

**MAPPING OF RASI SEEDS' FIELD CROP BUSINESS
OPPORTUNITY IN BANASKANTHA DISTRICT OF
GUJARAT AND JALORE DISTRICT OF RAJASTHAN**

A PROJECT REPORT

Submitted by

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**Mapping of Rasi Seeds' Field Crop Business Opportunity in
Banaskantha district of Gujarat and Jalore district of Rajasthan**

ABSTRACT

Good quality seed is the most basic and essential input for sustainable agriculture. Other inputs are contingent upon quality of seed for being optimally effective. The Indian seed industry has played a very critical role in the growth of Indian agriculture. Agriculture in India is backed by a strong seed improvement programme involving both the public and private sectors. The response of all other inputs depend on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15 – 20 percent depending upon the crop and it can be further raised up with efficient management of other inputs.

The study entitled “ **Market mapping of Rasi seeds' field crop business opportunity in Banaskantha district of Gujarat and Jalore district of Rajasthan**” with six objectives ; Determine market size and share of major seed companies for mustard, pearl millet & wheat , Know the perception of farmers and retailers toward the products of various seed companies , Study factors affecting buying behavior of dealers and farmers toward Rasi pearl millet and mustard seeds , Conduct competitor analysis , Study Rasi channel preparedness for field crops, channel gap and strength, Formulate a mid-term plan in a phased manner and effective sales strategies for Banaskantha & Jalore district, were proposed and executed.

The study was conducted in 14 blocks of Banaskantha district of Gujarat & 7 blocks of Jalore district of Rajasthan, where 470 farmer samples of mustard, bajra & wheat along with 190 dealers of study region were reviewed. The secondary data were collected from each district's revenue offices and agricultural offices in the study area.

Market size for the Mustard crop in Banaskantha district was 260 MT and Jalore District 145 MT. In case of wheat crop, it was 850 MT in Banaskantha district whereas in Jalore district, it was 613 MT. Market size for Bajra crop in Banaskantha district was 1720 MT and Jalore district, it was 805 MT.

Major Market share was identified for company PHI 155 MT, Proagro 60 MT, Rasi 0.8 MT in Mustard Crop in Banaskantha and Jalore District. In case of Bajra, the major companies were PHI 1000 MT, Pro-agro 540 MT, Rasi 2.7 MT in Banaskantha and Jalore District and for Wheat crop, Shri Ram – 280 MT, Kaveri seeds – 105 MT were holding maximum share in Banaskantha and Jalore District. From the study, it was concluded that the market share of Rasi Seeds in the study area was found to be 0.21 percent and 0.11 percent in mustard and bajra crop respectively. Rasi seeds hold a very less market share in mustard and Bajra, while almost zero market share for wheat. There was a clear indication that PHI, Pro-agro were market leader for mustard and bajra crop and Shriram and Kaveri companies were market leader for wheat crop in the study area. There were also State Seeds Corporation that captured a major size in wheat market.

As per farmers response, PHI, Pro-agro and Dhanya were the three-best companies in seed input sectors in study area. Market availability for Rasi seed product in the studied area was found less. There were 10 Blocks out of 21 blocks where Rasi seed distributors were Present. There were two project officer and one field assistant with one Territory manager present in both districts. Company can increase number of distributors and project officers in study region to tapped uncovered market. Company can also increase advertise campaign during the sowing season like distribution of carry bags with seed packets, card, templates, banner/posters/literature, wall painting, gifts to dealers, kitchen, calendar and demo product.

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CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Vadukiya Shrey Pravin Bhai** (Reg.No: 04-3309-2017) pursuing MBA in Agribusiness Management from International Agribusiness Management Institute, Anand Agricultural University, Anand has successfully completed project internship with Rasi Seeds (P) Ltd. on the Project entitled "**Mapping of Rasi Seeds' Field Crop Business Opportunity in Banaskantha district of Gujarat and Jalore district of Rajasthan**" under the guidance and supervision of **Mr.Sanjay Singh, Divisional Business Manager, Rasi Seeds (P) Ltd.** during the period from **January 21, 2019 to April 20, 2019**. During his tenure his overall conduct was good.

We wish him all the best in his future endeavours

Best Wishes,

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CERTIFICATE

This is to certify that the project entitled “**Mapping of Rasi seeds’ field crop business opportunity in Banaskantha district of Gujarat and Jalore district of Rajasthan**” of M.B.A. (Agribusiness Management) embodies bonafide research work carried out by **MR. VADUKIYA SHREY PRAVINBHAI (Reg.No.:04-3309-2017)** under my 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 declare that the project entitled **“MAPPING OF RASI SEED’S FIELD CROP BUSINESS OPPORTUNITY IN BANASKNATHA DISTRICT OF GUJARAT AND JALORE DISTRICT OF RAJSTHAN”** submitted for the M.B.A. (Agribusiness Management) degree is my original work and this has not formed the basis for the award of any degree, association or other similar titles.

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I would also like to thanks my fellow interns for always motivating and supporting me throughout the tenure of internship. Last but not the least, all the people who have helped me directly or indirectly and whose name could not find a separate place, due to my naivety are duly acknowledged.

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LIST OF ABBREVIATIONS

Cm	Centimeter
Kg	Kilogram
E.g.	Example
FAO	Food and Agricultural Organization
N.A.	Not available
Ha	Hectare
i.e.	That is
Ltd	Limited
Phi	Pioneer
Mt	Million Tonne
MT	Metric Tonne
USDA	United States Department of Agriculture
MBA	Masters of Business Administration
US	United States
ICAR	Indian council agricultural research
R & D	Research and Development
Etc.	Et cetera
Min	Minimum
TM	Territory manager
PO	Project officer
Max	Maximum
Avg	Average
Mm	Millimeter

1.INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The Indian seed industry over the years has evolved by adopting and innovating upon scientific advancements in variety development and quality seed production. The hybrid seed market has grown at a fast rate over the period which is due to the increased usage of hybrid seeds across the country due to the pressure of the rising demand for agricultural food products together with the massive losses suffered by crop diseases and pest attacks throughout the country. In the present seed market scenario, the marketing channels followed by the seed companies play a crucial role because of the presence of a large number of small and large players in the field and most of them possessing more or less the same product range.

Agriculture is the most important sector of the Indian economy from the perspective of poverty alleviation and employment generation about half of our population still reliant on agriculture. Most of their incomes we cannot expect inclusive growth if we do not revitalize our agriculture. India's comparative advantage in agriculture does not lie in land intensive crops but in labour intensive high-value crops like fruits, vegetables, and organically produced cereals. The process of modernizing agriculture primarily involves intensive use of non-conventional inputs, such as quality seeds, chemical fertilizers, pesticides, weedicides, irrigation, farm machinery, etc.

The seed is the trigger point which sets into motion the process of technological change. The returns to investment depend significantly on the quality of seeds that are used in the production of crops. Without the better quality of seed, the investment on fertilizer, water, pesticides, and other inputs does not pay the dividends. The increasing demand for quality seeds saw mushrooming of indigenous seed companies in India. The seed market in the country is an ever-changing and dynamic environment with varying and unpredictable climatic conditions, changes are seen in the market from time to time. The fate of the seed business entirely depends on the availability of the right product at the right place and in the right quantity.

The population is increasing day by day and to feed the ever-growing population we have to increase the horizontal as well as vertical expansion of agriculture, But the productivity in agricultural land is gradually diminishing during the last four decades. To increase the productivity question of quality seed is came, but in most of the developing countries this basic input gets minimum attention to the farmer and the farmer uses farm-saved seeds, without knowing the potentiality of repeated use and systems of conservation; besides this it contributes only a small part of the total cost of cultivation. On the other hand, only high-quality seeds of assured genetic purity can be expected to respond fully to all other inputs. The recommended/notified and released improved varieties of seeds must be available to the farmers well in time in sufficient quantity, so that the planting schedule is not disturbed. The cost of such high-quality seed should moreover be within the reach of the average farmer.

Therefore, seed production and marketing is a vital activity controlling the supply and price of seeds for the enhancement of production and productivity. After the liberalization in the new policy on seed development (1988) the private company has already been entered in the Indian seed industry, but they usually engaged in production and distribution of low volume seeds for horticultural crops. Due to lack of short duration quality seeds of field crops, it is difficult to adjust the cropping pattern to accommodate the seasonal horticultural crops. Therefore, seed production and marketing are a vital part of any development program in the seed industry. The availability of seeds of improved varieties from multiplication field is of no value if it does not reach the farmers or seed growers before sowing. On the other hand, it is not one-time affair. For sustained increase in agricultural production, it requires continuous development of new and improved varieties of seeds and an efficient system of supply to farmers with an effective marketing organization.

1.2 FIELD CROP

India with its diversified agricultural assets in terms of soil, rainfall and climate have abundant crop diversity. Owing to their several drought tolerance characteristics, their cultivation in drought-prone areas for providing food for human consumption, feed & fodder for animal and poultry, use as fuel and industrial uses are in common. During drought condition, it helps in generating employment in low rainfall areas where other

alternative crops are limited and these crops are used as a contingent crop. As an assured source of income, these coarse cereals offer a better role during distress environment.

A variety of coarse cereals are grown throughout the country in different ecology, agroclimatic condition, but mostly as a rainfed crop. Sorghum, pearl millet, maize, barley, finger millet and several small millets such as Kodo millet, little millet, foxtail millet, proso millet, and barnyard millet together called coarse cereals. Sorghum, pearl millet, finger millet, maize and small millets (barnyard millet, proso millet, Kodo millet, and foxtail millet) are also called nutri-cereals. Globally, the average production of coarse grains is estimated to be about 1130.25 million tonnes during 2007-2011 and India contributed 3.6% (40.19 million tonnes) (USDA-2017) in global production of coarse grains and India ranks 4th after the USA, China & Brazil. More than 75% of the world coarse grains are produced in USA, China, India, Russian Federation, Brazil, Nigeria, Niger, Mexico, Sudan, Ukraine, Ethiopia, Australia, Poland, Canada, Argentina, Tanzania, Spain and France (FAOSTAT 2011). In India, yield of coarse grains is about 1433 kg/ha as compared to world average yield of 3512 kg/ha. The highest productivity of 8946 kg/ha was recorded in USA.(USDA-2017)

They are used in food, fodder, fuel, value-added products and also fast food products. Coarse cereals are mainly grown in poor agro-climatic regions, particularly rainfed areas of the country in areas with high temperature and are called dryland crops because can be grown in areas with 50-100 cm rainfall and these crops are less sensitive to soil deficiencies and can be grown in an inferior alluvial or loamy soil. Currently, India holds 4th position in the world in coarse cereal production after USA, China & Brazil but the amount produced is only 3.6% of the global coarse cereal production.

1.2.1 Pearl millet

Pearl millet (Bajra) is one of the major coarse grain cereals (millets) and is considered to be a poor man's food. It is widely grown in Africa and Asia since pre-historic times and is grown in Africa where it replaced sorghum as the principle crop on sandy soils and in the dry areas. In Asia, it is an important cereal crop of India, Pakistan, China and southeastern Asia.

In India, it is the most important millet crop which flourishes well even under poor soils and adverse weather conditions. It provides staple food for the poor in a short period in the

relatively dry tracts of the country. It is the most drought-tolerant crop amongst cereals and millets. The grain of Pearl millet is superior in nutritive value than sorghum grains but inferior in feeding value. Bajra grains contain about 11.6% protein, 5% fat, 67.5% carbohydrates and about 2.3% minerals. Pearl millet (Bajra) grains are eaten cooked like rice or 'chapatis' are prepared from bajra flour like flour of maize or sorghum. Pearl millet grain is also used as feed for poultry and green or dry fodder (karbi) for cattle. Pearl millet occupies a unique position in rainy season (kharif), because of its drought hardy feature and staple food for millions of people. It also provides good quality fodder to cattle in the arid and semiarid tropical regions and recognized as valuable forage crop because of its robust and fast-growing habit. Its stalk is used for fuel and thatching.

Pearl millet is primary source of dietary energy (360 k Cal/kg) for rural population in drier parts of the country and fourth most important cereal after rice, wheat and sorghum. (Kent et al.,1994). It is a rich source of protein, calcium, phosphorous and iron. Pearl millet grain contains fairly high amount of thiamine, riboflavin and niacin. A significant portion of pearl millet grain is also used for non-food purpose such as poultry feed, cattle feed and alcohol extraction (Basavaraj et al., 2010). Pearl millet, being a C4 plant, has a very high photosynthetic efficiency and dry matter production capacity. It is usually grown under most adverse agro-climatic conditions where other crop fail to produce economic yields. In spite of this, Pearl Millet has a remarkable ability to respond to favorable environments because of its short developmental stages and capacity for higher growth rates, thus making it excellent crop in short growing season under improved crop management.

Yadav et al. (2012) reported the large number of pearl millet hybrids that have been commercialized by the private sector as truthfully labeled seed. As a consequence, pearl millet growers have a broad range of traits combinations from which to choose when seeking to meet their agronomic requirements and consumption preferences. (Yadav et al. 2012) reported that at the time of their publication, over 125 (named) hybrids and IOPVs were available for pearl millet farmers in the Indian national market. Of these, the public sector cultivars tend to be oriented toward the rainfed ecology, while the private sector aims for the more commercialized market in the irrigated environments.

India leading state is Rajasthan both area and production in terms of yield it is Haryana. Most of pearl millet in India is grown in rainy (kharif) season (June-September) but is also cultivated during summer (February-May) in Gujarat, Rajasthan and Uttar Pradesh and during post-rainy (rabi) season (November-February) at a small scale in Maharashtra and Gujarat (Mula et al., 2009). Pearl millet can be successfully utilized for the development of weaning foods, as it can satisfy the nutritional requirement of infants during the crucial transitional phase of life from breast milk to other type of food, at reasonable cost.

1.2.2 Rapeseed-Mustard

Rapeseed-Mustard is an important group of edible oilseeds in India and ranks second after soybean. India is one of the largest producers of oilseeds in the world and this sub- sector occupies an important position in the agricultural economy. The production of oilseeds was increased from 24.35 million tonnes in 2004-05 to 25.30 million tonnes in 2015-16. The yield of oilseeds, was 885 kg per hectare in 2004-05 and it was 968 kg per hectare in 2015-16.

India is one of the largest producers of rapeseed and mustard in the world. European Union (EU) is expected to be the top producer followed by China and Canada in 2015-16. India may be the fourth largest producer. India's share in global production of mustard oil in 2015-16 may be around 9.0 percent. Mustard seed is the third biggest source of vegetable oil in the world after soybean oil and palm oil. It is the second largest source of protein meal in the world after soybean meal. Oil content in rapeseed & mustard varies from 33% to 46% and average oil recovery is around 32% to 38%. After oil extraction, the remaining part of the seed is used to produce rapeseed/ mustard meal, an important component of cattle and poultry feed. Being a winter crop, it requires a temperate climate to prosper (Kumar et al., 2009).

1.2.3 Wheat

Wheat (*Triticum aestivum* L.) has been described as the 'Staff of life' or 'King of cereals' and one of the most important staple food crops cultivated in at least 43 countries of the world. This crop as its own outstanding importance as a human food, it is rich in carbohydrates and protein. About 35 per cent of the world's population directly or indirectly depends upon wheat for food and about 20 per cent of protein supply of the world comes from wheat alone. In Gujrat, wheat is cultivated under irrigated as well as rainfed

conditions. Real cold period is hardly of 60 days which falls in middle of November to January.

Wheat is grown in an area of 29.3 million hectares with a total production of 96 million tonnes at an average yield of 2938 kg/ha in India. In the Indo-Gangetic plains it is grown with the use of high analysis chemical fertilizers alone in the last several years causing wide spread deficiency of nutrients. The declining nutrient supplying capacity and deficiency of several nutrients in the wheat growing areas has been observed to be one of the major reasons for the lowering of average yield of the crop in many areas in the northern India. The first and most immediate attention should be given to nutrient management to sustain and increase the productivity of wheat and also to reduce the cost of production by reducing the use of costly chemical fertilizers.

Wheat production in almost every growing state in India are Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan, Bihar and Gujarat. highest productivity in Punjab and highest production in Uttar Pradesh. World trade in wheat is greater than for all other crops combined. Demand of India's wheat in the world shows a rising trend. The country has exported 322790.14 MT of wheat to the world for the worth of Rs. 624.37crores / 96.72 USD Millions during the year of 2017-18. (APEDA-2018)

1.3 World & Indian Scenario Mustard, Bajra & Wheat

1.3.1 World Mustard Production, Consumption, Import, Export Country

World output of rapeseed and mustard has been increasing persistently and rather steeply during the past 15 years. The output has doubled from about 36 million tonnes in 2001-02 to 70 million tonnes in 2013-14. Production from European Union and Canada has risen steadily and reached to nearly 30% and 26% respectively of total world production. On the other hand, output from China has remained largely stable at around 12-13 million tonnes and consequently its share has declined to about 20% from about 31% a decade ago.

Table 1.3.1.1: Top five rapeseed producers, consumers and traders in the world

Producers	%	Consumers	%	Exporters	%	Importers	%
EU	30	EU	36	Canada	57	China	27
Canada	22	China	27	Australia	30	EU	26
China	22	Canada	11	Ukraine	10	Japan	20
India	11	India	11	US	1	Mexico	11
Australia	6	Japan	4	EU	1	UAE	5

Source: USDA-2017

The steep rise in production from Canada was primarily on account of significant expansion in area, which could have apparently been driven by a sharp rise in exports from Canada. While the production and consumption doubled during the past decade, trade has gone up by three times. During this period, exports from Canada rose by nearly four times.

Table 1.3.1.2: Trends in world production and consumption (million tonnes)

	Production	Exports	Consumption	Stocks
2009-10	61.1	10.8	59.4	8.9
2010-11	60.6	10.9	61.5	7.2
2011-12	61.5	12.9	63.8	5.2
2012-13	63.0	12.5	65.3	3.2
2013-14	70.1	13.6	67.4	5.6

Source: USDA-2017

Similar to production, world consumption pattern of rapeseed and mustard also doubled during the past 15 years primarily driven by the European Union, China and Canada. The European Union registered growth followed by Canada and China. Consequently, imports by China and the EU rose the steepest pushing them to top two positions replacing Japan and Mexico.

1.3.2 World Pearl Millet Production, Consumption, Import, Export Country

In world India is Largest producer with 10.28M MT with 36.3 % of world total production. Indian soil & climate perfected matched with pearl millet crop. India is largest consumer of pearl millet. Indian use for eating, feeding animal and other use. U.S is world largest exporter of pearl millet in world with 55.5k export quantity which is value of \$19.53M USD. Germany is the world largest importer of pearl millet with import quantity of 19.55k

MT which is value of 9.5M USD.

Table 1.3.2.1 Top five Pearl Millet producers, consumers and traders in the world

Rank	Production	% of Total	Import	% of Total	Export	% of Total
1	India	36.3	Germany	8.6	U.S	17.3
2	Niger	13.7	Indonesia	7.8	India	16.5
3	China	7	Belgium	6.5	Ukraine	15.8
4	Mali	6.4	Turkey	5.3	Russia	8.9
5	Nigeria	5.2	U.k	4.3	China	8.1

Source –USDA-2017

1.3.3 World Wheat Production, Consumption, Import, Export Country

Wheat is the third largest cereal produced in the world and its output has increased from about 600 million tonnes in early 2000s to about 700 million tonnes in 2013-14. Major wheat producing countries in the world include China, India, the US and Russia in the respective positions and account for about 45% of world wheat output. Although India has the largest area under wheat cultivation it is the second largest producer of wheat in the world next to China due to lower yields.

Table 1.3.3.1 Top 5 producers, consumers and traders of wheat in the world

Cultivators	%	Producer	%	Consumers	%	Exporters	%	Importers	%
India	13	EU	20	China	18	US	19	Egypt	7
EU	12	China	17	EU	17	EU	16	China	6
China	11	India	13	India	13	Canada	15	Brazil	5
Russia	11	US	8	Russia	5	Australia	12	Indonesia	5
US	8	Russia	7	US	5	Russia	10	Algeria	4

Source: USDA-2017

European Union, a group of Euro countries, is the top producer, second largest consumer and exporter. However, in terms of individual countries, China is the largest consumer followed by India, Russia and U.S. In terms of exports, U.S. has always been the top exporter of wheat contributing for nearly 1/5th of total world's exports. However, exports from Australia have also been rising steadily from the late 2000s.

Table 1.3.3.2 Trends in world wheat demand and supply (million tonnes)

	Production	Imports	Exports	Consumption	Stocks
2010-11	651	132	133	653	198
2011-12	696	149	158	688	197
2012-13	658	144	137	686	176
2013-14	714	157	166	694	186
2014-15P	720	153	155	708	196

Source: USDA-2017

1.3.4 Mustard Indian Scenario State Wise Area, Production & Productivity.

Table 1.3.4.1 Mustard State Wise Area, Production & Productivity.

Selected State wise Area, Production and Productivity of Rapeseed and Mustard in India (2016-2017)			
States/UTs	Area	Production	Productivity
	(In ' 000 Hectare)	(In ' 000 Tonne)	(In Kg./Hectare)
India	6073.82	7917.23	1304
Rajasthan	2563.60	3645.44	1422
Madhya Pradesh	708.00	920.00	1299
Uttar Pradesh	689.00	858.00	1245
Haryana	510.00	945.00	1853
West Bengal	459.11	494.67	1077
Assam	294.02	189.23	644
Jharkhand	273.35	198.96	728
Gujarat	201.00	344.00	1711
Bihar	82.77	97.68	1180
Chhattisgarh	51.00	19.80	388

Source: Ministry of Agriculture and Farmers Welfare, Govt. of India.

1.3.5 bajra Indian scenario State wise Area, Production and Productivity.

Table 1.3.5.1 Bajra State Wise Area, Production & Productivity.

Selected State-wise Area, Production and Productivity of bajra in India (2016-2017)			
States/UTs	Area	Production	Productivity
	(In ' 000 Hectare)	(In ' 000 Tonne)	(In Kg./Hectare)
India	7458.50	9729.84	1305
Rajasthan	4150.31	4154.97	1001
Uttar Pradesh	907.00	1736.00	1914
Maharashtra	837.10	799.80	955
Haryana	478.00	964.00	2017
Gujarat	431.00	931.00	2160
Madhya Pradesh	280.00	680.61	2431
Karnataka	242.00	255.00	1054
Tamil Nadu	49.67	102.26	2059
Andhra Pradesh	42.00	72.00	1714
Telangana	17.00	15.00	882

Source: Ministry of Agriculture and Farmers Welfare, Govt. of India.

1.3.6 Wheat Indian scenario State wise Area, Production and Productivity.

Table 1.3.6.1 Wheat Area, Production and Productivity of Wheat in India

Selected State-wise Area, Production and Productivity of Wheat in India (2016-2017)			
States/UTs	Area	Production	Productivity
	(In ' 000 Hectare)	(In ' 000 Tonne)	(In Kg./Hectare)
India	30785.23	98510.22	3200
Uttar Pradesh	9655.00	30056.02	3113
Madhya Pradesh	6028.00	17939.33	2976
Punjab	3495.00	16440.48	4704
Rajasthan	2830.00	8985.25	3175
Haryana	2558.00	11546.81	4514
Bihar	2105.81	5110.80	2427
Maharashtra	1272.10	1875.08	1474
Gujarat	995.00	2737.00	2751

Himachal Pradesh	346.39	704.21	2033
Uttarakhand	341.00	882.00	2587

Source: Ministry of Agriculture and Farmers Welfare, Govt. of India.

1.3.7. Gujarat state Major District agricultural Area, Production & yield Data Of Bajra, Mustard & Wheat

Table 1.3.7.1 Gujarat district wise Summer bajra sowing area, production & yield year 2009-11.

No	District	2009-10			2010-11		
		Area	Prod.	Yield	Area	Prod.	Yield
1	Banaskantha	684	1404	2053	1620	3821	2359
2	Anand	264	692	2620	427	1193	2790
3	Mehsana	204	471	2308	347	897	2589
4	Kheda	164	374	2275	520	1246	2394
5	Sabarkantha	91	217	2372	220	531	2416
6	Gandhinagar	64	176	2760	63	176	1779
7	Junagadh	52	128	2465	82	220	2675
8	Patan	49	121	2449	151	387	2563
9	Vadodara	39	82	2093	113	239	2120
10	Kutch	29	66	2275	31	76	2459
Gujarat state		1742	3964	2276	3829	9417	2459

Source- dag.gujarat.gov.in -2011

Table 1.3.7.2 Gujarat state major district wise kharif bajra sowing area, production & yield year 2009-11.

No	District	2009-10			2010-11		
		Area	Prod.	Yield	Area	Prod.	Yield
1	Banaskantha	1117	284	254	1320	1062	805
2	Patan	626	261	416	512	255	497
3	Kutch	552	479	868	607	624	1029
4	Bhavnagar	480	809	1684	457	1149	2515

5	Surendranagar	390	357	915	308	395	1241
6	Kheda	340	316	930	389	542	1393
7	Mehsana	308	360	1172	367	362	988
8	Anand	274	419	1527	280	360	1286
9	Rajkot	175	193	1102	68	87	1279
10	Junagadh	140	237	1686	89	106	1196
Gujarat state		4988	4324	867	4895	5592	1142

Source- dag.gujarat.gov.in -2011

Table 1.3.7.3 Gujarat state major district wise total wheat sowing area, production & yield year 2009-11.

No	District	2009-10			2010-11		
		Area	Prod.	Yield	Area	Prod.	Yield
1	Junagadh	1205	4127	3424	2100	9059	4314
2	Sabarkantha	1045	2200	2105	1501	4026	2682
3	Ahmedabad	915	2095	2289	2304	5476	2377
4	Mehsana	732	2132	2912	753	2299	3053
5	Kheda	655	1605	2450	1004	2712	2701
6	Banaskantha	650	1789	2752	929	2802	3016
7	Anand	483	1070	2215	588	1561	2655
8	Rajkot	406	1542	3798	1702	6783	3985
9	Jamnagar	360	1186	3294	604	2199	3641
10	Dahod	329	608	1848	333	658	1976
Gujarat state		8780	23513	2678	15886	50134	3156

Source- dag.gujarat.gov.in -2011

Table 1.3.7.4 Gujarat state major district wise Mustard sowing area, production & yield year 2009-11.

No	District	2009-10			2010-11		
		Area	Prod.	Yield	Area	Prod.	Yield
1	Banaskantha	1025	1644	1602	1200	1848	1540
2	Patan	450	695	1543	354	553	1562

3	Mehsana	385	594	1544	348	550	1582
4	Kutch	95	166	1758	83	159	1883
5	Sabarkantha	78	124	1580	86	135	1568
6	Gandhinagar	49	72	1453	50	82	1632
7	Anand	23	37	1580	22	34	1568
8	Kheda	23	36	1580	18	29	1568
9	Ahmedabad	11	14	1316	12	19	1568
10	Surendranagar	7	11	1580	12	19	1568
Gujarat state		2160	3414	1581	2227	3492	1568

Source- dag.gujarat.gov.in -2011

1.4 AREA OF STUDIED

Banaskantha is known as hub of agricultural in Gujarat. Specially for crop of potato and Bajra season and ability to take crop thought-out year with best weather and soil fertility with irrigation facility. Banaskantha comes in north Gujarat State and Jalore placed in south of Rajasthan State.

in Banaskantha there are 14 block and in Jalore 7 block for studied.



BANASKANTHA (GUJ)

Number of block - 12



JALORE (RAJ)

Number of block -7

Figure 1.4.1 Area of Study

1.4.1 Seed industry overview

Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15 – 20 Percent depending upon the crop and it can be further raised up to 45 Per cent with efficient management of other inputs. The developments in the seed industry in India, particularly in the last 30 years, are very significant. A major restructuring of the seed industry by Government of India through the National Seed Project Phase-I (1977-78), Phase-II (1978-79) and Phase-III (1990-1991), was carried out, which strengthened the infrastructure of the seed industry that was most needed and relevant around those times. This could be termed as a first turning point in shaping of an organized seed industry.

Introduction of New Seed Development Policy (1988 – 1989) was yet another significant mile stone in the Indian Seed Industry which transformed the very character of the seed industry. The policy gave access to Indian farmers of the best of seed and planting material available anywhere on the world. The policy stimulated appreciable investments by private individuals, Indian Corporate and MNCs in the Indian seed sector with strong R&D base for product development in each of the seed companies with more emphasis on high value hybrids of cereals. As a result, farmer has a wide product choice and seed industry today is set to work with a farmer centric approach and is market driven.

In the present seed market scenario, the marketing channels followed by the seed companies play a crucial role because of the presence of large number of small and large players in the field and most of them possessing more or less the same product range. The Indian seed industry used to be dominated by public sector seed companies. However, following the easing of government regulations and the implementation of a new seed policy in 1988.

1.4.2 Public and private sector ownership

There are about 1500 seed companies existing in the world but the distribution is highly skewed. Twenty-four companies control 53 percent of the commercial market and the concentration is expected to increase further. (Palhawat-2008) The profit of these companies were be kept in check by strong competition and farmers using farm saved

seeds, if the seed prices rise. Therefore, the seed companies are on the lookout for new markets to increase their seed sales. When the Indian seed industry is compared with the global scenario the estimated turnover (\$1227 million) is less than 2 percent of the global seed business of US \$35 billion. With one sixth of the world population and the second largest cultivable land, the Indian seed industry presents a poor picture. There are many factors that influence these trends. Cultivation in India is more self-oriented than market oriented.

The average farmer tries to grow as many commodities as possible on his land, regardless of the economies of production. The farmer prefers to grow more than one variety of even the main crop as a risk aversion measure. Catering to these varied measures needs in different parts of the country is definitely a daunting task for the seed industry, though it holds a great promise. With world trade expected to reach US \$ 75 billion by 2020, India can easily walk away with a major chunk of the seed industry with careful planning and smooth regulation. Seed production in India is different compared to the developed nation. Multinational companies in developed nations carry out the seed production on the own farms. In India, however, it is mainly carried out in the farmers fields under a contract. While this ensures better returns for the seed growers, it adversely affects the quality of seed. Majority of the Indian farmers being small or marginal, seed production is distributed over a large area, which not only results in the lack of uniformity in the seeds but also leads to contamination. Maintaining varietal purity in such cases becomes difficult. While public sector companies produce seeds locally, private sector companies produce seeds only where the agro-climatic conditions are most favorable greater economies of scale. The public sector companies produce self-pollinated crops mostly rice and wheat. The private sector deals with mostly improved hybrids and high- value, low volume seeds.

1.5 Policy Initiatives in Seed Sector

The following policy initiatives have been taken by the Government of India in seed sector

- Enactment of the Seeds Act, 1966
- Seed Review Team-SRT (1968)
- National Commission on Agriculture Seed Group (1972)
- World Bank aided National Seeds Programme (1975-85) in three phases.

- Seed Control Order (1983)
- Technology Mission on Oilseeds & Pulses (TMOP) in 1986 now called
- The Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)
- Seed Transport Subsidy Scheme (1987)
- New Policy on Seed Development (1988)
- Seed Bank Scheme (2000)
- National Seeds Policy (2002)
- The Seeds Bill (2004)
- Formulation of National Seed Plan (2005)
- National Food Security Mission (2007)
- Rashtriya Krishi Vikas Yojna (2007)

National Seeds Policy, 2002 was launched with look after the thrust areas of variety development, Plant variety protection, Seed production, Quality assurance Seed distribution and marketing, infrastructure facilities, transgenic plant varieties, import of seeds and planting materials, seed exports, promotion of domestic private sector seed industry, strengthening of the monitoring system.

Seeds Bill, 2004 was purposed with the Salient Features of Registration of kinds and varieties of Seeds on the basis of evaluation of performance, Compensation to Farmers, Registration of Seed Producers and Processing Units, Regulation of Sale of Seed and Seed Certification, Seed Analysis and Seed Testing, Export and Import of Seeds and Planting Material, Offences and Punishment.

1.6 COMPANY OVERVIEW

Rasi Seeds (P) Ltd. was envisioned and initiated by Mr. Ramasami in 1973 at Attur, located in Salem District, India. Rasi Hybrid Seeds has made rapid advances from seed production and supply ventures to a commendable position in Research and Development (R&D) and transformed as Rasi Seeds (P) Ltd. in 1986 and having 600 qualified workforce who enthusiastically serve over 4 million Indian farmers.

Rasi Seeds has been recognized as the leader in cotton hybrids, besides hybrids in maize, pearl millet and vegetables and Rasi Seeds (P) Ltd. has 37 years experience in seed business and leading player in Hybrid cotton research and now is emerging as Multi crop seeds

group and recognized as one of the top 10 Biotech seed companies in India for the year 2010.

When the company launched its first research cotton hybrid, RCH 2 in 1992, the agricultural industry was overwhelmed by the tremendous yield of this hybrid. This has been achieved by the excellent guidance of Mr. R. Krishnamurthy, a well-known Cotton Breeder in India.

RCH 2 cotton hybrid is one among the few proprietary research hybrids that has been notified by the Government of India. The company has excellent processing facilities and follows efficient seed production techniques considering seed quality and purity. The services network provides technical support to several thousand farmers enabling them to produce high quality seeds.

1.6.1 Vision & Mission of Company

“To better, the life of farmers through quality seeds” and the company believes that quantity with top quality service to their valuable customers would result in more enduring and gainful relationship than any momentary success. Therefore, a regimental approach to a result-oriented quality control system is implemented at all stages. Our unique quality control features include testing for germinability, genetic purity and quality assurance for products to maintain high standards

Rasi Seeds has three divisions name:

- Cotton Division
- Field Crop Division
- HyVeg Vegetable Division

1.6.1.1 Cotton Division

Rasi seeds in collaboration with Monsanto Company developed transgenic Bt hybrids that control serious pests of cotton, the bollworms. This was accomplished by the transferring cry 1AC (c) gene of the bacterium *Bacillus thuringiensis* through backcross breeding methods into Rasi germplasm and realising the excellent performance of the Bt cotton technology, the GEAC, Government of India has approved RCH 2 Bt cotton hybrid for Central and South Zones during 2004. Subsequently with an impressive line up to 20

products under Bt and BG II like RCH 134 Bt, RCH 314 Bt, RCH 20 Bt, RCH 118 Bt, RCH 377 Bt, RCH 138 Bt, RCH 2 BG II, RCH 515 BG II, RCH 530 BG II etc. created a wave in the market. Under ELS segment also the company has released RCHB 708 Bt which is being rated as high yielding hybrid in that segment. Thus, with the development and commercialization of cotton hybrids, Rasi has emerged as a leader in transgenic Bt cotton hybrid seeds distribution in India.

1.6.1.2 Field Crop Division

A wide spread awareness among discerning consumers has given rise to a demand for fine quality rice with consumer preferred qualities. Most importance is given to produce genetically pure rice varieties with high seed standards and finest quality through the support of advanced technologies and progressive methods and is engaged in the development of high yielding, downy mildew resistant lines with good grain quality and fodder to suit the major pearl millet growing regions in the country. Sophisticated breeding techniques are employed in developing hybrid with high Tillerling and high volume heads with consumer and market preferred qualities. Rasi Seeds in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is in the process of creating new breeding lines. A high demand cereal in the poultry & starch Industries is being supported by breeding programmes to develop maize hybrids with high yield and oil content with built in resistance for drought and pest like stem borer. In order to bridge the yawning gap in demand and supply of oil seeds in India, Rasi Seeds has initiated breeding programmes for developing high yielding hybrids with quality.

1.6.2 Recognitions

- The Research & Development unit of Rasi Seeds (P) Ltd is recognized by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, New Delhi
- Rasi Seeds (P) Ltd has been conferred with various awards for the various achievements and services rendered for the benefit of the farming community.
- National award for R&D efforts in successful commercialization of technologies acquired from others in 2005.

1.6.3 Products of Rasi Seeds Field Crop Private Limited

Table 1.6.3.1: Product Portfolio of Rasi Field Crop

Hybrid Corn	Hybrid & Research Paddy		Hybrid Bajra	Wheat	Mustard
3022	RHR 111	Poonam	1818	Thunder	Karuna
3033	RHR 333	Laxmi	1827	Spark	Anmol
3591	RRX 113	Poonam Gold	1836		Bullet
4750		Pavitra	RBX001		
4640			RBX002		
4642					
4212					
4558					
4595					
SAMPPANN/444					
4794 (W)					
Sx 38 (W)					

1.7 OBJECTIVES OF STUDY

- 1) To determine market size and share of Rasi seed companies for mustard, pearl millet & wheat
- 2) To know the perception of farmers and retailers toward the products of various seed companies
- 3) To study factors affecting buying behavior of dealers and farmers toward Rasi pearl millet and mustard seeds
- 4) To conduct competitor analysis
- 5) To study Rasi channel preparedness for field crops, channel gap and strength
- 6) To formulate a mid-term plan in a phased manner and effective sales strategies for Banaskantha & Jalore district.

2. REVIEW OF LITERATURE

Ramaswamy and Chandrashekar (1990) examined the factors influencing the buying behaviour of cotton seed farmers in Kamaraj District of Tamilnadu, India. They observed that dealers with credit sale facility, availability of seeds at a lower price premises located near to the farmers' locality etc. that attracted the farmers.

Groosman et al. (1991) reported that most of the State Seed Corporations (SSC) were incurring losses in the production of seed of self – pollinated crops (high volume/low profit trade) due to high overheads, unused processing capacity, high seed prices, bureaucracy etc., which is impeding the seed industry.

Pray et al. (1997) conducted a study on recent experiences with seed policy reform in India and Turkey to identify the key policy and institutional reforms that encouraged growth in the private seed sector. The reforms in Turkey and India allowed seed prices to rise, permitted new firms to enter the seed industry and reduced restrictions on imports of varieties and seed. Large-scale private firms entered the most profitable sectors (hybrid seed), while less profitable sectors were left to small seed companies, farmers and the public sector. In some cases, as in the Indian Punjab, the combination of small seed companies and farmers was more efficient than the public sector in rapidly spreading new varieties

Shankar and Nagabhushnam (1998) conducted a study to know the seed buying behaviour of farmers in the Mahaboobnagar district, Andhra Pradesh, which has the largest acreage of sunflower in India. The objective of study was to gain sufficient information to enable the seed industry to manage its supply of seeds to farmers more efficiently. Issues addressed include purchase decisions, information sources, and brand preference.

Tripp and Pal (1998) in their study focused on the exchange of information between farmers and seed providers. About two-thirds of the farmers plant commercial pearl millet seed (public or private hybrids). They easily distinguish between hybrids and local varieties, but relatively few farmers are able to recognize the names or characteristics of

the different commercial hybrids. Farmers are also confused about the names of public and private seed companies. When choosing which seed to purchase, farmers tend to rely on the advice of other farmers or merchants. Information flow from farmers to seed companies and plant breeders was also deficient. Despite these problems, commercial seed market expansion has had a positive effect on farm productivity. Suggestions were made for improving farmers' awareness of the characteristics of the seed market and for providing more opportunities for farmer feedback regarding varietal performance

Singh et al. (1998) summarized that seed crop involved additional cost due to some specific operations and gave lower yield, which also varied from time to time. They concluded that seed crop had more production risk but low market risk compared to commercial crop in Gujarat due to the higher compensation fixed in advance.

Kumari and Ramachandra (1998) revealed that high price was a common problem, while lack of credit facility was more serious problem to small farmers in procuring seed from cooperatives in Andhra Pradesh.

Padmanaban (1999) conducted study on brand loyalty, which revealed that the price of the preferred brand and efficiency of preferred brand as well as influence advertisement significantly influenced the brand loyalty. Only when the price of a particular brand is competitively lower to price of other brand in the market the farmers would naturally prefer to low priced brand, otherwise farmer would naturally continue to purchase the same brand.

Reddy and Raju (1999) studied the buying motives of rural consumers towards purchase of seeds. They identified the factors influencing brand loyalty of farmers as dealers advice, quality product and fellow farmers' advice. The problems faced by farmers with regard to seed supply were poor quality, high price, adulteration and irregular supply.

Tripp and Pal (2000) found that brand recall was weak among pearl millet farmers in Rajasthan suggesting that brand loyalty was not an entry barrier to the seed market.

Reddy (2001) in his study defined the role of cooperative organizations in seed production and distribution and also discussed seed marketing and distribution costs along with seed

marketing issues related to price, demand, the seed market, product differentiation, storage, transportation, and operation. He suggested that the private seed industry has the capacity to make significant investments in research and development and infrastructure for seed production, storage and conditioning so as to further develop a world class seed industry in India.

Ramaswamy et al. (2002) examined the adoption rates for hybrid seed in coarse cereals was quite high if the seeds were priced very high. The success of private seed companies in marketing their hybrids suggests that the public sector in the case of coarse cereals can concentrate more on germplasm enhancement and basic research and reduce its presence in the production and distribution of finished varieties.

Mishra et al. (2003) reported that the Seed Act has no control over seed pricing policy. They dealt elaborately about the seed pricing policy in public and private sector. They pointed that the pricing decisions were mostly taken at top level management in private sector.

Patil (2003) studied the physical distribution management of seeds by Karnataka State Seeds Corporation Ltd. (KSSC). The study revealed that the KSSC has adopted a mixed distribution network comprising of various channels. The channels mentioned are: KSSC _ Farmers, KSSC _ Karnataka Agro Industries Corporation _ Branches _ Farmers, KSSC _ Market _ Branches _ Farmers, KSSC _ Private seed dealers _ Farmers.

Ramanamurthy et al. (2003) observed that the quality of the seed assumes top priority for its best performance, while selecting the variety. They also identified that the farmers' decisions promoter varied with the level of education. As educational level increased purchase of hybrid also increased.

Reddy (2003) carried out a study on market potential of hybrid maize in Mahaboob Nagar and Rangareddy districts to know the various aspects of the seed business and help private seed companies in formulating strategies for their growth. He found that pricing, packaging, promotion and timely availability of the product play key role in market growth of seed companies.

Daniel and Adetumbi (2004) examined the local seed system and assessed the potentials of the vegetable seed sector in Nigeria. They reported that about 60 per cent of vegetable farmers sourced seeds from their previously saved harvests, while about 30 per cent purchased seeds from dealers over the 3 years covered by the survey, 10 per cent farmers obtained seeds from other sources.

Anwar et al. (2005) observed from their study that 46% of farmers used own farm produced seed and 54% of farmers purchased seed. Seed dealer was major sources, 68% farmer purchase from it followed the research institute, 19% farmers purchase from it and remaining obtain the seed from progressive farmer

Sivakumar et al. (2006) studied the buying behavior, problems and expectations of the farmers with reference to cotton seeds. He reported that seed quality parameters influenced the farmers' choice of brand of cotton seed. Seed delivery logistics should be improved to ensure the timely supply of seeds to almost all dealers.

Hosmani (2007) carried out a study on seed marketing in Belgaum district to examine the promotion measures adopted by seed companies for selected vegetable seeds. He concluded that field demonstrations and farmer visit to research plots, as the most effective promotion measures. Jeep campaign was the third most effective promotion measure followed by field day, slide shows, farmer meeting, live telecast, sample display in dealer shop.

Hingley (2007) reported that the brands being an important source of competitive advantage, knowledge of branding is needed to inform their management. After reviewing the literature, the article aims to report the findings of a case study that investigated the role of branding in the industrial purchase of agricultural tractors in the UK. The study's overall conclusion is that branding can play an important role in industrial purchase decisions, brand name, price, dealer proximity, quality of dealer's service, and buyer's experience of the dealer. The conjoint analysis revealed that brand accounts for 38.95 per cent of the purchase decision, ahead of price (25.98 per cent) and service (14.90 per cent). The importance of brand varies according to the tractor brand. Also, the overall utility varies, with John Deere and New Holland brand names appearing as marketing assets and Valtra,

Massey Ferguson, and Case IH as marketing liabilities. Among the studies other findings are that UK tractor buyers are brand loyal. The study focuses on tractors in the UK, so while it provides an insight into the role of branding in an industrial purchase situation, further research is required in other product categories before the findings can be generalized.

Aggarwal (2008) concluded among the factors important for customer satisfaction, quality, convenient location and availability got the highest rating in term of their importance to be customer on a 5-point scale. Customers were not price sensitive and they didn't pay more attention to the display and ambience of the store.

Dalal and Bishnoi (2008) studied the buying behavior of the farmers towards cotton seeds in Haryana. It was found that with the increasing level of education and land ownership, the farmers were using multiple varieties of seeds. A majority of the farmers buy seeds in anticipation of good yield but largely depend upon private shops and credit purchases.

Dass et al. (2009) studied that early maturing single cross hybrid has helped in reducing the yield loss in farmer's field in Rajasthan, because of high drought tolerance capacity. They identified that single cross hybrid maize are least affected by the vagaries of environmental fluctuation, also most of the single cross hybrid are productive among the other types of hybrid and composite varieties. This hybrid has shown better adaptability to new set of cropping system and management practices, as result of this, area under single cross maize hybrid has tremendously increased than that of three- way and double cross maize hybrid.

Selvaraj (2009) attempted to determine the major factors influencing farmers' decision to adopt the Lakshmi tomato hybrid and Malini cucumber hybrid commercialized by the Nunhems and Seminis seed companies respectively. Lakshmi was widely adopted by the farmers because of its superior characteristics. Although the production cost was higher in the case of Lakshmi compared to other popular varieties, the net income realized was higher by two to four times due to the increased productivity. Variations in yield and net income were found to decrease when farmers adopted recommended technology packages.

Satyagopal et al. (2010) identified the factors responsible for unrelatedness to farming community were non availability of good quality seed (85.56%), followed the untimely supply of inputs (83.89%) and last factor responsible for this in non-availability of high yielding varieties (78.33%).

Wenyu (2011) in his study suggested that Control Power of Distribution Channel of Seed (CPDCS) which is controlled by seed companies is good for the healthy development of seed industry. Seed companies have to improve their research and development, offer seed varieties with differentiation predominance. Moreover, it is also important to provide wholesalers with financial support, to enhance distribution channel, and improve promotion method so that seed companies can win farmers' support and obtain adequate control over the channel.

Keatinge et al. (2011) revealed that the small and medium local seed firms have a competitive advantage over multinationals in supplying the niche markets provided by large numbers of smallholder farmers and in dealing with their complex seed distribution chains, but they need public sector research support from national and international partners.

Srivastava and Kumar (2011) studied that consumer behavior in the rural market is even more perplexing because of a singular lack of consistency in groups which are homogeneous in parameters of demographics- Age, occupation, education and income. Most marketers realize that India is on the cusp of momentous change. The economy is vibrant, incomes are rising & the habits, preferences & attitude are changing rapidly. But nowhere is it more evident than in rural India. There is, thus an emerging need to build expertise in rural marketing. The study of consumer behavior implies how & why a particular consumer reacts to the decisions of producers. The study of consumer behavior is the study of how separate make decision to spend their available resources (time, money, effort) on consumption related items. It includes the study of why they buy it, when they buy it, where they buy it, how often they buy it & how often they use it.

Mostofa (2012) Deliberate on "Critical Analysis of Segmentation Strategy for Potential Product Launch - Mapping The Customers" First of all, segment must exist and not to be

an object of the marketers' imagination. Existing market must be measurable or identifiable in terms of size and purchasing power. It means that segment is distinguished and responds to the different marketing mix and other incentives in a changing way. Obviously, segment must be reachable or reachable in order to establish connection. On the other hand, in terms of business prospective segment must be substantial and stable for a significantly long period. Under this requirement is mentioned that tailored marketing program should be targeted to the noteworthy amount of people with the same needs and characteristics. In addition to that, amount should be such a big that business should be profitable. And, final requirement is actionable criterion, which concludes company's capability to deal with so many segments as it is possible from the company's extent of resources. Due to the correct market segmentation, company can benefit from distribution point of view, carry out business in an effective and efficient way, increase sales/profit and market share. However, market segmentation becomes a dilemma for the company, because of different reasons, such as incorrect preparation of marketing strategy, incorrect understanding of the customers behavior regarding to the marketing mix, more theoretical rather than practical approach choosing wrong variables.

Solanki et al, (2013) studied factors affecting consumers purchasing behavior towards Agriculture inputs like fertilizer, seeds, agrochemicals, oils and lubricants etc. Buying behavior refers to the act of consumers obtaining and using goods and services and the decision process that determines these acts. Buying decision is a set of many decisions which may involve a product, brand, style, quality, dealer, time, price and mode of payment. Price is the most important consideration at the time of purchasing agriculture inputs followed by packaging and branding, fair billing and home delivery are considered relatively less important. An attempt had been made to find out the problems faced by the farmers and this study were also help to understand the factors affecting the buying behavior of farmers toward Agriculture inputs.

Dharmraj et al. (2013) studied to identify the factors that affect consumers purchasing behavior towards agriculture inputs like fertilizer, seeds, agrochemicals, oils and lubricants etc. Buying behavior refers to the act of consumers obtaining and using goods and services and the decision process that determines these acts. Buying decision is a set of many

decisions which may involve a product, brand, style, quality, dealer, time, price and mode of payment. Price is the most important consideration at the time of purchasing agriculture inputs followed by packaging and branding, fair billing and home delivery are considered relatively less important. It can be concluded from the result that the respondents were mainly purchasing the agri-inputs from the cooperative societies of their area. Major reasons for purchasing from cooperative societies included fairness in billing and credit facilities given to the farmers. From the above results, it can be stated that agri-inputs remain a price-sensitive market as factors like quality, brand and packaging.

Pankhaniya (2016) deliberate in research of Farmers Buying Behavior, Market Preference and Dealer perception regarding use of Pesticides for Groundnut. He revealed that when farmer use for own eating purpose & animal use while that they prefer more over brand & Quality than price or large quantity production and Dealers mainly focus on the quality, timely availability, discount, packaging, at the time of the purchase product from the company.

Chauhan (2017) considered market mapping of maize and pearl millet in Rajasthan. The major factors that affect the buying behavior of farmer were found to be yield of the product, trust on retailer, prices of the product, demos conducted by field staff and suggestion from another farmer. The study also revealed that major market player in pearl millet seed business in hybrid segment were PHI, Bayer crop science and Dhanya whereas presence of local players was also there that holds good market size in Rajasthan.

Gupta (2017) revealed in his study of Mapping and segmentation of the mustard growing areas for introduction of right product and found that 1) The seed rate in rainfed condition is higher and spacing was lesser than irrigated area. 2) Seed replacement for mustard in study area is less than 50%. 3) It was also revealed that existing channel partner were able to cover only 77% of the study market

Reddy (2018) deliberate in research of Market Mapping of Competitors' Operational Policies against Bharat Insecticides Limited in Punjab in her studied found that Small token of presentations like key chains, water glasses, bags are given to encourage farmer and dealer gift schemes that help in promoting brand and Single distributor for market is a limiting factor which does not help in expanding the brand. farmer perception change based on the dealer view point.

3. MATERIALS AND METHODS

The Study entitled of “MAPPING OF RASI SEEDS’ FIELD CROP BUSINESS OPPORTUNITY IN BANASKANTHA DISTRICT OF GUJARAT AND JALORE DISTRICT OF RAJASTHAN” conducted between 21st January to 21th April,2019. The topic was discussed and decided by Rasi seeds (P) Ltd, with specific objectives.

3.1 AREA OF STUDY

3.1.1 Selection of the District/Tehsil/Block:

Table 3.1.1 Production of wheat mustard & pearl millet in Banaskantha district.

Crop	Year	Area (ha)	Production (MT)
Wheat	1997	42600	109700
Wheat	2005	46300	123100
Wheat	2012	92900	270800
Average		60600	167867
Rapeseed-Mustard	1997	161700	161000
Rapeseed-Mustard	2005	186900	300800
Rapeseed-Mustard	2012	115300	262000
Average		154634	241267
Pearl Millet(kharif)	2012	101200	89800
Pearl Millet(summer)	2012	135000	339100

Table 3.1.2 Production of wheat mustard & pearl millet in Jalore district.

Crop	Year	Area (ha)	Production (MT)
Pearl Millet (Kharif)	2010	366636	364089
Rapeseed-Mustard	2010	105461	145588
Wheat	2010	44957	80464

3.1.2 Selection of Villages:

Villages that were having higher acreage under pearl millet and mustard have been selected. From each block five villages were selected.

3.1.3 Selection of farmers:

From each selected village total two pearl millet growers and two mustard farmers and one wheat farmer were been selected which constitute total sample size of 190 pearl millet & 190 mustard and 95 wheat. Thus total 475 farmers were been selected from the villages of the 19 blocks of two districts.

3.1.4 Selection of Distributors/Retailers:

The distributors and retailers were selected based on the information collected from the farmers. From each block/taluka, two distributors and ten retailers were selected. Thus total 38 distributors and 155 retailers were selected from the villages of the talukas of districts of the two districts.

3.2 SOURCE OF DATA

Primary as well as Secondary data were collected to meet the objectives of the study.

3.2.1 Primary Data

Primary data were collected from farmers, distributors and retailers.

3.2.2 Secondary Data

District wise secondary data of area under Wheat, mustard & pearl millet cultivation was be collected from Department of Agriculture Cooperation and Farmers' Welfare and taluka/block wise data were collected from District Agriculture Offices, Revenue Offices.

And website like indiaagriscat, USDA etc.

3.3 SAMPLING DESIGN

3.3.1 Sampling Method

The sampling method is non-probability as selection of the farmers were done purposively and for retailers, snowball sampling techniques were used.

3.3.2 Research Tools

Keeping in view the nature of the study and for obtaining correct and perfect information from the respondents, the information was collected through personal interview using the semi-structured schedule after pretesting the schedule.

3.4 METHOD OF ANALYSIS

Tabular, Graphical analysis and required statistical tools were be used to analyze the data.

Weighted average

It is a mean calculated by giving values in a data set more influence according to some attribute of the data. It is an average in which each quantity to be averaged is assigned a weight, and these weightings determine the relative importance of each quantity on the average. Weightings are the equivalent of having that many like items with the same value involved in the average.

To analyses the parameters affecting the buying behavior of farmers towards Rasi products and the parameters affecting the sale of Rasi products by distributors, are provided with five options: strongly agree, agree, neutral, disagree and strongly disagree, the options were chosen by the respondents as per their buying behavior. The option was then provided with a weightage of 5,4,3,2,1 respectively. Now according to the data obtained, the data is multiplied with the weightage and hence recorded the highest and the least affecting parameter.

$$W.A.M. = \frac{w_1 \times x_1 + w_2 \times x_2 + \dots + w_n \times x_n}{\text{Total no. of respondents}}$$

Where,

W_n= Number of respondents who had responded on the parameters,

X_n= Weightage on the five-point rating scale.

3.5 LIMITATIONS OF THE STUDY

1. There may be bias in response of project officers due to several reasons such as social prestige, prejudices and suspicion etc.
2. Given these constraints, an effort was made to minimize all limitations and to make this study more meaningful and objective.

4. RESULT AND DISCUSSION

4.1 GENERAL OVERVIEW OF STUDY AREA

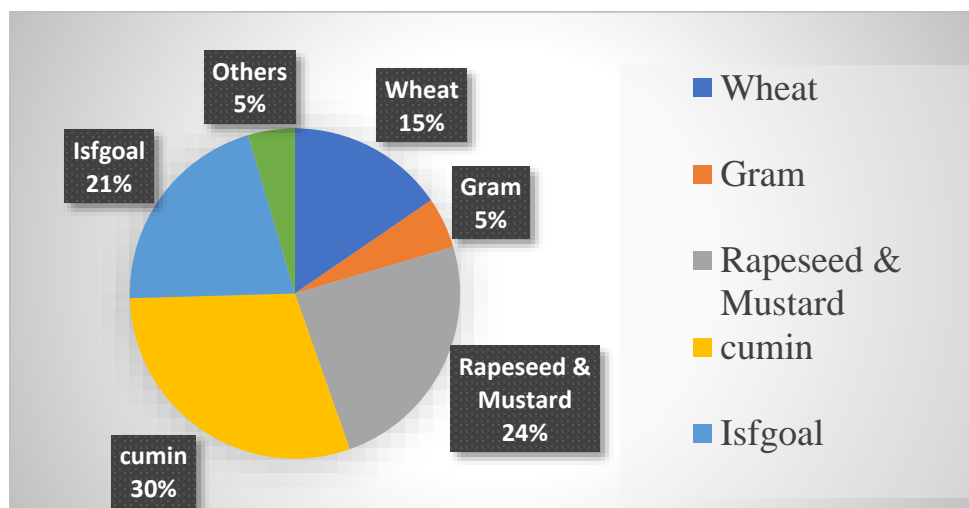


Figure 4.1.1 Jalore District Rabi 2016-17

Table 4.1.1 Jalore District Rabi Sowing area 2016-17 (Ha)

Districts	Wheat	Gram	Rapeseed & Mustard	cumin	Isbgoal	Others	Total
Jalore	52182	16874	81579	101148	70558	15408	341634

Source-District Agricultural Office – Jalore

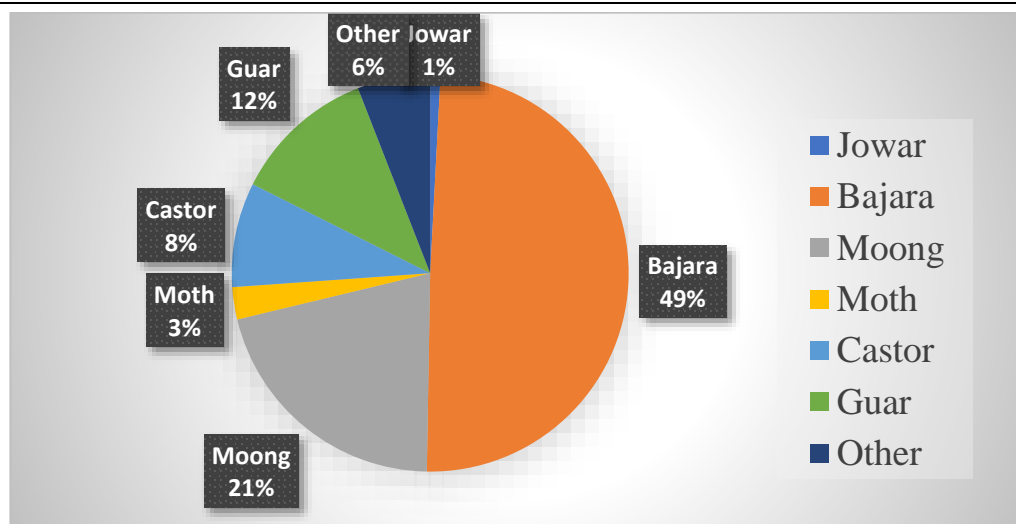
In Jalore District, total Rabi Sowing area is 341k area where main crop is cumin with 30% which followed by isb-goal (21%) Wheat & Mustard both crops covered around 39% of total sowing area of rabi season. Mostly season start with mid-November to mid-October month with light slowly down in climate. Harvesting season start in end of march to April Month.

Figure 4.1.2 Jalore District Kharif crop 2016-17

Table 4.1.2 Jalore District Kharif crop Sowing Area 2016-17(Ha)

Crop	Jowar	Bajra	Moong	Moth	Castor	Guar	Other	Total
Area(Ha)	4932	292864	124253	15587	50481	69144	35131	592392

Source-District Agricultural Office – Jalore



Above table shows Jalore district kharif crop sowing area in 2016-17. Where majorly 49% of total sowing area covered by Bajra followed by moong (21%) and guar (12%). Kharif season mainly rest on the rainfall. It also main factor for change of crop according to timing of rainfall and amount of rainfall. Season start at June-July to mid-October to November month.

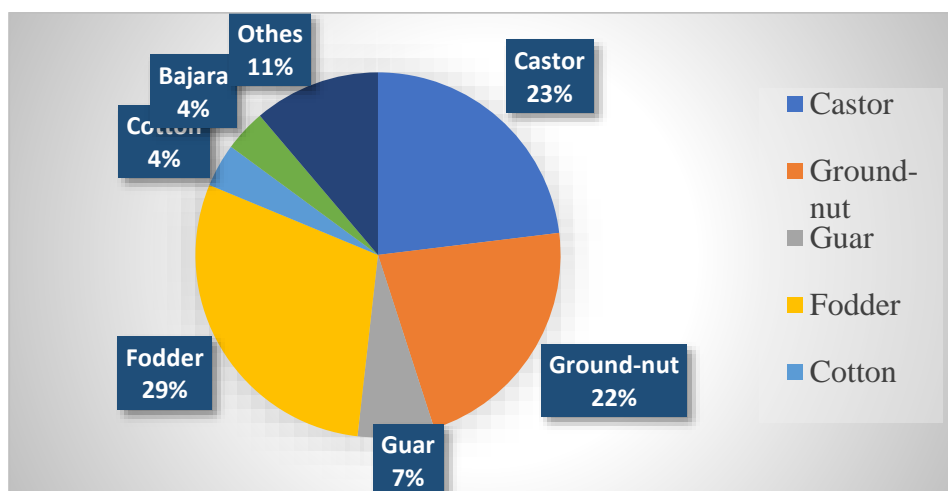


Figure 4.1.3 Banaskantha District Kharif Crop 2017-18

Table 4.1.3 Banaskantha District Kharif Crop Sowing area (Ha) 2017-18

Crop	Castor	Ground-nut	Guar	Fodder	Cotton	Bajra	Othes	Total
Area(Ha)	112008	106522	32904	143029	18641	17985	54373	485462

Source-District Agricultural Office – Banaskantha

Sowing area in Banaskantha district mainly Ground-nut & Castor Around (45%) followed by fodder (29%) and guar (7%). There is fodder contain high sowing area (29%) due to large number of animal feeding. Small amount of (4%) Bajra and Cotton (4%) Kharif also sowing area.

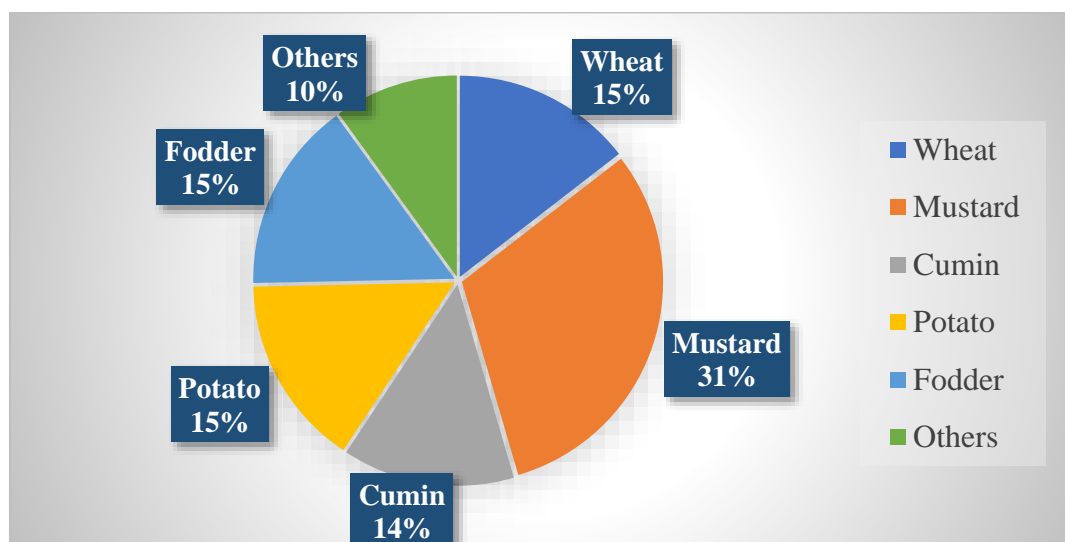


Figure 4.1.4 Rabi Crop 2017-18 Banaskantha District

Table 4.1.4 Banaskantha District Rabi Crop sowing area (Ha)2017-18

Crop	Wheat	Mustard	Cumin	Potato	Fodder	Others	Total
Area (Ha)	73975	157598	70514	78132	78172	50845	509236

Source-District Agricultural Office – Banaskantha

Above Table showing area that in rabi season Majorly Wheat (15%) & Mustard (31%). Followed by cumin (14%), potato (15%) and fodder (15%). In Banaskantha district in rabi season there is potato crop in 3 tehsils. Mustard & Wheat sowing in all tehsil. total sowing area 509k in district. Rabi crop season start with October November to march-April.

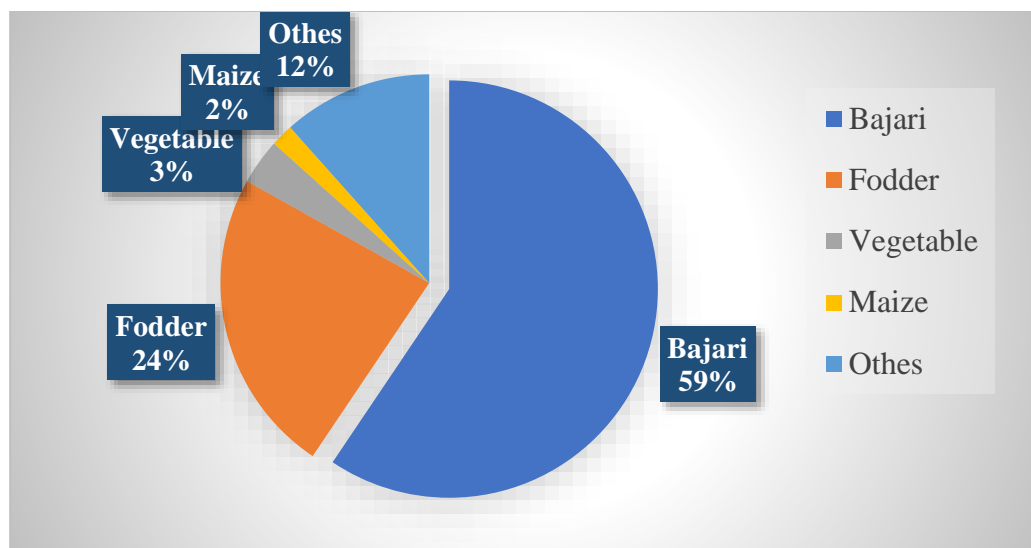


Figure 4.1.5 Summer Crop 2017-18 Banaskantha

Table 4.1.5 Banaskantha Summer Crop sowing area (Ha)2017-18

Crop	Bajra	Fodder	Vegetable	Maize	Others	Total
Area (Ha)	144982	57776	8627	4263	28305	243953

Source-District Agricultural Office – Banaskantha

In summer agricultural season there are 59% Bajra crop sowing in Banaskantha district that followed by 24% fodder crop after that 12% others and 3% vegetable crop. In Banaskantha district there were main crop of Bajra because of animal feeding and own eating. Very a smaller number of farmers sowing for selling in market.so product quality mark the most in Bajra selling.

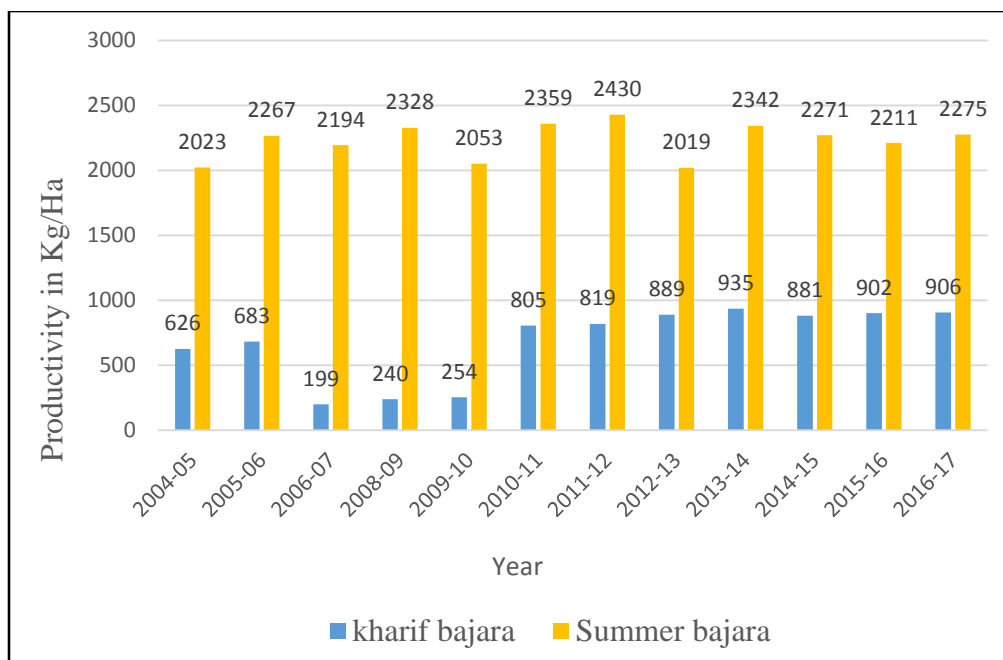


Figure 4.1.6 Bajra Productivity in Banaskantha district area (Kg/Ha)

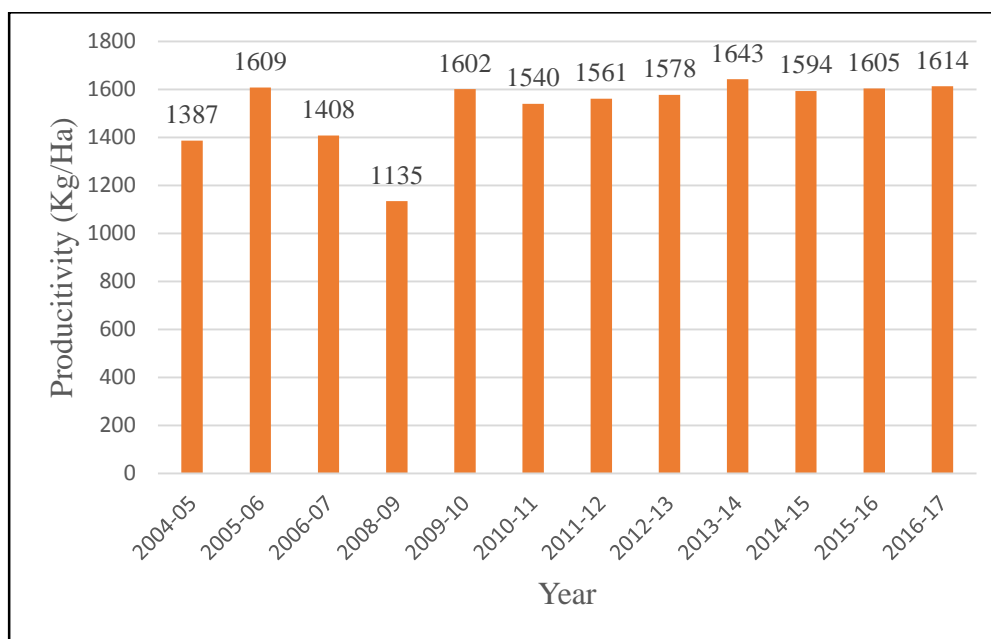


Figure 4.1.7 Mustard Productivity in Banaskantha District (Kg/Ha)

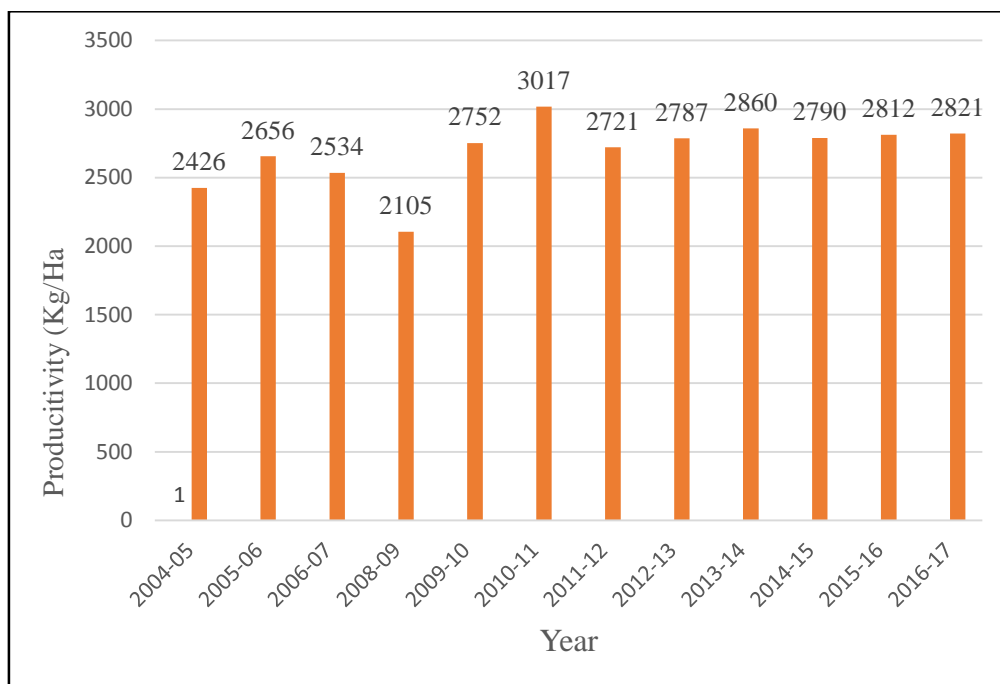


Figure 4.1.8 Wheat Productivity in Banaskantha District (Kg/Ha)

Source-District Agricultural Office – Banaskantha

Above all figure & table show overview of agricultural diversity and profile of the region. On that basis we can determine requirement of seed, distribution of seed, type of seed, on time with specific quality of seed.

4.2 DETERMINE MARKET SIZE & SHARE OF MAJOR COMPANY OF PEARL MILLET, MUSTARD & WHEAT (MT)

4.2.1 Market size

Market size is the number of individuals in a certain market segment who are potential buyers. Companies should determine market size before launching a new product or service.

Understanding market size helps you distinguish between two categories: the addressable market, which is the total revenue opportunity for your product or service; and the available market, which is the portion of the addressable market for which you can realistically compete. By outlining the difference between these two, you can develop a product offering to tackle that consumer sweet spot.

Table 4.2.1 Market size of Banaskantha & Jalore district in Mustard, Bajra & Wheat Crop (in tonne)

Area name	Mustard	Mustard	Bajra	Bajra	Wheat	Wheat
	(Hybrid)	(Research)	(Kharif)	(Summer)	(Research)	(Certified)
Danta	1	2	0	25	5	60
Amirgadh	0	2	0	15	2	15
Vadgam	3	5	0	35	5	60
Palanpur	15	10	15	115	15	60
Deesa	25	15	0	400	15	65
Dantiwada	3	2	10	70	5	40
Dhanera	25	20	0	250	60	85
Tharad	45	25	55	300	60	30
Bhabhar	5	7	0	90	10	30
Diyodar	4	6	0	115	20	40
Vav	3	7	14	10	10	30
Suigam	2	2	5	1	5	15
Lakhani	8	7	0	90	0	0
Kankrage	5	5	0	105	60	70
BanasKantha	144	115	99	1621	272	600
Sanchor	18	20	125	30	45	75
Raniwada	20	10	100	85	70	80
Bagoda	8	7	75	55	70	100
Sayla	18	15	35	10	25	20
Jalore	1	1	5	0	5	25
Ahore	0	1	5	0	3	10
Bhinmal	15	10	160	120	40	45
Jalore	80	64	505	300	258	355

Table 4.2.1 show that there some high potential area where very high consumption of seed scope for growth like Deesa, tharad, Sanchor etc. where every has different potential of Mustard, Wheat & bajra.

4.2.2 Major Shareholding Company, Rasi Market Share in crop Mustard, Bajra & Wheat (MT)

Table 4.2.2.1 Total Market Size, Major Leader, Rasi Share in Market

Mustard					
District	Total Size (MT)	PHI (MT)	Proagro (MT)	Rasi (MT)	Rasi Market Share (%)
Banaskantha	254	90	35	0.8	0.21
Jalore	144	65	25		
Bajra					
District	Total Size (MT)	PHI (MT)	Proagro (MT)	Rasi (MT)	Rasi Market Share (%)
Banaskantha	1720	750	400	2.7	0.11
Jalore	805	300	140		
Wheat					
District	Total Size (MT)	Shriram (MT)	Kaveri (MT)	Rasi (MT)	Rasi Market Share (%)
Banaskantha	872	120	40	0	0.0
Jalore	613	160	65		

Table 4.2.2 show that rasi share in current market and total market size of Banaskantha and Jalore district with three field crops of rasi seeds. There is high opportunity of building business in those area in future times.

4.2.3 Market Potential of Banaskantha & Jalore District of Mustard, Bajra & Wheat.

Market potential - The estimated maximum total sales revenue of all suppliers of a product in a market during a certain period. Determining and forecasting your profitability is important to understand the market potential. If the business is going to give low

profitability, then the volumes need to be high (ex – fmcg products) or if the business is going to give low volumes, then the profit needs to be higher (ex – industrial goods).

4.2.3.1 Mustard Current Market & Market Potential & Business Opportunity in Banaskantha & Jalore District

Table 4.2.3.1 Mustard Crop Current Market & Market Potential & Business Opportunity in Banaskantha & Jalore District (in MT)

Area name	Current Market		Market Potential		Business Opportunity	
	Mustard	Mustard	Mustard	Mustard	Mustard	Mustard
	Hybrid	Research	Hybrid	Research	Hybrid	Research
Danta	1	2	2	3	1	1
Amirgadh	0	2	4	5	4	3
Vadgam	3	5	40	51	37	46
Palanpur	5	7	1	1	-4	-6
Deesa	10	10	28	35	18	25
Dantiwada	5	4	11	14	6	10
Dhanera	25	20	92	116	67	96
Tharad	45	25	154	193	109	168
Bhabhar	5	7	37	46	32	39
Diyodar	4	6	33	41	29	35
Vav	15	17	53	66	38	49
Suigam	2	2	18	22	16	20
Lakhani	10	7	58	73	48	66
Kankrage	5	5	21	27	16	22
Banas Kantha	135	119	552	693	417	574
Sanchor	18	20	54	68	36	48
Raniwada	20	10	34	43	14	33
Bagoda	8	7	25	32	17	25
Sayla	18	15	61	77	43	62

Jalore	1	1	15	19	14	18
Ahore	0	1	6	7	6	6
Bhinmal	15	10	33	42	18	32
Jalore	80	64	229	288	149	224

Table 4.2.3.1 show that there was so much area where countless business opportunity in some of them block was more that 100 (MT) opportunity. Some of have negative value because that place were near to large market and most input buy from that center that is main reason behind negative value of some tehsil.

4.2.3.2 Bajra Current Market, Market Potential & Business Opportunity of Banaskantha & Jalore District

Table 4.2.3.2 Bajra Current Market, Market Potential & Business Opportunity (in MT)

Area name	Current Market		Market Potential		Business Opportunity	
	Bajra	Bajra	Bajra	Bajra	Bajra	Bajra
	(Kharif)	(Summer)	(Kharif)	(Summer)	(Kharif)	(Summer)
Danta	0	25	0	29	0	4
Amirgadh	0	15	0	18	0	3
Vadgam	0	35	0	42	0	7
Palanpur	15	115	25	134	10	19
Deesa	0	400	0	336	0	-64
Dantiwada	10	70	21	114	11	44
Dhanera	0	250	0	282	0	32
Tharad	55	300	59	228	4	-72
Bhabhar	0	90	0	96	0	6
Diyodar	0	115	0	126	0	11
Vav	14	10	19	13	5	3
Suigam	5	1	8	2	3	1
lakhani	0	90	0	204	0	114
kankrage	0	105	3	116	3	11
Banaskantha	99	1621	134	1740	35	119

Sanchor	125	30	329	N.A	204	N.A
Raniwada	100	85	261	N.A	161	N.A
Bagoda	75	55	191	N.A	116	N.A
Sayla	35	10	140	N.A	105	N.A
Jalore	5	0	159	N.A	154	N.A
Ahore	5	0	82	N.A	77	N.A
Bhinmal	160	120	213	N.A	53	N.A
Jalore	505	300	1376	N.A	871	N.A

Table 4.2.3.2 show bajra crop business opportunity in kharif and summer season in Banaskantha & Jalore district. Some data of summer season of Jalore district were missing so cant find out for that area. There is some area where lots of opportunity like Sanchor, Raniwada, Bagoda lakhani etc. and most of center were not covered by rasi distributor.

4.2.3.3 Wheat Current Market, Market Potential & Business Opportunity in Banaskantha & Jalore District.

Table 4.2.3.3 Wheat Current Market, Market Potential & Business Opportunity in Banaskantha & Jalore District. (in MT)

Area name	Current Market		Market Potential		Business Opportunity	
	Wheat Research	Wheat Certified	Wheat Research	Wheat Certified	Wheat Research	Wheat Certified
Danta	5	60	189	325	184	265
Amirgadh	2	15	169	291	167	276
Vadgam	5	60	220	377	215	317
Palanpur	15	100	71	122	56	22
Deesa	15	65	134	231	119	166
Dantiwada	5	40	101	173	96	133
Dhanera	60	100	177	304	117	204
Tharad	60	30	101	173	41	143
Bhabhar	10	30	56	96	46	66
Diyodar	20	40	66	114	46	74

Vav	10	30	56	96	46	66
Suigam	5	15	33	57	28	42
lakhani	0	0	2	3	2	3
kankrage	60	70	265	455	205	385
Banaskantha	272	655	1640	2818	1368	2163
Sanchor	45	75	257	353	212	278
Raniwada	70	80	274	377	204	297
Bagoda	70	100	142	195	72	95
Sayla	25	20	158	217	133	197
Jalore	5	25	197	270	192	245
Ahore	3	10	169	233	166	223
Bhinmal	40	45	206	283	166	238
Jalore	258	355	1402	1928	1144	1573

Table 4.2.3.3 shows wheat crop business opportunity in kharif and summer season in Banaskantha & Jalore district. Some data of summer season of Jalore district were missing so can't find out for that area. There was area where lots of opportunity like Vadgam Sanchor, Raniwada, danta, Palanpur, etc.

4.3 PERCEPTION OF FARMERS AND RETAILERS TOWARD THE PRODUCTS OF VARIOUS SEED COMPANIES

Retailers perception toward major company working in area as below

Table 4.3.1 Perception of farmer on factor of product & service towards major company in market

Company product costly in nature		Company provide demonstration to farmer		Company staff visits farm field after showing		If farmer use company seed, they get better price	
FACTOR	W.A.M	FACTOR	W.A.M	FACTOR	W.A.M	FACTOR	W.A.M
PHI	4.13	PHI	4.40	Pro-Agro	4.33	Pro-Agro	4.5
Dhanya	3.80	Pro-Agro	4.18	PHI	3.95	PHI	3.925
Pro-Agro	3.65	Nandi	3.55	Nandi	3.58	Nandi	3.85
Krishna	3.35	Dhanya	3.05	Dhanya	3.38	Krishna	3.8
Nandi	2.98	Krishna	2.83	Krishna	3.15	Dhanya	3.525

Table 4.3.2 Perception of farmer on factor of performance of product towards major company in market

Seed show high germination percentage		Seed generate plants that show high vigor		Seed give high production	
FACTOR	W.A.M	FACTOR	W.A.M	FACTOR	W.A.M
Pro-Agro	4.55	Pro-Agro	4.65	PHI	4.75
PHI	4.15	PHI	4.475	Pro-Agro	4.675
Dhanya	3.65	Dhanya	3.75	Krishna	3.975
Nandi	3.425	Nandi	3.375	Dhanya	3.9
Krishna	3.2	Krishna	3.05	Nandi	3.8

Table 4.3.3 Perception of Retailers towards major company in market

Company provide valuable offers		Company provides gifts to Distributor/Retailers		Company provide less margin	
FACTOR	W.A.M	FACTOR	W.A.M	FACTOR	W.A.M
PHI	4.38	PHI	4.42	PHI	4.52
DHANYA	4.42	DHANYA	4.26	PROAGRO	3.99
NANDI	3.74	PROAGRO	3.81	KRISHNA	3.92
PROAGRO	3.57	NANDI	3.74	DHANYA	3.85
KRISHNA	3.55	KRISHNA	3.46	NANDI	3.61

Company provide less margin		Company invests a lot on advertisement		Company gives demonstrations to farmers	
FACTOR	W.A.M	FACTOR	W.A.M	FACTOR	W.A.M
PHI	4.39	PHI	4.63	PHI	4.43
PROAGRO	4.01	PROAGRO	4.42	PROAGRO	4.08
NANDI	3.93	DHANYA	3.85	DHANYA	3.98
DHANYA	3.63	NANDI	3.63	NANDI	3.79
KRISHNA	3.54	KRISHNA	3.34	KRISHNA	3.49

Table 4.3.1, 4.3.2 & 4.3.2 shows that Farmer perception toward leader company in study area which done on scale of 1 to 5 Likert scale and weightage average mean method. In survey find out that PHI stand as brand in farmer perception in most of parameter

4.4 SATISFACTORY LEVEL OF FARMERS & DEALERS TOWARDS RASI SEEDS

Table 4.4.1 Satisfactory level of Dealer/Distributors

DELAER/DISTRIBUTOR SATISFACTION	
MARGIN	4.27
DISCOUNT	3.82
TRUST	3.82
CREDIT PERIOD	3.73
QUALITY	3.73
OFFER	3.55
TIMELY AVIALIBILITY	3.55
ADVERTISEMENT	2.91
SALES FORCE	2.82
SALES PROMOTION	2.55

Satisfactory survey in Banaskantha & Jalore district where majorly find out about rasi that dealers were major satisfied with margin, discount and trust over company. Highly unsatisfied with sales force & sales promotion done by company. Some also say that company need to increase staff and advertisement in they werea for increase sales.

Table 4.4.2 Factor Affecting Buying Behavior of Dealer

FACTOR AFFECTING DEALER BEHAVIOR	WEIGHTED AVG. MEAN
More Demand	4.64
More Margin	4.1
More Offer	2.64
More Discount	2.26
Longer Credit Period	1.2

Dealer only prefer that product which highly demanded by farmer they had to keep & sell product if demanded by lots of farmer. More demand main factor into dealer after that dealer prefer more offer & Cash Discount for increase profit and incentive. At last longer credit period which is almost same for every company.

Table 4.4.3.2 farmer satisfied level toward rasi seed bajra crop

FACTOR	W.A.M. SCORE
GERMINATION PERCENTAGE	3.83
WEATHER CONDITION	3.33
YIELD	3.17
PRICE	3.17
BRAND IMAGE	3.00
AVAILABILITY	2.83
PUSH BY RETAILER	2.83
PROMOTIONAL ACTIVITY	2.67

4.5 COMPETITOR ANALYSIS

Competitor Analysis Definition - Identifying your competitors and evaluating their strategies to determine their strengths and weaknesses relative to those of your own product or service

Competitive analysis or competitive research is a field of strategic research that specializes in the collection and review of information about rival firms. It is an essential tactic for finding out what your competitors were doing and what kind of threat they present to your financial well-being.

It also Include such things as target market, price, size, method of distribution, and extent of customer service for a product. For a service, list prospective buyers, where the service is available, price, website, toll-free phone number, and other features that were relevant. A glance at the competition grid were help you see where your product fits in the overall market.

Competitor analysis based on

1)Product

- 2) Price
- 3) Place
- 4) Promotion

4.5.1 Product & Price for competitor analysis for Mustard, Bajra & Wheat.

4.5.1.1 Mustard Product & Price in Present Market in Banaskantha & Jalore District

Table 4.5.1.1 Mustard competitor company Product, Price, Pack Size & Farmer Price

Company	Variety		Pack	NLP	FP
	Hybrid	Research			
Rasi Seeds		Anmol	1	270	400
PHI	45S35		1	430	450-500
	45S42		1	430	450-500
	45S46		1	520	600-650
Bayer	5222		1	370	500
	5444		1	280	400
	5450		1	280	400
Dhanya	7333		1	240	380-450
	7787		1	240	380-450
		999	1	170	300
		666	1	170	300
		555	1	170	300
Mahyco		Mahyco BoldPlus	1	130	250
	Shraddha		1	250	330
J.K Seeds	8532		1	290	450
	8536		1	290	450
	8031		1	290	450
	8008		1	290	450
		Samriddhi Gold	1	140	200
Krishna		KM-22, KM-90	1	220	250

Nuziweedu		Jumbo	1	160	220
Sriram Bioseed		Sonalika	1	170	250
Super Seed		Super Jugni	1	160	250
		Super Jhilmil	1	160	250
Dantiwada		DSW26 dh26	3	120	170
Kavery		K121	1	260	320
		AK-47	1	260	320

Table 4.5.1.1 shows that maximum price of the hybrid mustard seed farmers paid was for seeds of PHI followed by the Bayer crop science, Advanta Seeds and J.K Seeds. The PHI seeds were sold for more than 500 Rs per kg. The price of Rasi Seeds product was equal to 300 Rs per kg which was much lesser than the several major market players.



Figure 4.5.1.1 Product & Price of Mustard Crop

4.5.1.2 Bajra Product & Price in Present Market in Banaskantha & Jalore District

Table 4.5.1.2 Bajra competitor company Product, Price, Pack Size & Farmer Price

Major Competitor	Hybrid	Packet size	Distributor price	Dealer price	Farmer price
Rasi	1818,1827	1.5kg	260	295	325-350
	RBX001,002	1.5kg	430	450	500
Dhanya	7792, 7888	1.5kg	270	295	450
Jeevkar seeds	Research	1.5kg	200	280	350
Sun seeds	Sun-9440,64	1.5kg	210	270	350
Kaveri	SUPERBOSS	1.5kg	255	320	400
JK	36, 26, 7676, 1486	1.5kg	290	370	420
Pioneer	86M84, 86M86,86m88	1.5kg	390	430	450-500
	86M11,86M16, 86M20	1.5kg	480	500	530
Pro agro	9444,9444G,9450	1.5kg	390	420	460-500
Nandi	61,75,52,65	1.5kg	340	360	400-450
Nirmal	1651, 6404	1.5kg	175	233	300-350
Nath	Big B ,301	1.5kg	250	295	380
Sardar seeds	Sardar	1.5kg	220	260	350
Western Agri	45	1.5kg	240	280	400
R&D	555	1.5kg	240	280	350
Kanak	2121,2131	1.5kg	200	240	350
Nirmal	51	1.5kg	210	280	350
Urmi	1111,4444	1.5kg	180	260	420
Swastik	Bhumi	1.5kg	180	250	400
Mangalam	252	1.5kg	260	320	420

Table 4.5.1.2 shows that maximum price of the hybrid mustard seed farmers paid was for seeds of PHI followed by the Bayer crop science, Dhanya and J.K Seeds. The PHI seeds were sold for more than 530 Rs per bag. The price of Rasi Seeds product was equal to 500 Rs per bag which is much higher than the several major market players.

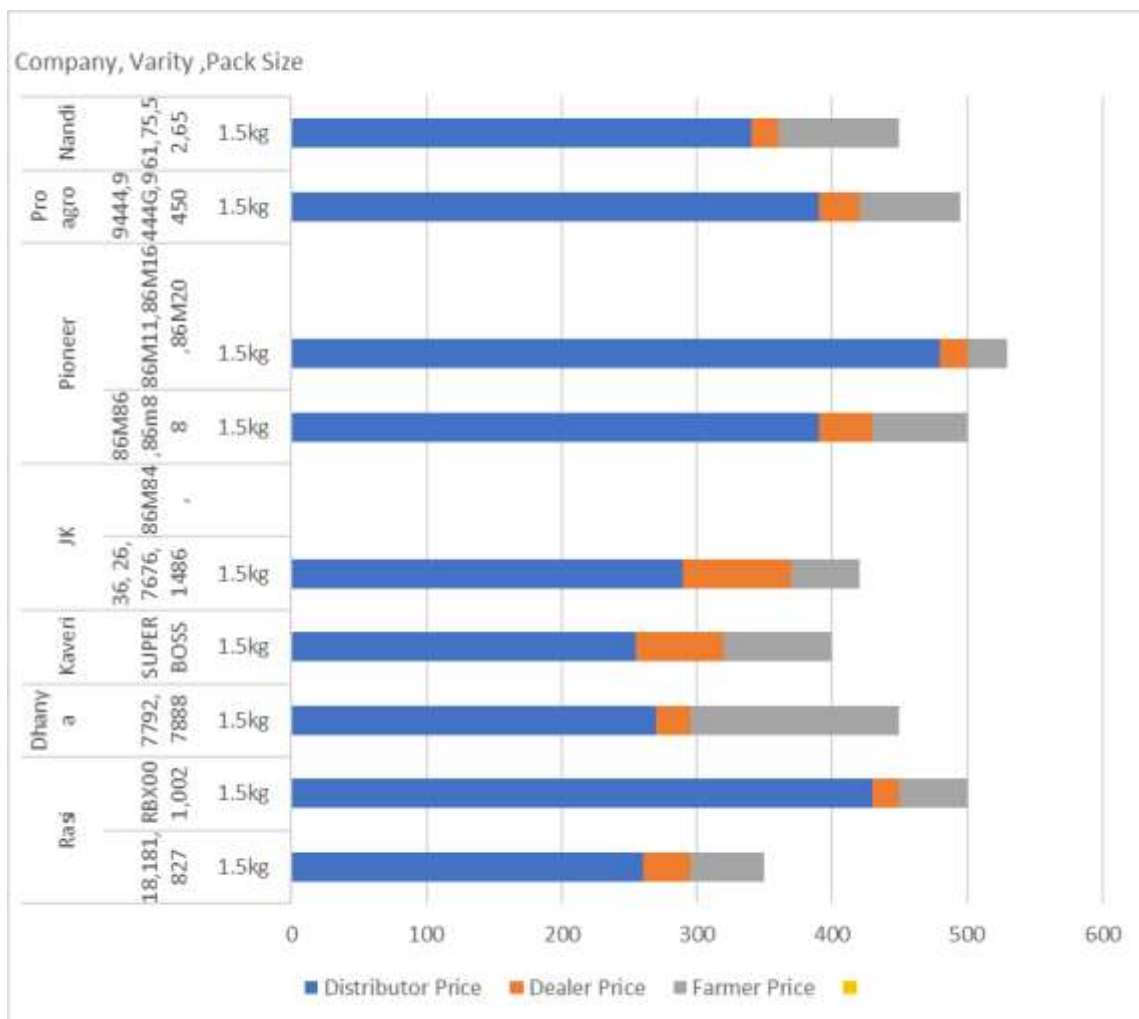


Figure 4.5.1.2 Product & Price of Bajra Crop

4.5.1.3 Wheat Product & Price in Present Market in Banaskantha & Jalore District

Table 4.5.1.3 Wheat competitor company Product, Price, Pack Size & Farmer Price

Company	Varity	Pack Size (Kg)	Dealer Price	Farmer Price
GUJARAT BIJ NIGAM	496,451,173	40	1050	1250-1400
Rajasthan Gov.	1482,3077, C306	40	1050	1250-1400
Rasi	Spark, Thunder	20	800	1000
AVANI	21+	20	850	950
SHRIRAM	111	20	900	1150-1250
EKNATH	BALWAN	40	1100	1350
KAVERI	KMS1	20	1000	1150-1250
J.K	VIJYA	20	950	1200
NUZIVEEDU	KRISHNA	20	950	1150
KANHA	496	40	950	1050
WESTERN		20	850	1050-1100
MAHCO	TARAK, Goal	20	950	1200
SARDAR	SD21	20	775	900
DESAI	SUPER	20	775	850
KANAK	KS75	40	1150	1350
NAVBHARAT	KESHAV	20	750	900
KARNAVATI	911	20	725	900-950

Table 4.5.1.3 shows that most of the farmer paid around 900-1200 per bag for 20 kg bag which is research and for certified seed of 40 kg bag they paid 1250-1400 Rs of wheat seed crop.

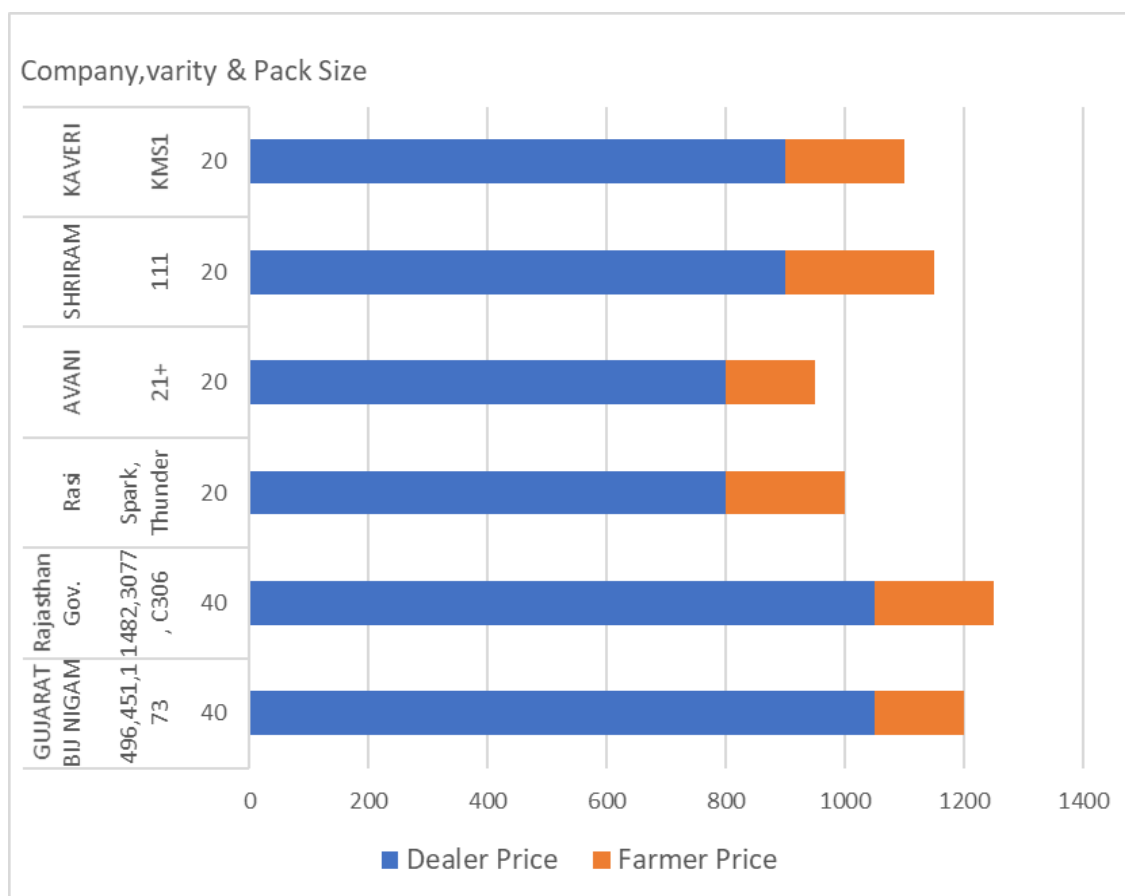


Figure 4.5.1.3 Product & Price of Wheat Crop

4.5.2 Place

Table 4.5.2.1 Number of Channel Partners of Some Major Market Players and Rasi Seeds

Area Name	PHI	PROAGRO	DHANYA	RASI
Danta	1	0	1	1
Amirgadh	1	0	1	0
Vadgam	1	0	1	0
Palanpur	2	0	1	0
Deesa	4	1	3	1
Dantiwada	2	2	2	1
Dhanera	3	3	2	1
Tharad	4	4	2	1
Bhabhar	2	2	2	0
Diyodar	2	2	1	0

Vav	1	0	0	0
Suigam	0	0	1	0
Lakhani	2	1	1	0
Kankrage	1	1	1	0
Banaskantha	25	17	20	5
Sanchor	1	2	1	1
Raniwada	1	2	1	0
Bagoda	2	1	1	0
Sayla	1	1	1	0
Jalore	1	0	0	0
Ahore	1	0	0	0
Bhinmal	1	2	2	1
Jalore	8	8	6	2

Table 4.5.2.1 shows that no of distributors in all the block were maximum for PHI Followed by Dhanya Seeds and Bayer crop science respectively, whereas Rasi Seeds had Business Opportunity in several market, with no distributors in 14 block and less distributors compared to other market leaders in existing markets.

4.5.3 Promotion

4.5.3.1 comparison of advertisements done by different company

Table 4.5.3.1 Respondents selection for company doing maximum advertisements

Name of the Company	No of respondents for maximum advertisement
PHI	103
Bayer	28
Dhanya	18
Krishna Seeds	16
Nandi	12
J.K Seeds	6
Rasi Seeds	2
Others	5

Table 4.5.3.1 shows that PHI has highest recognized brand among farmer with 54%. followed by Bayer (Proagro) 15% and Dhanya seeds 10%. Krishna seeds special focus on Jalore district with 8% and Nandi 6%. Rasi seeds 1% advertisement response in farmer compare to leader very less promotional activity.

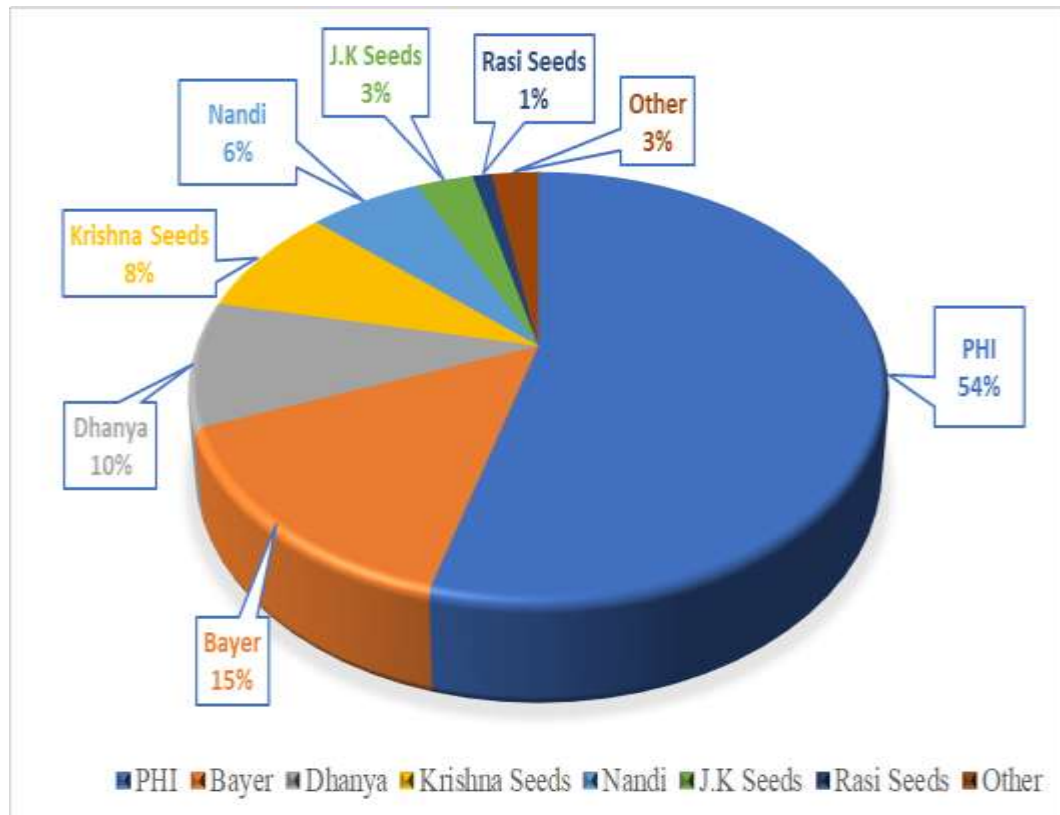


Figure 4.5.5.1 Maximum advertising Company

4.6 RASI CHANNEL PREPAREDNESS FOR BUSINESS, CHANNEL BUSINESS OPPORTUNITY

4.6.1 Rasi Channel Preparedness Business Opportunity and Strength

Table 4.6.1.1 No. of Rasi Distributor, POs & TM in District

Area name	No of Distributer	No of Po	Present of TM
Danta	1	0	1
amirgadh	0	0	
Vadgam	0	0	
Palanpur	1	0	
Deesa	1	1	
Dantiwada	0	0	
Dhanera	1	0	
Tharad	1	1	
Bhabhar	0	0	
Diyodar	1	0	
Vav	0	0	
Suigam	0	0	
lakhani	0	0	
kankrage	0	0	
Banaskantha	6	2	
Sanchor	1	0	
Raniwada	0	0	
Bagoda	0	0	
Sayla	0	0	
Jalore	1	0	
Ahore	0	0	
Bhinmal	1	0	
Jalore	3	0	

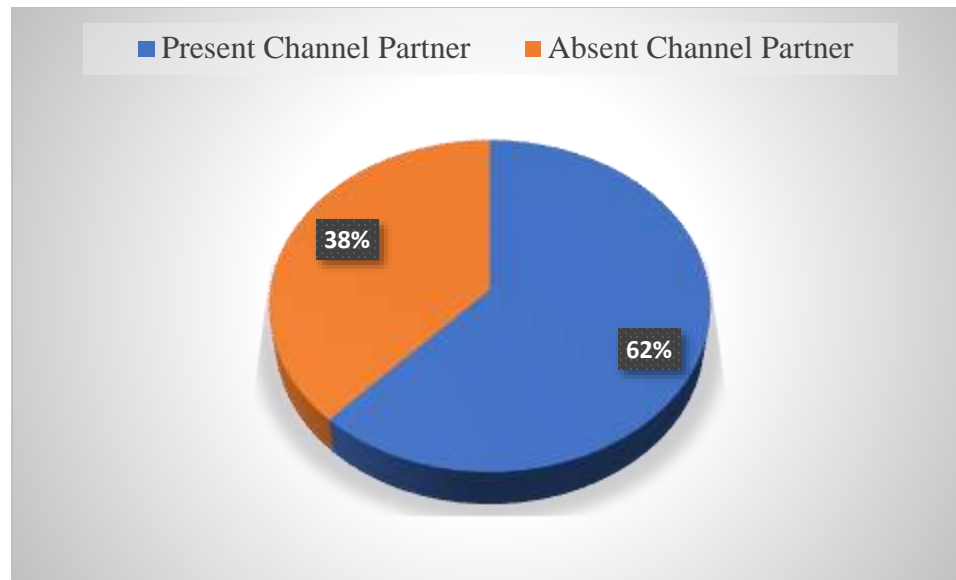


Figure 4.6.1 Rasi Channel Preparedness

Table 4.6.1.1 shows that Current Market Channel Covered only 52% Market there is still 48% Business Opportunity in channel distribution of Rasi Seeds. Total 19 blocks there were 11 block presents of distributor still lack of 7 places where not rasi channel partner. (Figure 4.6.1)

4.6.2 Channel Business Opportunity

Table 4.6.2 Channel Business Opportunity in Rasi Distribution

Area name	No of Distributor	Recommend to added
Danta	1	0
Amirgadh	0	0
Vadgam	0	1
Palanpur	1	0
Deesa	1	0
Dantiwada	0	0
Dhanera	1	0
Tharad	1	0
Bhabhar	0	1
Diyodar	1	0
Vav	0	0

Suigam	0	0
lakhani	0	1
kankrage	0	0
Banaskantha	6	3
Sanchor	1	0
Raniwada	0	1
Bagoda	0	1
Sayla	0	0
Jalore	1	0
Ahore	0	0
Bhinmal	1	0
Jalore	3	2

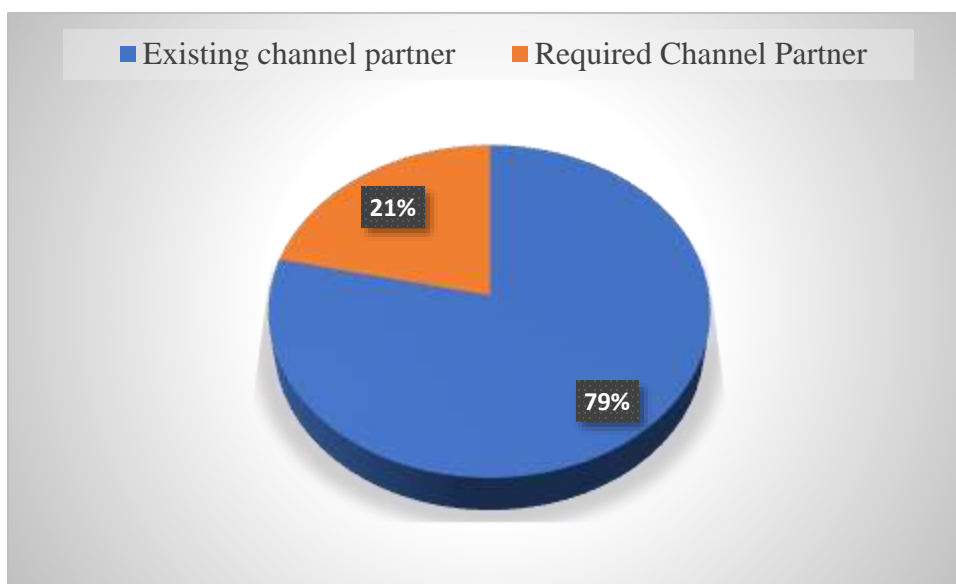


Figure 4.6.2 Rasi Channel Business Opportunity

Table 4.6.2 shows that the existing channel partner was able to cover only 79% of the market of study area indicating a Business Opportunity of 21% which need to be covered.

4.7 FORMULATE MID-TERM PLAN IN A PHASED MANNER AND EFFECTIVE SALES STRATEGIES FOR BANASKANTHA & JALORE DISTRICT.

Table 4.7.1 Target for Midterm Strategy of Effective Sales (in MT)

Crop	2019	2020	2021	2022
Bajra	2.7	3.1	3.5	4.1
Mustard	0.75	0.86	0.989	1.13
Wheat	0	1	2.5	5

In 2019, There were very less present of Rasi seeds Product in Current Market, but Company Working So hard on marketing and product development to penetrate into the market as a brand for better future of sales. Till date less effort was taken to beat the market and comparatively less effective product like in bajra 1818,1827,1836 has the main feature of sweetness but in yield, it's less effective. In mustard, farmer wants more hybrid product which company plan to introduce in the near future. In wheat, there were adequate of business opportunity if product suitable to soil and climate condition till date no action to be taken.

company has already taken samples and some field demo of RBX001, RBX002 which can be a game changer for company in the next 3 year. Same as company introduce 1604 Mustard hybrid Product in near future and Company also Penetrate into forage category in name of SIRA SEEDS which help to connect with the farmer in all season Crop.

Table 4.7.2 current number of Distributer and recommend to added in future year

Area name	No of Distributer	Recommend to added			
	2019	2020	2021	2022	
Danta	1	0	0	0	
Amirgadh	0	0	0	0	
Vadgam	0	1	0	0	
Palanpur	1	0	0	0	
Deesa	1	0	0	0	
Dantiwada	0	0	1	0	
Dhanera	1	0	0	0	

Tharad	1	0	0	0
Bhabhar	0	1	0	0
Diyodar	1	0	0	0
Vav	0	0	0	0
Suigam	0	0	0	0
Lakhani	0	1	0	0
kankrage	0	0	0	1
Banaskantha	6	3	1	1
Sanchor	1	0	0	0
Raniwada	0	1	0	0
Bagoda	0	0	1	0
Sayla	0	0	0	1
Jalore	1	0	0	0
Ahore	0	0	0	0
Bhinmal	1	0	0	0
Jalore	3	1	1	1
Total	9	4	2	2

Table 4.7.3 Current number of Project Officer and recommend to adder in future year

Area name	No of P. O	Recommend to added			
		2019	2020	2021	2022
Danta	0	0	0	0	0
Amirgadh	0	0	0	0	0
Vadgam	0	0	0	0	0
Palanpur	0	0	0	0	0
Deesa	1	0	0	0	0
Dantiwada	0	0	0	0	0
Dhanera	0	1	0	0	0
Tharad	1	0	0	0	0
Bhabhar	0	0	0	0	0
Diyodar	0	0	1	0	0

vav	0	0	0	0
Suigam	0	0	0	0
lakhani	0	0	0	1
kankrage	0	0	0	0
Banaskantha	2	1	1	1
Sanchor	0	0	0	0
Raniwada	0	0	0	0
Bagoda	0	0	1	0
Sayla	0	0	0	1
Jalore	0	0	0	0
Ahore	0	0	0	0
Bhinmal	0	1	0	0
Jalore	0	1	1	1
Total	2	2	2	2

Specific Action Suggested based on observation to Accomplished target

- 1) Planning to increase distributor and build trust of established distributor. Some of them were distributor of rasi from long time but not doing aggressive selling action so take appropriate action.
- 2) give incentive to p.o. for archiving advance booking and some level of target archiving.so they motivated to do hard work and also give them flexible hours to do work and meeting.
- 3) Availability of company product if main problem for farmer in specific region which can be reduced by increasing distributor and motivate them to take product to dealer.
- 4) Increase advertise campaign while sowing season in distribution of carry bags with seed packets, card, template, banner/posters/literature, wall painting, gifts to dealers, kitchen, calendar and demo product.
- 5) The company should mention the detail and images of other products so that farmers can easily recognize it and it were also help in creating awareness among the farmers towards other product of Rasi.

5. SUMMARY AND CONCLUSION

The research project entitled “mapping of rasi seeds’ field crop business opportunity in Banaskantha district in Gujarat and Jalore district of Rajasthan” primarily focus on study of marketing activity, competitor analysis of major company, market share of Rasi seeds, determine Market size and potential and business opportunity for bajra, wheat and mustard crop. Besides that, Farmer and Dealer Perception toward leader company and Rasi seeds along their Distribution Channel and advertisement response have been carried out for study purpose.

The study was conducted in 14 blocks of Banaskantha and 7 blocks of Jalore district. For survey purpose, 190 farmers of pearl millet and 190 farmers of mustard and 90 farmers of wheat have been with 190 distributor/retailers samples were taken out for study. Secondary data were collected from the district of agricultural and revenue department and website of state agricultural departments etc.

Both Banaskantha and Jalore districts have the high opportunity bajra crop production with almost 100% replacement rate with hybrid seeds. In Banaskantha district almost 60% bajra crop sown in summer season where as Jalore district 50 % bajra crop sown in kharif season. But farmer prefer more quality and yield over seed price in Banaskantha district. In Jalore district farmer prefer Price and Quality over yield.

The cultivation practices of the farmers varies from region to region as in between Banaskantha and Jalore district. There was significant difference in cropping pattern in both districts like in Banaskantha, In kharif season bajra, fodder, cotton, ground nut and in rabi season potato, cumin, mustard and in summer season bajra , fodder while in Jalore district kharif season bajra, moong, guar and in rabi season isbgoal, cumin, mustard crop and in summer season very less area is under Bajra crop due to unavailability of irrigation.

In Jalore district bajra crop acquire maximum area in kharif season and it seed rate was 1.8-2.4 kg/acre and while in Banaskantha district seed rate was 2.5-4.8 kg/acre. In wheat

crop seed rate for research crop 35-40 kg/acre and in certified seeds it was 50-55 kg/acre that was same in both districts. In mustard crop seed rate for hybrid crop was 3.5 kg/acre and for research crop it was 4.4kg/acre. In both districts mixed cropping pattern was followed and for sowing seed drill as well as broadcasting method was used. In Bajra majority of farmers use Seed drill for sowing whereas in Wheat farmer prefers broadcasting method for sowing.

For bajra product package is 1.5 kg and for mustard 1 kg package and wheat seeds 20 kg pack is standard. Hybrid bajra product sold most below the rasi RBX001, RBX002 price which is Rs 500 farmer price which is main challenge for dealer to sold at higher rate than some of established and leader company product. Company should introduce Hybrid mustard introduce in these markets as soon as possible. Production of research mustard were good but farmer prefer hybrid over research product and farmer can buy hybrid mustard in price of research product of rasi company. Awareness about research wheat product in farmer were very less. Most of the farmer sown certified wheat which provided by state seed corporation and completely satisfied with productivity. Famer also sown fallow farmer and previous year seed for wheat production. Company should take sample & demo in Jalore area where more aware about research wheat product there will chance to accept the Rasi wheat product.

Productivity of bajra in summer season was 20-24 Q/Ha while as in Kharif season it was 2-9 Q/ha. Productivity of mustard was 10-14 Q/Ha and wheat, it was 21-31 Q/ha in Banaskantha district in the last 10 years.

Market size for the Mustard crop in Banaskantha district is 260 MT and Jalore District 145 MT and for wheat Crop it was 850 MT whereas in Jalore district, it was 613MT. Market size for Bajra crop in Banaskantha district was 1720 MT and Jalore district, it was 805 MT.

Major Market share was identified for company PHI 155 MT, Proagro 60 MT, Rasi 0.8 MT in Mustard Crop in Banaskantha and Jalore District. For bajra crop PHI 1000 MT, Proagro 540 MT, Rasi 2.7MT Market share in Banaskantha and Jalore District. For wheat crop

in studied area Shri Ram - 280MT, Kaveri seeds - 105MT and there was zero market share of Rasi. So, as per sold product in studied area Rasi Seeds Market share in Mustard crop 0.21% and in bajra crop 0.11% and wheat crop 0.0%. There was clearly indicate that for mustard and bajra crop PHI, Pro-agro were market leader company in studied area and for Wheat crop Shriram and Kaveri Company was market leader in studied area. There were also state seeds corporation hold major size in wheat market.

Price for hybrid mustard product was in the range for Rs 450-600 per kg of Bag which is a standard size. Proven mustard variety was sold in the range of Rs 170-400 per kg of Bag in the study area. Major company sold mustard in 1 kg packing, some in 3 Kg packaging. Bajra hybrid products were sold in range Rs 250-530 per kg of Bag and Bajra was sold in packaging size of 1.5Kg standard but some company also sold it in 3 Kg. For wheat, Research variety sold in the range of Rs 900-1250 per 20Kg Packaging and Certified varieties were sold in the range of Rs 1050-1250 per kg of Bag where Government Seed Company provide at a rate of Rs 1440 per 40kg of Bag where they get Rs 400 back as subsidy. so, dealer sold the product as per their margin.

Farmers gave a response of positioning for PHI, Pro-agro and Dhanya as three best company in seed input sectors. Market availability for rasi seed product in the studied area was found less. There were 10 blocks out of 21 blocks where rasi seed distributors were Present. There were two project officer and one field assistant with one T.M present in both districts.

In case of Rasi Seeds, 10 out of the total 21 block, the presence of channel partner was found to be only 48% and remaining markets were untapped.

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Competitors pearl millet seeds business share with dealer

Company	Share	Support	Strength	Weakness

Competitors wheat seeds business share with dealer

Company	Share	Support	Strength	Weakness

Quantity of mustard seeds you sell in order of quantity-

	Variety name	Company	Pack size	Price	Quantity sold
Hybrids	1) 2) 3)				

Quantity of Pearl Millet seeds you sell in order of quantity-

	Variety name	Company	Pack size	Price	Quantity sold
Hybrids	1) 2) 3)				

Quantity of wheat seeds you sell in order of quantity-

Variety name	Company	Pack size	Price	Quantity sold
1) 2) 3)				

Which company Variety/ Hybrid seeds you keep maximum_____

Reason,

- | | | |
|-------------------------|--------------------------|------------------------------|
| 1. More demand | 2. More offers / schemes | 3. More discount |
| 4. Longer Credit period | 5. More margin | 6. Any other reason, specify |

Companies sales force maintains nice relations with distributors/ retailers					
Company gives demonstrations to farmers					
Company supplies seed on time					
Companies products are good quality					
Company is trustworthy					
Companies return policy is not nice					
Do you have any suggestion for Rasi Seeds?					

SCHEDULE FOR PEARL MILLET FARMER

Name -		Age -	Contact No -				
Village -		Taluka-	District -				
General information about operational land holding							
Operational land holding details							
Operational land holding	Area		Irrigated		Rainfed		
Under Pearl Millet crop							
Under other crop							
Total							
Cropping pattern details							
Season	Crop		Irrigated		Rainfed		
Kharif							
Rabi							
Summer							
Reason for increase/decrease in area grown under pearl millets?							
Reason for increase/decrease in area grown under other crop?							
What type of seeds you use a. 1. Traditional saved seeds 2. Improved varieties 3. Hybrids							
What is the main source of irrigation? a) River b) Canal c) Bore well d) Well e) Others							
Seeds	Name of Variety	Company	Cost of seeds (Rs/kg)	Seed rate (Kg/ha)	Yield (Qt/ha)	Market price (Rs/qt)	Reason for using
Saved seeds	1)						
	2)						
Improved seeds	1)						
	2)						
Hybrid seeds	1)						
	2)						

Score the following companies on below mentioned parameters:

Strongly Agree -5, Agree -4, Neutral – 3, Disagree – 2, Strongly Disagree – 1

PARAMETERS	Dhayna	PHI	Krishna	Nandi	Pro-Agro
Seeds generate plants that shows high vigor					
Seed shows high germination percentage					
Seed generates plant that can withstand adverse conditions					
If farmers use company seeds they get higher market prices					
Company provides demonstration to farmers					
Company provides information regarding new technologies in agriculture					
Company staff visits farm fields after sowing					
Company products are costly in nature					
Company seeds requires higher fertilizer and irrigation					
Seed gives higher production					
Company has long product line to choose					

Do you have any complaint for Rasi products? Yes/No
 (a) Leakage (b) Packaging (c) Seed quality (d) Price High (e) Others

Do you have any recommendation for improvement in Rasi seeds?

SCHEDULE FOR MUSTARD/RAPSEED FARMER

Name -		Age -					
Village-		Tehsil -					
District -		State -					
Contact No. -							
Operational land holding details							
Operational land holding	Area	Irrigated	Rainfed				
Under mustard crop							
Under other crop							
Total							
Cropping pattern details							
Season	Crop	Irrigated	Rainfed				
Kharif							
Rabi							
Summer							
Growing mustard as							
1. Mono crop 2. Mixed crop 3. Intercrop 4. Trap crop							
What type of seeds you use							
1. Traditional saved seeds 2. Improved varieties/Hybrid 3. Both							
Month of sowing - I st / II nd / III rd / IV th week of							
Method of sowing							
1. Broadcast 2. Line sowing 3. Ridge & furrow & 4. Broad bed furrow							
Seeds	Name of Variety	Company	Cost of seeds (Rs/kg)	Seed rate (Kg/ha)	Yield (Qt/ha)	Market price (Rs/qt)	Reason for using
Saved seeds							
Improved seeds							
Hybrid seeds							

Duration of the mustard crop you are growing at present

1. Early maturity 2. Medium maturity 3. Late maturity

Do you purchase seeds from Rasi?

Yes

b) No

If yes then,

What are the factors which are influencing the purchasing of Rasi seeds?

Factor	Highly Satisfied	Satisfied	Indifferent	Dissatisfied	Highly Dissatisfied
Yield					
Price					
Availability					
Brand Image					
Push by retailer					
Promotional Activity					
Weather conditions					
Germination percentage					

Do you have any complaint for Rasi products?

Yes/No

- (a) Leakage (b) Packaging (c) Seed quality (d) Any other

SCHEDULE FOR WHEAT FARMER

Name-		Village-					
Tehsil/ Block-		District-					
Contact No. –		Do you use smart phone: a) Yes b) No					
Operational Land Holding details							
Operational land holding (ha)	Area	Irrigated		Rainfed			
Under Wheat crop							
Under other crop							
Total							
Method of sowing							
1. Direct seeding		2. Transplanting		3. SRI		4. Broadcasting	
Cropping pattern details (Area)							
Season	Crop	Irrigated		Rainfed			
Kharif	1)						
	2)						
	3)						
Rabi	1)						
	2)						
	3)						
Summer	1)						
	2)						
Seeds	Name of Variety	Company	Cost of seeds (Rs/kg)	Seed rate (Kg/ha)	Yield (Qt/ha)	Market price (Rs/qt)	Reason for using
Saved seeds	1)						
	2)						
Improved seeds	1)						
	2)						
Hybrid seeds	1)						
	2)						
Time of Sowing – I st / II nd / III rd / IV th week of							

