"ESTIMATION OF MARKET POTENTIAL FOR ADANI WILMAR'S CASTOR DE OILED CAKE IN NASIK NAVSARI REGION"

PROJECT SUBMITTED TO
INSTITUTE OF AGRIBUSINESS MANAGEMENT
IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE AWARD OF THE DEGREE OF

MASTER OF BUSINESS ADMINISTRATION
(AGRIBUSINESS MANAGEMENT)
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SUBMITTED BY;

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Date: 28/7/**2011**

This is to certify that **Mr. GADKARI LALIT DASHRATH** has successfully completed the course work and examinations as required under the regulation for MBA (ABM).

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CERTIFICATE - II

Date:28/7/**2011**

This is to certify that the Project work entitled **"Estimation of Market potential for AWL's Castor De Oiled Cake in Nasik & Navsari region"** submitted for the degree of MBA (ABM) in the subject of Agribusiness Management embodies bonafide research work carried out by **Mr. GADKARI LALIT DASHRATH** 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. The draft of the thesis was also approved by the advisory Committee.

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Date:27/7/2011

This is to certify that the Project entitled **"Estimation of Market potential for AWL's Castor De Oiled Cake in Nasik & Navsari region"** submitted by **Mr. GADKARI LALIT DASHRATH** to the Navsari Agricultural University, Navsari in partial fulfilment of the requirement for the degree of MBA (ABM) in the subject of Agribusiness Management after suggestions and recommendations by external examiner was discussed and defended by the candidate before the following members of the Advisory Committee. The performance of the candidate in the oral examination on this project has been found satisfactory. We therefore, recommend that the project may be approved.

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Dr. Alpesh Leua
Major Advisor

Approved

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CERTIFICATE – IV

Date 28/7/**2011**

This is to certify that **Mr. GADKARI LALIT DASHRATH**, of Institute of Agribusiness Management College, Navsari has made all corrections / modifications in the project entitled **"Estimation of Market potential for AWL's Castor De Oiled Cake in Nasik & Navsari region"** which was suggested by the External Examiner and the Advisory Committee in the oral examination held on 21st June 2011. The final copies of the project duly bound and corrected were submitted on 28th July '2011. are enclosed herewith for approval.

Dr. B. K. Dhaduk
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Dr. Alpesh Leua
Major Advisor

APPROVED

( )
Director of Research & Dean
Faculty of P.G. Studies
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July 11, 2011

CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that, Mr. GADKARI LALIT DASHRATH student of Institute of Agribusiness Management, Navsari Agricultural University, Navsari has successfully completed project work entitled **"Estimation of Market potential for AWL's Castor De Oiled Cake in Nasik & Navsari region"** In our Castor Desk (Agro Division) at Ahmadabad Office for the period of three months during 27th January 2011 to 26th April 2011.

We wish his all success in his future career.

For Adani Wilmar Limited

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ADANI GROUP

Fortune
The Better Oil

DECLARATION

This is to certify that the whole of the research work reported in this project work in partial fulfillment of requirement for the award of the degree of MBA (ABM) in the subject of Agribusiness Management is the result of investigations done by undersigned under the direct guidance and supervision of **Dr. Alpesh Leua, Asst. Professor, IABM**, Navsari Agricultural University, Navsari (Major Advisor) and no part of the Project work has been submitted for any other degree so far.

Gadkari.

Place: Navsari

Date: June 21st, 2011

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(04-525-2009)

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(Major Advisor)

ACKNOWLEDGEMENT

First of all before "The Almighty Lord Ganesha & Aai Tuljai" I bow my head with great reverence because without his endless blessings this tedious task could not have been accomplished.

I really feel honored and blessed to be a student of this college i.e. **Institute of Agribusiness Management, Navsari.** It has provided me a platform to nurture all the skills and techniques required for doing this project effectively and efficiently.

It is my sublime privilege to express my deepest gratitude and veneration to **Mr. Rakshit Shah, Managing Director (Agro), Adani Wilmar Ltd. & Mr. Giriraj Mistry, Officer Human Resource (AWL)** For giving me an opportunity to work for this project, I would also like to thank **Mr. Dhimant Dave & Mr. Raj Modani**, **Executive, Adani Wilmar Ltd,** for there meticulous guidance, indelible inspiration, constant encouragement and constructive criticism throughout the investigation of the present Project, and preparation of manuscript.

I wish to express my sincere thanks to, **Dr. Alpesh Leua, Asst. Professor Institute of Agribusiness Management, Navsari** for providing necessary facilities and valuable guidance to conduct this project. And I'm also thankful to the Faculty Members, **Dr. Ruchira Shukla, Prof. Rahul Thakkar & Prof. Bhavesh Chaudhari.**

Finally I would like to thank my parents, and all my friends especially **Sumant Sangale, Sunit Gajare, Anupam Bhalerao, Sachin Pardeshi, Sachin Mhaisdhune, Sumit Chopade, Yogesh Dhande, Mahesh More, Yogesh Shinde, Sandeep Jadhav, Pushkaraj Shinde, Farhin Sheikh & Kunal Patil** for giving me support and being a torch bearer for me.

At last I would like to thanks who knowingly or unknowingly helped me and would have missed mentioning their names.

Gadkari.

LALIT GADKARI

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Executive Summary

Adani Group is a business behemoth based in India having a global footprint with interests in Infrastructure, Power, Global Trading, Logistics, Energy, Port & SEZ, Mining, Oil & Gas, Agri Business, FMCG products, Real Estate Development. It is a name well established among the distinguished corporate entities of India. Founded in 1988 with a capital of INR 500,000, Adani Enterprises Ltd. (formerly known as Adani Exports Ltd.) is today the flagship company of the Adani conglomerate which posted INR 260 billion revenue in the previous financial year.

The Non edible oil sector contributes for about 9 per cent of Adani Group's revenue. The figures may reach high as the company acquired 58 per cent of stake in NK Proteins and has increased their plants capacity too.

The project on "Estimation of Market potential for AWL's Castor De Oiled Cake in Nasik & Navsari region" was carried out under the guidance of Company Guide Mr. Rakshit Shah, Managing Director AWL and Mr. Dhimant Dave Sr. Executive AWL and Faculty guide Dr. Alpesh Leua, Asst. Professor, IABM, Navsari Agricultural University, Navsari.

The objectives of the project were to study the present status of Castor de oiled cake, to study Socio-economic status of respondents, estimation of market potential for AWL's Castor De oiled cake, to identify competitive brands in market and to find factors considered by farmers while purchasing the De oiled cake.

A survey of 100 farmers, 10 Co-operatives, 3 brokers & 10 retailers was carried out to study the objectives stated above. For the collection of primary data pretested questionnaires were used. Recent secondary data from internet, magazine and previous study review.

The major findings drawn from the project involves vast potential market for present demand, long run demand and short run demand. 58 per cent of farmers prefer use of organic fertilizers. Although the domestic market is tapped by other players the exports market is dominated by AWL.

The market potential is estimated on the basis of the assumptions but that assumptions were on the basis of result of the survey. The huge market potential in terms of quantity and value, as per present demand of the DOC in Navsari is 17447 tons and in Nasik 212586 tons. If suppose 10 per cent of the area covered under DOC in five years than almost Rs. 1319.17 Lakhs business will be generated through DOC only. But to trap this demand there should be high level of concentration keep on marketing, promotional and awareness issues.

The major competitive brands in the domestic market are Bhu Samruddhi of Jayant Agro, T-stains of Massy Fergusion, Orgo of Nlco orgo Manures, Uttam of NK proteins and Castor king of Mehsana oil mills. The major factors considered while purchasing the castor de oiled cake are Price of the DOC, Form of DOC and at lastly nutrient content as well as oil content. Its also observed that the farmers don't prefer any specific brand while the co-operatives and dealers supplying prefer the company and brand.

The dealer and brokers both are very active agencies in the value chain of the DOC, they are more compatible and shown better interest in the sale of the DOC. In Gujarat the only one agency work for the trade of DOC that is Co-operatives, the image of the co-operatives is very good in Navsari so farmers are have good faith about the quality of the product and the major constraint for the good demand for DOC is price of the product.

Chapter no. 1

Introduction and Organization Profile

.1 Introduction

India is a leading player in edible oils, being the world's largest importer (ahead of the EU and China) and the world's third-largest consumer (after China and the EU).A growing population, increasing rate of consumption and increasing per capita income are accelerating the demand for edible oil in India.

India is the largest producers of oilseeds in the world and this sector occupies an important position in the agricultural economy. Oilseeds and edible oils are two of the most sensitive essential commodities. India grows oilseeds on an area of over 26 million hectares, with productivity of around 1000 kg a hectare. But self –reliance in edible oils is not in sight and the country imports almost half of its edible oil requirements.

India has a wide range of oilseeds crops grown in its different agro climatic zones. Groundnut, mustard/rapeseed, sesame, safflower, linseed, Castor are the major traditionally cultivated oilseeds. Soybean and sunflower have also assumed importance in recent years. Coconut is most important amongst the plantation crops. Among the non-conventional oils, rice bran oil and cottonseed oil are the most important. The Indian edible oil industry is composed of some 15,000 oil mills, 600 solvent extraction units, 250 vanaspati units and about 400 refining units.

The National council of Applied Economic Research has projected the demand for edible oils under three scenarios on the basis of per capita income growing annually by 4per cent, 5per cent and 6per cent. Under the low growth scenario, the demand was to rise to 22.8 million tones, under medium growth scenario to 25.9 million tones and under high growth scenario to 29.4 million tonnes in the near future. The edible oil industry is largely dominated by the bulk segment. Unbranded segment accounts for anywhere between 80 and 90per cent of the total consumption. Imports are taking place in two forms-refined and crude oil. A large part of the crude oil gets sold as unbranded oil. The share of raw oil, refined oil and vanaspati in the total edible oil market is estimated at 35per cent, 55per cent and 10per cent respectively.

Coming to the non edible oil sector, there has been a great potential for production of bio-fuels like bio-ethanol and biodiesel. The country has been hit hard by the increased cost and uncertainty and so is exploring other energy sources occurring, bio-diesel, extracted from trees is one such alternative under consideration. Bio-diesel would be cheap to produce as it can be extracted from certain species of tree that are common in many parts of India. Due to the concern on the availability of recoverable fossil fuel reserves and the environmental problems caused by the use those fossil fuels, considerable attention has been given to biodiesel production as an alternative to petrol & diesel. The focus is on biodiesel production which is produced from vegetable oils, animal fats or non-edible oils. Talking of non edible oils, the Castor oil presently bears a great importance in this sector. Castor oil is one of the most useful plant oils. Castor Oil, in various grades, is used in pharmaceuticals, food and other industries. In addition, Castor oil and its derivatives & Castor-based oleochemicals are the source of a number of useful oleochemicals.

India's edible oil imports increased to 6.12 lakh tonnes in the fiscal ended March 2010 while the non-edible oil imports fell to 20,575 tonnes, according to the Solvent Extractors Association. The fall in the imports of non-edible oil was due to the higher imports due to the larger stocks at ports for lift and in pipelines. The country had imported 6.41 lakh tonnes of vegetable oils comprising edible and non-edible oil in March 2009. However, the overall import of vegetable oils rose 4.3per cent to 37.47 lakh tonnes during November 2009 to March 2010 compared with 35.92 lakh tonnes in the corresponding period of the previous year. Non-edible oil imports rose by 2.5per cent to 1.62 lakh tonnes during November 2009 to March 2010 compared with 1.58 lakh tonnes in the year-ago period, while edible oils imports increased to 35.85 lakh tonnes from 34.34 lakh tonnes.

Going by the market Statistics, the edible and non edible oil sector is all set for a boom in the market. The edible and non edible oil Industry needs to be strengthened by raising productivity, ensuring a reasonable price to the farmers and levying import duties at a reasonable level. Controls and regulations by government have left the oil industry in a highly competitive market dominated

by both domestic and multinational players. It is the right time for an entrepreneur to venture into this sector which is highly profitable.

India is one of the best producers of Castor seed. It has very good commercial importance. Above all it content oil, carbohydrate protein, fibre and ash etc. which is largely used for the production of cattle feed. Castor oil has medicinal value, it is used in the different variety of medicinal product. It can be commercially used as antifoaming agent. It has largely used in the cosmetic industry for the production of hair oil. India is the leading producer of Castor oil in the world, followed by China and Brazil with 0.8 and 0.4 lakh tonnes respectively. The present annual world trade in Castor oil is estimated at about 2.0-2.50 lakh tonnes. The world demand is estimated to be growing at the rate of about 3 to 5per cent per annum. As a whole this project is one of the good projects in India, which has good prospect.

Though, India is a dominant player in the world market, it is just a price taker and not a price setter due to its poor infrastructure but it has the capability to improve on the exports of the derivatives of Castor and overcome this limitation.

The global Castor derivatives market is highly dependent on India. India's export of Castor oil and derivatives is 2.6 lakh tonnes in 2007-08.

Chapter no. 2

Company Profile

1.2 Company Profile

➢ Company History

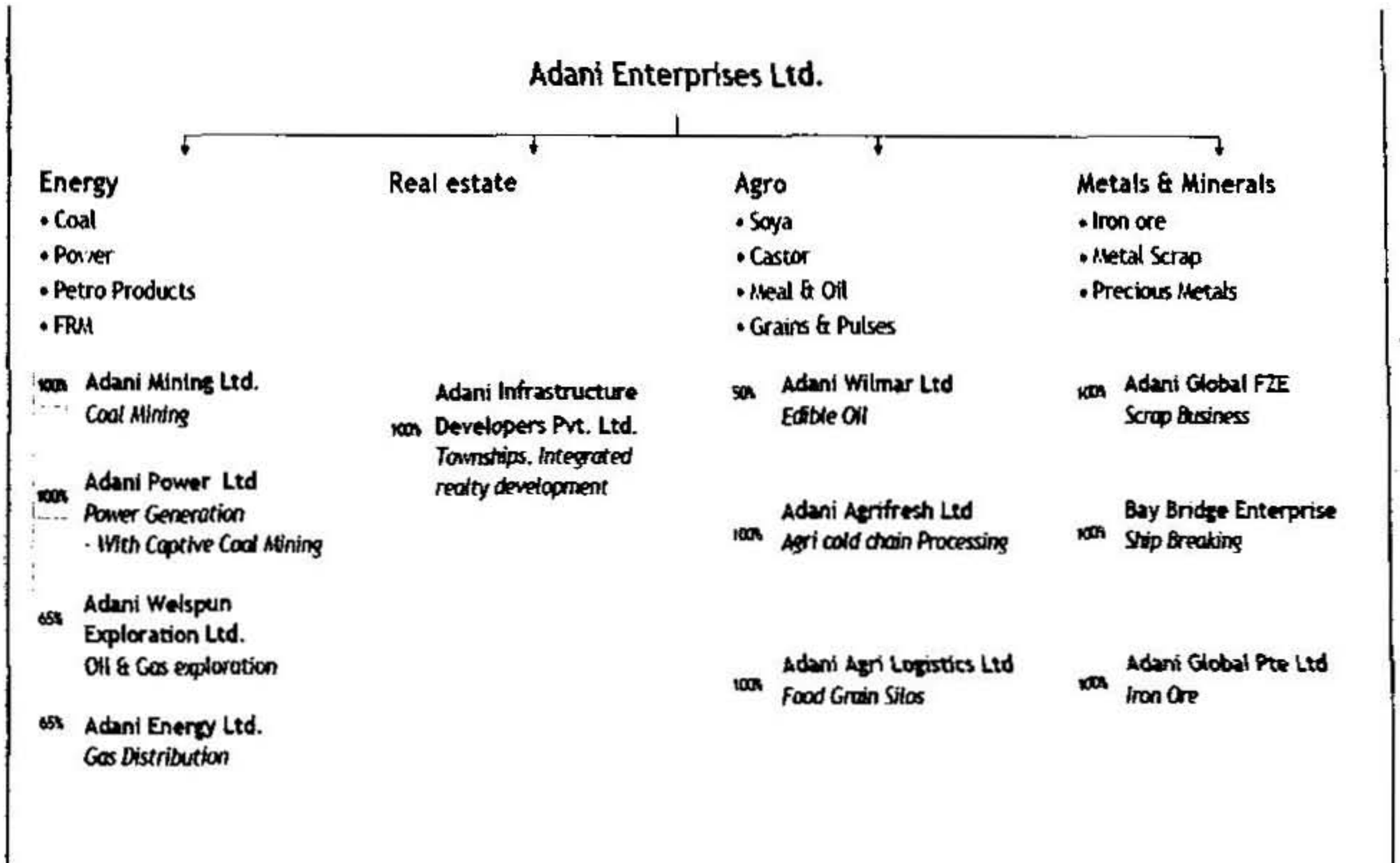
A decade ago, a partnership between the Adani Group and the Wilmar Corporation was born – and it was one that was soon to change the face of the edible oil business in the country. Competing with established home-grown players and aggressive Multinational Corporations, Adani Wilmar Limited had a mammoth task ahead of it. Trying to stake a claim in one of the largest oil markets in the world would prove to be a difficult feat for any new entrant, but, right off the bat, AWL rose to the challenge. The brand "Fortune" came into being in the year 2000, thus marking AWL's foray into the branded packaged edible oil business. And, within merely 20 months of its launch, Fortune rose to become India's largest selling edible oil brand, bearing that torch right up to this day. With the rapidly changing market scenario and economy, AWL continues to grow and transform into a significant player in the industry, evolving with the times. It is now one of India's leading edible oil companies, and the future for all of its brands looks very bright indeed. Adani Wilmar Limited (AWL), a Rs. 6500 crore company; is a joint venture between two global corporations.

The Adani Group of India - the leaders in international trading & private infrastructure, and The Wilmar International Limited of Singapore - agri-business group and leading merchandiser and processor of edible oils. Together, the Adani Group and Wilmar Group have set up India's first port based refinery at Mundra, Gujarat. Today the Mundra refinery is one of India's largest and most sophisticated oil refineries. FORTUNE, King's, RAAG, Bullet, Fryola and JUBILEE are the brands under which AWL sells its range of edible oil, vanaspati and bakery shortening. The company has production infrastructure across the country with a crushing capacity of over **6000 TPD** (Tonnes per Day) and Refining capacity of over **5000 TPD**. AWL is one of the very few national players in the Industry to have this massive production infrastructure, with all its plants so strategically located to take advantage of the Import Parity and Domestic crop season.

The company also has packing operations at Kadi [Gujarat], Latur [Maharashtra], Jaipur [Rajasthan], Dharwad [Karnataka], Dewas [Madhya Prades], Nagpur [Maharashtra] and Cochin [Kerala]. With 80 branches, 5000 distributors catering to 1 million outlets, AWL's products reach to 20 million households across India. Since its launch in 2000, Fortune took just 20 months to become India's No.1 edible oil brands, and is still at the top of the charts. Following the success in India, AWL introduced branded Edible oil to Middle-East and is now exporting its products to more than 19 countries in the Middle-East, South East Asia & East Africa.

- **Vision Statement** – A Globally Competitive, India focused MNC, with Leadership in Edible Oil & Non Edible oil Business providing branded products and services to the Delight of Customers and Stakeholders.

Annexure 1



Adani Wilmar Limited – AWL (US $2.5 Billion Company) is a 50:50 joint venture between two recognized Multinational Corporations – **Adani**

Group (more than US $10 Billion), the leader in Power, Infrastructure, Global Trading, Logistics, Energy and **Wilmar International Limited** -Singapore, Asia's leading Agri business group with revenues exceeding US $35 billion. The company has production infrastructure across India with oilseed crushing capacity of over **10000 TPD** (Tonnes per Day) and Vegetable Oil Refining capacity of over **10000 TPD**.

Our Agri Business trading portfolio includes products like Vegetable Oil, HPS Groundnuts, Vegetable Oil Meals, Sesame Seeds, Grains, Pulses, Wheat, Rice, Corn, Jowar, Sugar, Raw Cotton, Castor Seed, Castor Oil (various grades)& its derivatives like HCO, 12HSA, Ricinoleic Acid, Sebacic Acid, Castor Meal / De-oiled Cake (D.O.C). Currently our market share for manufacturing & export in Castor business would be more than 50per cent in India.

Our production capacity for Castor operation is as under:

- Castor Seed Crushing : 3000 TPD
- Castor Oil Refining : 1350 TPD
- Solvent Extraction (Castor Meal) : 1650 TPD
- High Protein Castor Meal : 150 TPD
- HCO/12HSA : 65 TPD (We are putting up 100 TPD additional facility at Mundra Port which is expected to be operational by end 2012)

Parameters used for Quality Checks in Lab.:-

1. **For Seeds –**

a. Oil – 46 per cent Min.

b. Moisture – 5 to 6 per cent.

c. Husk (Potri) – 2 to 1 per cent.

d. Free Fatty Acids – Less than 0.5 per cent and In Rainy season 0.8 per cent.

2. **Commercial Oil –**

a. Free Fatty Acids – 1 per cent Max.

b. Colour – 16 to 18 Units. (Yellow & Red).

c. Moisture – 0.5 Max.

***3.* Chemicals added in Refinery –**

a. Activated Carbon – Metheline blue value 160 Min.

b. Activated bleaching earth (For colour reclaim nation) – Bleach ability 60 per cent.

Branding:-

1. Commercial oil:-

a. **FSG** (First Special grade) – Obtained from processing & addition of Bleaching earth 1per cent, Gallion 0.8per cent & Carbon 0.7per cent.

b. **PPG** (Pal Pressed Grade) – Obtained by double dose of Bleaching earth, Gallion & Carbon.

2. De oiled cake(DE OILED CAKE):-

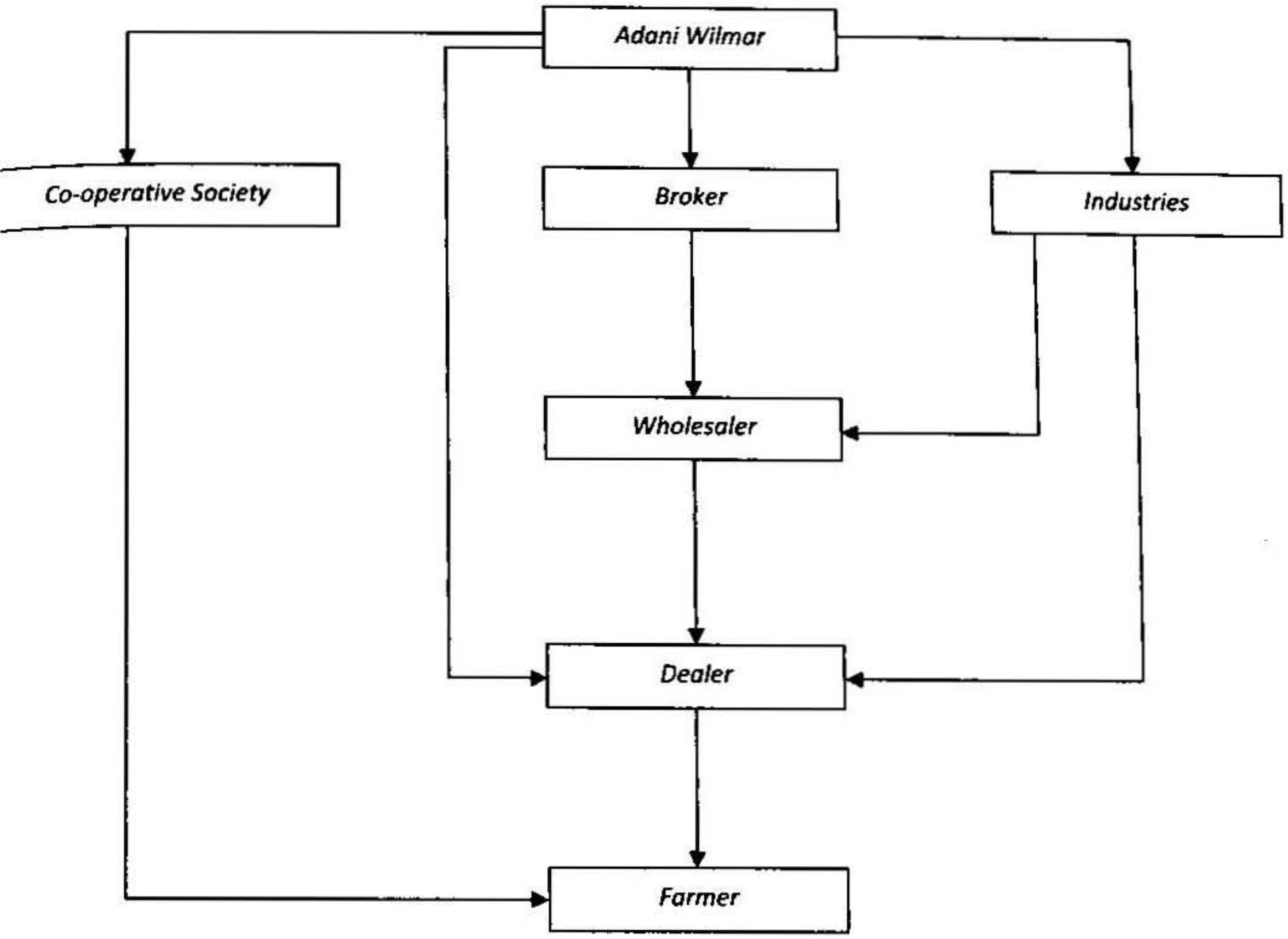
a. **High Protein** – In powdered form, Nitrogen content 8 to 9per cent.

b. **Agro Kisan** – For agriculture use, Nitrogen content 4 per cent.

c. **Agro King Gold** – Addition of Bacteria, used in Tea Gardens.

d. **Loose** – Sold in bulk in loose form, no brand name used.

Adani Wilmar's Supply chain for Castor De oiled cake:-



Above figure shoes the supply chain for Castor De oiled cake, the company provides De oiled cake to 3 major buyers i.e. co-operative, broker & industry. The Co-operative network is generally followed in Gujarat through co-operative farmers receives De oiled cake. At secondly the brokers who receives order from the wholeseller supplying to the dealers & thus to the farmer.

Generally this broker- wholeseller- dealer-farmer network is used in supply of De oiled cakeat the tea gardens in Assam, Arunachal Pradesh,etc. At last the company to industry who markets the product on there own brand name or using the De oiled cakeas a burner in the boiler. While the industries(Nico Orgo Manure, etc) marketing on their own brand further supplies to dealer and through dealer to farmers.

GROUP HIGHLIGHTS:

Adani Group is a business behemoth based in India having a global footprint with interests in Infrastructure, Power, Global Trading, Logistics, Energy, Port & SEZ, Mining, Oil & Gas, Agri Business, FMCG products, Real Estate Development, Bunkering, et al. It is a name well established among the distinguished corporate entities of India, with a young and highly motivated taskforce of professionals who are a prized asset of the organisation.

Founded in 1988 with a capital of INR 500,000, Adani Enterprises Ltd. (formerly known as Adani Exports Ltd.) is today the flagship company of the Adani conglomerate which posted INR 260 billion revenue in the previous financial year.

The Adani Group has many distinctions to its merit:

- Operator of the largest private port in India
- Developer of the largest multiproduct SEZ in India
- Owns the largest edible oil refining capacity in India
- One of the largest trading houses in India
- Largest Integrated Coal Management Firm in India
- Promoter of India's first supercritical technology based power plant
- Operator of the world's largest automated import Coal Terminal having 60 MnT capacity. The Adani Group is engaged in a continuous endeavour to maximise the realisation of potential in its employees and market opportunities by synergising the multiple ventures of the Group; thus creating an optimum business mode.

Agribusiness Division:-

Agro Commodities Trading

India is one of the world's largest food grains producers, the second largest vegetable producer and rice producer, making it one of the world's

agricultural powerhouses. With global agricultural trade on a sustained rise coupled with robust economic growth across the world, the Agro sector has number of trade opportunities in its offing, which is an important contributor to India's growth story. India also produces significant quantities of oil seeds, in spite of this; it is one of the leading importers of edible oil. Indian demand for edible oil is likely to remain an important source going forward giving increased avenues of investment in this sector. The total food production in India is likely to increase substantially in the coming years which will throw enormous opportunities for large scale investments in food and food warehousing, logistics management and processing.

Adani Enterprises is one of the leading trading houses in agro commodities. Adani's Agro commodities business is focused on trading in various Agro products in India and internationally, including grains, pulses, Castor and soya. Adani Enterprises has emerged as a leading importer of pulses. The company is present in every aspect of trade of bulk agro commodities from importing, selling domestically to exporting and doing third country trade. The company has been the leading exporter of Castor Oil from India. The soya operations has grown in FY06, making AEL the leading exporter to Japan. AEL has a geographical presence in Europe, Japan, Korea, China, USA, Canada, Australia, South East Asia, Middle East, South Asia & almost all over India with its Agro Business.

Global agricultural trade is projected to rise given the expanding agri output in a number of countries in line with a robust economic growth across the world. Excellent export prospects, competitive pricing of agriculture products and standards that are internationally comparable has created trade opportunities in the agro industry.

Food grain exports have increased from $5.9 billion during 2001-02 to $6.4 billion during 2003-04. The Government's special efforts to encourage food grain exports in recent years through the granting of WTO compatible subsidies has made India one of the leading exporters of food grains in the international market.

Driven by the consumption and production disparity in the agro sector, Adani Enterprises has made efforts to tap the opportunities in the said sector. The Company has been successful in grabbing an increasing market share in export and import of grains and pulses.

EDIBLE OIL & NON EDIBLE OIL:

Adani Wilmar Limited (AWL), a Rs. 2600 crore company; is a 50:50 joint venture incorporated in January 1999 between two global corporations...

- Adani Enterprises Ltd. - the leaders in international trading & private infrastructure, and
- The US $ 6 billion Wilmar Holdings Pte. Ltd of Singapore - one of the World's largest trader and refiner of edible oils.

Wilmar Group is one of the world's largest edible oil refiners and one of Asia's largest oilseed crushers, with consolidated sales of US $ 6 billion in 2006. Through Wilmar International, its subsidiary listed on the Singapore Exchange, it has a sizeable operation in Indonesia, which makes it one of Asia's largest palm oil refiners and merchandisers, as well as crushers of copra and palm kernel. In China, the Group is the largest soybean crusher, a leading processor of oilseeds and edible oils and a leading distributor of branded edible oils. It is also a leading importer of edible oils into East and South Africa and Eastern Europe.

The Wilmar Group actively supports AWL's operations, with 90per cent of AWL's imports of crude vegetable oil being procured through the Wilmar Group. The Registered office of AWL is at Ahmedabad, with the manufacturing facilities situated at Mundra (Dist. Kutch, Gujarat).

Together Adani Group and Wilmar Group have set up India's first port based refinery in 1999, at Mundra, Gujarat. Today the Mundra refinery is one of India's largest and most sophisticated oil refineries. FORTUNE, RAAG, NATURALLE, KACHCHI GHANI and JUBILEE are the brands under which AWL sells its range of edible oil, vanaspati and bakery shortening. As per AC

Nielsen ORG MARG 'Fortune' has emerged as the highest selling consumer pack brand in India and stood at number one with **17per cent market share** in refined edible oil market with leader in Soya bean category – the fastest growing segment in the edible oil market. AWL today provides the widest range of edible oils in the country under the brand name of fortune. AWL produces a basket of premium quality edible oils like:

Edible Oil segment:-

- Fortune Refined Soyabean Oil
- Fortune Refined Sunflower Oil
- Fortune Refined Groundnut Oil
- Fortune Refined Cottonseed Oil
- Fortune Kachi Ghani Mustard Oil
- Fortune Pure Coconut Oil
- Fortune Pure Mustard Oil
- Fortune Pure Groundnut Oil

i. Non Edible Oil Segment:-

Castor

In addition to Mundra refinery, AWL also owns refineries at Bundi [Rajasthan], Haldia [West Bengal] and Mantralayam [Andhra Pradesh]. Its cumulative refining capacity is more than 3200 Tonnes Per Day (TPD). The company also has packing operations at Chatral [Gujarat], Latur [Maharashtra], Jaipur [Rajasthan], Dharwad [Karnataka], Dewas [Madhya Prades] and Cochin [Kerala]. Since its launch in 2000, Fortune took just 20 months to become India's No.1 edible oil brand.Following the success in India, AWL introduced branded Soyabean oil to Middle-East and is now exporting its products to more than 19 countries in the Middle-East, South East Asia & East Africa.

Today AWL has its distribution foot prints all across the country with various stock-points catering to more than 5000 distributors, 600 Super Stockists and numerous brokers and other trade associates. AWL's retail

reach is more than 1 million outlets and its consumer reach is more than 80 million Indians.

AWL has also forayed into coconut oil by launching "Naturelle" brand.

FRUITS & VEGETABLES:

"**Adani Agri Fresh Ltd**" a 100per cent subsidiary of **Adani Enterprise** has taken the lead in developing an integrated storage, handling and transportation infrastructure for fresh fruits and vegetables in India.Our country is the second largest producer of fresh fruits and vegetables, yet lacks of post-harvest management facilities, suitable cold stores and an organised distribution system, resulting in 25-30per cent wastage of fresh produce. To prevent this, the company has employed 'Controlled Atmosphere Technology' for increasing the shelf life of fruits. Distribution centers are being set up across India, complimented by setting up of logistic cold chain to increase efficiency of the system. The Company has set up Controlled Atmospheric Storage units at three locations (Rewali, Sainz, Rohru) in Himachal Pradesh with a capacity of around 18,000 MT. Each Site has been constructed with 7 Blocks of 6 Chambers totaling to 42 chambers at each location.

Initially the project focused on apples. The fruits and vegetables which are proposed to be preserved will be apple, banana, grapes, lime, litchi, mango, mosambi, pineapple, papaya, brinjal, bitter gourd, green chillies, peas, cabbage, cauliflower, ginger, garlic, etc. Despite being the second largest producer of fresh fruits and vegetables, the country is a virtual non-entity on the world trade map in terms of the global trade volumes. Due to lack of post-harvest management facilities, absence of suitable cold stores and the lack of an organized distribution system, the wastage of fresh produce in India is as much as 25-30per cent.

The domestic market is characterized by oversupply in the peak season and shortage in off season, resulting in off season prices that are often 3-4

times of season prices. The lack of appropriate storage and logistic infrastructure jacks up the prices for the ultimate consumers. As a result, neither does the produce reach the consumer in the optimal condition nor does the producer get fairly remunerated.

To capitalize on this segment, Adani Enterprises through its 100per cent owned subsidiary "Adani Agri Fresh Ltd" has taken the lead in developing such an integrated storage, handling and transportation infrastructure for fruits and vegetables in India. This will enable the company to provide consistent quality of branded fruits and vegetables all the year round. The company will be employing 'Controlled Atmosphere Technology' for increasing the shelf life of fruits. Distribution centres will be set up across India, complimented by setting up its own logistic cold chain to increase efficiency of the system.

The Company has set up Controlled Atmospheric Storage units at three locations (Rewali, Sainz, Rohru) in Himachal Pradesh with a capacity of around 18,000 MT. Each Site has been constructed with 7 Blocks of 6 Chambers totaling to 42 chambers at each location.The strategy is to concentrate on products that are produced far from major consumption centers, are seasonal in nature and are amendable to increase in storage life using modern integrated cold chain facilities. This would enable the company to leverage on its logistics strength while at the same time take advantage of controlled atmospheric storage technology to arbitrage on the price differential between peak and off peak season.

Initially the project would be focused on apples and would then diversify into other products. The fruits and vegetables which are proposed to be preserved will be apple, banana, grapes, lime, litchi, mango, mosambi, pineapple, papaya, brinjal, bitter gourd, green chillies, peas, cabbage, cauliflower, ginger, garlic, etc.

AGRO SUPPLY CHAIN:

Globally, movement of major food grains like wheat, for domestic consumption or exports, is done in an integrated fashion in bulk right from farm gate to port or consumption centre. This helps to reduce multiple handlings and associated high wastage and pilferage, which typical exists in developing countries like India.

In order to reduce storage and transit losses of food grains and to bring additional resources through Private Sectors participations, Govt. of India had announced a National Policy on Handling Storage and Transportation of Food grains in June, 2004 for Bulk and conventional godowns. Adani Agri Logistics Ltd. (100per cent subsidiary of AEL) was awarded the contract for setting up two such facilities one each at Moga and Kaithal in Harayana, as it emerged as the most competitive bidder for which global tenders were invited. Adani Agri Logistics Ltd. is responsible for development and operation of bulk food grain handling, storage and transportation facilities under BOO arrangement for FCI. AEL is developing vertical silos to store grains and movement in bulk in top loading/ bottom discharge wagons. This is a national level project created first time in India.

The Project envisages following activities:

- Design, finance, construct, operate and maintain Base Depots and Field Depots
- Receive grains from FCI at the base depots, weigh them, clean them store them and transport them either by rail or road.
- Receive in bulk by rail, handle, store and preserve the grains at the field depots
- and, thereafter, load these grains in bulk/bags for transportation by rail or road
- Construct and maintain rail and road access from the depots of the circuit to the nearest rail and road networks.
- Develop, procure and own on its cost Special Bulk Food grain

According to the Economic Survey 2004-05, the growth rate in the agriculture and allied sector was 9.6 percent in 2003-04 and is estimated to grow 1.1 per cent in the current year. India's total grain stocks grew by 7.3 per cent to 23.6 million tons as on Nov, 2004, according to the Food Ministry. India's food grain production is expected to rise to 209 million tons in the fiscal year ending in March 2006, from 205 million tons last year according to the Centre for Monitoring Indian Economy. Agreement with FCI, new technology and consistent growth in food grain production opens a huge opportunity for AEL to grow organically.

Chapter no. 3

The Project

3.1 **Title**

"An estimation of Market potential of Adani Wilmar's Castor De Oiled Cake"

3.2. **Objectives**

- To study present status of Castor De oiled cake.
- To study Socio-economic status of respondents.
- Estimation of market potential for AWL's Castor De oiled cake.
- To identify competitive brands in market.
- To find factors considered by farmers while purchasing the DOC.

3.3. **Literature Review**

D.S. Ogunniyi (1999) Even though Castor oil is inedible, it has long been an article of commerce. This is, in large measure, due to the versatility of the oil. This article discusses the extraction of Castor oil and its refining methods and reviews the industrial applications of the oil. Since Castor oil is not edible, it could be substituted in many industrial application areas where edible oils are used. An awareness of the various uses of the oil can be used to make a strong case for an increase in its production as a vital raw material for the chemical industries.

K. Azim (2000) Plant products are receiving greater attention as prophylactics against several species of plant-parasitic nematodes (Akhtar, 2000). Plants with nematicidal properties can effectively reduce soil populations of nematodes and improve crop yields. The aim of these two experiments was to evaluate the impact of oil plant cake amendments (argan; neem; Castor cake and ground Castor leaves) on soil fertility; agronomic parameters and on the control of root-knot nematodes (Meloidogyne spp) – especially free larvae of second stage J2- affecting cucumber and melon under greenhouse in south-western Morocco. In the cucumber greenhouse trial, oilcake amendments were applied before transplanting with a dose of 5t ha-1. Experimental results showed a reduction of gall formation, soil

nematode density, root rot infestation and improvement of plant height and yield as compared to the control. In general, amending with oil cake improved the soil fertility, and increased the soil organic matter content and some major elements. Compared to the control, argan and neem cake respectively improved the soil organic matter (+23.33per cent and +31.11per cent); total nitrogen (+105.55per cent and +27.77per cent) and exchangeable potassium (+24.73per cent and +80.64per cent).

Raafat N. Zaki (2004) Two year field experimental were carried out in a calcareous soil at West oubaria region (private farm) during summer season of 2009 and 2010 to compare the effects of full and partial applications of organic sources as rich-nutrient supplies and/or as soil conditioners, with the recommended doses of inorganic fertilizers (RDF) on growth index and yield of sunflower (Helianthus annuns) and maize (Zea mays) crops. Eleven treatments, including: the control, 100per cent of (RDF), 100per cent of full recommended dose of nitrogen (RDN), through de-oiled seeds of Jatropha (JC), Castor seed cakes (CC), farm yard manure (FYM) and mixtures of 50 and 25per cent of the organic sources plus 50 and 75per cent of RDF, respectively, were arranged in complete randomized block design with three replicates. At the proper time, growth index, yield records, nutrient uptake, oil and fatty acid contents were assessed on the growing crops. At the end, some soil properties (pH, organic carbon and bulk density) and soil nutrient status were also calculated.

Mohamed Belaid & Edison Muzenda (2008) Studied for the design and construction of a pilot plant for the extraction of Castor oil in South Africa was conducted. The study emphasized the four critical aspects of project feasibility analysis, namely technical, financial, market and managerial aspects. The technical aspect involved research on existing oil extraction technologies, namely: mechanical pressing and solvent extraction, as well as assessment of the proposed production site for both short and long term viability of the project. The managerial aspect was evaluated based on the fact that the current producer of Castor oil will be fully involved in the project while

receiving training and technical assistance from Sasol Technology, the TSC and SEDA. Market and financial aspects were evaluated and the project was considered financially viable with a Net Present Value (NPV) of R2 731 687 and an Internal Rate of Return (IRR) of 18per cent at an annual interest rate of 10.5per cent. The payback time is 6years for analysis over the first 10 years with a net income of R1 971 000 in the first year. The project was thus found to be feasible with high chance of success while contributing to socio-economic development. It was recommended for lab tests to be conducted to establish process kinetics that would be used in the initial design of the plant.

Swetha Sivaramakrishnan and Dhanya Gangadharan (2009) The very sustainability of the growing bioprocess industry depends on the progressive reduction of expensive nutrient inputs into fermentation media. The use of cheap agricultural and food-processing by-products such as oil cakes, as feedstock is highly favored so as to improve the commercial feasibility of bioprocess technology. Due to stringent nutritional requirements of these edible oil cakes as animal feed, there is considerable interest in using them as substrates in the fermentation industry. This chapter will provide an impetus to further research in this area enabling better utilization of edible oil cakes as sources of protein and carbohydrates for economic viability of the bioprocess industry.

Elbadri (2009) The tested oil cakes significantly reduced the population of Meloidogyne spp in the soil during the first two months. Argan cake, tested for the first time, showed very significant performance in controlling free larvae J2 three months after inclusion (96.85per cent reduction as compared to the Control), while neem; Castor cake and ground Castor leaves had respectively reduced free J2 by 90.55; 88.98 and 89.76per cent as compared to the control. Galling Index (GI) performed on cucumber roots has shown that argan; neem and Castor cake were statistically a homogeneous group (4.17; 5.00 and 4.58) and had the lowest GI in comparison to ground Castor leaves and the control (6.00 and 7.00). Argan cake produced statistically the highest

yield 29.3 t-1 ha-1 (112per cent more than the control), where as neem and Castor cake improved equally the yield by 89.31per cent and 80.6per cent. Ground Castor leaves resulted in the lowest yield (+27.66per cent). A trial on melons grown in pots has received a quantity of 200 grams per plant of oilcakes amendment. Results showed maximum suppression (100per cent) of root knots and soil larvae population with argan, Castor cake and ground argan shoot while neem cake was less effective (Root Knot Index=1 and the average of free J2 = 1.75). Castor cake resulted in 24per cent increase in fresh weight compared to the infested control, while ground argan shoot enormously decreased both height and weight as a result of phytotoxicity.

Chapter no. 4

Research Methodology

Research methodology

➢ Purpose & Scope of Study

The purpose of the study is to identify the market potential that exist for Castor De oiled cake product in selected area and particularly for Adani Wilmar's product. The proposed study is to help Adani Wilmar Ltd to identify the market potential that exists for Castor De oiled cake product in Navsari & Nashik district and particularly for Adani Wilmar's product. The study is helpful in understanding usage pattern and buying behavior for Castor De oiled cake products. It will help Adani Wilmar Ltd to design marketing strategies to tap the marketing potential.

The objectives of the study are mentioned below:

1. To study present status of Castor De oiled cake.
2. To study Socio-economic status of respondents.
3. Estimation the market potential for AWL's Castor De oiled cake.
4. To identify competitive brands in market.
5. To find factors considered by farmers while purchasing the DOC.

Looking to the objectives of the study, the area proposed by the organization for survey are Navsari district of Gujarat state & Nasik district of Maharashtra state , which is located in southern & northern parts of the respective states. Both states are largest producers of horticultural as well as agronomical crops.

Area under horticulture crops is large; the states contribute together 25 percent of the gross cropped area under horticultural & agronomical crops in the country, which is quite much compared to many states. Despite severe fertilizer & water scarcity, water intensive crops such as Banana, Sugarcane, Mango, Grapes, Papaya and other corps like Tomato, Capsicum, etc have been extensively cultivated.

Studies have confirmed that horticultural as well as agronomical crops consume bulk of the available nutrients from soil in order to achieve desired potential production as well as high quality standards of produce. The study

has been conducted to know the potentiality of land to cultivate the crops for the upcoming years and has been stated that the extensive use of chemical fertilizer is spoiling the soil condition and responsible for the loss of essential soil microbes, thus the usage of organic fertilizers are being recommended by many agencies.

State government has been promoting organic fertilizers by providing subsidy to the farmers. Due to concerted efforts taken by the government agencies along with some manufacturers, the area under organic farming increased from 36,468 hectares in 1998 to 32.18 lakh hectares in 2009-10. The Districts also has been well known for the horticultural as well as agronomical crops requiring abundant amount of fertilizers where De oiled cake can be used.

- **Primary Data**

Sources of collecting Primary data -:

The primary source of information collected from Farmers, Brokers, Dealers & Co-operatives in the selected talukas of Navsari district in Gujarat & Nasik district of Maharashtra. The methodology for collection of primary data was involving structured interview schedule through focused group discussion & open ended discussion.

- By personal interview
- Pre tested Questionnaires were used for collection of primary data for the study of farmers, brokers, dealers & co-operatives.

- **Secondary Data**
- **Sources of collecting secondary data:-**

The secondary source of data provided the insight to understand and define the nature of the problem. Secondary data was collected through various sources like company website, magazines, internet source, company leaflet and reports of SEA as well as other sources. Various reports and article from the internet provided the information regarding the Castor & De oiled cake usage and the data about area, production, productivity of Castor in growing states.

- Web portals
- Magazines & Journals

- Reports of Solvent Extractors Association of India.
- Company magazines, etc

➢ **Instrument of Data collection:-**

Questionnaires are used for the collection of primary data. Both open ended question and multiple choice questions were involved in questionnaires. In open ended questions farmers and Dealers are free to answer and in multiple choice questions brokers & co-operatives are offered by various options to choose from scheduled.

❖ **Sample Design for Survey:-**

➢ **Location of the Survey**: - In Navsari district, talukas viz Jalalpore, Navsari, Gandevi, Billimora & Moroli were selected purposely and In Nashik viz Niphad, Dindori, Nashik talukas were selected for the study. Taking the proximity of crops taken & area under the horticultural crops the above locations were selected.

➢ **Sampling method: -** Convenience sampling.

➢ **Sample unit**: -

- Farmers using Castor De oiled cake as a fertilizer.
- Dealers (Dealing with Castor De oiled cake as well as not dealing).
- Co-operatives from Navsari district.
- Brokers responsible for marketing AWL's Castor De oiled cake.

➢ **Sample size**: -

Table 4.1 Sample size

Sr. No	Particulars	Sampling size
1	Farmers	100
2	Dealers	10
3	Other Agencies (i.e.Co operatives)	7
4	Brokers	3

- **Sampling design**: -

Table 4.2 - Sampling design for Farmer:-

Sr. No	Name of Talukas	No. of Farmers
I.	**Navsari (Gujarat)**	**50**
	a. Jalalpore	15
	b. Gandevi	15
	c. Billimora	12
	d. Moroli	8
II.	**Nashik (Maharashtra)**	**50**
	e. Niphad	17
	f. Dindori	17
	g. Nashik	16

Table 4.3 – Sampling design for Dealers

Sr. No	Name of District	No. of Dealers
I.	Navsari (Guj)	2
II.	Nasik (Mah)	8

Table 4.4 – Sampling design for brokers

Sr. No	Name of District	No. of Brokers
I.	Ahmedabad (Guj)	3

Table 4.5– Sampling design for Co-operatives

Sr. No	Name of District	No. of Co-operatives
I.	Navsari	7

- **Data analysis techniques**: - Data obtained from the survey was analyzed through tabular analysis including appropriate statistical tools. All this information is plot in the form of tables, graph, figure, pie-chart etc.

- **Limitations of the Study:-**

1. The study is restricted to only Navsari and Nasik districts.
2. The time limit is very short for the data collection.
3. The response of from farmers, brokers and other agencies was based on their perception and knowledge.

Chapter no. 5

Data Analysis and Interpretation

Data Analysis and Interpretation

This chapter contains the data analysis and interpretation of responses collected from brokers, farmers, co-operatives and Dealers under study areas, This chapter is to helpful to understand the nature respondents about DOC and estimate the market potentiality of De oiled cake. The data analysis and its interpretation are discussed objective wise in the section.

Objective I: To Study Present Status of Castor De oiled cake–

Castor (*Ricinus communis L.*) is cultivated around the world because of the commercial importance of its oil. **India** is the **world's largest producer** of Castor seed and meets most of the global demand for Castor oil. India produces 8 to 8.5 lakh tonnes of Castor seed annually, and accounting for more than 60 per cent of the entire global production. Because of its unlimited industrial applications, Castor oil enjoys tremendous demand world-wide. The current consumption of Castor Oil and its derivatives in the domestic market is estimated at about 300,000 tonnes. India is also the biggest exporter of Castor oil and its derivatives at 87 per cent share of the international trade in this commodity.

Castor is an important non-edible oilseed crop and is grown especially in arid and semi arid region. It is originated in the tropical belt of both India and Africa. It is cultivated in different countries on commercial scale, of which **India, China and Brazil** are major Castor growing countries accounting for 90 per cent of the world's production. Historically, Brazil, China and India have been the key producing countries meeting global requirements. However, in early 90's, Brazilian farmers moved away to more lucrative cash crops, and surge in domestic demand in China made them net importers, leaving India to meet the global demand.

Castor DOC (DE OILED CAKE):-

De-oiled Castor cake is also called Castor meal, Castor residue or Castor extract. Castor meal - the residue obtained from Castor cake by the solvent extraction process - is one of the most versatile natural manures.

Use of Castor: - The seeds generally contain up to 48 per cent oil and the rest becomes the part of oil cake.

1. **Oil –**

- Major application in soaps, Lubricants, Grease, Hydraulic brake fluids, Polymers, Perfumery products, Cosmetics, Paints, Synthetic resins, Varnishes, A basic ingredient in the production of nylon 11, Medicinal use & Pharmaceutical.

2. **Castor cake -**

- Boiler ash &
- Fertilizer - Nutrient content of Castor Cake:

Organic matter - 75 - 80 per cent,

Nitrogen - 4.0 - 4.5 per cent,

Phosphorous - 1.5 per cent,

Potassium -1.25 - 1.5 per cent.

It also contains some micro nutrients viz., *Calcium, Magnesium, Sulphur, Iron, Zinc, Manganese, Copper* etc.

World Wide companies in Castor Oil & Cake:

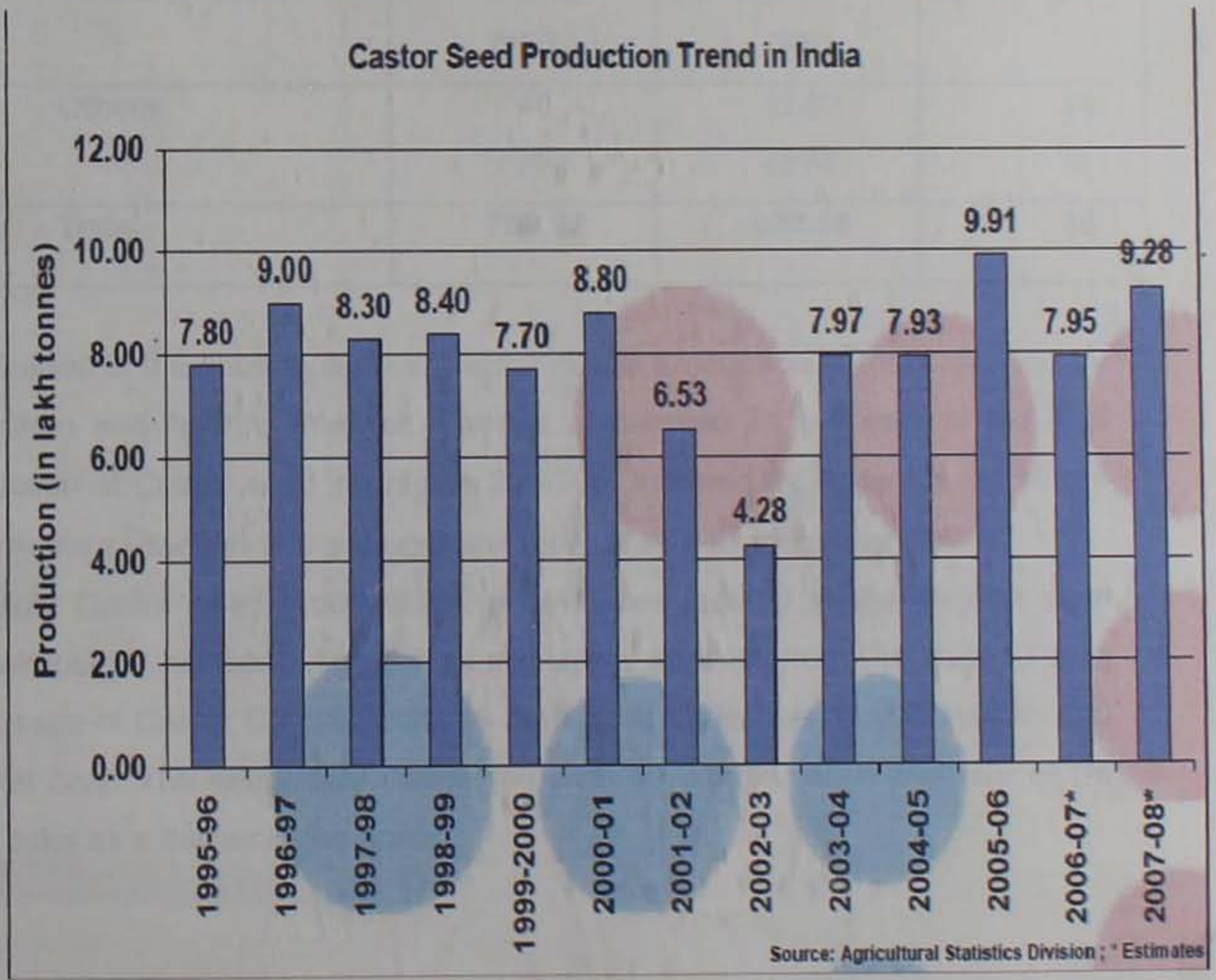
Table: 5.1.1 - Castor Growing Area & its Production and Yield

Year	Area (000 ha)	Production (000 MT)	Yield (kg / ha)
2001-02	716	652	911
2002-03	583	428	733
2003-04	732	801	1094
2004-05	820	790	963
2005-06	948	970	1023
2006-07	810	800	987

Source: Agriculture Statistics Division.

The table no. 5.1.1 shows the area, production and productivity of Castor seed in India from 2001-02 to 2006-07. The area under Castor seed was increased upto 30 per cent during the 2001 to 2006. The production and productivity also showed the same trend.

Fig 5.1.1: Castor seed production trend in India.



The total production declined by about 19 per cent during 2006-07 from about 9.9 lakh tonnes in the previous year. One may note that the area under production also declined by 15 per cent. The average annual Castor seed and Castor oil prices declined during 2005. As per estimates, India produced 9.2 lakh tonnes in 2007-08.

Table 5.1.2: **State wise production of Castor seed ('000 MT)**

State-wise Production State	Production (□000 MT)		
	2006-07	**2007-08**	**% Change**
Gujarat	494.81 (63 %)	651.22 (72%)	32
Rajasthan	135.24 (17%)	142.88 (16%)	6
Andhra Pradesh	113.57 (15%)	83.13 (9%)	-27
Others	40 (5%)	32.63 (3%)	-18
Total	**783.62**	**909.86**	16

Gujarat is the leading state in Castor seeds production in India followed by Rajasthan and Andhra Pradesh. Gujarat contributed 71 per cent of the total production of Castor seed in India in 2007-08, followed by Rajasthan at 16 per cent, Andhra Pradesh at 9 per cent and other states sharing 4per cent.

Most Castor seed processing industries are located in the Gujarat state only almost 80 per cent. And the giant players are also from the Gujarat only. The usage of Castor De oiled cake as a fertilizer is also the most in Assam and Gujarat only. The secondary usage targeted by companies is the use of De oiled cake as a burner in the boiler.

Table 5.1.3: **District-wise Production Details of major states.**

- **Gujarat**

District	2006-07 (000 MT)	2007-08(000 MT)	per cent Change
Banaskantha	108.77	165.72	52.36
Gandhinagar	46.18	52.32	13.30
Kachchh	94.25	88.29	-6.32
Mahesana	54.21	77.61	43.17
Sabarkantha	70.38	92.73	31.76
Others	121.02	174.55	31.00
Total	**494.81**	**651.22**	**31.61**

- **Rajasthan**

Hanumanthgarh	32.03	11.86	170.07
Jalore	39.53	60.07	-34.19
Jodhpur	22.46	17.36	29.38
Other	41.22	53.59	-17.30
Total	**135.24**	**142.88**	**-5.35**

- **Andhra Pradesh**

Mehabubnagar	68.77	48.14	42.85
Nalgonda	26.38	21.3	23.85
Others	18.42	13.68	24.44
Total	**113.57**	**83.12**	**36.63**

Source: Castor crop survey, NMCE (Ahmedabad).

Mehsana and Banaskantha is the largest Castor producing districts in Gujarat. In Gujarat Castor cultivated in 6 districts of North Gujarat, viz., Mehsana, Banaskantha, Sabarkantha, Gandhinagar, Patan and Kutch.

Jalore, Sirohi & Jodhpur are largest Castor seed producing districts in Rajasthan. Followed by Hanumantgarh, Barmar & others. While the

decreasing trend has been observed in cultivation as well as in seed production in the state.

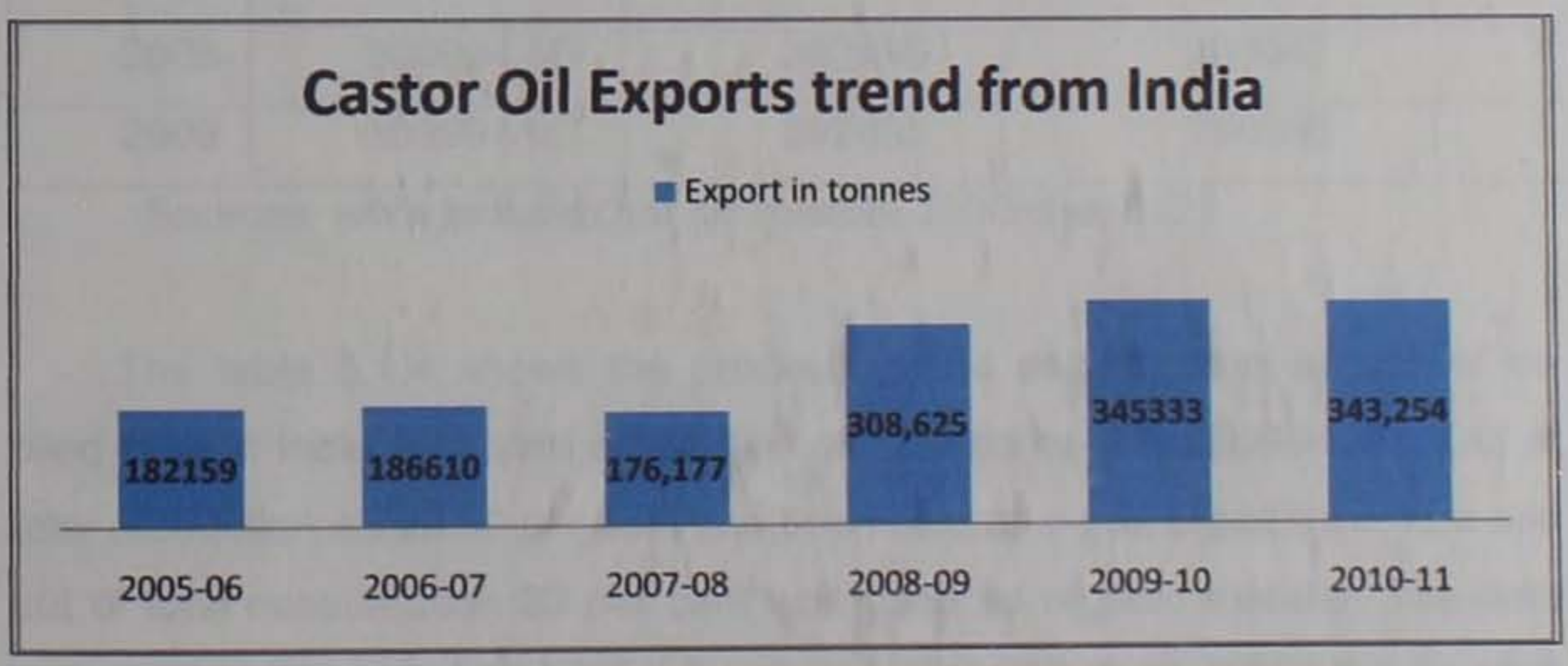
Mehbubnagar & Nalagonda are largest producers of Castor seed in Andhra Pradesh. While the state also observed the decrease in production of seeds.

Trade Scenario of Castor oil & derivates:-

Castor crop plays an important role in the agricultural economy of the earning substantial foreign exchange through export of Castor beans and oils. India's exports of Castor oil and derivatives are estimated at over Rs.800 crores p.a. The global Castor derivatives market is highly dependent on India. India is the first country in the world to exploit hybrid vigor on commercial scale in this crop. Major markets include European Union, USA, Japan and now China and Thailand.

Though, India is a dominant player in the world market, it is just a price taker and not a price setter due to its poor infrastructure but it has the capability to improve on the exports of the derivatives of Castor and overcome this limitation.

Fig 5.1.2: Castor oil export trend from India.



Source – Solvent extractor's association of India.

India exported **343,254 M.T** of Castor Oil which was valued **2362.46 Rs. Crores** in 2010-11. In the year 2009-10 it was **345,333 M.T** valued Rs. **1780.31 crs.** While in Year 2008-09, **308,625 M.T** Oil was exported valued Rs.

1821.57 Crs. Where as in 2007-08 total oil was exported about **176,177 M.T** valued in Rs.**757.28 Crs**. From the data its resulted that increasing growth trend in Castor oil exports in International market.

Status of Castor De oiled cake

In India, the chemical fertilisers with primary nutrients like Nitrogen (N), Phosphorous (P) and Potassium (K) are subsidized. In year 2007 – 2008, there was total subsidy outflow of around Rs. 50000 Crores, which was more than budgeted amount. The levels of concession have been varying between Rs. 2500 Rs. 4200 per ton over the last decade, which is approximately 40 per cent. The consumption of 5per cent includes various De oiled Cakes including Castor De oiled cake and cow dung. Thus, the only primary source of consumption is the industries selling Castor De oiled cake for various purposes.

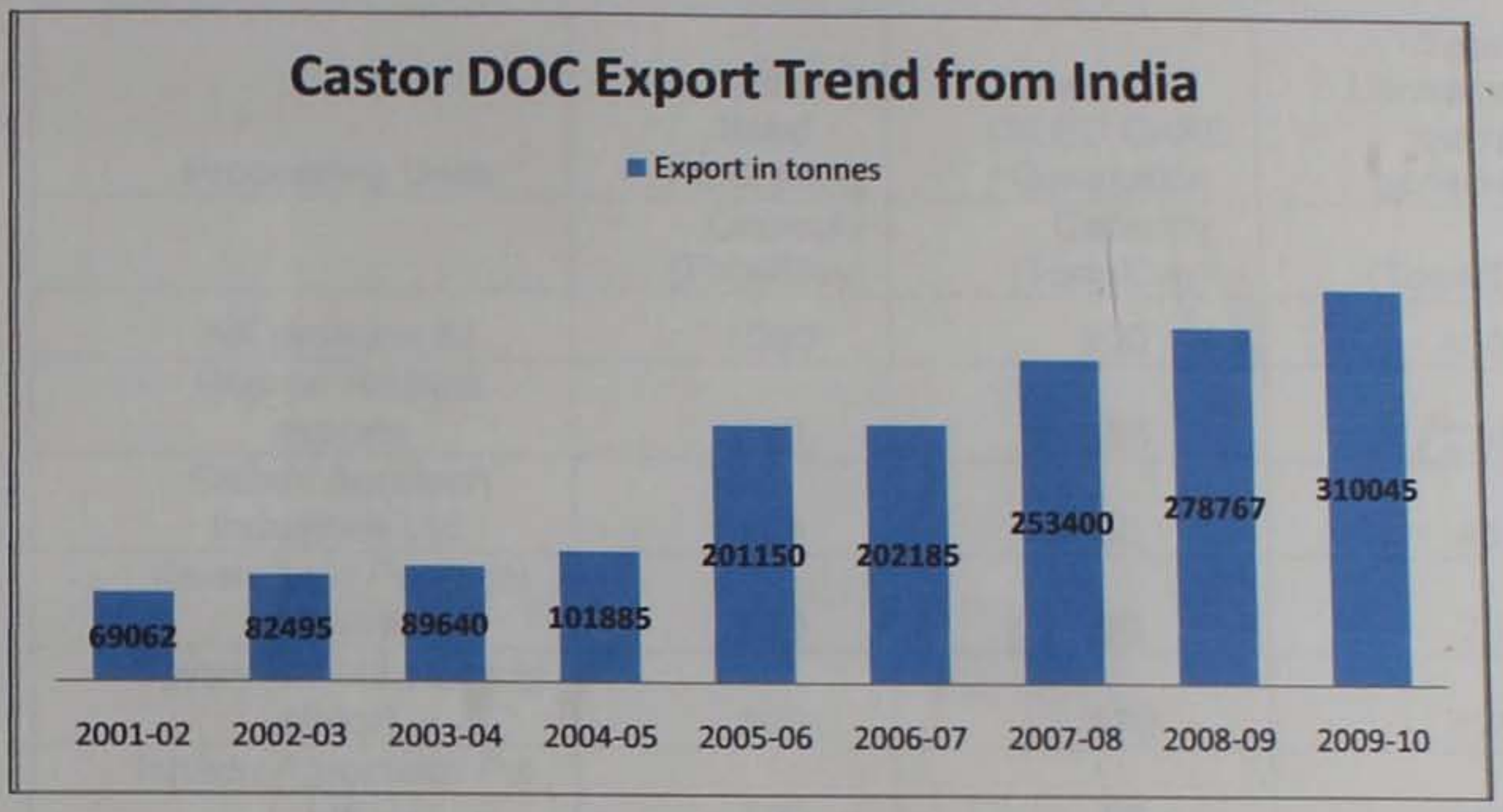
Table 5.1.4: Production and Consumption of DOC in India

Year	Total Generation of Castor De oiled cake MT	Total consumption of De oiled cake MT	Consumption as Organic Manure MT	Other Consumptions MT
2006	509994 MT	372296	275499	96797
2007	509994 MT	377396	279273	98123
2008	509994 MT	382496	283047	99449
2009	509994 MT	392695	290595	102101

Sources: www.indiabudget.nic.in/es99-2000/chap812

The table 5.1.4 shows the production and consumption pattern of de oiled cake in India. The total production of de oiled cake is 509994 MT. Out of total production about 60 per cent has been consumed as organic manure and out of total consumption 90 per cent was used as organic manure. The data indicate that the use of de oiled cake show increasing trend. While the de oiled cake is also used as other purpose like boiler ash.

Fig 5.1.3: Castor oil cake export trend from India.



Source – Solvent extractor's association of India.

India exported **310045 MT** of De oiled cake in **2009-2010**. India contributes for 30 per cent demand fulfilment of De oiled cake and exports have observed around 25 per cent growth rate. Generally prices are also as better expected in the International market so companies target exports market more as compared to domestic.

Mentality of farmers indicate that 5 per cent prefer organic manure and 95 per cent prefer chemical fertilisers, which are available at subsidized rate and giving higher yield compared to cost incurred.

Major Players of Castor seed processing industries in Gujarat:

The companies like NK proteins, Gujarat Ambuja exports & Adani Wilmar has the highest seed processing as well as De oiled cake generation capacity. The companies use the De oiled cake as a source of energy i.e. burning in the boiler for their other processing units. Meanwhile the Adani has also increased its capacity in terms of seed processing as well as De oiled cake generation and majorly targeting the exports of De oiled cake.

Table 5.1.5: Major players of Castor seed processing.

Processing Units	Castor Seed Processing	Castor DE OILED CAKE Generation	Total Consumption out of generation
	Capacity (Tons/Day)	Capacity (Tons/Day)	**(Tons/Day)**
NK proteins ltd	1000	600	450
Gujarat Ambuja **exports**	600	350	270
Sailani Agrotech Industries Ltd.	100	60	45
Kisan Agro Products Industries	150	90	70
Jayant Oil Mills Group (Bitor)	300	170	125
Ishedu Agrochem Pvt. Ltd.	100	55	40
Gokul Refoils and Solvent Limited	100	55	42
Kanak Castor Products Pvt. Ltd.	100	50	40
Laxmi Oil Industry	100	50	40
Adani wilmar	400	250	180
Total	3050	1804	1357

Source:http://www.karvycommodities.com/downloads/karvyspecialreports/karvys peicalreports_2008424_02

Objective: - II

To study Socio-economic status of respondents.

A. Farmers:-

Educational status of the respondents:-

Table 5.2.1 shows the educational status of respondents. Out of total farmers 38 per cent were graduate, 21 per cent were studied upto SSC, 18 per cent did HSC, 9 per cent post graduated and 14 per cent were illiterate. In case of dealers 70 per cent were graduates, 20 per cent post graduates and 10 per cent studied upto HSC. In case of brokers 67 per cent studied upto HSC and 33 per cent graduate.

Table 5.2.1: Educational status of the respondents

Sr. No	Educational Status	Farmers	Dealers	Brokers
1	SSC	21	-	-
2	HSC	18	1	2
3	Graduate	38	7	1
4	Post graduate	09	2	-
5	Illiterate	14	-	-
	Total	100	10	3

Size of Land Holding:-

The table 5.2.2 shows the size of land holding of farmers surveyed. It shows the ability of farmers to expense on the quality products as well as to invest in the farming. From the above figure it's cleared that 29 per cent farmers owe large land, 26 per cent small land holding, 27 per cent medium holding & 18 per cent marginal land holding. The proportion of medium farmers is high in Navsari and the large farmers in Nasik.

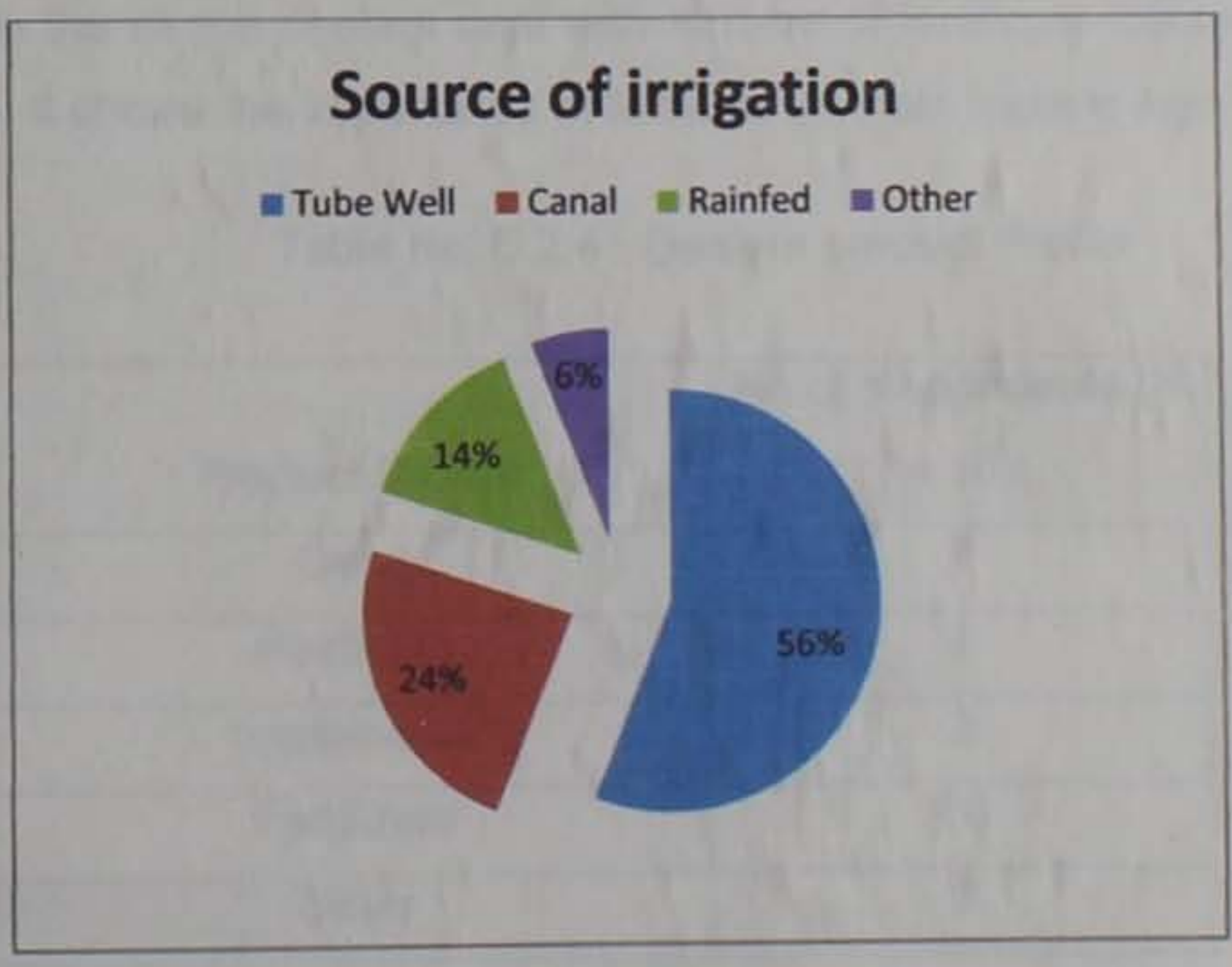
Table No.5.2.2: Size of Land Holding

Sr. No	Particulars	Navsari (N=50)	Nashik (N=50)	Total
1	Marginal farmer (Up to 1 ha)	10	8	18
2	Small farmer (1-2 ha)	12	14	26
3	Medium farmer (2-5 ha)	17	10	27
4	Large farmer (more than 5 ha)	11	18	29
	Total	50	50	100

Source of irrigation:- (N=100)

The figure 5.2.1 shows the source of irrigation for irrigating the field by farmers. The above graph shows that 56 percent farmers depend on tube well for irrigating the field, 6 percent on other sources like lifts, 14 percent on rain & 24 percent on canals. Both areas have adequate amount of water availability in the soil. The tube well and canal irrigation only contributes 80 per cent as a source of irrigation.

Figure No 5.2.1: Source of irrigation



Amount Expended annually on fertilizer purchase:- (N=100)

The table 5.2.3 shows the amount annually expended by the farmers on purchase of fertilizers. 4 per cent farmers expends below Rs.5000, 21 per cent farmers expends around Rs.5-15,000, 13 per cent around Rs.15-25,000, 16 per cent around Rs.25-35,000 & 46 per cent above Rs.35,000

Table No. 5.2.3 Amount Expended annually on fertilizer purchase:-

Sr. No	Particulars	No of respondents in per cent.
1	Below 5000	4 %
2	Around 5-15,000	21 %
3	Around 15-25,000	13 %
4	Around 25-35,000	16 %
5	Above 35,000	46 %

<u>Dealer's Analysis</u> (Response from Nasik)

Dealers product profile:-

The table no: 5.2.4 shows the product profile of selected dealers. From the table it indicate the all the dealers deal with all type of fertilizers followed by seeds and pesticides. It shows the importance of fertilizer as main input in Agri. business.

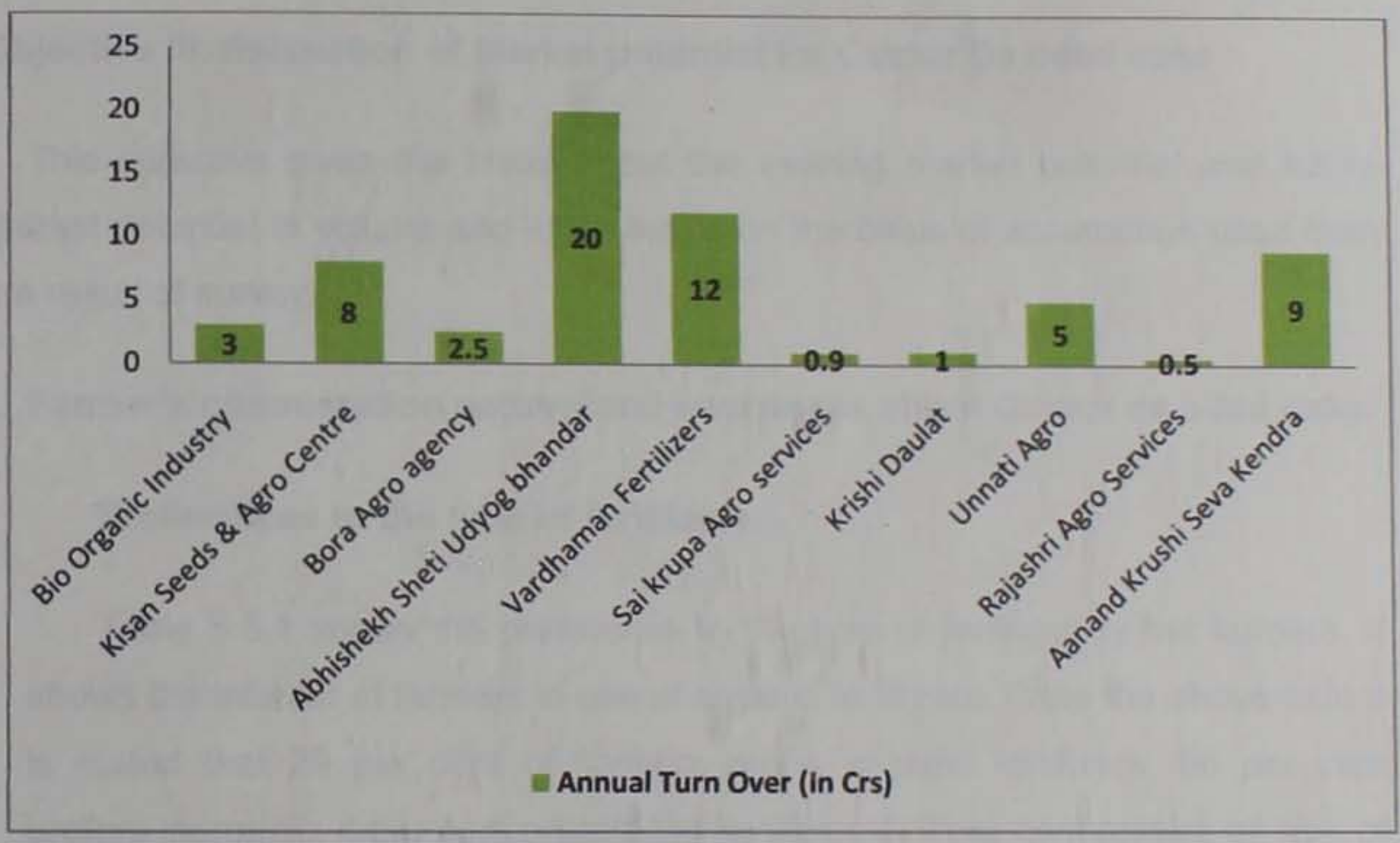
Table No: 5.2.4 : Dealers product Profile

Product Profile	No of respondents (N = 10)
Seed	7
Pesticide	7
Implements	2
Fertilizers	10
Other	2

Annual turnover of business:-

Graph 5.2.3 shows the turnover of the business of the dealers selected. The dealers like Abhishekh sheti udyog bhandar, Vardhaman fertilizers & Aanand krushi seva Kendra are the dealers responsible for marketing many products on their own well known for huge sales and turn aver around 20 Crs, 12 Crs and 9 Crs. While some companies offer the profits share to dealers for marketing & achieving the target sales

Figure No: 5.2.2 - Turnover of business



Dealing with Castor DE OILED CAKE:-

Table 5.2.5 shows the dealers keeping the Castor cake in their shops for selling. From the above figure 60 per cent deals with Castor cake while 40per cent do not deal

Table No 5.2.5 : Percent age of dealers dealing with the DOC

Deal with Castor De Oiled cake		
Yes	6	60 per cent
No	4	40 per cent

Objective III. Estimation of Market potential for Castor De oiled cake

This objective gives the ideas about the existing market potential and future market potential in volume and value terms on the basis of assumption used from the result of survey.

A. Farmer's consumption pattern and awareness about Castor de oiled cake.

Preferences to the type of fertilizers:-

Table 5.3.1 shows the preference to the type of fertilizer by the farmers. It shows the interest of farmers in use of organic fertilizers. From the above data it is stated that 29 per cent of farmers prefer organic fertilizers, 58 per cent prefers inorganic, 4 per cent prefers bio fertilizers & 9 per cent prefers all type of fertilizers.

Table No: 5.3.1 Preferences to the type of fertilizers

Sr. No	Fertilizer type	% of respondents (N=100)
1	Organic	58
2	Inorganic	29
3	Bio fertilizers	4
4	All	9

Fertilizer dose adoption from:-

Table 5.3.2 shows the source of adoption of fertilizer dose by the farmers. 65 per cent applies fertilizers according to their own decision, 12 per cent prefers by dealers suggestion, 5 per cent according to agril. University & 18 per cent prefers through a consultant.

Table No 5.3.2: Source of information of use of fertilizer

Sr. No	Particulars	No. of respondents Navsari (N=50)	No. of respondents Nasik (N=50)	Total (N=100)
1	Self	43	22	65
2	Dealers	0	12	12
3	Agri. University	5	0	5
4	Consultant	2	16	18

Use of organic fertilizers:-

Figure No: 5.3.1 Farmers using type of fertilizers:-

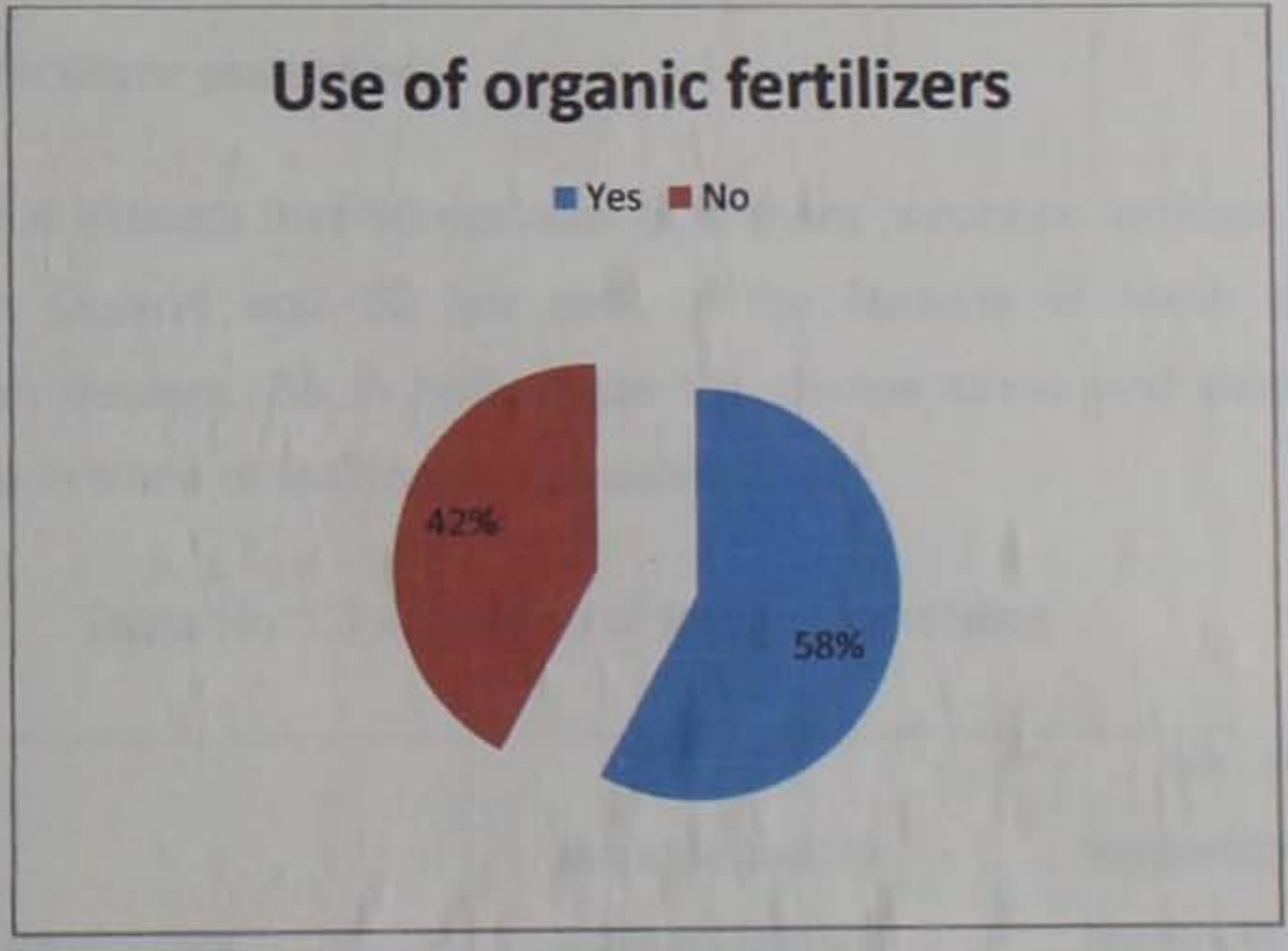


Figure 5.3.1 shows the number of farmers using the organic fertilizers in there farming practices. 42 per cent prefers inorganic farming. While 58 per cent uses organic fertilizers on their field. Although the use of inorganic fertilizers is more, their mind set of farmers is likely to change from inorganic to organic fertilizer.

Major organic fertilizers used:- (N=58)

Table No: 5.3.3: Organic fertilizers used

Sr. No	Particulars	No. of respondents Navsari (N=36)	No. of respondents Nasik (N=22)
1	Neem Cake	12	7
2	Castor Cake	28	8
3	Compost	36	22
4	Mixed Cake	17	3
5	Vermicompost	22	5

Table 5.3.3 states that the major organic fertilizers used by the farmers. From the above table 35 per cent farmers prefers using neem cake, 32 per cent farmers Castor cake, 30 per cent farmers compost, 2 per cent farmers mixed cake & 2 per cent vermi compost. Here castor DOC comes at secondly as preferences.

Source of fertilizer purchase:-

Table 5.3.4 indicate that 96 per cent of farmers purchase fertilizer from co-operatives in Gujarat and 92 per cent of the farmers of Nasik purchase fertilizers from dealers. So in both areas the co-operatives and dealers play important role in trade of fertilizer at consumer level.

Table No 5.3.4: Source of fertilizer purchase

Sr. No	Particulars	No. of respondents in Navsari (N=50)	No. of respondents in Nasik (N=50)
1	Dealers	1	46
2	Co-operatives	48	3
3	From company	1	1

Awareness of Castor de oiled cake use as fertilizer:- (N=100)

Table 5.3.5 shows the awareness about the Castor cake usage as a fertilizer. From the above table it's stated that 74 per cent of farmers are aware while just 26 per cent farmers are not aware about the Castor cake usage as fertilizers.

Table No 5.3.5: Awareness of castor de oiled cake

Yes	74
No	26

Use Castor de oiled cake as a fertilizer:-

Table 5.3.6 shows the number of farmers using the Castor cake as fertilizers. The figure states that 36 per cent farmers use it while 64 per cent don't prefer using it from the total farmers surveyed. In Navsari 56 and in Nasik 16 per cent farmers used DOC as fertilizer in horticultural crops.

Table no 5.3.6: Use DOC as fertilizer.

	Navsari (N=50)	Nasik (N=50)	Total
Yes	28	8	36
No	22	42	64

Difference observed between Chemical & Organic fertilizers:-

Table 5.3.7 shows the ranking for the differences observed between use of organic & inorganic fertilizers. Farmers observed increased production of crops by use of Castor cake mostly and ranked it first, while some observed improved soil fertility at second, at third the farmers observed improved quality & at fourth increased income.

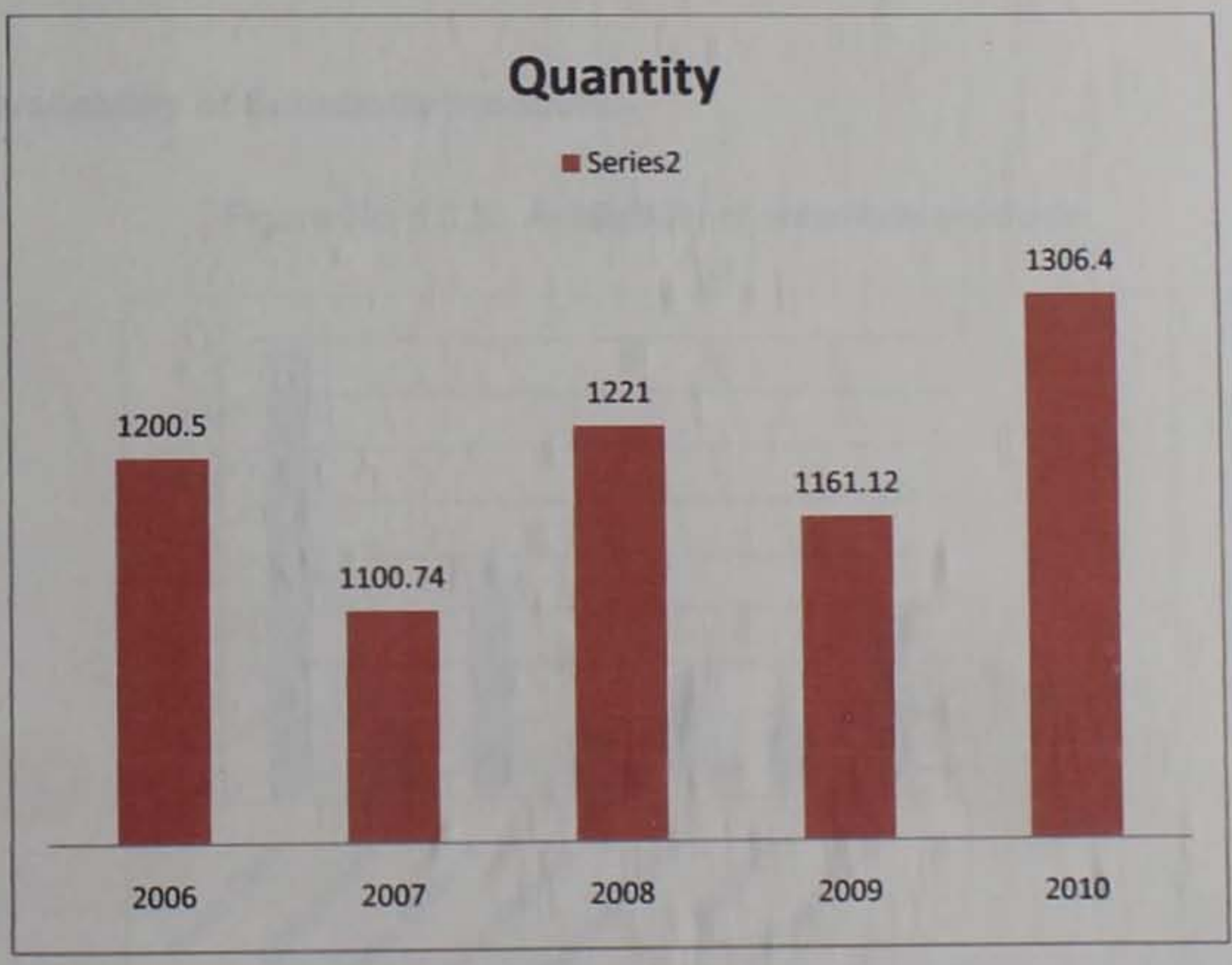
Table No 5.3.7 Difference observed between organic and Inorganic fertilizers.

Sr. No	Particulars	Ranking
1	Increased Production	1
2	Increased Income	4
3	Improved Soil fertility	2
4	Improved Quality	3

B. Potentiality with perspective of Dealers

Sales of Castor de oiled cake by Dealers:- (N=6)

Fig. No 5.3.2: Sales of DOC by dealers



Above figures 5.3.2 shows the average quantity of Castor cake sold for last 5 years and the average price. The sales show the declining figure till 2010 while the price shows the increment continuously. It can be said as the sale of De oiled cake is declining because of increasing price.

Type of farmers preferring De oiled cake:-

Table 5.3.8 shows the type of farmers preferring the Castor De oiled cake. So its stated that the 60 per cent dealers said that all type of farmers prefer using De oiled cake. While 20 per cent said large & others 20 per cent said small & marginal type of farmers once.

Table No 5.3.8: Type of farmers preferring DOC

Type of farmer	No of Respondents
Small	1
Marginal	1
Large	2
All	6

Availability of Substitute products:-

Figure No 5.3.3: Availability of substitute products.

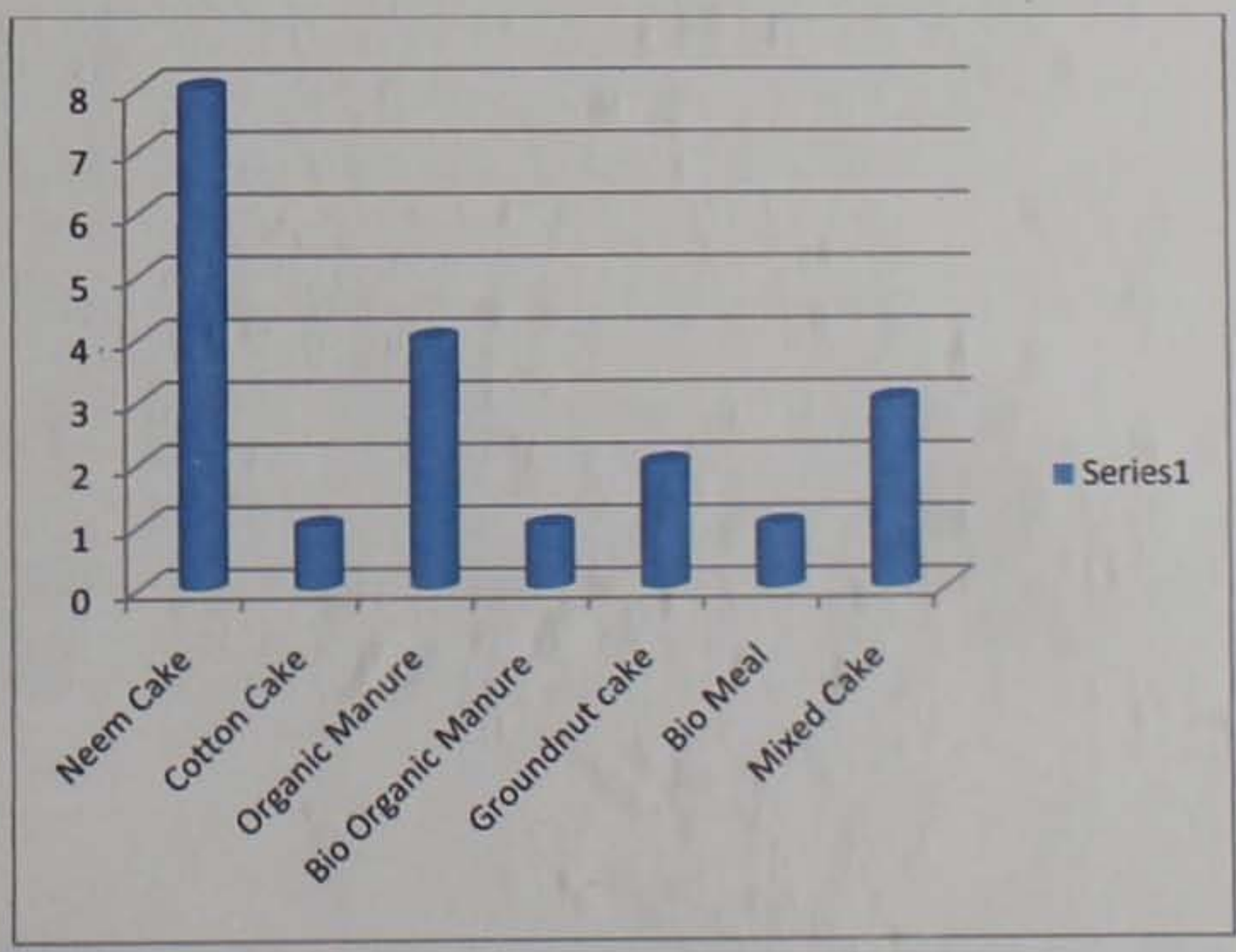


Figure 5.3.3 shows the availability of substitute products in the dealers shop. 8 dealers keep Neem cake as a substitute product. 4 dealers keep

organic manure, others keep groundnut keep and cotton cake and 3 keeps mixed cake.

Awareness about Adani's Castor DE OILED CAKE:- (N=6)

Table 5.3.9 shows the awareness of Adani's Castor De oiled cake & dealing of the same. 2 dealers were aware about the Adani's Castor De oiled cake while only 1 was dealing with it.

Table No 5.3.9: Awareness about AWL's DOC.

Awareness to Adani de oiled cake	Yes	No
Aware about it	2	4
Do you Keep it or Not	1	5
Do consumers Personally Prefer it	0	6

C. Potentiality with perspective of Brokers -

Potential area of business of Castor de oiled cake:-

Table 5.3.10 shows the potential areas of Castor cake business by the brokers. The area of business is mostly dependent on the personal contacts of broker & also on the name of the business. Kheda & Aanand are the potential areas of more business.

Table No 5.3.10: Potential areas for DOC.

Name	Area
B.Patel & Co.	Anand, Kheda
Gayatri Fertilizer	Kheda, Anand, Palampur, Surat
Mehta & Co.	Anand, Kheda, Maharashtra

Total annual demand & Supply of Castor de oiled cake for year 2010:-

Table 5.3.11 shows the demand & supply of the brokers. From the above table the Gayatri fertilizers received the order of 5000 ton & supplied 4200 ton which lags 800 ton, while Kaushal marketing fulfilled all its demand & Mehta Company received 15000 tons order and fulfilled 13600 by lagging 1400 tons.

Table no 5.3.11: Demand and supply of DOC by brokers.

	Demand in (Ton)	Supply in (Ton)	Lag in Supply (Ton)
Gayatri fertilizers	5000	4200	800
Kaushal Marketing	10000	10000	0
Mehta & Co.	15000	13600	1400

Annual trading for last 3 years of Adani's Castor de oiled cake:-

Table 5.3.12 shows the annual trading for Adani's Castor De oiled cake for last 3 years. The main business of Adani's Castor de oiled cake is the tea gardens at Assam. While there market in Gujarat is increasing rapidly in 2009 there market increased by 35 per cent while in 2010 it increased by 38 per cent.

Table No 5.3.12: Trading for AWL's DOC.

Year	Quantity	Growth
2008	1283.33	-
2009	1983.33	**35percent**
2010	3200	**38percent**

D. Potentiality with perspective of Agencies (Co-operative) (Response from Navsari) (N=7)

Total Procurement & Rate of Castor De oiled cake for last year

Table 5.3.13 shows the total procurement & the rate of the Castor cake. From above figure it can be stated that the higher the quantity procured the much price benefits observed. Navsari Taluka Bagayat and Amalsad co-operative procured the large quantity of DOC at the lowest rate than others.

Table No. 5.3.13: Total procurement @ the rate.

Sr. No.	Co-Operatives	Quantity(Tonn)	Rate/Tonn
1	Gadat	60	10200
2	Navsari Taluka Bagayat	100	9800
3	Amalsad	75	9600
4	Moroli	20	10450
5	Gandevi	35	10100
6	Nagdara	28	9900
7	Navsari Jalalpore taluka Sang	55	9500

Sources of Castor de oiled cake procurement:-

Table 5.3.14 shows the source of Castor procurement by co-operatives. Almost 65 per cent co-operatives procure cake from broker. While 17.5 per cent co-operative procure from dealer & 17.5 per cent from directly company.

Table No. 5.3.14: Source of DOC procurement.

Sr. No	Particulars	No. of Respondents (N=7)
1	Dealer	1
2	Broker	5
3	Company	1

Demand fulfilment:-

Table 5.3.15 shows that whether the demand of Castor De Oiled cake is fulfilled or not. About 6 co-operatives demand is fulfilled while only 1 co-operatives demand is not fulfilled. The reason may be the higher unexpected prices of De oiled cake.

Table No. 5.3.15 : Demand of farmers should fulfil

Yes	6
No	1

Availability of Castor DE OILED CAKE:-

Table 5.3.16 shows the availability of Castor DE OILED CAKE in the co-operative for 12 months. All co-operatives don't face any problem while procuring De oiled cake.

Table No. 5.3.16: Availability of DOC

Yes	7
No	0

Aware of Adani's Castor DE OILED CAKE:-

Table 5.3.17 shows the awareness about the Adani's Castor cake. 71 per cent co-operatives are not aware while 29 per cent are aware about AWL's de oiled cake.

Table No. 5.3.17: Awareness about AWL's DOC.

Yes	2
No	5

Use of Substitute product for Castor DE OILED CAKE:-

Table 5.3.18 states the prices of the substitute products used by the co-operatives. The main point to be considered here is the government provides subsidy over Niko Orgo's products hence are marketed by Co-operatives in Gujarat.

Table No.5.3.18: Substitute products and there prices.

Sr. No	**Particulars**	**Price/50 kg bag**
1	Neem Cake	210-230
2	Niko Orgo Cakes	160-180
3	Mixed cake of Niko Orgo	230-250

Will try Adani Wilmar's Castor DE OILED CAKE:-

From the table 5.3.19, 6 co-operatives were ready to purchase the Adani's Castor cake with price benefits, quality & timely supply aspects after negotiation. Except 1 Co-operative who refused to try new cake because of trust on Mehsana oil mills cake.

Table No. 5.3.19

Yes	6
No	1

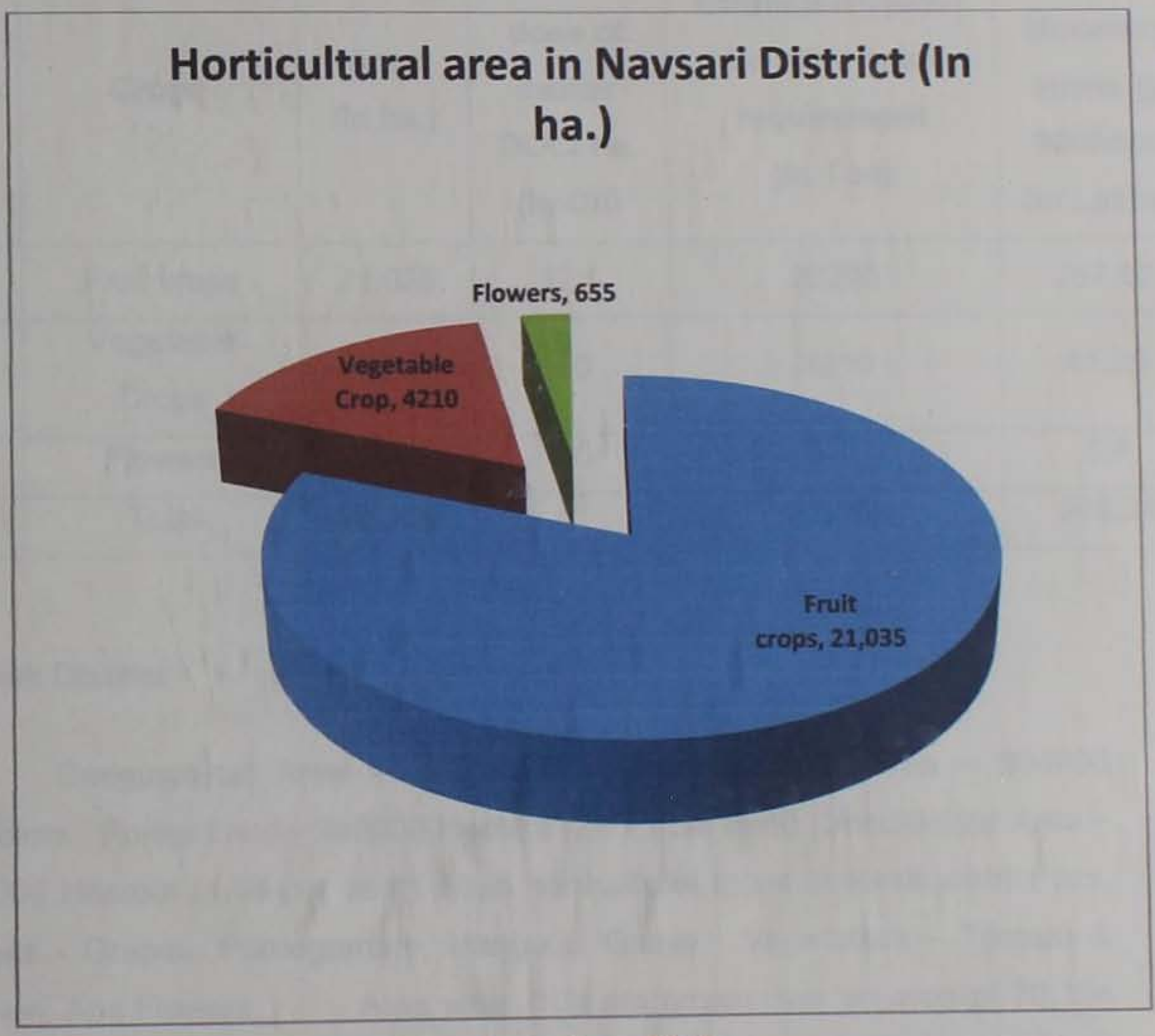
E. Market potential in terms of volume and values.

1. Navsari District

Total geographical area of the district is about 4 Lakh hectares. About 69 per cent of the geographical area is under cultivation in the district. The coverage of forest area is 20.46 per cent. 7.78 per cent of their waste land. Pasture land forms 3percent of geographical area.

Main horticultural crops in Navsari district are fruits (mainly Mango, Sapota & Banana), vegetables and flowers. Area wise, fruit are grown over an area of 21035 Ha, followed by vegetable with an area of 4210 Ha and flowers being grown over an area of 655 Ha.

Fig: 5.3.4 Horticultural crop area in Navsari district.



Source: Gazetteer Navsari. Agriculture 2010.

For the estimation of market potential of de oil cake, the assumption should be that if all the area under cultivation of Horticultural crops in

respective area should be considered as area of De oil cake than multiplying it with recommended dose of Castor De oiled cake as well as the dose given by the farmers for Fruits, Vegetables & Flowers with the area under the crop.

Estimation states the requirement of **31,158 tons** of Castor de oiled cake *in the Navsari district in volume terms and in value* **Rs. 305.32 Lakhs.** *of* monetary potential in Navsari district. Mostly tapped by Mehsana oil mill & Nico Orgo Manure but still the larger portion remains uncovered due to high pricing structure of Castor de oiled cake.

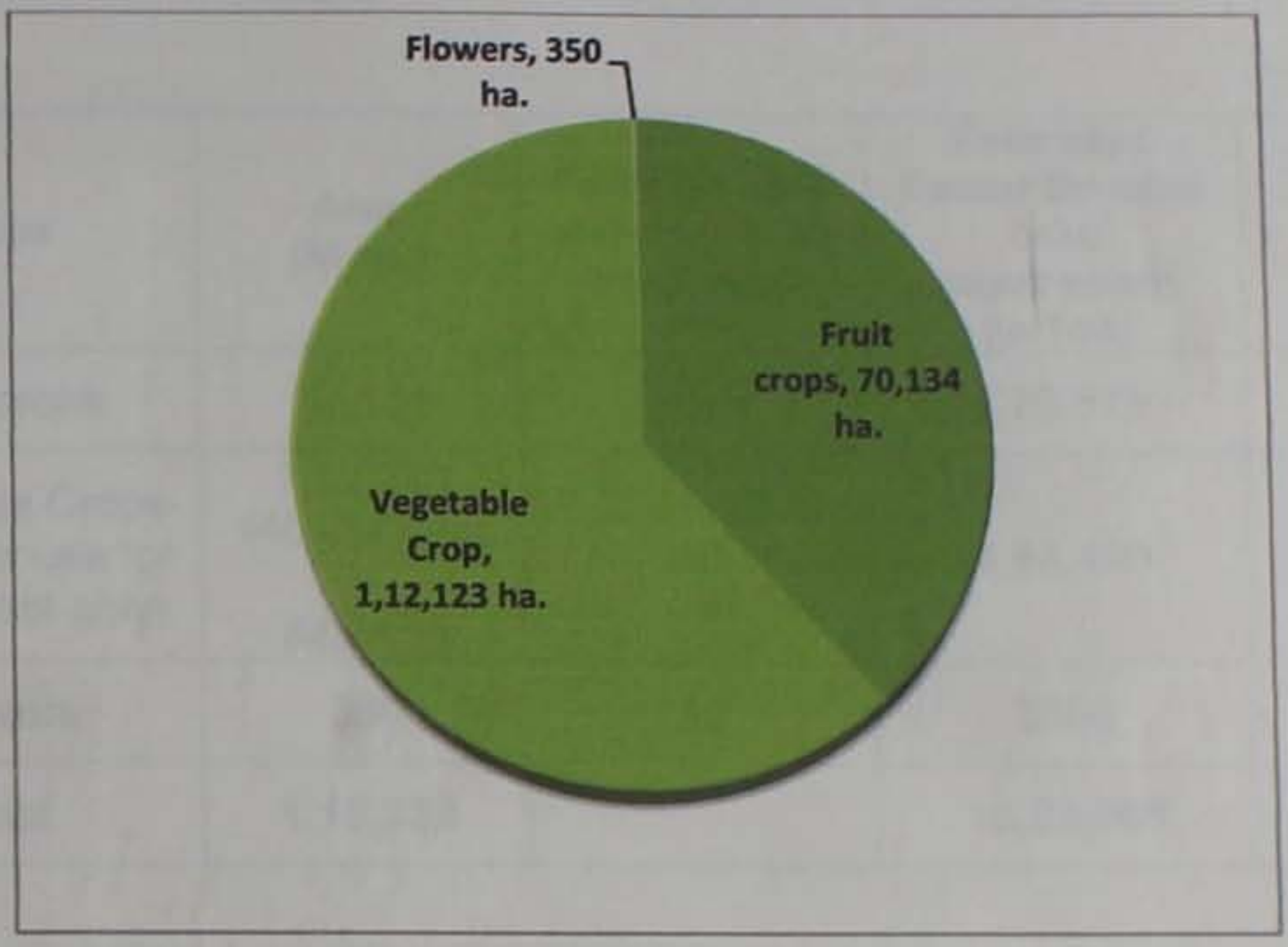
Table No: 5.3.20: Estimation of market potential for Castor de oiled cake in Navsari district

Sr. No	Crops	Area (In ha.)	Fertilizer dose of castor DOC/ ha. (In Qtl)	Estimated Castor De oiled cake requirement (In Ton)	In Monetary terms @ 9800/ton (In Lakhs)
1	Fruit crops	21,035	12.5	26293	257.67
2	Vegetable Crops	4,210	10	4210	41.25
3	Flowers	655	10	655	6.4
4	Total	**25,900**		**31,158**	**305.34**

2. Nasik District

Geographical Area – 1563000 Hectors. Cultivable Area – 864000 Hectors . Forest Land - 340000 Hectors (21.75 per cent). Uncultivable Area – 23000 Hectors (1.48 per cent). Main horticultural crops in Nasik district are, Fruits - Grapes, Pomegranate, Mango & Guava. Vegetables – Tomato & Onion. And Flowers. Area wise, fruit are grown over an area of 70,134 Ha, vegetable with an area of 112123 Ha, where as it has been considered using for 40percent of vegetables only and flowers being grown over an area of 350 Ha.

Fig. 5.3.5: Horticultural crop area in Nasik district.



Source: Gazetteer Nasik.

For the estimation of market potential of de oil cake, the assumption should be that if all the area under cultivation of Horticultural crops in respective area should be considered as area of De oil cake than multiplying it with recommended dose of Castor De oiled cake as well as the dose given by the farmers for Fruits, Vegetables & Flowers with the area under the crop.

Above estimation states the requirement of **13,28, 665 tons** of Castor de oiled cake in the Nasik district in volume term and in value **Rs. 1302 Lakhs.** of monetary potential in Nasik district. But the larger portion of district is untapped because the usage of Castor De oiled cake is not practised so largely by farmers still the companies like Massy Fergusson, ITC, Jayant Agro have tapped the market. If the product marketed properly the Adani Wilmar can tap the remaining huge untapped market easily.

Table No: 5.3.21: Estimation of market potential for Castor de oiled cake in Nasik district:-

r. lo	Crops	Area (In ha.)	Fertilizer dose of Castor DOC/ ha. (In Qtl)	Estimated Castor De oiled cake requirement (In Ton)	In Monetary terms @ 9800/ton (In Lakhs)
1	Fruit crops	70,134	12.5	8,76,675	8,591
2	Vegetable Crops (Consider use for 40 per cent only)	1,12,123 (40 per cent = **44,849**)	10	4,48,490	4,395
3	Flowers	350	10	3500	34
4	Total	**1,15,333**		**13,28,665**	**1302**

Market potential based on farmer's survey:

Based on the farmers survey the following result taken as assumptions for the estimating the Market potential of the DOC in study areas.

1. 58 per cent of farmers prefer organic fertilizers.
2. 58 per cent of farmers use organic fertilizers.
3. 74 per cent of farmers are aware about DOC.
4. 56 per cent of farmers in Navsari and 16 per cent of farmers from Nasik used De oil Cake.

As per assumption 4:- 56 per cent of farmers in Navsari and 16 per cent of farmers from Nasik used DOC.

Table 5.3.22 estimate on the basis of existing users of DOC and suppose this result apply to Navsari district than the present demand in **Navsari** district is **17447 tons**, while in **Nasik** district is **212586 tons**. Although the use of DOC is less in Nasik district but looking to the area under horticultural crops if the demand will be create and more awareness should be create than huge demand should be trap. In Gujarat still there should be an opportunity to increase the demand.

Table no. 5.3.22: Estimation of present demand

	Total Area Under cultivation (ha.)	Total requirement (ton)	Estimated as peruse (area ha.)	Present estimated Demand (ton)
Navsari (56 % use)	25,900	31,158	14504	17447
Nasik (16 % use)	1,15,333	13,28,665	18453	2,12,586

As per assumption 3: 74 per cent of farmers are aware about DOC.

Table 5.3.23 shows the future demand of castor de oiled cake in Navsari and Nasik region on the basis of awareness level. The table indicates that the future demand of castor de oiled cake in **Navsari** region will be **23,056 Ton** while of **Nasik** region will be **9,83,212 Ton.**

Table no. 5.3.23 : Estimation of long run demand of DOC in selected areas.

	Total Area Ha.	Total requirement (ton)	Estimated as peruse (area Ha.) 74 % awareness	Long run Demand (ton)
Navsari	25,900	31,158	19166	23,056
Nasik	1,15,333	13,28,665	85346	9,83,212

As per assumption 1: 58 per cent of farmers prefer organic fertilizers.

Short run demand estimation from the 74 % awareness in farmers of Navsari and Nasik district. Table 5.3.24 indicates the short run demand of castor de oiled cake from the aware farmers. It shows that in **Navsari** district **13,372 Ton** of castor de oiled cake is demanded on short run while in **Nasik**

district **5,70,262 Ton** of castor de oiled cake is demanded. The short run demand can be seen as an emerging demand for castor de oiled cake in the both districts.

Table no 5.3.24 : Estimation of short run demand

	Total Area Ha. (74 % awareness)	Total requirement (ton)	Estimated as peruse (area Ha.) 58 % farmers prefers	Short run Demand (ton)
Navsari	19166	23,056	11116	13,372
Nasik	85346	9,83,212	49500	5,70,262

Estimation of present demand, long run demand & short term demand in terms of monetary value.

The table 5.3.25 shows the monetary value of the castor de oiled cake based on assumptions made from the results. Table indicates that the total monetary value of present demand of de oiled cake is **Rs. 2253 Lakhs**. Out of that **Rs. 170 Lakhs** and **2083 Lakhs**. generated from **Navsari** and **Nasik** district respectively. As in the long run the **Rs. 9860 Lakhs**. and out of that **Rs. 5719 Lakhs**. as a short run demand generated in value terms. For Long run demand both districts contributes **Rs. 9860 Lakhs**. In which **Navsari** contributes **Rs. 225 Lakhs**. And **Nasik** contributes **Rs. 9635 Lakhs**, in which **Navsari** shares **Rs. 131 Lakhs**. And **Nasik** shares **Rs. 5588 Lakhs**.

Table No. 5.3.25: Gross income should generated from DOC sales:-

(Rs. Lakhs)

	Present demand	Long run demand	Short run demand
Navsari	170	225	131
Nasik	2083	9635	5588
Total	**2253**	**9860**	**5719**

[Last year's average price considered for calculating gross income @9800/ton]

<u>Objective IV.</u> To identify competitive brands in Castor De oiled cake business

This objective is focus on the issues related to competitive brands present in the study area.

A. By dealers

The table 5.4.1 Shows the well known companies & there known brands in the market. In Navsari region the Mehsana oil mill's 'Castor king' brand is most preferred. While in Nasik region the Jayant Agro's 'Bhu-Samruddhi' & T-stains of Massy Fergussion is mostly preferred.

Table No. 5.4.1: Company and their brands of DOC present in study area

Sr. no.	Company	Brand
1.	Jayant Agro	Bhu Samruddhi
2	Massy fergusion & ITC	T- Stains
3	Nico Orgo Manures	Orgo

4	NK proteins	Uttam
5	Ambuja	Ambuja
6	Adani Wilmar	Kisan Gold
7	Mehsana Oil Mill	Castor king

B. By Brokers:–

The table shows the major players and brands as per the Brokers views in the selected areas. As per their views at macro level five major players captures the market as Adani, NK proteins, Ambuja and Kisan

Table no.5.4.2: Major players & there brands in Castor de oiled cake

Company	**Brands**
Adani	Agro King
NK Proteins	Uttam
Udeshi	Popular
Ambuja	Ambuja
Kisan	Kisan

Objective: - V. To find factors considered by farmers while purchase the DOC

This objective gives the ideas about which kinds of constraint faced by different agency involved in the value chains of Castor De Oiled Cake.

a. By Farmers

The table 5.5.1 shows that the factors considered by the farmers while purchasing the Castor De oiled cake. From the above table it's clear that the price is the most affecting factor for farmers, 50 per cent farmers observed price as an important one followed by 27 and 21 per cent farmers believe that availability in time and quality are also important one respectively.

Table No.5.5.1: The factors considered **by farmers** while purchasing de oiled cake

Sr. No.	Particulars	No. of respondents (N = 36)
1	In Price	18
2	Quality	7
3	Availability in time	9
4	Other	2

b. **By dealers analysis:-**

The table 5.5.2 shows the major factors that are price play important role demand creation because 60 per cent of the dealers believe that the farmers always look price of the product while purchasing DOC. The nutrient contain is another important factors in purchasing decision.

Table No.5.5.2: Factors considered by farmers for selecting Castor de oiled cake

Factors considered for the purchase of DOC	
Factors	**No. of Respondents**
Price	6
Schemes	0
Company	1
Nutrient content	3
Purity	1
Total	10

c. By Brokers

Below table shows the factors responsible for selecting Castor de oiled cake. From the above table price is the most prominent factor for selection of cake with 1st rank; secondly oil percent with 2nd rank, form i.e. powdered or granules ranked 3rd & lastly quality at 4th ranking.

Table No.5.5.3: Factors considered by farmers for selecting Castor de oiled cake

Sr. No	Particulars	Ranking
1	Quality	4
2	Oil Percent	2
3	Price	1
4	Form	3

d. By Co-operatives:- Constraints observed for Castor de oiled cake:-

Table 5.5.4 shows the factors considered by co-operatives while purchasing Castor de oiled cake. In cooperative the quality, Brand name as Mehsana Oil mill are and Oil content and Form area most the important factors in purchasing where as Price is the least concern in the purchasing the DOC.

Table No.5.5.4 : Factors considered by farmers for selecting Castor de oiled cake

Sr. No	Name of Co-operative	Oil Content	Quality	Form	Price	Brand Name(Mehsana oil Mill)
1	Gadat	Yes	Yes	Yes	-	Yes
2	Navsari Taluka Bagayat	Yes	Yes	Yes	-	Yes
3	Amalsad	Yes	Yes	Yes	-	Yes
4	Moroli	Yes	Yes	-	Yes	Yes
5	Gandevi	Yes	Yes	Yes	-	Yes
6	Nagdara	-	Yes	-	Yes	Yes
7	Navsari Jalalpore taluka Sang	Yes	Yes	Yes	-	Yes

Chapter no. 6

Findings & Suggestions

6.1 Findings:

1. To study present status of Castor De oiled cake.

- India is the only country producing the highest amount of Castor seeds in the world.
- At present India produces 509994 MT of De oiled cake, and total consumption of 392695 MT is done in domestic market, while 290595 MT is consumed as organic fertilizer. And 102101 MT is used for other purpose like burner in boilers.
- The export market of Castor De oiled cake is observing almost 2per cent growth rate annually.
- The giant players like NK proteins, Ambuja exports, Sailani Agrotech Industries Ltd., Kisan Agro Products industries, Ishedu Agrochem Pvt. Ltd., Laxmi Oil Industry & Adani Wilmar are leading the business sector in domestic as well as exports market.
- 310045 MT of Castor de-oiled cakes exported in 2010.

2. To study Socio-economic status of respondents.

a. Farmers Analysis –

- 92 per cent of farmers are literate in Navsari region, while 80 per cent of farmers are literate in Nasik region.
- Majority of small & large farmers are there in Nasik region and in Navsari medium land holding farmers are more.
- From both the regions 56 per cent of farmers mainly depends in tube well for irrigating their crops as the availability of water is also good in the regions.
- Major crops like Grapes, Pomegranate, Tomato & Vegetables in which the de oiled cake used in Nasik district and Navsari region Mango, Sapota & Paddy..
- About 35 per cent of farmers expends above 40,000 on fertilizer purchase.

- In Navsari region 86 per cent of farmers gives the fertilizer dose as per their own thinking, while in Nasik region the 44 per cent farmers gives on their own and 32 per cent concerns consultant.

b. Dealers Analysis – (Response from Nasik)

- 70 per cent of dealers are literate.
- Turnover of the dealers is more than a crore sum crosses above 10 crs.
- Dealer margin in Castor De oiled cake Rs. 200/ ton.
- The sale of Castor De oiled cake is declining due to increasing prices of the cake in domestic market.

c. Brokers Analysis –

- Almost all brokers are literate dealing in the trading business of cakes.
- Trading charges of brokers are Rs. 15/ ton from both the parties.

3. To assess the market potential for AWL's Castor de oiled cake.

I. Farmers consumption pattern and awareness –

- 58 per cent of farmers prefer using organic fertilizers while only 29 per cent prefers inorganic fertilizer use.
- In Navsari region 96 per cent of farmers purchase there fertilizers from Co- operatives and in Nasik 92 per cent of farmers from dealers.
- From Nasik as well as Navsari region 74 per cent of farmers are aware about the Castor cake usage.
- Majorly a dealer based supply chain & no special brands are preferred by farmers.
- In Navsari region 56 per cent of farmers uses Castor cake on their field while in Nasik region just 16 per cent of farmers use.
- Difference observed between organic and inorganic fertilizers was increased production and soil fertility.

II. Market Potentiality with perspective of Dealers –

- Almost all dealers deal with fertilizer business and majorly with pesticide & seed sector.
- 60 per cent of dealers deals with Castor De oiled cake business that also only in the demand season.
- Neem cake is the most used substitute product for castor de oiled cake.
- 20 per cent dealers were aware about AWL's castor cake and only 10 per cent dealer kept it in shop.

III. Market Potentiality with perspective of brokers –

- Aanand and Kheda are the major areas of business.
- The brokers surveyed are responsible for trading around 30,000 tons of Castor De oiled cake.
- Observed +36.5 per cent growth in AWL's castor cake trading.
- Potential purchasers of de oiled cake are co-operatives, companies & cotton mills.

IV. Market Potentiality with perspective of Agencies (Co-operative) –

- The Navsari talukas Bagayat order's the most large quantity of Castor De oiled cake i.e. 100 ton. While the sales also depends on the members in the co-operative & area covered by co-operative.
- Co-operatives procure Castor from Brokers. As the co-operative have the fixed network of procuring.
- Majorly co-operative network for supply chain & Mehsana oil mill's De oiled cake is preferred by co-operatives.
- A margin behind selling Castor De oiled cake is **5-7 per cent.**
- Almost **80 per cent** of Castor De oiled cake's demand is fulfilled.
- Almost **70 per cent** of co-operatives are aware about Adani's Castor De oiled cake.
- Neem cake and Niko Orgo Manure's cake are the substitute products used against castor de oiled cake.

V. Market potential in volume and value terms -

a. Navsari District:-

- Total **25,900 ha**. Area under horticultural crops requires **31,158 ton** of Castor De oiled cake valued **Rs. 305.32 Lakhs**.

- The present demand of castor de oiled cake in Navsari district is **17447 ton** valued **Rs. 170 Lakhs.**
- The future demand of castor de oiled cake in **Navsari** region will be **23,056 Ton** valued **Rs. 225 Lakhs.**
- The short run demand of de oiled cake in Navsari is **6,686 Ton** valued **Rs. 131 Lakhs.**

b. Nasik District:-

- Total **1,15,333 ha.** Area under horticultural crops requires **13,28,665 Ton** of De oiled cake valued **Rs. 13,000 Lakhs**.
- Present demand of castor de oiled cake in Nasik district is **212586 Ton** valued **Rs. 2083 Lakhs.**
- The future demand of castor de oiled cake in **Nasik** region will be **9,83,212 Ton** valued **Rs. 9635 Lakhs**.
- The short run demand of castor de oiled cake is **2,85,231 Ton** valued **Rs. 5588 Lakhs.**

4. To identify competitors & there brands in market.

a. By dealers –

- Jayant Agro - Bhu Samruddhi
- Massy fergusion & ITC - T- Stains
- Nico Orgo Manures - Orgo
- NK proteins – Uttam
- Ambuja – Ambuja
- Adani Wilmar - Kisan Gold
- Mehsana Oil Mill - Castor king

b. By Brokers:-

- Adani - Agro King
- NK – Uttam
- Udeshi - Popular
- Ambuja – Ambuja
- Kisan – Kisan

- No specific brand if preferred if the De oiled cake is going to be used in boiler for burning except the oil content in the De oiled cake.
- While in export market the companies have their fixed purchasers.

5. To find factors considered by farmers while purchase the DOC.

a. By farmers:-

- Price is the most considered constraint by farmers, as the increasing price is responsible for decreasing demand.
- The form of the De oiled cake is also a major constraint. Generally farmers consider the form of cake, not in the powdered form.

b. By dealers:-

- Dealers also consider the inappropriate price as a major constraint.
- And secondly the nutrient content & oil content.

c. **By Co-operative:-**

- Co-operatives consider the oil content primarily & then the quality of De oiled cake.
- Generally co-operatives prefer Mehsana oil mills De oiled cake because of trust and long relations.

6.2 Conclusion:

The purpose of the project is to find the market potential of the De Oil Cake in the selected areas. The profile of the farmers explain the better education, good source of irrigation facilities and farmers are more aware about use of DOC and 36 per cent of farmers already used DOC as organic fertilizer. The dealer and brokers both are very active agencies in the value chain of the DOC, they are more compatible and shown better interest in the sale of the DOC. In Gujarat the only one agency work for the trade of DOC that is Co-operatives, the image of the co-operatives is very good in Navsari so farmers are have good faith about the quality of the product and the major constraint for the good demand for DOC is price of the product.

The market potential is estimated on the basis of the assumptions but that assumptions were on the basis of result of the survey. The huge market potential in terms of quantity and value, as per present demand of the DOC in Navsari is 17447 tons and in Nasik 212586 tons. If suppose 10 per cent of the area covered under DOC in five years than almost Rs. 1319.17 Lakhs business will be generated through DOC only. But to trap this demand there should be high level of concentration keep on marketing, promotional and awareness issues.

6.3 Suggestions:

- Company should give order directly to Co-operatives for reducing the middle man's.
- Appropriate pricing structure of Castor De oiled cake will lead to tap the larger market in Navsari & Nasik region.
- Should try for subsidy for Castor De oiled cake from state government.
- Branding of AWL's Castor De oiled cake.
- Appoint dealers and a company's concerned person to look after the performance.
- Adopting proper marketing channels for both Nasik & Navsari region.
- Communicate with farmers & motivate them to use Castor De oiled cake by demonstrations & field experiments.
- Proper pricing of De oiled cake by considering substitute products prices.
- Farmer's demand more oil content & in the cake form not in the powdered form so the form should be changed.
- The price of the cake should be around **Rs.360- 400/ 50 Kg. Bag.**
- Develop promotional programs to motivate farmers to use organic fertilizers along with inorganic.
- Should go for contract farming for procuring Castor seeds.
- Adopt the promotional activities for increasing the awareness of AWL's Castor De oiled cake.
- Implement special marketing activities for improving the domestic markets sale and open a separate marketing department for promotion & sales.
- Resolve the constraints observed in marketing castor de oiled cake.
- **Suggested 4 P's Strategy:-**
    1. **Product:** - Purity of product should be maintained, quality commitment, should contain 1-2 per cent oil, should keep cake form instead of powdered form.
    2. **Price: - Rs.360- 400/ 50 Kg. Bag.**

3. **Promotion:** - Campaigning at farmer's level, Advertisement at TV channels, Demonstrations and awareness activities and location specified demo's.
4. **Place:** - Majorly horticultural crops growing areas in Gujarat, Maharashtra, Goa, Karnataka, Andhra Pradesh & Kerala.

6.4 Observations:

Some of the observations based on the in-depth interviews with the concerned persons in Agro division desk & some respondents who frankly shared their knowledge.

- The major areas of business of Castor de oiled cake are Aanand, Kheda & Surat.
- The prices of the Castor De oiled cake is rapidly increasing hence the brokers faces a problem for negotiating the prices of De oiled cake with both the parties.
- Although the prices are increasing the demand of De oiled cake is not fulfilled by the brokers.
- No special marketing department for Castor De oiled cake sales & promotion in AWL.
- Company majorly implies its concentration on Castor oil & export of derivatives.
- Many times the brokers remain unsatisfied because of the price negotiation.
- Generally the higher price of De oiled cake is because of the hexane prices which increase the processing charge and thus the De oiled cake prices.
- The seasonality factor in the sales can be eliminated by improving logistics and packaging in order to make the product more durable and long lasting in wet climate. Therefore the company should pay immediate attention towards increasing logistics. It can perhaps, incorporate some strategies and should market the product on their own brand name.
- Company seeks large purchasers only for De oiled cake thus the intention are of seeking less but the large purchasers. So company should also consider the small purchasers and increase the number of purchasers.
- Co-operatives market's Niko Orgo manure's cakes because the provision of subsidy by state government.

- The machinery should be replaced to improve production capacity.
- Company mainly seeks for Industrial users only for DOC.

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Annexure

Questionnaire for Farmer :

Name of the farmer :

Address : **Phone No.**

Education : **Age :**

Up 8th	10th	12th	UG	PG

Annual Income :

Land and Soil Type :

Area total	Irrigated	Non-Irrigated

Source of Irrigation :

Tube well		Canal		River		Farm pond	

Which are the major crops grown?

Kharip	Rabi	Summer

Preference to type of fertilizer used?

Chemical	Organic

Have you Observed any difference between chemical and organic fertilizer?

If yes then specify;

In terms of Production	
In terms of Income	
In terms of Soil fertility	
Others	

Sources of fertilizer purchase?

Particular	Cash	Credit
Retailer		
Co-operatives		
Direct from company		
others		

Sources of the Information about Awareness of Organic (Castor DOC) fertilizer :

News paper	Radio	Tv.	Salesman	Progrssive farmer	Co-operatives	Others

Amount expended on fertilizer purchase annually?

Do you use organic fertilizer for crop? **Yes/No**

If Yes then which?

Do you aware about castor De oiled cake (DOC) Usage as fertilizer?
Yes/No

.....

Do you use castor DOC as fertilizer? **Yes/No** **If yes, then;**

Purchase from	
Amout annually expended	
Of which company DOC is preferred and Reason	
Brand	
Aware of Adani's castor DOC	

If No, then Why?

.....

.....

Price range for castor DOC in Market?

.....

Expected price for castor DOC?

.....

How much Amount of DOC is given to crop as per season?

Seasons	Crops	Varieties	Dose given(kgs)
Kharip			
Rabi			
Summer			

Have you observed any constraint / Problem while purchasing castor DOC?

Yes/No

If yes then Specify.

In price	
In Quality	
Timely Available	
Regular Availability	
Yield	
Others	

Sources of adoption of fertilizer dose for crop?

Self	
Dealers	
Recommended dose by Agril. Universities	
Consultant	
Progressive farmers	
Friends	
Others	

Any Expectation and suggestion to company?

Wilmar Limited

Questionnaire for Broker

1. Name -

   Name of Owner –

   Address - Contact No. –

2. Education –

10th	12th	Graduate	Post graduate	Other

3. Types of commodities you deal?

4. Annual turnover of your Business? .....

5. What are your trading charges / Margins?

6. Major players & there brands of castor DOC?

Competitors	**Brands**

7. In which regions have you sold castor DOC?

8. Last 5 years sales & prices of castor DOC?

Year	Sales (Quantity)	% Change	Price/ qtl	% Change
2006				
2007				
2008				
2009				
2010				

9. Total annual demand for Castor DOC? .....

10. Total supply of Castor DOC? .....

11. Annual trading for last 3 years of Adani's Castor DOC?

Year	Quantity	Monetary terms
2008		
2009		
2010		

12. Which are potential demand areas for Castor DOC?

13. Who are potential users of castor DOC?

_____

_____

14. With whom you trade or receive orders from?

15. Expected price for Castor DOC?

a. By you -

b. By customer -

16. Do brands are preferred by users? **If Yes,** then specify which.

No	Yes	If yes, then brands preferred

17. Suggestions & expectations from company.

Adani Wilmar Limited

Questionnaire for Co-Operatives

1. Name of Co-operative –

2. Location – Contact No. –

3. Total Members –

4. Chairman of Co-operative –

5. Type of co-operative -

6. Total procurement & rate of Castor De Oiled Cake for last 3 years –

Year	Quantity (Ton)	% Change	Rate/ton	% Change
2008				
2009				
2010				

7. Sources of Castor DOC procurement?

Dealer/Retailer		**Broker**		**Company**		**Other**	

8. How you sale & margins in DOC sales?

Pattern of selling -	
Margins -	

9. How demand is estimated? .....

- Do farmers give order in advance? **Yes / No**

If Yes,

How many no. of Farmers -	
How much – (Quantity)	

10. Whether whole demand is fulfilled? **Yes / No**

11. Is the DOC available at the right time? **Yes / No**

12. If No, reasons/ problems observed?

---

13. Are aware of Adani Wilmar's Castor De Oiled cake? **Yes / No**

14. Have you procured it ever? **Yes / No**

15. Do farmers demand it? **Yes / No**

If Yes,

- No. of farmers –
- Reason for preference -

16. If yes, then give data of last 3 years.

Year	Quantity(Ton)	Rate/Ton
2008		
2009		
2010		

17. Have any personal preferences for DOC? .....

- IS DOC preferred by your co-operative? Yes /No
- Why?

Good quality / Organic farming / Farmers preference / University recommendation / affordable price / soil health or any other reason.....

18. Do you go for any other substitute product of Castor DOC? **Yes / No**

If Yes,

Product	Quantity procured	Price

19. Will try Adani Wilmar's castor DOC? **Yes / No**

20. What you prefer 1st & why?

_____

_____

21. Suggestions & recommendations to company.

Questionnaire for Retailer

Name of the Shop :

Name of the owner :

Address : Phone No.-

Education : Age :

10th	12th	Graduate	Post graduate	Others

In which products category you deal?

Seeds	Pesticides	Implements	Fertilizers	Others

What is your annual turn over?.....

Do you sale Castor De oiled cake?

Yes		No	

If Yes;

Companies	
Major crops for which it is used	
Brands	
Major Seasons of Demend	
Major sold brand	
Reasons behind selection of the brands	

If no, Why?

.....

.....

Margins behind selling Castor DOC?.....

Which brand is mostly preferred by farmers?

Factors mainly considered by farmer for selection of Castor De oiled cake.

Price	Schemes	Quality	Company brand	Others

Data of selling DOC for last 5 years.

Years	Quantity	% change	Price/Ton	% change
2006				
2007				
2008				
2009				
2010				

Availability of Castor DOC in your shop according to,

Season	Demand	Unavailability of Substitute products	Others

Which type of Farmers prefers Castor DOC?

Small	Marginal	Large	All

Which appropriate price range according to you for Castor DOC?

.....Measures to deal with shortage of DOC –

About Adani's Castor De Oiled cake,

Aware about it -	
Do you keep it or not -	
Do customer personally prefer it -	
Any lackings in supply chain or other functions?	
Expected price-	

Substitute products & there prices of castor DOC –

Which factors are mainly responsible for selection of castor DOC?

Suggestion and Recommendation to the company.