Thesis No - 1577
Date - 25-7-72
MARKET POTENTIAL FOR MICRO NUTRIENT AND NPK SOLUBLE IN WHEAT CROP IN BIKANER DISTRICT OF RAJASTHAN

A PROJECT WORK

SUBMITTED TO THE

JUNAGADH AGRICULTURAL UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE

OF

MASTER OF BUSINESS ADMINISTRATION

IN

AGRI-BUSINESS

BY

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APRIL - 2012

Registration No. J4 – 00724 - 2010
Abstract

The text continues with the main content of the document.
MARKET POTENTIAL FOR MICRO NUTRIENT AND NPK SOLUBLE IN WHEAT CROP IN BIKANER DISTRICT (RAJASTHAN)

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ABSTRACT

In India agriculture has a long history dating back to ten thousand years. Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and logging accounted for 13.9 per cent of the GDP in 2011, employed 60 per cent of the total workforce and despite a steady decline of its share in the GDP, is still the largest economic sector and plays a significant role in the overall socio-economic development of India.

Fertilizers have played a vital role in the success of India’s green revolution and consequent self-reliance in food grains production. The increase in fertilizer consumption has contributed significantly to sustainable production in food grains in the country.

The N is for nitrogen, the P is for phosphorus and the K is for potassium or potash. Out of 16 nutrients (12 are water soluble fertilizers) known elements necessary for plant life, N-P-K, are the three that are of the most importance and always listed on water soluble fertilizers, in that order (except Eco-Grow, which lists N-K-P). Following N-P-K, calcium (Ca) and magnesium (Mg) are the two, second most important nutrients listed on the label. The rest, iron (Fe), sulfur(S), manganese (Mn), boron (B), molybdenum (Mb), zinc (Zn) and copper (Cu) are trace elements or micro-nutrients.

The project will be beneficial to farmers as well as company also. Before implementations of the project raw information are needed this will provides basic strength to future business. Based on the requirement of project following objectives of the study were formulated. (1) To find out the cropping pattern in Bikaner district, (2) To know the market potential of micro nutrient and NPK soluble in wheat crop,
(3) To know the perception of farmers towards use of micro nutrient and NPK soluble in wheat crop, (4) To find out suitable promotional activities for product promotion for SFC. Multi stage sampling technique has been adopted as per the objectives of the study. The district at the first stage, taluka at the second stage and village at the third stage are selected for the study. On basis of agricultural activity and cropping pattern, select Bikaner district. From each Taluka, four distributors have been selected for sampling at the first stage. At the next stage of sampling, ten farmers have been selected at each village. The primary data was collected through survey. The information was collected through personal interview with the distributor using well structured questionnaires. The interview was regarding information on agricultural activities, cropping pattern and about the fertilizer companies working in that area. Secondary data was collected from company database, Government departments, web portals and literature available from other sources.

Guar, moth, gram, rape seed, ground nut are the major crops grown in Bikaner district. In Rabi season gram, mustard, wheat and in Kharif season guar, moth and ground nut are grown as major crops in Bikaner. All main crops cultivated under Rabi season have increased 2010 s–11 to 2011–12. Gram is an important crop of Bikaner district. It has significant areas under cultivation, followed by wheat crop. Area of cultivation of gram is increased by 4.04 per cent then the previous year and of wheat areas is increased by 6.39 then the last year. The highest change in area of cultivation is of rape & mustard which is 14.39 per cent measure change in cultivation of area can be seen in case of tarameera crop of which cultivation area is decreased by 86.50 per cent then the last year. Micronutrient and NPK soluble has huge market potential in Bikaner for wheat crop because wheat occupies a large area in this district. Karnataka fertilizers, Aries, SFC are major company working in that area. Karnataka fertilizers 48 per cent, SFC 29 per cent market share covers and rest by other companies in micronutrient market. For NPK soluble Aries cover highest market share 31 per cent. Farmers perception regarding micronutrient and NPK soluble was that prices of micronutrient and NPK soluble is high but enhance the crop production, quality and also soil property. According to the farmer’s field days, demonstration, jeep campaigns are the best method for product promotion.
Mr. C. R. Bharodia.
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CERTIFICATE

This is to certify that the project work report entitled MARKET POTENTIAL FOR MICRO NUTRIENT AND NPK SOLUBLE IN WHEAT CROP IN BIKANER DISTRICT OF (RAJASTHAN) submitted by MR. BIRBAL RAM in the partial fulfillment of the requirements for the award of the degree of MBA (AB) at Junagadh Agricultural University, is a record of bonafide research work carried out by him under my guidance and supervision and the final project work has not previously formed the basis for the award of any degree, diploma or other similar title.

Place: Junagadh
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Date: 19 - 06 - 2012

This is to certify that the project work report entitled MARKET POTENTIAL FOR MICRO NUTRIENT AND NPK SOLUBLE IN WHEAT CROP IN BIKANER DISTRICT OF (RAJASTHAN) submitted for the degree of MBA IN AGRI-BUSINESS in the subject of AGRIBUSINESS MANAGEMENT embodies bonafide research work carried-out by MR. BIRBAL RAM under my guidance and supervision and that no part of this project work report has been submitted for any other degree. The assistance and help received during the course of investigation have been fully acknowledged.

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CERTIFICATE – III

Date: 19 - 06 - 2012

This is to certify that the project work report MARKET POTENTIAL FOR MICRO NUTRIENT AND NPK SOLUBLE IN WHEAT CROP IN BIKANER DISTRICT OF (RAJASTHAN) submitted by MR. BIRBAL RAM to Junagadh Agricultural University, Junagadh in the partial fulfillment of the requirements for the degree of MBA IN AGRI-BUSINESS in the subject of AGRIBUSINESS MANAGEMENT after recommendation by the external examiner was defended by the candidate before the following members of examinations committee. The performance of the candidate in the oral examination was satisfactory; we therefore, recommended that the project work report is approved.

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CERTIFICATE – IV

Date: 4-07-2012

This is to certify that MR. BIRBAL RAM student of MBA IN AGRI-BUSINESS in AGRIBUSINESS MANAGEMENT has made all corrections/modifications in the project work report entitled MARKET POTENTIAL FOR MICRO NUTRIENT AND NPK SOLUBLE IN WHEAT CROP IN BIKANER DISTRICT OF (RAJASTHAN) as suggested by the external examiner and the advisory committee in the oral examination held on 19-06-2012. The final copies of the project work report duly bound and corrected have been submitted on 4-07-2012.

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Certificate V

This is to certify that Mr. BIRBAL RAM studying in MBA in Agri-business (4th Semester) at Post Graduate Institute of Agri-Business Management, J.A.U., Junagadh has successfully completed the project work in our organizational department during the period 16th Jan. to 5th March, 2012

Title:

"Market Potential for Micro Nutrient and NPK Soluble in Wheat Crop in Bikaner District of Rajasthan."

We wish him all success in future.

Head, Training Division

[Signature & Seal]
ACKNOWLEDGEMENTS

Words can hardly express my feeling of indebtedness to all those who extended cooperation in completing this project work successfully. The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of all those people who made it possible whose constant guidance and encouragement crowns the efforts with success.

I express my sincere thanks to our Principal, Dr. K. A. Khunt and my project guide, Mr. C. R. Bharodia, Assistant Professor (PGIABM, JAU, Junagadh) for his generous support, constant direction and mentoring at all stages of the project work.

I am record my gratitude to Dr. N.C. Patel, Hon’able Vice Chancellor and Dr. C. J. Dangriya, Director of Research and Dean of P. G. Studies, JAU, Junagadh for providing me necessary facilities for conducting my project work.

I am also indebted to Dr. P. M. Thanki, Dr. V. M. Thumar, Mr. Kalpesh Kumar, Mr. H. Y. Maheta and Ms. N. M. Thaker and all faculty members, PGIABM, JAU, Junagadh who were real source of help and assistance to me during the course of the project.

I am thankful to Mr. Devendar Agrwal, Senior Marketing Manager and Mr. Suneel Tiwari, Area Manager of Shiriram Fertilizers & Chemicals Pvt. Ltd. who gave me the opportunity to have a closer look at the working with Shiriram Fertilizers & Chemicals Pvt. Ltd.

I express my special thanks to my friends and colleagues Mr. Anil Sharma, Mr. Yashwant Sahu, Mr. Kapil, Mr. Kolli Jani and Mr. Haresh Chavda, Mr. Hanuman Prasad, Mr. Vinod Saran, Mr. Arvind Kumar, Mr. Amit Kumar, Mr. Ramji, Mr. Obaram and Mr. Aditya Chouksey all my friends who have been a constant source of help and encouragement. I firmly believe that there is always a scope of improvement. I welcome any suggestions for further enriching the quality of this report.

I would like to thank the Almighty God and my parents whose blessings are my most valuable assets.

Place: Junagadh

Date: 27/04/2012

(Birbal Ram)
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CHAPTER - 1
INTRODUCTION

In India agriculture has a long history dating back to the thousand years. Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and logging accounted for 13.9 per cent of the GDP in 2011, employed 60 per cent of the total workforce and despite a steady decline of its share in the GDP, is still the largest economic sector and plays a significant role in the overall socio-economic development of India.

India is the largest producer in the world of milk, cashew nuts, cotton, tea, ginger, turmeric, and black pepper, and has the world's largest cattle population (287 million). It is the second largest producer of wheat, rice, sugar, jowar, and boro rice. It is the third largest producer of tobacco. India accounts for 30 per cent of the world fruit production with 17 per cent in the production of bananas and 25 per cent in the production of mangoes; and its population is growing faster than its ability to produce rice and World-Check. 1997-98.

1.1 History of Indian fertilizer industry

Agriculture and related industries are important to the Indian economy. The production of food grains is the mainstay of the economy. With the rapid growth of the economy, the demand for food grains has increased. The production of food grains has increased at a rate of 4.2 per cent per annum. The production of food grains has increased from 1370 million tonnes in 1990-91 to 1760 million tonnes in 2011-12. This target can be achieved by higher productivity through improved farming.
CHAPTER – I
INTRODUCTION

In India agriculture has a long history dating back to ten thousand years. Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and logging accounted for 13.9 per cent of the GDP in 2011 employed 60 per cent of the total workforce and despite a steady decline of its share in the GDP, is still the largest economic sector and plays a significant role in the overall socio-economic development of India.

India is the largest producer in the world of milk, cashew nuts, coconuts, tea, ginger, turmeric and black pepper, and has the world’s largest cattle population (281 million). It is the second largest producer of wheat, rice, sugar, groundnut and inland fish. It is the third largest producer of tobacco. India accounts for 10 per cent of the world fruit production with first rank in the production of banana and sapota. India’s population is growing faster than its ability to produce rice and wheat (Anon., 2012c).

1.1 History of Indian fertilizer industry

Fertilizers have played a vital role in the success of India’s green revolution and consequent self-reliance in food grains production. The increase in fertilizer consumption has contributed significantly to sustainable production in food grains in the country. Fertilizer is generally defined as “any material, organic or inorganic, one or more of the chemical elements required for plant growth” India is the third largest fertilizer producer in the world. Fertilizer is a crucial input contributing to about 40 per cent of the productivity of the crop. With expanding agricultural production, improvement in technology and growing awareness among farmer, the consumption of agrochemicals has been on the upswing. The agrochemicals industry is made up of insecticides (74 per cent), herbicides (20 per cent) and fungicides (6 per cent). India is one among the most dynamic generic pesticides manufacturing countries with a total market size of Rs 89 billion per annum. And yet, India’s own average consumption of pesticides is very low at 480 gm per hectare which results in crops worth about Rs. 120 billion being annually destroyed by pests. Crop protection has assumed special importance since food grains demand in the country is supposed to reach an estimated 343 million tonne by 2020. To conclude, fertilizer is a key ingredient in ensuring the food security of the country, as it increases the production and productivity of the soil. The domestic food grain production target has been set at 320 million tonnes by 2011-2012. This target can be achieved by higher productivity through improved farming.
practices, expansion of irrigation, better seeds and extensive and balanced use of fertilizers. Towards this end, the government of India is now planning to raise the production of urea by the end of 11th Five Year Plan by taking concrete steps to boost production and productivity. All these things show the definite growth of fertilizer industry in India (Anon., 2012d).

Fertilizers production in India is nutrient wise. The three main nutrients-Phosphate, Potash and Nitrogen (Urea) are used for fertilizers creation. Urea, Ammonium Sulphate, Calcium Ammonium Nitrate (CAN) and Ammonium Chloride are the nitrogenous fertilizers produced in India and Single Super Phosphate (SSP) is the only phosphate fertilizer that is produced in India. Additionally, nutrients are combined to produce several complex fertilizers. Production of complex fertilizers include DAP (Diammonium Phosphate), several grades of nitro phosphates and NPK complexes. Urea, DAP; SSP and Muriate of Potash (MOP) are the most commonly used fertilizers. Among these, urea and DAP are the main fertilizers that are produced indigenously. Due to the lack of viable resources or reserves of potash in India, the entire feedstock requirement for potassic fertilizers are imported. Thus, Potash based fertilizer demand is entirely met by imports, for Phosphate fertilizer raw materials are imported and lastly Natural Gas and LNG is being imported for Urea fertilizer production. In India, technical problems, power shortages and stringent government policies lead to problems in production expansion and high import prices is a matter of concern especially for farmers.

Fertilizer in the agricultural process is an important area of concern. Fertilizer industry in India has succeeded in meeting the demand of all chemical fertilizers in the recent years. The Fertilizer Industry in India started its first manufacturing unit of Single Super Phosphate (SSP) in Ranipet near Chennai with a capacity of 6000 MT a year. The Fertilizer & Chemicals Travancore of India Ltd. (FACT) at Cochin in Kerala and The Fertilizer Corporation of India (FCI) in Sindri in Bihar were the first large sized plants set up in forties and fifties with a view to establish industrial base and attain self sufficiency in food grains. An impetus to the growth of fertilizer industry in India was given by Green revolution in Sixties. Further a significant addition to the production was witnessed in seventies and eighties. The fertilizer industry has played a pivotal role in achieving self sufficiency in food grains as well as in rapid and sustained agricultural growth. India is third largest producer and consumer in the world after China and the United States. According to Given
Statistics, total capacity of the industry as on 30.01.2003 has reached a level of 121.10 lakh MT of nitrogen (inclusive of an installed capacity of 208.42 lakh MT of urea after reassessment of capacity) and 53.60 lakh MT of phosphate nutrient.

The growth of Indian fertilizer has been largely determined by the policies pursued by the government which mainly confine to controls on the pricing, distribution and movement of fertilizers. The industry is capital intensive and the production process energy intensive with the combined cost of feedstock and fuel accounting for anywhere between 55 and 80 per cent of cost of production, depending on the type of fertilizers.

In the present scenario, there are more than 57 large, 64 medium and small fertilizer production units under the India fertilizer industry. The main products manufactured by the fertilizer industry in India are phosphate based fertilizers, nitrogenous fertilizers, and complex fertilizers. The fertilizer industry in India with its rapid growth is all set to make a long lasting global impression (Anon., 2012d).

1.1.1 Present status of fertilizers industry

India being the third largest producer and consumer of fertilizers in the world with an installed capacity of Nitrogen (N) and Phosphate (P) nutrients at 14 million tones p.a. Urea, a nitrogenous type of fertilizer, is most widely consumed in India. Currently the urea capacity is 20.2 million tons while consumption is 21.7 million tones. Fertilizer production is highly energy intensive with cost of feedstock and fuel alone accounting for between 55 to 80 per cent of the cost of production. Plants in India is based primarily on three feedstock - naphtha, fuel oil and natural gas with a significant proportion of domestic capacity of urea plants based on naphtha or fuel oil which cost more than natural gas. High cost feedstock and increased production/consumption have caused a steady increase in fertilizer subsidy.

1.1.2 Growth of fertilizer industry

The industry made a very humble beginning in 1906, when the first manufacturing unit of Single Super Phosphate (SSP) was set up in Ranipet near Chennai with an annual capacity of 6000 MT. The Fertilizer & Chemicals Travancore of India Ltd. (FACT) at Cochin in Kerala and the Fertilizers Corporation of India (FCI) in Sindri in Bihar (now Jharkhand) were the first large sized -fertilizer plants set up in the forties and fifties with a view to establish an industrial base to achieve self-sufficiency in food-grains. Subsequently, green revolution in the late sixties gave an
impetus to the growth of fertilizer industry in India and the seventies and eighties then witnessed a significant addition to the fertilizer production capacity.

The installed capacity as on 31.03.2009 has reached a level of 120.61 lakh MT of nitrogen of capacity of which the non functional capacity is estimated at 10.52 lakh MT and 56.59 lakh MT of phosphate nutrient, making India the 3rd largest fertilizer producer in the world. The rapid build-up of fertilizer production capacity in the country has been achieved as a result of a favorable policy environment facilitating large investments in the public, co-operative and private sectors. Presently, there are 56 large size fertilizer plants in the country manufacturing a wide range of nitrogenous, phosphate and complex fertilizers. Out of these, 30 (as on date 28 are functioning) units produce urea, 21 units produce DAP and complex fertilizers, 5 units produce low analysis straight nitrogenous fertilizers and the remaining 9 manufacture ammonium sulphate as by product. Besides, there are about 72 medium and small-scale units in operation producing SSP. The sector-wise installed capacity is given in the table below:

**Table 1.1 Sector-wise, nutrient-wise installed capacity of fertilizer manufacturing units as on 31.03.2009.**

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<th>Capacity (lakh MT)</th>
<th>Percentage Share</th>
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<td></td>
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<td>N</td>
<td>P</td>
</tr>
<tr>
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<td>Public Sector</td>
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<td>2</td>
<td>Cooperative Sector</td>
<td>31.69</td>
<td>17.13</td>
</tr>
<tr>
<td>3</td>
<td>Private Sector</td>
<td>53.94</td>
<td>35.13</td>
</tr>
<tr>
<td></td>
<td>Total:</td>
<td>120.61</td>
<td>56.59</td>
</tr>
</tbody>
</table>

Source: Annual Report-Department of Fertilizers 2009-2010
Source: Annual Report-Department of Fertilizers 2009-2010

**Fig. 1.1 Production of fertilizers quantity (MMT)**

From the fig.1.1 shows that production of fertilizer in financial year 1995 was 100 MMT over the years the production shows a fluctuating trend. In 2009 it has reached 140 MMT.

**1.1.3 Major players in fertilizer market**

**Table 1.2 Major players in fertilizer market**

<table>
<thead>
<tr>
<th>Public sector</th>
<th>Private sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer Corporation of India Limited</td>
<td>The Scientific Fertilizer Co Pvt. Ltd.</td>
</tr>
<tr>
<td>Hindustan Fertilizer Corporation Limited</td>
<td>DSCL Fertilizers</td>
</tr>
<tr>
<td>Pyrites, Phosphates &amp; Chemicals Limited</td>
<td>Deepak Fertilizers and Petrochemicals Corporation Limited</td>
</tr>
<tr>
<td>Rashtriya Chemicalsand Fertilizers Limited</td>
<td>Apratim International</td>
</tr>
<tr>
<td>National Fertilizers Limited (NFL)</td>
<td>Devidayal Agro Chemicals</td>
</tr>
<tr>
<td>Projects and Development India Limited</td>
<td>Aries Agro Vet</td>
</tr>
<tr>
<td>Madras Fertilizers Limited (MFL)</td>
<td>Gujarat State Fertilizers &amp; Chemicals Limited</td>
</tr>
<tr>
<td>FCI Aravali Gypsum &amp; Minerals India Limited, Jodhpur</td>
<td>Tata Chemicals Limited</td>
</tr>
<tr>
<td></td>
<td>Chambal Fertilizers</td>
</tr>
<tr>
<td></td>
<td>Nagarjuna Fertilizers and Chemicals</td>
</tr>
</tbody>
</table>
1.2 About micro nutrient and NPK soluble

The ultimate goal of fertilizing is to supply plant with the right amount of nutrients, yet, at the same time not toxifying the soil via over-fertilization. Once a plant is placed into a container, with new potting soil, the plant will have enough nutrients to last about a month and will then need to be fertilized for continued growth. Fertilizers are in mass abundance and it should be no trouble locating one in a retail garden center that fits your plant type. The directions for usage, given on the products label, should be followed accordingly to achieve maximum results from crop.

The N is for nitrogen, the P is for phosphorus and the K is for potassium or potash. Out of 16 nutrient (12 are contained in water soluble fertilizers) known elements necessary for plant life, N-P-K, are the three that are of the most importance and always listed on water soluble fertilizers, in that order (except Eco-Grow, which lists N-K-P). Following N-P-K, calcium (Ca) and magnesium (Mg) are the two, second most important nutrients listed on the label. The rest, iron (Fe), sulfur(S), manganese (Mn), boron (B), molybdenum (Mb), zinc (Zn) and copper (Cu) are trace elements or micro-nutrients. Nitrogen is the most important of the nutrients. It controls the processes used to make proteins vital to new protoplasm in the cells. Nitrogen is essential to the production of chlorophyll and is responsible for leaf growth, as well as, overall size and vigor. Phosphorus is necessary for photosynthesis and provides a mechanism for energy transfer within the plant. Phosphorus is associated with overall vigor and is used at its highest levels during germination, seedling and the fruiting or flowering stages of growth. Potassium, or potash, provides the manufacturing and movement of sugars and starches, as well as, growth by cell division. It also increases chlorophyll levels in the foliage and helps regulate the stomata openings so plants make better use of light and air. Potassium is important in all stages of plant growth. Magnesium is the central atom in every chlorophyll molecule and is essential to the absorption of light. It aids in the
utilization of nutrients and also neutralizes soil acids and toxic compounds produced by the plant. Adding dolomite lime before planting (found at most retail garden supply stores; follow directions for usage on the label) helps stabilize pH and adds magnesium and calcium to the soil. The other secondary nutrient, calcium, is for the manufacturing of cells and overall growth.

1.3 Company introduction

1.3.1 Name of the company

DSCL SHRIRAM FERTILIZERS & CHEMICALS PVT LTD.

1.3.2 Logo of the company

![DSCL Logo]

1.3.3 Board of directors

Mr. Mr. Ajay S. (Chairman & M.D.)

Mr. Mr. Vikram S. (Vice Chairman & M.D.)

Mr. Sovan Chakraborty (Business head)

1.3.4 Corporate office

“Kirti Mahal, 19 Rajendra Place,”

New Delhi’ 110125

Ph.: +91 -1 1-257 1 3442, 257 1 3455

Fax: +9 1 -1 1-257 81 1 82, 257 81 57 5

Email: aim@dscl.com
1.3.5 Vision of the company

- Enhancing values to customer and other for stakeholders.
- Caring for employees to work as a motivation team in an open and learning environment.
- Setting challenging new standards of performance.
- Focusing on total quality, innovation, responsible care towards the environment.

1.4 About of DSCL

DCM limited was founded by Sir Shriram in 1889, today DSCL (which spun off as a separate company in 1990) is managed by Mr. Ajay S. Shriram, Chairman and Senior Managing Director and Mr. Vikram S. Shriram, Vice Chairman and Managing Director along with a highly professional executive team. DSCL has strong brand equity reflective of credibility, ethical values and consistent high quality product image. With over 30 years of experience in managing large scale process industries with sustained high level of performance, DSCL meets the needs of a wide range of customers from farmers to industrial users, from house builders to business owners. Fostering enduring relationships is at the core of DSCL's business philosophy - with vendors, business partners, and customers and within the organization between employees. As a leading equal opportunity employer in India, DSCL has a motivated and dynamic management team of highly qualified professionals and dedicated workmen and staff whose work has shown the way towards creating "Team Excellence". DSCL has a long history of accessing and employing the best technologies for its projects and has worked successfully with renowned international and domestic technology partners. As a learning organization DSCL has worked regularly with the national and international consultants of repute, in diverse areas of Business Strategy, Quality, Organizational Development etc. In a major IT initiative the company has networked all its locations on a Wide Area Network (WAN) and implemented SAP R/3 Enterprise Resource Package (ERP) across the Company. DSCL is now in the process of upgrading and web-enabling this ERP to MySAP.Com. Other key IT enabling initiatives under implementation are Customer Relationship Management (CRM) and Business Information Warehousing (BIW). All its main line locations/products have ISO 9000, 14000 certification and OHSAS 18001: 1999 system of Occupational Health and Safety certifications. In an
increasingly global business environment, DSCL's vision is to strengthen its commodity business while moving into "Value Added" & "Knowledge based" products & services in the areas of its operations. Accordingly, DSCL has set up DSCL Energy Services co. (ESCO), with the objective of providing energy efficiency services and development of renewable energy. It has embarked upon a Rural Retail initiative to provide all farm and allied inputs to the farmer under one roof under the brand of "Haryali Kisan Bazaars". The Company has also launched UPVC-polymer Window systems under the brand of "Fenesta". Other Plastic Building Products will also be introduced in due course. DSCL strongly believes in socially responsible business activity. DSCL has made significant contribution to the society in the fields of Environment, Health Care, Family Planning, Education, Cultural Heritage, Rural Development and in promoting. For its social contributions DSCL's Chlor-Alkali facility at Bharuch has been recognized with a SA 8000:2001 certification by RINA (Registro Italiano Navale), making it amongst the few companies in India to get this recognition (Anon., 2012a).

1.4.1 Brief history of DSCL

- The Delhi Cloth & General Mills Co. Ltd. (DCM) was founded in 1889 with the establishment of a Spinning Mill at Delhi. Thereafter, the company expanded and diversified into large segments of industry areas and played a leading role in the industrialization of India.
- In 1990, to create more manageable business entities, DCM Ltd., was restructured into four separate companies. DCM Shriram Consolidated Ltd. (DSCL) took over 1/6 of the businesses by the merging of the following units of the erstwhile DCM:
  - Shriram Fertilizer & Chemicals, Kota (Rajasthan) - Fertilizers, Plastics, Chlor Alkali and Power
  - Shriram Cement Works, Kota (Rajasthan) - Cement
  - Swatantra Bharat Mills and DCM Silk Mills (Delhi) - Textiles
  - In the decade 1990-2000, DSCL added the following units to its portfolio:
    - Shriram Alkali & Chemicals, Bharuch (Gujarat) - Chlor Alkali
    - Shriram Environment & Allied Services, Gurgaon (Haryana)-Environment & Allied Services
    - Ghaghagra Sugar, Lakhimpur Kheri (Uttar Pradesh) - Sugar
• Shriram Bioseed Genetics India Limited, Hyderabad (Andhra Pradesh) - Seeds
• DSCL Energy Services Company Limited, New Delhi - An Energy Services Company
• Hariyali Kisaan Bazaar was started
• Fenesta windows were launched.

1.4.2 Agri-business of DSCL

Urea: The Company has the dual feed naphtha/LNG based urea plant with a capacity of 3.79 lakh T.P.A., located at its integrated manufacturing facility at Kota. It is currently operating on 100 per cent LNG.

Sugar: The Company’s sugar business comprises of 4 facilities with a combined capacity of 33,000 TCD in Central U.P. and co-gen power capacity of 94.5 MW.

Hariyali Kisaan Bazaar: These are ‘Rural Business Centres’ which are a one stop solution to the multiple needs of the rural communities (both business and family needs). Currently there are 301 such outlets in operation.

The Agri-Inputs business: This business provides total agri-inputs to farmer community by offering a range of fertilizers, micro-nutrients, hybrid seeds, pesticides etc. through its wide distribution network.

Seeds: The Company offers a range of hybrid seeds under the brand ‘Bioseed’ in the country through its subsidiary Shriram Bioseed Genetics India Ltd. The Company also operates seeds business in Vietnam, Thailand, Philippines and Indonesia.

1.3.9 Chloro-vinyl business of DSCL

Chemicals Business: This comprises of Caustic Soda (Lye and flakes), Chlorine (Liquid and Gaseous) and associated chemicals including Hydrochloric acid, Stable Bleaching powder, Compressed Hydrogen and Sodium Hypochlorite. The Company has two manufacturing facilities located at Kota (Rajasthan) and Bharuch (Gujarat) with full captive power. It has increased the capacity of its chlor-alkali manufacturing facility at Bharuch from 200 TPD to 440 TPD and also set up a 48 MW coal based power plant to generate economical power at Bharuch.

Plastics Business: This is highly integrated, covering manufacture of PVC resins and Calcium Carbide, PVC Compounds and UPVC Fenesta Windows (a consumer
product). The Company is able to capture value at each stage of the entire value chain.

- PVC Resin is fully integrated with captive production of acetylene, chlorine and coal based power, located at Kota.
- PVC Compounds of which the Company is the largest manufacturer in the organised sector is backed by an innovative Polymer Application Development Centre (iPAC) at Gurgaon, India.
- The Cement business, located at Kota is based on waste generated from the Calcium Carbide production process.
- Fenesta Building Systems manufactures UPVC windows (Un-Plasticized PVC) and door systems under the brand “Fenesta”. It offers complete solutions right from design, fabrication to installation at the customer’s site.

1.4.3 Other businesses of DSCL

Textiles: The Company has a small textile operation in the form of 12,856 spindles spinning unit at Tonk in Rajasthan. The expansion of capacity has resulted in enhanced production from 6 tonnes per day to 12 tonnes per day.

Energy Services (ESCO): This business assists energy users (industrial, institutional, commercial users) in achieving efficiency in energy usage, provides engineering and project management services for biomass/ conventional fuel based power plants.

1.5 Practical utility of the project work

Shiriram Fertilizers and Chemicals Pvt. Ltd. are dealing with running formulation of various plant micro nutrient and NPK soluble in Bikaner district. The market of Shiriram Fertilizers and Chemicals Pvt. Ltd. is less; the reason behind it, has to be known. The main aim of the project was to study the product profile, market profile, consumer’s perception and market share of micro nutrient and NPK soluble for the firm. Those was brought all essential requirements like timely availability and supply of their products, finding out feedback of farmers and increase their share in domestic trade, reducing competition with other firm and identify the causes of their products consumption. Company is planning to increase their market for their products. Hence, they were like to know the existing problems occur on the consumption and what were the requirements to improve the market status of fertilizers, so that they could estimate and manage the requirement of other resources.
for unit. With this study company obtained necessary information that would use to forecast their future strategy, increase their market and expand business. Based on the requirement of company following objectives of study is formulated.

1.6 Objectives of the study
1. To study the cropping pattern in Bikaner district.
2. To know the market potential of micro nutrient and NPK soluble in wheat crop.
3. To know the perception of farmers towards use of micro nutrient and NPK soluble in wheat crop.
4. To find out the suitable promotional activities for product promotion for SFC
CHAPTER 11

REVIEW OF LITERATURE

Venkateswarlu et al. (1984) attempted to examine the reason for being brand loyal. It has been found that 30 per cent of the consumer respondents preferred a particular brand because they were convinced that its quality was better than that of other brands. Another 30 per cent of the sample consumers felt it was the best which made them go in for a particular brand, while very few consumers in the sample stated low price and easy availability as the main reason for selecting a brand.

Romaran and Chandranbela (1990) examined factors influencing cotton seed buying behavior of farmers in Kamaraj district of Tamil Nadu, India. Sixty cotton growers were selected from the villages for agricultural year 1987-88. Factors influencing farmers in the buying of cotton by different agencies were examined.

Rand (1992) in his article studied the promotional strategies of DFPCL (Dipak, Fertilizer, and Petro-chemicals, Coimbatore, India). He found that the sales programmers were carried out to the cultural graduates by distributing the company product personally to the customers; programmers created good image for the company's product. In addition, the sales demonstrations were carried out on fanner fields helped to compare the efficiency of products. A part from these things DFPCL also conducted field trials to give farmers impact knowledge about the use of their products.

Biochemical parameters such as average protein content, moisture and soluble sugar. The main results show that the presence of NPK causes a significant increase in the average protein content, there is also an elevation of the synthesis of protein and soluble sugar (in Monokotero measured there is a stimulation of the synthesis of the protein and sugar activity for wheat roots which results in a triggering of deterring factor growth).

According to Vapnik and Pakhmanoton (1995) established that the market structure of proteins at retail level, which was identified as oligopoly. Price was weak, associated, between number of dealers and number of farm holdings. Based on brand name, size, color of the packing material offered by the firms, the farmers were
CHAPTER II
REVIEW OF LITERATURE

Venkateswaralu et al. (1984) attempted to examine the reason for being brand loyal. It has been found that 50 per cent of the consumer respondents preferred a particular brand because they were convinced that its quality was better than that of other brand. Another 38 per cent of the sample consumers felt it was the test which made them go in for a particular brand, while very few consumers in the sample stated low price and easy availability as the main reason for selecting a brand.

Ramaswamy and Chandrashekarar (1990) examined factors influencing cotton seed buying behavior of farmers in Kamaraj district of Tamil Nadu, India. Sixty cotton growers were selected from four villages for agricultural year 1987-88. Factors influencing farmers' purchase of cotton seeds were source of purchase, varietal preference, seed quality, source of information about the supply of cotton by different agencies and brand preference.

Rane (1996) in his article studied the promotional strategies of DFPCL (Deepak Fertilizer and Petro-chemicals Corporation Ltd.). He found that the sales programmes' were carried out through agricultural graduates by distributing the company product personally to the farmers. This programme created good image for company's product. In addition, the spot demonstrations were carried out on farmer fields helped to compare the efficiency of products. A part from these things DFPCL also conducted farmers and dealers training programme to impart knowledge about the use of P, K and micro nutrients.

Kumar (1999) reported that the impact of nitrogen fertilizer NPK on the roots of wheat Triticum durum. We followed the biomarkers of toxicity of catalase. Also biochemical parameters such as average protein content, proline and soluble sugar. The main results show that the presence of NPK causes a significant increase in the average protein content, there is also an activation of the synthesis of proline and soluble sugars; for biomarkers measured there is a stimulation of the synthesis catalase activity; for wheat roots which results in a triggering of detoxification enzyme system.

Sankaranarayanan and Padmanaban (1999) examined that the market structure of pesticides at retail level, which was identified as oligopoly. There was weak association between number of dealers and number of farm holdings. Based on brand name, symbol, colour of the packing material offered by the firma, the farmers were
able to discriminate the pesticides. The competition between the existing retailers in remaining the market share and high initial investment acted as barriers to entry.

Paliwal (2001) reported that calculation of market potential needs estimated area under that product, for only seed, estimated area in ha for successive years can be multiplied with their corresponding seed rate to estimate market potential, market potential = area under individual crop in ha x average seed rate applied in kg per ha.

Mahajan (2003) is of the view that promotional campaign means creating a space in the customer's mind. Promotional campaign is a continuous process of value creation, value communication, value delivery and brand positioning. Promotional efforts helps marketer in building the marketing mix for each segment for their customers.

Chaurasia et al. (2005) studied that the application of 5 foliar sprays of water soluble fertilizers significantly increased the plant height, number of branches, Number of fruits, average fruit weight, fruit length, fruit diameter, TSS, yield and the net profit of tomatoes. The maximum plant height, number of branches/plant, fruit length, yield, net profit along with maximum C:B ratio were recorded by 5 foliar sprays of water soluble liquid fertilizers 19:09:19 followed by NPK 19:19:19. The minimum values in all the parameters were recorded in the control having only recommended dose of fertilizer.

Reddy (2005) concluded that market potential is the maximum demand response possible for a given product or service over a specified period of time under well defined competitive and environmental conditions.

Reddy et al. (2005) studied that, a lot of factors are considered by farmers while purchasing water soluble fertilizers i.e. quality, price, dealers suggestion, ad-campaign, brand, own experience and availability. Thus, a company has to work upon continuous improvement of a number of characteristics if they want to strengthen their brand. So, first the company has to decide what type of image they want to create in consumer's mind, and then only they can go for promotional activities.

Banumathy and Hema Meena (2006) are of the view that brand preferences among the consumers may be related to different factors like personal attributes age, educational qualifications, occupational status, monthly income etc.

Gadkari (2006) reported that the RCF is implementing various fertilizers promotional and farmer's education programmes in all the marketing states. The need of the hour is to educate the farmers for balanced use of fertilizers with proper
combination of micronutrient and organic manure in an integrated plant nutrient approach, considering the situation of the soil, water and overall in all activities for transferring right technology from lab to land. Every year RCF is providing training to 1200 farmers. RCF is organising 40 training programmes of three to four days in these institutes. So far 12,285 farmers have participated in the training programmes.

Ghatol and Bakhale (2006) reported that the Commissioning of Zuari Industries fertiliser plant in Goa, more than three decades ago was a significant milestone towards country’s self-reliance in foodgrains. Faced with the major challenge of educating farmers to enhance their yields through increased use of fertilisers and adoption of scientific methods in farming, Zuari devised its service oriented marketing strategy and organised innovative education programmes for farmers. Frontline task of extension education was undertaken through agricultural graduates. Attaching great importance to selection of right type of dealers, Zuari familiarized dealers with their role as ‘change agents.’ The company was pioneer in implementing extension programmes like soil testing services, audio-visual van, block demonstrations with soil test-based fertilizer use, farmers educational tours, crop competitions, etc., and winning the hearts of farmers. Company also implemented area specific rural development programmes such as watershed development, borewell recharging, village adoption, horticultural development programmes, intensive fertiliser promotion campaigns, etc. “Krishi Samrat” award instituted by Zuari in 1985 is recognised as a premier award in its marketing territory. Through unrelenting efforts towards the growth of Indian agriculture the company has achieved an enviable position in its marketing territory with its strong brand equity and farmer friendly image.

Bara (2008) found that, Brand image is the perceptions and beliefs held by consumers, as reflected in the associations held in consumer’s memory. Brands can signal a certain level of quality so that satisfied buyers can easily choose the product again and again. As a company’s major enduring asset, a brand needs to be carefully managed so that its value does not depreciate. Brand that fails to do so find that their market leadership dwindles or even disappears, therefore need of brand strengthening and brand repositioning arises.

Das (2009) mentioned that in the study, Multiplicity of cropping systems has been one of main features of Indian agriculture and it is attributed to rainfed agriculture and prevailing socio-economic situations of farming community. It has
been estimated that more than 250 double cropping systems are followed throughout
the country and based on rationale of spread of crops in each district in the country,
30 important cropping systems have been identified. The statistics related to state-
wise agro-ecosystems cropping pattern for 1998-99 and cropping pattern according to
land utilization are provided. The major issues emerging in the irrigated cropping
systems along with yield gaps of some of important cropping systems have also been
provided.

Bhumbla (2010) Role of Fertilizer among the food crop consumption of
fertilizer under irrigated condition by rice was 155kg ha consisting of 103.4 kg ha of
nitrogen 32.6 kg ha of phosphorus and 18.8 kg ha potassium consumption of
fertilizers by irrigated wheat was lower 144.9 kg comprising of 105.6 kg nitrogen 32.1
kg phosphors and 7.3 kg of potassium per hectare share of these two crops in total
fertilizer consumption was 52.8 per cent share of jowar, bajara and tur accompanying 23
m ha was only 5.4 per cent.

Chahal and Hundal (2010) observed that the farmers were not having a very
strong brand loyalty as far as pesticides are concerned, through their loyalty did
increase as their association with the brands grew old. Also, the rural market was very
price sensitive and this was one very important factor causing brand switching. Low
prices helped in retaining old customers apart from gaining new ones. Also, good
promotional schemes attracted new customers to some extent, they also made the
brands being liked more by the farmers. Farmers were also found to be quality
conscious, apart from being conscious about the image of the brand, through to a
smaller extent and expected desired results from their preferred brands. Farmer’s
purchase decisions were also found to be greatly influenced by others
recommendations like friends, fellow farmers, etc. Dealers recommendation also
influenced the purchase decisions of those farmers greatly, who were not associated
with particular brands for a very longtime. Long time users wanted their brands to be
easily available. Ease of application also helped a brand gain customers preference
initially.

Lohana (2011) investigated on marketing strategy, dealers and farmer’s
expectation from company, pricing policy of Syngenta India Pvt. Ltd. in Punjab. The
findings show that the product quality and place (easy availability) has an impact on
consumer motives and the pricing strategy (competitiveness) has a significant positive
impact on consumer buying behavior. These findings suggest that consumers look for product characteristics and store location when buying Agri input products.
Materials and Methods
CHAPTER – III
MATERIAL AND METHOD

The methodology adopted for and evaluation of the objective of the present study is described under following heading.

1. Area of the study
2. Sampling techniques
3. Sample size
4. Type of data
5. Analytical procedure

3.1 Area of the study

Bikaner district is located in the north-western part of Rajasthan and encompassed between north latitudes 27°11’ to 29°03’ and east longitudes 71°52’ to 74°15’ covering geographical area of 30247.90 Sq. kms. It is bounded on the north by Ganganagar District, on the east by Churu and Nagaur Districts, on south by Jodhpur and Jaisalmer districts and on the west by International border with Pakistan. The entire district has been covered initially under systematic hydro geological surveys, subsequently most of the areas of the district have Central Ground Water Board drilled over 100 wells/bore wells in the district under various programs, the maximum being under 200 production wells programme in Rajasthan (1964-67), under the programme of ground water exploration, wells have been drilled which includes 27 exploratory wells, 2 observation wells, 2 Slim holes and 19 Piezometers. Under U.N.D.P. (Phase-II), ground water resources of the southern parts of Bikaner district were estimated (1971-74). In addition, Rajasthan Ground Water Department (RGWD) and Central Arid Zone Research Institute (CAZRI), Jodhpur has also carried out hydro geological studies in the district. Since 1973, monitoring of water level is being carried out four times a year from presently 66 National Hydrograph Network Stations.
Table 3.1 Geographical of Bikaner district

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Area in ha (000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Geographical Area</td>
<td>3024790</td>
</tr>
<tr>
<td>Total cultivable land</td>
<td>228355</td>
</tr>
<tr>
<td>Irrigated land</td>
<td>144324</td>
</tr>
<tr>
<td>Net Sown</td>
<td>1378961</td>
</tr>
</tbody>
</table>

Source: (Anon., 2012b)

Table 3.2 Population of Bikaner district

<table>
<thead>
<tr>
<th>Total in (lac)</th>
<th>Male (lac)</th>
<th>Female (lac)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.02</td>
<td>10.03</td>
<td>8.99</td>
</tr>
</tbody>
</table>

Source: (Anon., 2012b)

Fig.3.1. Map of Bikaner district

Source: www.rajasthan-online.com/images/bikaner
3.2 Sampling technique

Multi stage sampling technique was adopted as per the objectives of the study. The district at the first stage, taluka at the second stage and village at the third stage was selected for the study. On basis of agricultural activity and cropping pattern, select Bikaner district. From each Teshil, four distributors were selected for sampling at the first stage. At the next stage of sampling, ten farmers were selected at each village.

Table 3.3 Number of distributors in Taluka of Bikaner district

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Taluka</th>
<th>No. of Distributers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bikaner</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Nokha</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Doongargarh</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Loonkasar</td>
<td>4</td>
</tr>
<tr>
<td>5.</td>
<td>Kolayat</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

Table 3.4 Number of farmers in villages of Bikaner district

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Villages</th>
<th>No. of farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Palana</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>Ramsar</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Akkasar</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Jharly</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Hinyadaser</td>
<td>10</td>
</tr>
<tr>
<td>6.</td>
<td>Ankhisar</td>
<td>10</td>
</tr>
<tr>
<td>7.</td>
<td>Momasa</td>
<td>10</td>
</tr>
<tr>
<td>8.</td>
<td>Ridi biga</td>
<td>10</td>
</tr>
<tr>
<td>9.</td>
<td>Dhirdehar</td>
<td>10</td>
</tr>
<tr>
<td>10.</td>
<td>Jhjhu</td>
<td>10</td>
</tr>
<tr>
<td>11.</td>
<td>Udramsar</td>
<td>10</td>
</tr>
<tr>
<td>12.</td>
<td>Kakra</td>
<td>10</td>
</tr>
<tr>
<td>13.</td>
<td>Rojapholdesar</td>
<td>10</td>
</tr>
<tr>
<td>14.</td>
<td>Danipandusar</td>
<td>10</td>
</tr>
</tbody>
</table>
3.3 Sample size

Farmers : 150
Distributors : 20

3.4 Type of data

The primary data were collected through survey. The information was collected through personal interview with the farmer using well structured schedule. The interview regarding information of agricultural activities, cropping pattern and potential area for wheat crop cultivation of the area.

The secondary data are readily available from the published materials and Government department.

3.5 Analytical procedure

Simple Statistical Tools like tabular analysis and graphical method (through bar graph and pie chart by using MS Excel) were used.

Market potential = Projected area under the specific crop under study (ha) X the recommended dose of fertilizers per ha.
CHAPTER - IV

RESULT AND DISCUSSION

4.1 Cropping pattern of Bikaner district

Area under different crops of Bikaner district for the year 2013-14 was collected from secondary source. Collected data were tabulated and analyzed through statistical techniques.

The area of different crops in Bikaner district of Rajasthan is given in the Table 4.1. The major Kharif season crops are guar, moth, bajra, groundnut while as for Rabi season crops are, gram, wheat, rape and mustard. It can be seen in Table 4.1 that Guar has maximum area under cultivation which is 901354 ha., with the productivity of 284 kg per ha., followed by moth with the area of cultivation around 302012 ha. The productivity of moth per ha., or area of groundnut is about 101420 kg per ha.

For the Rabi season, wheat has highest cultivation which is 170397 ha. With the productivity of 608.89 kg per ha., followed by soybean, with the area of cultivation 84175 ha and productivity 2260 kg per ha. Patra crop was having lowest area of cultivation per Rabi season.

It is shown in Table 4.2 that major crops under Rabi season has increased comparing to last year. Gram is important under Rabi season. It has significant area under cultivation, followed by wheat. From the Table 4.2 it can be seen that area of cultivation has increased by 10.39 per cent. Tamarind crop area is decreased by 86.5 per cent than the last year. This can also be interpreted that reduced area of cultivation of tamarind is distributed under cultivation of the remaining Rabi crops.

Results and Discussion
CHAPTER IV
RESULT AND DISCUSSION

4.1 Cropping pattern of Bikaner district

Area under different crops of Bikaner district for the year 2011-12 was collected from secondary source. Collected data were tabulated and analyzed through tabular techniques.

The area of different crops in Bikaner district of Rajasthan is given in the Table 4.1 the major Kharif season crops are guar, moth, bajra, groundnut while as for Rabi season crops are, gram, wheat, rape and mustard etc. It can be seen in Table 4.1 that Guar has maximum area under cultivation which is 901354 ha., with the productivity of 584 kg per hectare, followed by moth with the area of cultivation around 303212 hectare. This has productivity of 280 kg per hectare, or area of groundnut is about 101429 ha., with the productivity of 2518 kg per hectare.

For the Rabi season crops Gram has maximum area under cultivation which is 170383 hectare. With the productivity of 698.89 kg per hectare, followed by wheat, with the area of cultivation 84175 hectare and productivity 2260 kg per hectare. Potato crop was having lowest area of cultivation under Rabi season.

It is shown in Table 4.2 that area for all major crops under Rabi season has increased comparing to last year. Gram is important under Rabi season, it has significant areas under cultivation, followed by wheat crop. From the Table 4.2 it can be seen that area of cultivation of gram is increased by 4.038 per cent then the previous year and of wheat areas is increased by 6.385 then the last year. The highest change in area of cultivation is of rape & mustard which has increased by 14.39 per cent. Tarameera crop area is decreased by 86.5 per cent then the last year. This can also interpreted that reduced area of cultivation of tarameera is distributed under cultivation of the remaining Rabi crops.
### Table 4.1 Copping pattern of Bikaner district

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Name of crops</th>
<th>Area in (ha)</th>
<th>Production in tonnes</th>
<th>Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>KHARIF CROP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Guar</td>
<td>901354</td>
<td>526521</td>
<td>584</td>
</tr>
<tr>
<td>2</td>
<td>Moth</td>
<td>303212</td>
<td>86287</td>
<td>280</td>
</tr>
<tr>
<td>3</td>
<td>Bajra</td>
<td>206510</td>
<td>200220</td>
<td>950</td>
</tr>
<tr>
<td>4</td>
<td>Groundnut</td>
<td>101429</td>
<td>255481</td>
<td>2518</td>
</tr>
<tr>
<td>5</td>
<td>Seasamum</td>
<td>12090</td>
<td>3862</td>
<td>319</td>
</tr>
<tr>
<td>6</td>
<td>Moong</td>
<td>7588</td>
<td>6120</td>
<td>800</td>
</tr>
<tr>
<td>7</td>
<td>Cotton</td>
<td>7335</td>
<td>14975</td>
<td>2040</td>
</tr>
<tr>
<td></td>
<td><strong>RABI CROP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Gram</td>
<td>170383</td>
<td>119079</td>
<td>698.89</td>
</tr>
<tr>
<td>2</td>
<td>Wheat</td>
<td>84175</td>
<td>190788</td>
<td>2260</td>
</tr>
<tr>
<td>3</td>
<td>Rape &amp; Mustered</td>
<td>48242</td>
<td>46203</td>
<td>957</td>
</tr>
<tr>
<td>4</td>
<td>Barley</td>
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<td>5912</td>
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<tr>
<td>5</td>
<td>Tarameera</td>
<td>269</td>
<td>76</td>
<td>280</td>
</tr>
<tr>
<td>6</td>
<td>Onion</td>
<td>66</td>
<td>57</td>
<td>860</td>
</tr>
<tr>
<td>7</td>
<td>Potato</td>
<td>22</td>
<td>22</td>
<td>1000</td>
</tr>
</tbody>
</table>

Source: Board of revenue for Rajasthan second advanced estimate of various crops Rabi 2011-12
Table 4.2 Percentage change in cultivation area for Rabi crops compare to last year 2010 -2011

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of crops</th>
<th>Area in (ha)</th>
<th>Area in (ha)</th>
<th>Percentage change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RABI CROP 2010 - 11</td>
<td>RABI CROP 2011 - 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Gram</td>
<td>163770</td>
<td>170383</td>
<td>4.038</td>
</tr>
<tr>
<td>2</td>
<td>Wheat</td>
<td>79123</td>
<td>84175</td>
<td>6.385</td>
</tr>
<tr>
<td>3</td>
<td>Rape &amp; Mustered</td>
<td>42172</td>
<td>48242</td>
<td>14.39</td>
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<td>4</td>
<td>Barley</td>
<td>3353</td>
<td>3604</td>
<td>7.486</td>
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<tr>
<td>5</td>
<td>Tarameera</td>
<td>1995</td>
<td>269</td>
<td>-86.5</td>
</tr>
<tr>
<td>6</td>
<td>Onion</td>
<td>66</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Potato</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Board of revenue for Rajasthan second advanced estimate of various crops Rabi 2011-12

4.2 The market potential of micro nutrient and NPK soluble in wheat crop

4.2.1 Market potential for Shiriram tripti (micro nutrient) in wheat crop in Bikaner district

Table 4.3 indicate the estimated market potential for Shiriram tripti (for wheat crop) at 30 per cent, 40 per cent and 50 per cent. Cultivated area of wheat crop is 84175 ha. and required dose of Shiriram tripti is 5 kg per hactor. Then the targeted market for 30 per cent, 40 per cent and 50 per cent would be 126262.5 kg, 168350 kg and 210437.5 kg respectively.

Table 4.3 Market potential for Shiriram Tripti (micro nutrient) in wheat crop in Bikaner district

<table>
<thead>
<tr>
<th>Product name</th>
<th>Cultivated area of wheat</th>
<th>Dose (kg.per ha)</th>
<th>Potential for the company (as assumed 30 per cent market share)</th>
<th>Potential for the company (as assumed 40 per cent market share)</th>
<th>Potential for the company (as assumed 50 per cent market share)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiriram Tripti</td>
<td>84175</td>
<td>5</td>
<td>126262.5 kg</td>
<td>168350 kg</td>
<td>210437.5 kg</td>
</tr>
</tbody>
</table>
4.2.2 Market potential for Shiriram sati (NPK soluble) in wheat crop in Bikaner district

Table 4.4 indicate the estimated market potential for Shiriram sati (for wheat crop) at 30 per cent, 40 per cent and 50 per cent. Cultivated area of wheat crop is 84175 ha. and required dose of Shiriram sati is 800 gm. per hactor. Then the targeted market for 30 per cent, 40 per cent and 50 per cent would be 20202 kg, 26936 kg and 33670 kg respectively.

Table 4.4 Market potential for Shiriram Sathi (NPK soluble) in wheat crop in Bikaner district

<table>
<thead>
<tr>
<th>Product name</th>
<th>Cultivated area of wheat (ha)</th>
<th>Dose (kg per ha)</th>
<th>Potential for the company (as assumed 30 per cent market share)</th>
<th>Potential for the company (as assumed 40 per cent market share)</th>
<th>Potential for the company (as assumed 50 per cent market share)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiriram Sathi</td>
<td>84175</td>
<td>800 gm.</td>
<td>20202 kg</td>
<td>26936 kg</td>
<td>33670 kg</td>
</tr>
</tbody>
</table>

4.2.3 Micro nutrient used by farmers in wheat crop

Fig. 4.1 shows utilization status of micro nutrients among the farmers. It can be seen that 61 per cent farmers were use micro nutrients in wheat crop and about 39 per cent farmers were not using any kind of micro nutrients in wheat crop. The reason was behind that the lack of knowledge and pricing factors.
Fig. 4.1 Micro nutrient used by farmers in wheat crop

4.2.4 Market share of different companies for micro nutrient

Fig. 4.2 indicated the market share of different companies. Karnataka Fertilizer company had highest market share (48 per cent) followed by Shiram Fertilizer and Chemicals (29 per cent) of micro nutrient. Coromandal International, Agrimas and Kirti Fertilizer had lowest market share among the farmers.

Fig. 4.2 Market share of different companies for micro nutrient

4.2.5 NPK soluble used by farmers in wheat crop.

Fig. 4.3 shows utilization status of NPK soluble among the farmers. It can be seen that 31 per cent farmers were use NPK soluble in wheat crop and about 69 per
cent farmers were not using any kind of NPK soluble in wheat crop. It was because not using the product at proper time and not with the proper dose.

Fig. 4.3 NPK soluble used by farmers in wheat crop

4.2.6 Market share of different companies for NPK soluble

The Fig. 4.4 shows the market share of different companies like Aries had highest market share which is 31 per cent followed by Coromandal International, Shiram Fertilizer and Chemicals respectively 20 per cent and 16 per cent of NPK soluble. Agrimas, Dhanuka and Chambal had the lowest market share among the farmers.

Fig. 4.4 Market share of different companies for NPK soluble
4.3 The perception of farmers towards use of micro nutrient and NPK soluble

4.3.1 Farmers perception about Shriram tripti on price in comparison with others

The perceptions of farmers regarding on price in comparison to other products (the Fig. 4.5), Out of total respondents, 60 per cent farmers said that the price of Shriram tripti is higher than the others, this category of the farmers are not quality concerned while as remaining 40 per cent farmers told that price of Shriram tripti product was low.

![Pie chart showing 60% high and 40% low price perception](chart.png)

**Fig.4.5 Farmers perception on price in comparison to others**

4.3.2 Price comparison of Shriram tripti with others products

The Fig 4.6 shows the price comparison with other competitive product. 'Shriram tripti' is a product of SFC and having highest price of Rs.40 per kg among all four products taken into account in the present study. Multiplex is a product of Karnataka Fertilizers having a price of Rs.35 per kg which ranks second highest in cost. Suparia is a product of Coromandal International point having a price of Rs.32; Kirti Fertilizers having a price of Rs. 30 per kg .Companies have adopted skimming price policy for their products. 'Shriram tripti' is having little high price but comes with better competition as far as quality contents are concerned.
Fig. 4.6 Price comparison of Shiriram tripti with others products

4.3.3 Farmers’ perception regarding effect of Shirirm tripti on production

It can be inferred from Fig. 4.7 that the 77 per cent farmers said that their production was increasing by using the Shiriram tripti and only 23 per cent farmers said it has not given any effect on production. It is because not using the product at proper time and not with the proper dose.

Fig. 4.7 Farmers’ perception regarding effect of shirirm tripti on production

4.3.4 Perception of farmer regarding effect of Shiriram tripti on quality of grain

The Fig. 4.8 shows that 75 per cent farmers said quality of grain was increased (as like bright color, bold seed) by using the product while as remain farmers said, that there was no improvement in quality of grain. as time of application of
micro nutrients in time keeps its important in giving effect on production and shape and size of the grain, this might be the reason for 25 per cent of the farmers.

Fig.4.8 Perception of farmer regarding effect of Shriram tripti on quality of grain

4.3.5 Farmers perception about Shriram sathi on price comparison with other products

The Fig. 4.9 indicate the price effect of NPK soluble comparison to others product. The study shows that 67 per cent farmers said that the price of Shriram sathi was more because of this reason farmers are using other companies’ product and 33 per cent farmers told that price of product was low.

Fig.4.9 Farmers perception on price in comparison to others
4.3.6 Farmers' perception regarding effect of Shiriram sathi on production

The Fig. 4.10 shows that the 63 per cent farmers said that their production was increasing by using the Shiriram sathi and 37 per cent farmers said there was no effect by using this product because some farmers do not use the product on proper time.

Fig.4.10 Farmers' perception regarding effect of Shiriram sathi on production

4.3.7 Perception of farmer regarding Effect of Shiriram sathi on quality of grain

The Fig. 4.11 reveals that 72 per cent farmers said quality of grain increased (like bright color, bold seed) by using the product and 28 per cent farmers said there was no improvement in quality of grain because lack of knowledge about usage of product in farmers.

Fig.4.11 Perception of farmer regarding Effect of Shiriram sathi on quality of grain
4.4. The suitable promotional activities for product promotion for SFC

The Fig. 4.12 explain about that majority of the farmers 28 per cent believe that demonstration is best choice to promote the sale of the product, 24 per cent of farmer believe that field days are the best choice to promote the sale of the product, While 18 per cent believe that jeep campaigning is the best means for promoting share used different company promotional micro nutrient and NPK soluble. About 12 per cent farmers said that meetings are good method and 10 per cent says wall painting.

Field days and demonstration help to build direct contact with the farmers thereby to promote the product efficiently.

Fig. 4.12 The suitable promotional activities for product promotion for SFC
Summary and Conclusion
CHAPTER V
SUMMARY AND CONCLUSION

In India agriculture has a long history dating back to ten thousand years. Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and logging accounted for 13.9 per cent of the GDP in 2011, employed 60 per cent of the total workforce and despite a steady decline of its share in the GDP, is still the largest economic sector and plays a significant role in the overall socio-economic development of India.

The N is for Nitrogen, the P is for Phosphorus and the K is for Potassium or Potash. Out of 16 nutrient (12 are contained in water soluble fertilizers) known elements necessary for plant life, N-P-K, are the three that are of the most importance and always listed on water soluble fertilizers, in that order (except Eco-Grow, which lists N-K-P). Following N-P-K, Calcium (Ca) and Magnesium (Mg) are the two, second most important nutrients listed on the label. The rest, Iron (Fe), Sulfur(S), Manganese (Mn), Boron (B), Molybdenum (Mb), Zinc (Zn) and Copper (Cu) are trace elements or micro-nutrients.

With this background, the present study was carried out with following specific objectives.

1) To study the cropping pattern in Bikaner district.

2) To know the market potential of micro nutrient and NPK soluble in wheat crop.

3) To know the perception of farmers towards use of micro nutrient and NPK soluble.

4) To find out the suitable promotional activities for product promotion for SFC.

For proper analysis according to objective the simple statistical tools like Tabular analysis, Graphical method (bar graph, pie chart) used. For collection of data two methods were followed i.e. for primary data collection survey method selected and for secondary data collected from government offices, websites. The salient findings of the study are as under;

1. The major Kharif season crops are guar, moth, bajra, groundnut while as Rabi season crops are gram, wheat, rape and mustard etc.

2. The Kharif season has Guar maximum area under cultivation which is 901354 hectar.
3. The Rabi season has Gram maximum area under cultivation which is 170383 hectar.

4. The second main crop in Rabi season crop is Wheat, its sowing area 84175 hectares with the productivity 2260 kg per hectar.

5. Indicate that market potential for Shiriram Tripti in wheat crop in Bikaner district if assuming the market share 30 per cent, 40 per cent and 50 per cent then potential will be 126262.5 kg, 168350 kg and 210437.5 kg respectively.

6. Indicate that market potential for Shiriram Sathi in wheat crop in Bikaner district if assuming the market share 30 per cent, 40 per cent and 50 per cent then potential will be 20202 kg, 26936 kg and 33670 kg respectively.

7. The micro nutrients used by farmers were 61 per cent and followed 39 per cent farmers did not use micro nutrient in wheat crop.

8. In Bikaner district Karnataka Fertilizer company had highest market share 48 per cent of micro nutrient, SFC share was 29 per cent and Agrimas had the lowest market share among the farmers.

9. The NPK soluble used by farmers share were 31 per cent followed 69 per cent farmers did not use NPK soluble in wheat crop.

10. In Bikaner district had highest market share 31 per cent was Aries and 16 per cent of NPK soluble was SFC.

11. The perceptions of farmers regarding on price comparison of Shiriram tripti to others product, in which 60 per cent farmers were say price of Shiriram tripti high then the other products and only 40 per cent farmers were satisfied with the price of other products due to less price.

12. ‘Shiriram tripti’ is a product of SFC and having highest price of Rs.40 per kg, followed by Multiplex is a product of Karnataka Fertilizers having a price of Rs.35 per kg and least price of Kirti Fertilizers having only Rs. 30 per kg.

13. Farmers’ perception regarding effect of Shirirm tripti on production of wheat crop had increased and quality of grains were also improved.

14. The perceptions of farmers regarding on price comparison of Shiriram sathi to others product, in which 67 per cent farmers were say price of Shiriram sathi high then the other products and only 37 per cent farmers were satisfied with the price of other products due to less price.

15. Farmers’ perception regarding effect of Shirirm sathi on production of wheat crop has increased and quality of grains were also improved.
16. 28 Per cent farmers believe that demonstration and 24 per cent field days are best choice to promote the sale of the product, while 18 per cent believe that jeep campaigning is the best means for promoting share used different company promotional micro nutrient and NPK soluble. About 12 per cent farmers say that meetings are good method and 10 per cent says wall painting.

17. Field days and demonstration help to build direct contact with the farmers thereby helping to promote the product efficiently. These are the best promotional activities.

**Suggestion**

1. More emphasis should given on promotional activities like direct contact, farmers meeting, poster, wall painting to create the awareness of SFC as a brand in the farmers mind.

2. Company should limited dealers in a specific areas who have maximum contacts with farmer in that particular areas.

3. Company should provide promotional materials like literature to the dealers.

4. Focus should be laid on advertisement through T.V, Newspaper and Magazines as they have maximum recall value and leave a positive and long lasting impact in the minds of people about the existence of any particular company creating brand awareness as well.

5. Company should focus on the strategy, strength and weakness of its competitors.

6. Company should improve their supply chain system by providing timely delivery to their dealers.

7. Company should be give more incentives, bonus facilities to employees of company.

8. More business opportunity seminars should be conducted to make people aware of the products and its special features.

9. Company should also provide various promotinal offers to the farmers in different season like free coupon, free sampling, gifts etc.

10. Posters and display should be pasted on the village Panchayat Bhavan, centers, streets and dealers shop preceded by farmer meetings.
References
REFERENCES


CHAPTER VII
APPENDICES

QUESTIONNAIRE FOR FARMER

1. Farmer's Name
2. Mobile no
3. Address: Village
4. Education: (i) Primary (ii) Secondary (Hi) Higher Secondary (iv) Graduate
5. Land holding: (1) < 2 ha (2) 2-4 ha (3) 4-10 ha (4) > 10 ha
6. Net Area Sown
7. Do you use micro nutrient?  (1 )Yes  (2)No
8. Do you use NPK Soluble?  (1 )Yes  (2)No
9. Cropping pattern of Bikaner district

<table>
<thead>
<tr>
<th>S. no.</th>
<th>Particular</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Major crops</td>
</tr>
<tr>
<td>2</td>
<td>Cultivation of area</td>
</tr>
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<td>3</td>
<td>Productivity</td>
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<tr>
<td>4</td>
<td>Shift of cropped area</td>
</tr>
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</table>


<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Rank</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Price</td>
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<tr>
<td>2</td>
<td>Effect on Production</td>
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<tr>
<td>3</td>
<td>Effect on Quality</td>
<td>Improved, Not improved</td>
</tr>
</tbody>
</table>

11. Perception of farmers about NPK Soluble

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Perception for NPK Soluble</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Price</td>
<td>High, Low</td>
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<tr>
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<td>Effect on Production</td>
<td>Increase, No effect</td>
</tr>
<tr>
<td>3</td>
<td>Quality of product</td>
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</table>

11. According to your point of view which promotional activity is the best?
<table>
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<th>Rank</th>
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<tbody>
<tr>
<td>Field days</td>
<td></td>
</tr>
<tr>
<td>Leaflet/posters</td>
<td></td>
</tr>
<tr>
<td>Wall painting</td>
<td></td>
</tr>
<tr>
<td>Demonstration</td>
<td></td>
</tr>
<tr>
<td>Meeting</td>
<td></td>
</tr>
<tr>
<td>Jeep campaigning</td>
<td></td>
</tr>
</tbody>
</table>
QUESTIONNAIRE FOR DISTRIBUTORS

1. Outlet name ..........................................................................................................

2. Distributors name ..................................................................................................

3. Tehsil/ Block ........................................................................................................

4. District ..................................................................................................................

5. Total Sales of Micro nutrient .................................................................................

6. Total Sales of NPK Soluble ..................................................................................

7. Education (i) Primary (ii) Secondary (iii) Higher secondary (iv) College


<table>
<thead>
<tr>
<th>Company</th>
<th>Sales(MT)</th>
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<table>
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<th>Sales(MT)</th>
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<tbody>
<tr>
<td></td>
<td>2010</td>
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10. Price comparison of SFC with others.

<table>
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<tr>
<th>S. No.</th>
<th>Name of company</th>
<th>Price of product</th>
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<tbody>
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<td>Karnataka Fertilizers</td>
<td></td>
</tr>
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<td>3</td>
<td>Kirti fertilizer</td>
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<td>Agries</td>
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