 8(1): 127-133.
- Sri Sankari (1991). A study of demand for pesticides at farm level for cotton, Unpublished M.Sc. (Agri),Thesis, Department of Agricultural Economics, Tamilnadu Agricultural University, Coimbatore
- Tilak, K.V.B.R. and Geta singh. (1994). "BF, Research gaps and futureNeeds". Fertilizer News, Vol. 39(4). Pp. 11-17.

Web References

- www.nhb.com (accessed on 15th April 2017)
- www.organicabiotech.com (accessed on 15th April 2017)
- www.bayercropscience.com (accessed on 6th may 2017)
- www.agritech.tnau.ac.in (accessed on 6th may 2017)
- www.indiastat.com (Accessed on 11 May 2017)

- www.agrilife.in (Accessed on 13 May 2017)
- www.ageconsearch.umn.edu (Accessed on 15 May 2017)
- www.agriexchange.apeda.gov.in (Accessed on 15 May 2017)
- www.agridr.in (Accessed on 17 May 2017)
- www.faostat.fao.org (Accessed on 18 May 2017)

ANNEXURE

Name	
Education	☐ Primary ☐ Secondary ☐ Diploma and Graduation ☐ Post-Graduation
Age	☐ 20-30 ☐ 31-40 ☐ 41-50 ☐ Above 50
Sex-	☐ Male ☐ Female
Village:	
Land Holding	
Source of Irrigation:	☐ Tube well ☐ Well ☐ Canal ☐ Through River
Variety of Okra:	
Mobile Number:	

2. Type(s) of chemical fertilizers which is mostly used in okra?

☐ Organic ☐ Chemical ☐ Both

3. Do you aware about bio fertilizers?

☐ Yes ☐ No

If YES, continue with Q. No. 4

If NO, continue with Q. No. 5

4. Have you purchased any bio-fertilizer?

☐ Yes ☐ No

If YES, continue with Q. No. 6

5. If No, reasons for not purchasing the bio-fertilizer?

Scale / Factors	Strong Agree	Agree	Indifferent	Disagree	Strong Disagree
Less product reliability					
Slow Effect					
higher Price					
Several applications needed					
Don't know method of application					

6. Why do you purchase bio-fertilizers? (Tick the response)

1	Faster growth of plants.	
2	Enhancement in soil health fertility	
3	Better quality yield	
4	To minimize chemical fertilizer use	

7. How did you come to know about the bio-fertilizers?

1	Dealer	
2	Fellow Farmer	
3	Pamphlet/poster	

4	**Field Demonstrations**	
5	**Radio/TV Advertisements**	
6	**Newspapers**	

8. Which company bio-fertilizers do you used ?

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9. Reason for purchasing below company product?

Scale / Factors	**Biostadt India Pvt Ltd**	**Sumitomo Chemical India Pvt Ltd**	**Bayer Crop Science Limited**	**Dow Agroscience India Pvt Ltd**	**Arise Agro Limited**
Lower Price					
Increase yield					
Easily available					
Quantity					
Good Quality					

10. Attitude of farmers towards purchasing bio fertilizers on different factors?

Scale / Factors	Strong Agree	Agree	Indifferent	Disagree	Strong Disagree
Brand					
Quality					
Quantity					
Price					
Offers					
Availability					
Availability of substitute products					

11) Does promotional activity affect purchase?

a) YES ☐ b) NO ☐

12) Which tool do you feel is best suitable to communicate the various promotional strategy? (Tick the response)

Field Demostration		**Farmers Meeting**	
Radio		**Tv**	
Newspapers		**Hoarding**	
Others			

13) Do you aware about "Magic Gro Super" product of the company?

☐ YES ☐ NO

14) Do you purchase "Magic Gro Super" product of the company?

☐ YES ☐ NO

15). Reason for using chemical Fertilizer?

Scale / Factors	Strong Agree	Agree	Indifferent	Disagree	Strong Disagree
Lower Price					
Increase yield					
Easily Avaliable					
Quantity					
Easily applicable					

16. Any Suggestions?
