

**PRODUCTION AND MARKETING OF  
GROUNDNUT IN MAHASAMUND DISTRICT OF  
CHHATTISGARH: AN ECONOMIC ANALYSIS**

**M.Sc. (Ag.) Thesis**

**by**

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**DEPARTMENT OF AGRICULTURAL ECONOMICS  
COLLEGE OF AGRICULTURE  
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INDIRA GANDHI KRISHI VISHWAVIDYALAYA  
RAIPUR (Chhattisgarh)  
2016**

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**Thesis**

**Submitted to the**

**Indira Gandhi Krishi Vishwavidyalaya, Raipur**

**by**

**Sandeep Patel**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF**

**Master of Science**

**in**

**Agricultural Economics**

**ID. No. 120114013**

**JUN 2016**

## CERTIFICATE – I


This is to certify that the thesis entitled **“Production and Marketing Of Groundnut in Mahasamund District of Chhattisgarh: An Economic Analysis”** submitted in partial fulfillment of the requirements for the degree of **Master of Science in Agriculture** of the Indira Gandhi Krishi Vishwavidyalaya, Raipur, is a record of the bonafide research work carried out by **Sandeep Patel** under my guidance and supervision. The subject of the thesis has been approved by Student's Advisory Committee and the Director of Instructions.

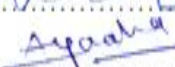
No part of the thesis has been submitted for any other degree or diploma or has been published/published part has been fully acknowledged. All the assistance and help received during the course of the investigations have been duly acknowledged by him.


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
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## CERTIFICATE – II

This is to certify that the thesis entitled “**Production and Marketing of Groundnut in Mahasamund District of Chhattisgarh: An Economic Analysis**” submitted by **Sandeep Patel** to the Indira Gandhi Krishi Vishwavidyalaya, Raipur, in partial fulfillment of the requirements for the degree of **Master of Science in Agriculture** in the Department of **Agricultural Economics** has been approved by the external examiner and student's Advisory Committee after oral examination.

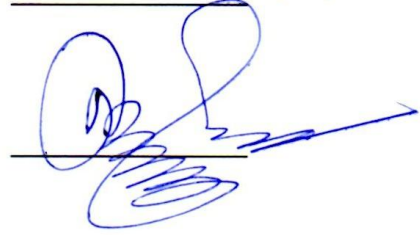
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Director of Instructions

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## ACKNOWLEDGEMENT

*This endeavour is the result of one year of hard work whereby am highly indebted to many people who directly and indirectly helped me for its successful completion.*

*First and foremost I would like to place on record my ineffable indebtedness to my major advisor Dr. Hulas Pathak, Assistant Professor, Department of Agricultural Economics, College of Agriculture, IGKV, Raipur for his conscientious guidance and constructive suggestions at every step during the thesis work. I thank him for his creative criticism and valuable suggestions for improving the quality of this work.*

*I am highly indebted to Dr. K.N.S. Banafar Head, Department of Agricultural Economics IGKV, Raipur for providing excellent suggestions by devoting his precious time in the midst of his busy schedule and for kind sympathetic attitude during the whole degree programme.*

*I have deep regards for members of my advisory committee Dr. A.K. Gauraha Professor and head Department of Agri Business & Rural Management, College of Agriculture, IGKV, Raipur for their kind supervision motivations and support by which I was pushed towards hard working and punctuality.*

*I extend my heartiest thank to members of my advisory committee Dr. S. S. Tuteja Professor, Department of Agronomy, IGKV, Raipur and Dr. (Smt.) S. Shukla Professor, Department of Agricultural Statistics, Mathematics and Computer Science for necessary help and guidance.*

*I specially extend my sincere thanks to Dr. S.P. Gupta, A. K. Koshta, Dr. B.C. Jain, Dr. V. K. Choudhary Professor and Dr. M.R. Chandrakar, Assistant Professor, Department of Agricultural Economics, College of Agriculture, IGKV, Raipur for their unforgettable support and kind help during the course of the study.*

*I owe my grateful thank to Dr. S.K. Patil Hon'ble Vice Chancellor, Dr. J.S. Urkurkar, Director Research Services and Dr. S.S. shaw, Director of Instructions, IGKV, Raipur for providing necessary facilities to conduct this research work.*

*I am highly thankful to, Shri. K. C. Paikya, Registrar, Dr. O.P. Kashyap, Dean student welfare, I.G.K.V, Dr. M. P. Thakur Director Extension Services and Dr. S. S. Rao, dean, College of Agriculture, Raipur for providing necessary facilities to conduct this research work.*

*I would like to express my sincere gratitude to Dr. M. Pandey, Librarian and Library staffs for giving me their kind help during my present study.*

*It is my great pleasure to convey my thanks non teaching staff of Department of Agricultural and Economics, IGKV, Raipur.*

*I would like to thank all farmers of Saraipali block, Basna block and Pithora block, Mahasamund district who provided the necessary information for this study. I would also like to thank staff members of district Agriculture Office, Mahasamund for their cooperation during the investigation, Give thanks to all the government and non government agencies.*

*I also wish to give special thanks to my seniors Ravi Shrey, Ashish Raghuvanshi, Mukesh Seth, Ravi Rathiya and Omprakash Sonwani for their moral support rendered during the investigation.*

*I express my sincere thanks to my colleagues Mayank, Naresh, Nitesh, Anil, Gulshan, Ashish, Sandeep, Virendra, Divya, Sai, Shivangi, Pramita, Urmila, and Amita, who encouraged me in each and every step of my post-graduation and they deserve a more personal note of gratitude.*

*Words can hardly express the heartfelt gratitude to my beloved parents my father Shri Ramesh Lal Patel and mother Smt. Laxmi Bai Patel whose selfless love, filial affection; obstinate sacrifices and blessing made my path easier. My most cordial thanks goes to my elder brothers Dr. Sanjay Patel, my lovely sisters in law smt. Kusum Patel, my lovely sisters smt. Jagriti and all family members whose obstinate sacrifice, filial affection and blessing made my path easier.*

*My special and heartiest thanks to my friends Dayashankar, Yogi bhaiya, Chandraprakash, KJran, Chandni, Suman, Kavita and Shweta for their smiling faces which relaxed me even in deep stress and hard times.*

*Most of all, I thank to "GOD" almighty for the blessings showered and the helps received which enabled me to complete this thesis work,*

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Date: 23/06/2016

  
Sandeep Patel

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## **LIST OF ABBREVIATIONS**

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WTO	World Trade Organization
ha.	Hectare
mt.	Million tons
m ha.	Million hectares
Rs/ha.	Rupees per hectare
qt.	Quintal

## THESIS ABSTRACT

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- a. Title of the Thesis: "Production and Marketing of Groundnut in Mahasamund District of Chhattisgarh: An Economic Analysis"
- b. Name of Student: Sandeep Patel
- c. Major Subject: Agricultural Economics
- d. Name and Address of the Major Advisor: Dr. Hulas Pathak (Asstt. Professor)  
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- e. Degree to be awarded: Master of Science in Agriculture (Agricultural Economics)



Signature of Major Advisor

Date .... 23/06/16...



Signature of the Student



Signature of Head of the Department

23/06/16

---

## ABSTRACT

An attempt has been made in this study to undertake an economic analysis of the production and marketing of groundnut in Mahasamund district of Chhattisgarh. The specific objectives of the study were 1.) To work out the growth rate of area, production and productivity of groundnut in Mahasamund district and Chhattisgarh state 2.) To work out the cost and return of groundnut crop in the study area 3.) To examine the marketing pattern of groundnut in the study area 4.) To identify the constraints in groundnut production and marketing and suggest some policy

measures in order to improve the same. Study was conducted in Saraipali, Basna and Pithora blocks in Mahasamund district of Chhattisgarh state. 154 groundnut farmers were selected randomly from 14 villages from these blocks. 11 groundnut growers from each of the selected village were considered to collect the required information on the cost of cultivation, marketing and other aspects for the present study. The primary data was collected from the groundnut producers through personal interview method with the help of well prepared schedule and questionnaire for the production and marketing year for kharif groundnut 2015-16. The objectives were achieved using exponential function, standard CACP cost framework, tabular, arithmetic and perception analyses.

Groundnut growers consisted predominantly of other backward classes with 42.86 per cent of total households. Overall, literacy was observed 82.46 per cent. Agriculture was the main occupation with 83.94 per cent with overall total cultivated area at 2.74 ha./ farm and overall cropping intensity 119.70 per cent at sampled households. The investment made on overall livestock was estimated as Rs.20000 per household and the overall value of farm equipment was estimated as Rs.830200 per household.

In Mahasamund district, growth in area of groundnut was estimated to be negative and non-significant with the growth rate -3.80 per cent. Production was partially positive and non-significant with the growth rate as 0.03 per cent. Productivity was positive and non-significant with the growth rate 3.97 per cent. In Chhattisgarh state area, production and productivity was estimated to be negative and significant with the growth rate -2.82 per cent, negative and non-significant with the growth rate -0.39 per cent and positive and non-significant with the growth rate 2.52 per cent during 2002-03 to 2013-14. Cost of cultivation showed an increasing trend from marginal to large farms for groundnut crop. The overall cost of cultivation for groundnut worked out as Rs. 36057.57 /ha. and it ranges from marginal farms Rs. 31283.44 /ha. to 38094.16 /ha. at large farms. The overall input-out ratio was 1:1.61 for groundnut crop. Overall, family labour income was Rs. 27120.23 per ha. Family labour income and farm business income was higher at marginal farms (Rs. 29840.26/ ha. and Rs. 39563.64 per ha, respectively). Overall, farm investment income was found to be Rs. 32041.43 per ha. The overall marketable surplus of groundnut was observed as 7.19 (92.06 per cent) in quintal per farm. Four marketing channels were noticed in the sale of groundnut *viz.*, Channel-I: producer-consumer, Channel-II: producer-village trader-wholesaler, Channel-III: producer-wholesaler and Channel-IV: producer- oil

millar. It was observed that price received by groundnut producer was Rs. 3857.45 per quintal to Rs. 3865 per quintal in Channel-I to Channel-IV, respectively. Highest marketing cost was paid by producer in Channel-III at Rs. 21.87 per qtl. Producer's share in consumer's rupee was highest in Channel-I (99.41 per cent). Lack of financing (100 per cent), seed treatment (100 per cent), receiving funds form financial institution (100 per cent) followed by irrigation (85.71 per cent), improved and high yielding varieties (82.47 per cent), recommended package and practices (76.62 per cent), implementation of support price (73.78 per cent), suitable storage facility (70.78 per cent), resources i.e. money (63.63 per cent) and labour (42.21 per cent) were among the major constraints pertaining to production and marketing of groundnut in the study area.

The study suggested that efforts should be made to increase the area, production and productivity of groundnut by providing good quality seeds of improved varieties, improved technology for groundnut production, crop management, storage, processing unit, implementation of MSP, price and marketing support with effective extension mechanism in order to enhance profitability from groundnut production.

#### शोध ग्रंथ सारांश

शोध ग्रंथ का शीर्षक	: "छत्तीसगढ़ के महासमुंद जिला में मूंगफली का उत्पादन एवं विपणन: एक आर्थिक विश्लेषण"
छात्र का पूर्ण नाम	: संदीप पटेल
मुख्य विषय	: कृषि अर्थशास्त्र
मुख्य सलाहकार का नाम	: डॉ. हुलास पाठक (सहायक प्रध्यापक)
और पता	: कृषि अर्थशास्त्र विभाग, कृषि महाविद्यालय, रायपुर
प्रदान की जाने वाली उपाधि	: एम. एस. सी. (कृषि) कृषि अर्थशास्त्र

मुख्य सलाहकार के हस्ताक्षर



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विभागाध्यक्ष के हस्ताक्षर

23/6/16

दिनांक 23/06/16

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## सारांश

इस शोध के द्वारा छत्तीसगढ़ के महासमुंद जिला में मूंगफली के उत्पादन एवं विपणन का आर्थिक विश्लेषण करने का प्रयास किया गया है। अध्ययन के विशिष्ट निम्न उद्देश्य थे 1) छत्तीसगढ़ राज्य और महासमुंद जिला में मूंगफली के क्षेत्र, उत्पादन और उत्पादकता की चक्रवृद्धि दर का आंकलन 2) अध्ययन क्षेत्र में मूंगफली की लागत तथा प्रतिफल का अनुमान 3) अध्ययन क्षेत्र में मूंगफली के विपणन स्वरूप का परीक्षण 4) मूंगफली उत्पादन एवं विपणन में कमियों की पहचान करना एवं उनमें सुधार के लिए कुछ नीतिगत सुझाव देना। छत्तीसगढ़ प्रांत के महासमुंद जिला के सरायपाली, बसना एवं पिथौरा विकासखण्डों में यह अध्ययन किया गया। इन विकासखण्डों में 14 गांवों से बेतरतीब ढंग से 154 मूंगफली किसानों का चयन किया गया। वर्तमान अध्ययन के लिए चुने हुए गांवों में से प्रत्येक से 11 मूंगफली उत्पादकों का चयन खेती की लागत, विपणन और अन्य पहलुओं पर आवश्यक जानकारी एकत्र करने के लिए विचार किया गया। प्राथमिक आंकड़े खरीफ मूंगफली 2015-16 के लिए अच्छी तरह से तैयार अनुसूची और प्रश्नावली की मदद से व्यक्तिगत साक्षात्कार पद्धति के माध्यम से मूंगफली उत्पादकों से एकत्रित किया गया। उद्देश्यों को घातीय विधि, मानक कृषि लागत एवं मूल्य आयोग लागत ढांचे और धारणाओं के विश्लेषण का उपयोग कर प्राप्त किया गया।

मुख्य रूप से मूंगफली उत्पादकों के कुल परिवारों में 42.86 प्रतिशत अन्य पिछड़ा वर्ग शामिल थे। 82.46 प्रतिशत कुल मिलाकर साक्षरता पायी गई। कुल मिलाकर नमूना परिवारों की 83.94 प्रतिशत कृषि मुख्य व्यवसाय, 2.74 हे./प्रक्षेत्र, कुल खेती योग्य क्षेत्र और 119.70 प्रतिशत फसल तीव्रता पायी गई। कुल मिलाकर, पशुधन पर निवेश ₹ 20000/परिवार अनुमानित किया गया और उपकरणों के कुल मिलाकर ₹ 830200/परिवार मूल्य अनुमान लगाया गया। महासमुंद जिले में मूंगफली की क्षेत्र में वृद्धि दर -3.80 प्रतिशत ऋणात्मक एवं गैर-महत्वपूर्ण होने का अनुमान किया गया। उत्पादन में वृद्धि दर 0.03 प्रतिशत आंशिक रूप से धनात्मक एवं गैर-महत्वपूर्ण था, उत्पादकता वृद्धि दर 3.97 प्रतिशत धनात्मक एवं गैर-महत्वपूर्ण था। छत्तीसगढ़ राज्य में वर्ष 2002-03 से 2013-14 के दौरान क्षेत्र, उत्पादन एवं उत्पादकता में वृद्धि दर -2.82 प्रतिशत ऋणात्मक एवं महत्वपूर्ण, वृद्धि दर -0.39 ऋणात्मक एवं गैर-महत्वपूर्ण और वृद्धि दर 2.52 प्रतिशत धनात्मक एवं गैर-महत्वपूर्ण अनुमान लगाया गया। मूंगफली के फसल के लिए खेती की लागत सीमांत से दीर्घ प्रक्षेत्र बढ़ते कम में पायी गई। मूंगफली की कुल लागत ₹ 36057.57/हे. और ₹ 31283.44/हे. से ₹ 38094.16/हे. सीमांत से दीर्घ प्रक्षेत्र के बीच है। कुल मिलाकर मूंगफली की फसल के लिए आदान प्रतिफल अनुपात 1:1.61 गणना की गई। कुल मिलाकर, परिवार श्रम आय ₹ 27120.23/हे. थी। परिवार श्रम आय एवं प्रक्षेत्र व्यवसाय आय सीमांत प्रक्षेत्र में अधिक पाया गया, जो कि क्रमशः ₹ 29840.26/हे. और ₹ 39563.64/हे. पाया गया। कुल मिलाकर प्रक्षेत्र निवेश आय ₹ 32041.43/हे. था।

मूंगफली की कुल बिक्री योग्य अधिशेष 7.19 क्विंटल(92.06 प्रतिशत) /प्रक्षेत्र था। मूंगफली के बिक्री के लिए चार विपणन पथ चिन्हित किया गया अर्थात् पथ-प्रथम: निर्माता - उपभोक्ता, पथ-द्वितीय: निर्माता - गांव व्यापारी - थोक व्यापारी, पथ-तृतीय: निर्माता - थोक व्यापारी और पथ-चतुर्थ: निर्माता - तेल चक्की वाला। यह देखा गया मूंगफली उत्पादक द्वारा प्राप्त कीमत पथ -प्रथम से पथ - चतुर्थ तक क्रमशः ₹ 3847.45/क्विंटल से ₹ 3865/क्विंटल था। पथ तृतीय में ₹ 21.87/क्विंटल उच्चतम विपणन लागत पायी गई। पथ प्रथम (99.41 प्रतिशत) में सबसे ज्यादा उपभोक्ता के मुकाबले रुपया में उत्पादक का हिस्सा था। अध्ययन क्षेत्र में मूंगफली के खेती एवं विपणन से संबंधित प्रमुख बाधाओं के बीच में क्रमशः वित्तपोषण में (100 प्रतिशत) कमी, बीज उपचार में (100 प्रतिशत), सिंचाई (85.71 प्रतिशत), संकुल एवं अभ्यास

सिफारिश (76.62 प्रतिशत), समर्थन मूल्य के क्रियान्वयन (73.78 प्रतिशत), उपयुक्त भण्डारण की सुविधा (70.78 प्रतिशत), संसाधन-पैसे (63.63 प्रतिशत) और श्रम (42.41 प्रतिशत) थे।

अध्ययन के निष्कर्षों के आधार पर सुझाव दिया है कि मूंगफली का उत्पादन, फसल प्रबंधन, भण्डारण, प्रसंस्करण इकाई, न्यूनतम समर्थन मूल्य क्रियान्वयन, मूल्य और विपणन समर्थन में प्रभावी विस्तार तंत्र की आवश्यकता है। साथ ही मूंगफली उत्पादन से अधिक लाभ के लिए उन्नत किस्मों की अच्छी गुणवत्ता के बीज एवं उन्नत प्रौद्योगिकी को मूंगफली कृषकों के मध्य बढ़ाने का प्रयास किया जाना चाहिए।

# CHAPTER-I

## INTRODUCTION

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### 1.1 Background

Agriculture plays an important role in economic development among several important sectors which contribute to total national product. Oilseeds occupy about 14.60 per cent of gross cropped area and account for nearly 4.49 per cent of total cropped product and 7.23 per cent of the export and import value of all the agricultural export and import commodities. India has first and second rank in the world in the production of rapeseed-mustard (13.7 per cent) and groundnut (8.2 per cent) (Pocket Book on Agricultural Statistics, 2013). About 14 million farmers are engaged in oilseeds production and another 1 million in their processing. Oilseeds is source of raw material for several industries used in manufacturing plastic films, metallic foils, soaps, detergents, cosmetics, plastics etc.

India is the largest producer of oilseeds in the world and oilseed sector occupies an important position in the agricultural economy of the country. India is the fifth largest vegetable oil economy in the world, next only to USA, China, Brazil and Argentina, and has an annual turnover of about Rs 80,000 crore. India accounts for 12-15 per cent of oilseeds area, 7-8 per cent of oilseeds production, 6-7 per cent of vegetable oils production, 9-12 per cent of vegetable oils import and 9-10 per cent of the edible oils consumption. Among different oilseeds, groundnut, rapeseed-mustard and soybean account for about 80 per cent of area and 87 per cent of production of oilseeds in the country (Naidu and Sankar 2014). The vegetable oil consumption India is continuously rising and has sharply increased in the couple of years touching around 13.8 kg/head/year. States' rankings of oilseeds in 2012-2013 are Madhya Pradesh (29.93 per cent), Rajasthan (19.99 per cent), and Maharashtra (16.19 per cent) (Pocket Book on Agricultural Statistics, 2013).

Groundnut is cultivated in tropical, sub-tropical and warm temperate regions between 40°N and 40°S latitudes. The production is largely confined to Asian and African countries. Asia accounts for about 50 per cent of area and 60 per cent of world production of groundnut with largest share of India (>20 per cent) in the groundnut coverage, followed by China (>18 per cent). However, China accounts for highest share (37 per cent) in the total production of groundnut in the World (Status paper on oilseeds 2014).

India occupies the first place, in area and ranks second place in the world after China in the production of groundnut. It occupies an area of groundnut 5 million hectares with productivity of around 1735 kg/ha and the production is about 8 million tonnes (2013-2014). In India, 80 per cent of the groundnut crop is grown during *kharif* season (June to October) under rainfed conditions. Gujarat, Andhra Pradesh, Rajasthan, Tamil Nadu and Karnataka are the leading producers in the country and account nearly 90 per cent of the total output. Groundnut contributes nearly 25 per cent of total oil seed production in the country.

Countries like South Africa, India, China and Egypt have good potential to utilize the opportunity to export groundnuts or groundnut products to the developed countries. They can earn valuable foreign exchange to improve their economic conditions. In the international market demand for groundnut products is determined by several factors. The primary factor in Africa has been population growth. In Asia, demand has grown due to a combination of population growth, increase in per capita income and urbanization. India exports groundnut kernels, shell, handpicked selected (HPS) groundnut and oil cake forms.

Groundnut is called as the 'King' of oilseeds. It is also called as wonder nut and poor men's cashew nut. It is one of the most important cash crops of our country. It is a relatively low-priced commodity but a valuable source of all the nutrients. Groundnut oil is primarily used in the manufacturing of vegetable oil. The seed of groundnut contains about 45 per cent oil and 26 per cent protein. The oilcake obtained after the extraction of the oil is a valuable organic manure and animal feed. It contains 7-8 per cent nitrogen, 1.5 per cent phosphorus and 1.5 per

cent potash (Singh, 2003). The root of groundnut fixes the nitrogen from atmosphere, enabling the plant to grow within limits even in marginal soils. This crop is a good source of all B group vitamins except B<sub>12</sub>. They are rich 16 sources of thiamin, riboflavin, nicotinic acid and vitamin E. The biological value of groundnut protein is among the highest of the vegetable proteins and equals that of casein.

Groundnut is essentially a tropical crop. It requires a long and warm growing season. The most favorable climatic conditions for groundnut are a well-distributed rainfall of at least 50 cm. during growing season, abundance of sunshine and relatively warm temperatures (25-28°C). Lower temperatures are not suitable for its proper development. During ripening period it requires about a month of warm and dry weather. Groundnut thrives best in well-drained sandy and sandy loam soils, as light soil helps in easy penetration of pegs and their development and also harvesting. Clay or heavy soils are not suitable for this crop, as they interfere in penetration of pegs and make harvesting difficult. Groundnut gives good yields in the soil with pH between 6.0-6.5. Groundnut is raised mostly as a rain fed kharif crop, being sown from May to July, depending on the monsoon rains. In some areas or where the monsoon is delayed, it is sown as late as August or early September. As an irrigated crop it is grown between January and March and between May and July.

There are three types of varieties in groundnut: bunch types, spreading and semi-spreading types. The bunch types have light green foliage, comparatively broad leaflets and mature early. However, they are usually susceptible to *tikka* disease. The spreading types usually have dark green foliage with smaller leaflets. These are usually late in maturity. The semi-spreading varieties are intermediate between the bunch and the spreading types.

In Chhattisgarh kharif season has the higher area, production and productivity of oilseeds as compared to rabi season. During the rabi season 13.24 lakh ha. (27.73 per cent) area was allocated and remaining about 72 per cent area was left fallow by most of the farmers. The state is emphasizing to increase the area under

double crops in order to increase the cropping intensity, employment and therefore the income of farm families. Though, the double cropped area will increase the cropping intensity in the state, however, adoption of improved technology at farmer's field is essential to increase the per unit production of different oilseeds. The adoption of improved technology by the farmers is not satisfactory in the state as most of the marginal and small farmers are resource poor.

## **1.2 Justification of the study**

The total geographical area is around 137.87 lakh ha. in the state of which cultivable area is 47.99 lakh ha. which is 34.80 per cent of total geographical area of Chhattisgarh state. Total area under oilseeds cultivation is 306871 ha. while production is 178431 metric tonnes in Chhattisgarh. Chhattisgarh state contributes about 5 per cent and 4.60 per cent area and production of groundnut in the country respectively. In Chhattisgarh state, the area under and production of groundnut during (2013-14) was about 29186 hectare area and 42396 metric tonnes respectively. The average productivity of the crop is quite low at 1452.61 kg per hectare in the state.

Chhattisgarh state consists of 27 districts out of which Mahasamund district contributes 19 per cent and occupies second rank in area and production of groundnut after Raigarh district. The total area and production under groundnut crop in Mahasamund district is 5370 ha. and 8072 metric tonnes respectively. The average productivity of the crop is 1503.17 kg per hectare in the district, which is higher than the state average but much less than the country's productivity (agriculture statistical table 2014).

The state is mono cropped where more than 90 per cent of area is allocated under paddy crop during kharif season of which about 80 per cent paddy is based on rains. The oilseeds cultivated in Mahasamund district include Groundnut, Niger, Rapeseed-Mustard, Sesamum, Linseed and Sunflower. Of these oilseed crops, Groundnut, Rapeseed-Mustard, Sesamum, and Linseed are among the major oilseeds on the basis of area and production. Looking to the priorities of enhancing

agricultural income through crop diversification and the need to encourage oilseeds cultivation in the India of Chhattisgarh it is imperative to investigate the growth, economics of production and marketing of groundnut. Very few studies have been conducted to investigate the economics of groundnut cultivation in the study area. Accordingly, this study was undertaken with the following specific objectives.

### **1.3 Specific objectives of study**

1. To work out the growth rate of area, production and productivity of groundnut in Mahasamund District and Chhattisgarh state
2. To work out the cost and return of groundnut crop in the study area
3. To examine the marketing pattern of groundnut in the study area
4. To identify the constraints in groundnut production and marketing and suggest some policy measures in order to improve the same

### **1.4 Presentation of the study**

The entire study has been presented in five chapters. In the Chapter I the introduction, importance, specific objectives and limitations of the study have been indicated. Chapter II deals with the review of the relevant research studies connected with the objectives. Chapter III outlines briefly the main features of the study area, the nature and sources from where relevant data have been collected, and the statistical tools and techniques employed for evaluating the objectives. Finally, the results and discussion are presented in chapter IV. Chapter -V deals with the summary, conclusions and suggestions for the future research work.

### **1.5 Limitations of the study**

During the course of investigation several difficulties occurred in the collection of data from the collector of groundnut, as some of the details of collected, production, cost of cultivation and disposable pattern of groundnut are not properly maintained through records but on their memory basis, which may not be appropriately or absolutely correct. Low level of education and knowledge of the respondents also added to the problems. The biasness of some of the respondents

were also problematic for the study as some deliberately told high expenditure and low income and capital, however, cross checking with their literate neighbors was done to arrive at the most correct information.

## CHAPTER-II

# REVIEW OF LITERATURE

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The review of literature is presented in this chapter. An attempt has been made to review pertinent literature keeping in view the problem entitled “**Production and Marketing of Groundnut in Mahasamund District of Chhattisgarh: An Economic Analysis.**” A brief account of the work reported by the past researchers has been discussed under the following five sub-sections. Section 2.1 Production. Section 2.2 Studies on Growth Rate of Area, Production and Productivity. 2.3 Studies on cost and return of groundnut. 2.4 Studies on Marketing of groundnut. 2.5 Studies on major constraints in production and marketing of groundnut.

### **2.1. Production**

Sawant (1997) worked on the yield of groundnut in his article “Performance of Indian agriculture with special reference to regional variations”. He examined that the output growth rate which was 108 per cent in the pre-1981 period exceeded the level of 6 per cent in the post-1981 period. Both area and yield components contributed significantly to this dramatic expansion in output, though the contribution of the former was greater than that of yield component. Expansion in the output of oilseeds continued beyond 1991 with undiminished pace. This outstanding performance of oilseeds must certainly be the result of changed policy environment for them reflected in the special programmes undertaken since the Sixth Plan for promoting their cultivation.

Velavan and Balakrishanan (2000) found out the shares of oilseed in his working paper “Resource use Efficiency in Groundnut Cultivation of Salem District, Tamil Nadu”. They noted that the output of oilseeds in India doubled from 108.3 lakh tones in 1985-86 to 220.2 lakh tones in 1995-96. Much of this increase come form increase

in production area rather than yield. India accounts for about 8 per cent of global output of oilseeds but, uses 15 per cent of groundnut cultivable area to produce it.

Shenoi (2003) found that Oilseeds, as a group of ten major crops, constitute an important component of agricultural sector in India, occupying 14% of the total cultivated area, next only to food grains. Oilseeds production accounts for 6% of the GNP. India is one of the leading oilseeds producing countries of the world with 19% of the global oilseeds area and accounting for 10% of global output. India takes the first place in the world in the cultivation of three oilseeds crops: castor, safflower and sesamum. India is also the second largest producer of groundnut and third largest of rapeseed mustard. About 14 million families are engaged in the production of oilseeds and another one million in their processing. Oilseeds are produced practically in all the States of India. Madhya Pradesh has the largest area under oilseeds: 23.2% of the national total of 26.22 million hectare in 1997-98, followed by Rajasthan (16.8% of national area), Gujarat (11.6%), Maharashtra (10%), Andhra Pradesh (9.5%), Karnataka (8.2%) and Tamilnadu (5%). Madhya Pradesh also leads the states in terms of oilseeds output (26.2% of national output in 1997-98), followed by Gujarat (17.4%), Rajasthan (14.9%), Tamilnadu (8.5%), Maharashtra (7.8%), Karnataka (6%) and Uttar Pradesh (4.5%).

Pratibha *et al.* (2003) studied the profitability of different oilseed crops in kharif season for delay onset of rainfall. The seed equivalents, monetary returns, B: C ratio, production efficiency was highest in sunflower, followed by ground nut. The yield and monetary returns were highest during third year of study (2003) sunflower recorded highest net returns of Rs. 6740/ha. over ground nut, castor and sorghum. Among the crops tested, sunflower recorded significantly highest seed equivalents (747 kg / ha.) as compared with other crops. The highest net returns of Rs. 6740/ha. was recorded in sunflower followed by sorghum + pigeonpea, ground nut and castor. Higher benefit cost ratio (1.62) was recorded in sunflower. The production efficiency over three years was higher in sunflower (7.87 kg/ha/day, 70.94 Rs/ha/day), which was closely followed by ground nut, this showed that the per day productivity of sunflower is

higher than long duration crops like castor and sorghum + pigeon pea system. The study revealed that, sunflower is a remunerative contingent crop for productive effective and economic use of available resources during the delayed onset of rains for Alfisols of semi arid tropics.

Singh and Chandra (2004) worked on production and economic factors growth in cultivation of groundnut crop in India. To estimate the growth trend in production factors, fixed and operational cost, support price and economic return of groundnut were the objective of the study. Analysis was therefore made for production factors (cost of cultivation, minimum support price and margin of profit) to study the contribution of inputs in the returns. The findings revealed that the total groundnut production has increased from 6.76 million tonne in 1975-76 to 7.37 million tonne in 1978-79 having a record growth rate of 1.79 per cent per annum. The highest production of the groundnut was achieved as 9.66 million tonnes in 1988-89.

Rao and Raju (2005) studied the path and decomposition analyses of oilseed production in Andhra Pradesh, India. The study covered 23 districts from the regions of Coastal Andhra, Rayalaseema and Telangana, and Andhra Pradesh as a whole. The production period was divided into period I (1981-82 to 1990-91), period II (1991-92 to 2000-01) and overall period (1980-81 to 2000-01). Among the districts, area was significantly correlated with production in 21 districts, whereas productivity was registered in 18 districts. Among the regions, area and productivity were positively and significantly correlated with production in all the regions. The highest direct effects of area and productivity were observed in Rayalaseema. Both area and productivity showed a significant correlation with production in Andhra Pradesh.

Singh (2007) worked on oilseed in his paper “Present Agricultural Scenario in India” and noted that the oil seeds are source of oil, protein, sugar, fatty acids and vitamins. There has been more than five times increased oil seeds production during the period of 1950 to 2005. At present, the total oil seeds production is around 24.84 million tonnes in India. India’s major oil seeds crop is groundnut. It occupies 35.2 per

cent area with 28.6 per cent world's production in India. India ranks first in production of groundnut in the world. India is the fourth largest vegetable oil economy in the world next to U.S., China and Brazil. Besides India is the second largest producer of rice and cotton which yield valuable rice bran oil and cotton seed oil.

Madhusudhana (2008) observed that India is the largest producers of oilseeds in the world and oilseeds occupy an important position in the Indian agricultural economy. It is estimated that nine oilseeds namely groundnut, rapeseed-mustard, soybean, sunflower, safflower, sesame, Niger, castor and linseed, accounted for an area of 23.44 million hectares with the production of 25.14 million tonnes.

Vanraj (2008) observed that the area under groundnut crop increased from 26.80 thousand hectares in 1985-86 to 49.02 thousand hectares in 2005-06 registered a positive growth rate (1.089 per cent) while the productivity of this crop significantly decreased at the rate of -2.342 per cent in the state . The similar trend was observed in Raigarh district of Chhattisgarh for the overall period. The positive and significant growth rate was registered in area and negative significant growth rate was registered in production and productivity of groundnut in Raigarh district. It was also observed that lack of implementation of support price in the villages was the major problem faced by groundnut producers. Almost all farmers told that no intermediary was prepared to give the support price if produce was sold by farmers in the villages. More than 57 per cent producers perceived that transportation of small quantity of produce may not be economical if they sold small produce in the market. More than 93 per cent producers told that the presence of itinerant traders in the producing area was only for limited period after harvesting the crop.

Mehrotra (2011) studied that of total world area under groundnut cultivation in 1961 stood at 16.64 million hectares which increased to 23.10 million hectares in 2007 registering an increase of 38.82 per cent over the period. During the same period groundnut production increased from 14.09 million ton (1961) to 37.14 million tonnes (2007). He worked out the costs and returns of groundnut by the sample farmers in the four states .The cost of cultivation per acre was highest in Chhattisgarh (8,075) and

lowest in Jharkhand (2,388). The yield per acre was highest in the case of Chhattisgarh compared to the other three states. Chhattisgarh also ranked first in gross value of output, followed by Rajasthan, Gujarat and Jharkhand. However, the average price realised per quintal by sample farmers was highest in Gujarat (1,975) followed by Rajasthan (1,782), Jharkhand (1,278) and Chhattisgarh (900). Thus, due to higher yield levels, the sample farmers in Chhattisgarh (despite getting lowest price) could get higher gross value for their produce, in comparison to those in the other states.

## **2.2 Studies on growth rate of area, production and productivity**

Patel (1997) examined various factors affecting the area of groundnut in his article “Development of agriculture in Gujarat”. Despite of working of unfavorable factors like the low level of yield associated with its high degree of instability and poor irrigation facility the relative area under groundnut increased in the state as also in all the major Saurashtra districts except Jamnagar. This was principally due to relatively high farm harvest price and relatively higher increase in it, as compared to other crops. The situation so observed was clearly reflected in the significant positive relationship between income terms of trade and the area changes under groundnut.

Gupta (1997) worked on irrigation and groundnut cultivation in his article “Growth performance and variability of groundnut crop in India: A state wise analysis”. He suggested that groundnut cultivation should be increased under assured irrigation in all those states where yield was not contributing while the area contribution was positive and significant. Thus assured irrigation will not only reduce the variability in production but also sustain the yield.

Gupta (2000) examined oilseeds’ area on his paper “Acreage response of major oilseed crops in Punjab”. He examined that India enjoys the distinction of having largest cultivated area under cultivation in the world with over 26 million hectares. Also among the agriculture commodities in India, oilseeds form the second largest agricultural commodities after cereals sharing 14 per cent of the countries Gross Cropped Area and accounts for nearly 5 per cent of gross national product and 10

percent of the value of all agriculture commodities. Among the various edible oilseeds crops, both groundnut and rapeseed & mustard enjoyed prominent position and their share were the largest both in terms of area and output of the edible oil.

Ramasamy and Selvaraj (2002) observed the reasons for the slow growth of pulses, oilseeds and coarse cereals. The paper showed that the growth in pulses and oilseeds production had not kept pace with the population growth, resulting in an overall decline in per capita availability and generally higher prices for pulses and edible oils.

Singh and Chandra (2004) worked on production and economic factors growth in cultivation of groundnut crop in India. To estimate the growth trend in production factors, fixed and operational cost, support price and economic return of groundnut were the objective of the study. Analysis was therefore made for production factors (cost of cultivation, minimum support price and margin of profit) to study the contribution of inputs in the returns. The findings revealed that the total groundnut production had increased from 6.76 million tons in 1975-76 to 7.37 million tons in 1978-79 having a record growth rate of 1.79 per cent per annum. The highest production of the groundnut was achieved as 9.66 million tonnes in 1988-89.

Samantara (2007) found that the compound annual average growth rate of productivity during 2000-01 and 2005-06 showed positive growth (0.51%) though at a slower pace. The growth in production is contributed more by area expansion (90.66%) than by yield (9.34%) enhancement. There was a consistent increasing trend in the production level under groundnut both for the district and state level except for the year 2005-06 though there was increase in area during this period.

Lawwa and Kumar (2008) measured the growth performance of oilseeds by calculating the compound growth rates, variability and decomposition analysis. The requisite time series data on area, production and yield of oilseeds crops were collected from agricultural department, directorate of economics and statistics

Rajasthan etc. For measuring the compound growth rates (CGR) in area, production and yield, log-linear equation was used.

Sonnad (2011) the formulated hypothesis was growth rate of area, production and productivity of major oilseed crops in the post-WTO period was less compared to pre-WTO era. The results of the study have shown that area under rapeseed and mustard, soyabean, sunflower and castor increased with an overall annual compound growth rate of 2.13, 17.61, 9.15 and 1.85 per cent respectively. The increase in productivity of all nine selected oilseed crops put together from pre-WTO period to post-WTO period, was 140 kg per ha. The overall growth of productivity was positive in all the oilseed crops except sunflower. The mean production of the nine oilseeds put together had increased from 9.99 million tonnes during Pre- Technology Mission on Oilseeds (TMO) period to 17.68 million tonnes in pre-WTO period and to 22.33 million tonnes in post-WTO period.

Narayan *et al.* (2011) found that oilseed crops registered momentum with the dawn of millennium. During the period of 2000-2009, the total nine oilseed crops showed growth of 2.50 per cent, 5.20 per cent and 2.60 per cent in area, production and productivity respectively. The total oilseeds area, production and productivity was 22.70 million hectares, 18.40 million ton and 810 kg/ha respectively during 2000-01, which increased to 27.60 million hectares, 27.7 million ton and 1006 kg/ha during 2008- 09.

Poudel (2012) observed that yield growth of groundnut was negative and non-significant (-0.48 % per annum). The significant decline in area during the study period was mainly responsible for the negative growth performance of groundnut in the state. This was largely due to lack of location specific high yielding varieties and occurrence of disease and pests.

Rambabu, Farukh and Solmon (2014) worked on the study to examine the trends in area, production and productivity of groundnut in Andhra Pradesh over a period of 1995-96 to 2010-2011. Compound growth rates of area production and productivity

were estimated by fitting semi log trend equation. Decomposition of output growth of groundnut was examined by fitting component analysis model. The study analyzed that area, production and productivity had decreased during the study period i.e. 1995-96 to 2010-2011. The compound growth rates of area production and productivity of ground nut over the period shows negatively non significant. The coefficient of variations of area production and productivity were 15.2, 41.4 and 31.69 respectively indicating that there is lot of variation in production and productivity of groundnut in Andhra Pradesh.

### **2.3 Studies on cost and return of groundnut**

Velavan and Balakrishanan (2000) examined components of cost of cultivation for groundnut in their researched worked “Resource use Efficiency in Groundnut Cultivation of Salem District, Tamil Nadu” and noted that the production function analysis revealed that there was a possibility to increasing the irrigated groundnut production by increased use of human labour, machine labour, bullock labour and by increasing application of nutrients. Similarly for rainfed groundnut, there was a possibility of increasing production by increased use of human labour, nutrients and other costs. Further, the analysis clearly showed that withdrawal of machine and bullock labour will make the groundnut production profitable in the study area as the study showed that there was an over use of these two inputs. The ratio of marginal value product to marginal cost for nutrients (5.2) was comparatively higher than other inputs in the irrigated condition. It also revealed that there was more scope for increasing the production by increasing application of nutrients in irrigated condition. In the rain fed situation marginal value product to marginal cost ratio (3.56) indicated that there was a scope for increasing the production by increasing the application of plant protection chemicals, gypsum and bio-fertilizers. So, it is necessary to educate the farmers to use scientific methods of production in order to achieve the potential output through proper extension activities.

Shanmugam (2003) analysis in his an article “Slow Technical Efficiency of Rice, Groundnut and Cotton Farms in Tamil Nadu” and examined in interstate comparisons,

Tamil Nadu ranked second in terms productivity of groundnut after Punjab according to the estimates in 1997-98. In this connection he measured the farm specific technical efficiency of raising major principal crops including groundnut. He used the cost of cultivation scheme's data for the year 1990-91 to 1992-93 i.e. three years. The results indicated that land and labour inputs were the significant determinants of output of almost all crops in the state. The other variable was also significant for this crop. He noted that observed outputs of all studied principal crops were less than their respective potential outputs due to technical inefficiency. The average technical efficiency values of rising for irrigated and rainfed groundnut in this state are 68 per cent and 76 per cent respectively. The technical efficiency of raising irrigated groundnut was relatively high in own land cultivation as compared to that in leased land cultivation. Farms having a high proportion of family members with above middle school education were more efficient in raising groundnut.

Vanraj (2008) observed the average cost of cultivation is worked out as Rs.15102.15 per hectare which ranged from Rs.14696.97 per hectares at marginal farms to Rs.15886.40 per hectare at large farms. The average yield of groundnut is observed as 10.83 quintal in the study area while the price of main product is Rs.2160.23 per quintal. Per hectare net return is estimated as Rs.8699.39 on an average. The input-output ratio was observed as 1:1.55 at marginal farms to 1:1.60 at large farms which was less than ratio of paddy crop being grown on the same type of land.

Kurrey (2014) worked out that the average cost of cultivation in groundnut production was about Rs. 18276.43 per hectare. The expenditure on groundnut cultivation was about Rs.15216.19 per hectare incurred by marginal farms. Similarly, Rs.18769.82 per hectare cost incurred in small farms. In the medium farms and large farms the cost of cultivations incurred about Rs.19336.10 per hectare and 19400.32 per hectare respectively.

## **2.4 Studies on marketing of groundnut**

Radha and Iswara (1995) observed that the average wholesale price of groundnut showed an increasing trend over a decade in Anantapur market while the reverse tendency was noticed in Mahaboob Nagar and Vijayanagar markets. The highest seasonal indices were recorded during the month of September, August and July for Vijayanagaram, Anantapur and Mahaboob Nagar market, respectively. The markets are functioning in isolation in the study area. Further, it was noticed that there was significant variation between markets and non-significant variation between months in providing the prices of groundnut. The highest price (Rs.763.11) among the markets is realized in Anantapur market while among the months, July was considered to be the best month for achieving good price of groundnut followed by August. The farmers were advised to sell the produce during July and August months only in order to get more returns. The government is suggested to provide adequate storage facilities to the farmers even in the rural areas so that the farming community may be in a position to sell their produce at better prices.

Mundinamani and Mahajanshethi (2001) analyzed on market of groundnut “Impact of KOF’s market intervention operation on oilseeds market structure and prices – A case study of groundnut”. Trader participation in groundnut transaction was only 2 to 3 per cent of the enrolled firms in four markets, while it varied between 14 to 20 per cent in other markets. Co-operative Oilseeds Growers Federation (KOF) figured as one of the top four firms only in two markets. Even though, its share was less than 14 per cent. In the rest of the markets its share was a meager 2 to 3 per cent. As such, the predominance of private trade in groundnut, which existed before the entry of the KOF, still continued. Thus, the role of the KOF in reducing market concentration has been very limited. The KOF market intervention operation however, had played a significant role in establishing groundnut prices in the peak period in all study markets. The wide fluctuations in lean period prices could mainly attributed to the absence of procurement by the KOF and the dominance of private trading forces.

The results of the study highlighted the importance of the KOF's existence and its market intervention operation in the state.

Vanraj (2008) estimated the total quantity produced of groundnut is estimated as 3.00 quintal, 3.50 quintal, 5.80 quintal and 13.61 quintal at marginal, small, medium and large farms respectively which is about 87 to 88 per cent of the total quantity produced. The average quantity sold by groundnut growers was observed as 81.64 per cent and 18.36 per cent through itinerant traders and village traders respectively which showed that itinerant traders were much popular among the groundnut producers across the categories. The average per quintal price received by farmers is Rs.2152.67, Rs.2157.65, Rs.2164.06 and Rs.2166.53 at marginal, small, medium and large farms respectively.

Singh *et. al.*(2013) viewed that India was the world leader in production, consumption and import as well in case of pulses and not far behind in vegetable oils. India imported 2-3 Mt of pulses on regular basis and 9.2 Mt of vegetable oils during 2010-11. Currently India is in the mid-way of self-sustaining in oilseeds and pulses production. By the 2050, India as a whole will be able to sustain their production. Indian will produce plenty with respect to both the non-food commodity i.e. oilseeds and pulses. India may emerge as net exporter from being net importer for century the with respect to oilseed, and most probably for pulses also.

Shelke (2015) found that groundnut passed through two major channels of trade viz producer-village trades-commission agents-wholesaler-retailer-consumer (channel-I) and producer-commission agents-roaster-retailer-consumer (channel-II). About 82 per cent of groundnut growers sold their marketable surplus through the channel-II, 18 per cent of groundnut growers sold through channel-I. Marketing margin of the roaster accounted for Rs. 105.65 per quintal which constituted 8.12 per cent of the consumers purchase price while that of the retailers marketing margins counted for Rs.278.76 per quintal which constituted 21.43 per cent of the consumers purchase price.

## **2.5 Studies on major constraints in groundnut**

Jothirajan (2005) studied an analysis of the cost and returns structure, per acre net income distribution among different group of farmers. Further, it identified the important determinants of yield, yield gap and yield constraints and also analyses the marketable surplus, market structure and marketing channels. Further, an attempt was made to study the marketing cost, marketing margin, price spread, marketing efficiency and problems encountered by the cultivators in the marketing of groundnut.

Vanraj (2008) observed that the major constraints pertaining to cultivation of groundnut were lack of resources (81.33 per cent) and lack of implementation of support price as almost all farmers told that no intermediary was prepared to give the support price in the village sale.

Kurrey (2014) observed that the major constraints of oilseeds production were Lack of recommended package and practices, particularly, doses of fertilizer, insecticides and pesticides were perceived by 77.33 per cent of producers. Farmers told that timely advice in this direction may improve the production of crop.

## **CHAPTER – III**

### **MATERIALS AND METHODS**

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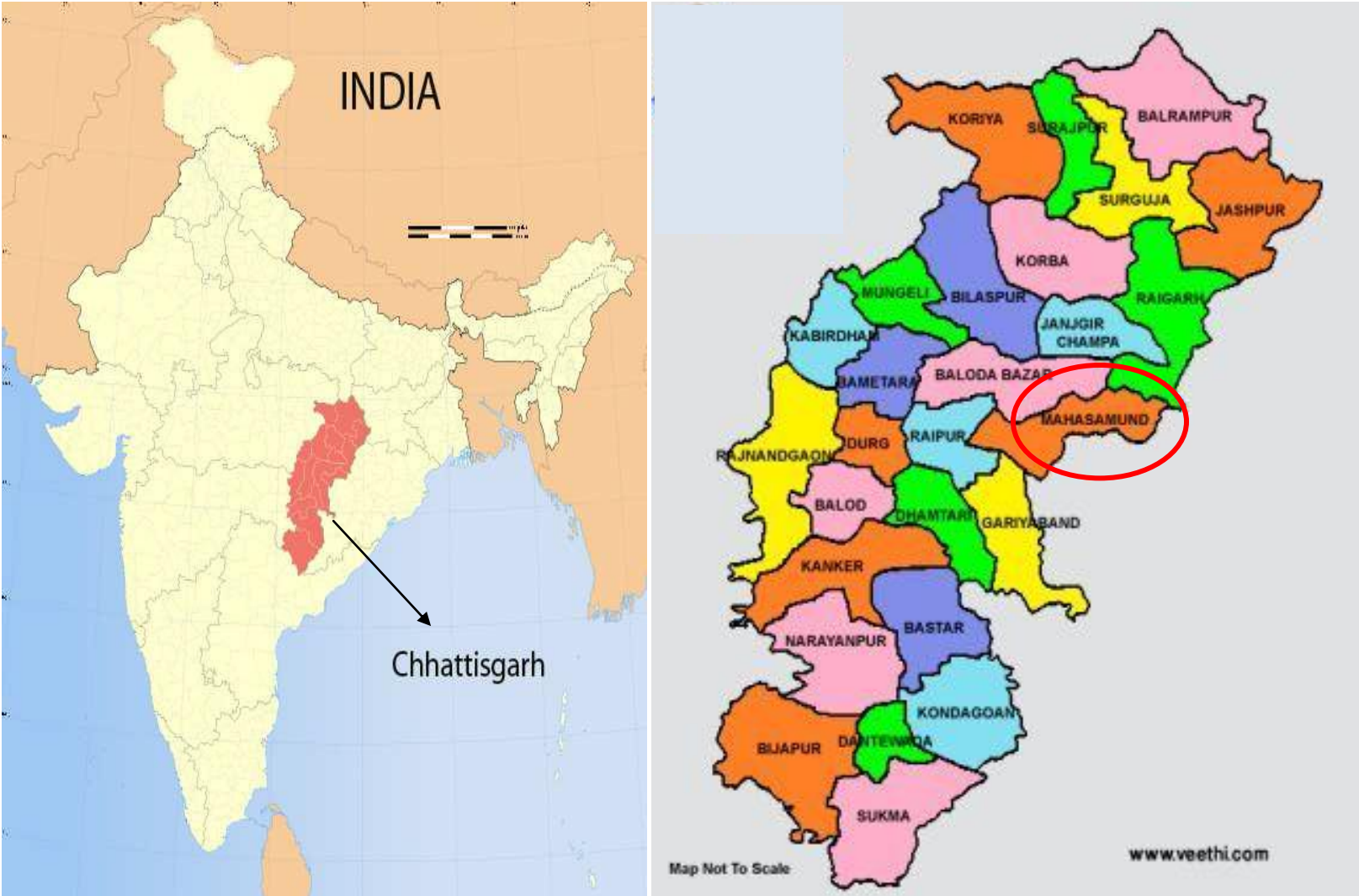
The detailed methodological framework and background of area is presented in this chapter. The whole chapter is divided into four sub-section i.e. sampling procedure, data collection, analytical procedure and background of study area. Sub-section 3.1 describes sampling procedure while the procedure of data collection is presented in sub-section 3.2. Sub-section 3.3 is presenting the tool and techniques to perform the analysis for the present study. Sub-section 3.4 provides the sufficient knowledge about the background of the study area. All these information are described in this chapter as follows.

#### **3.1 Sampling procedure**

A multi-stage sampling design was adopted for the ultimate selection of groundnut grower. The detailed sampling procedure of selection of the district, tehsil, block, villages, groundnut producers and market are presented under following sub-section.

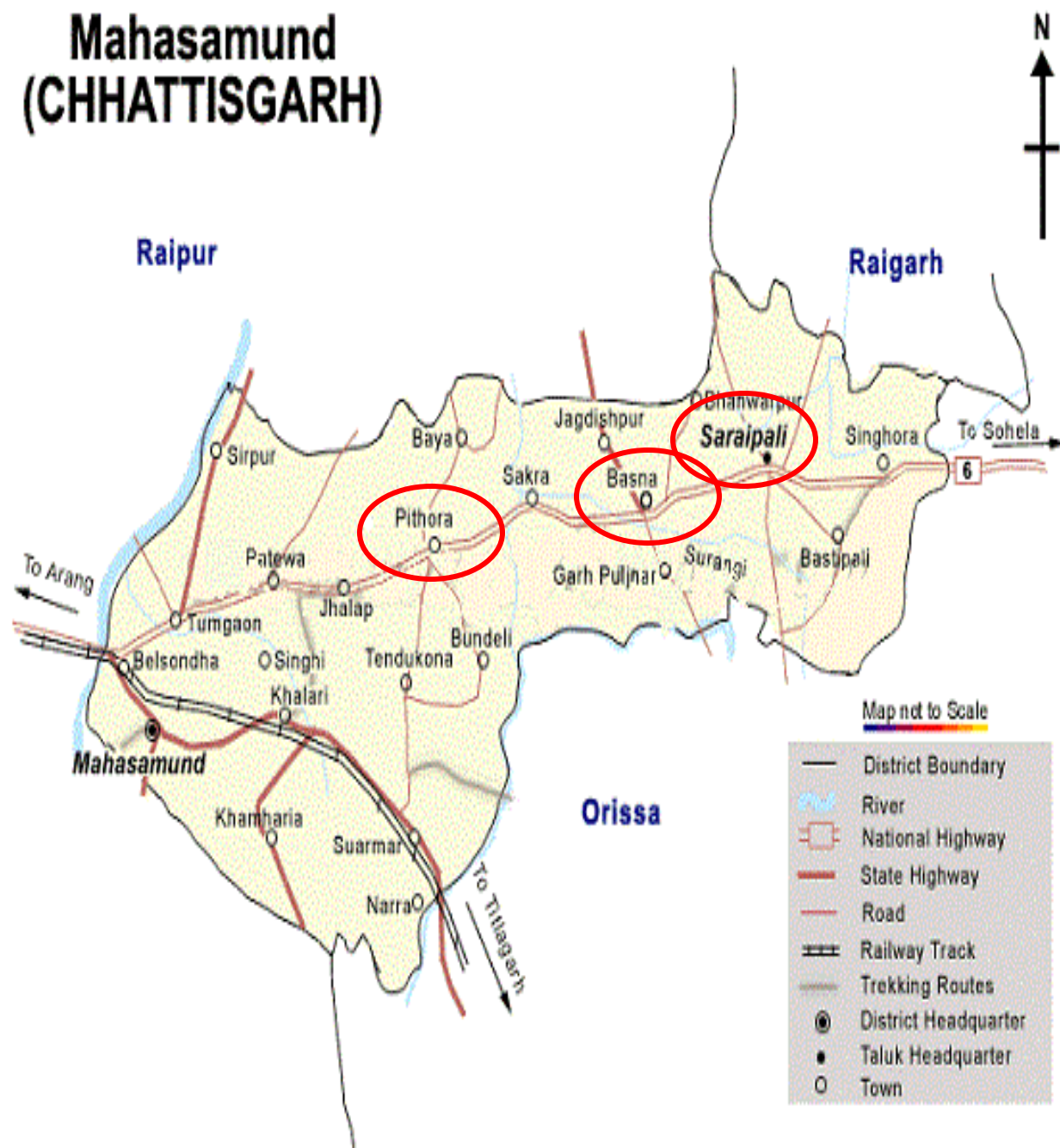
##### **3.1.1 Selection of district**

Chhattisgarh state consists of 27 districts. Out of which, Mahasamund district contributes 19 per cent production and with a second rank in area and production of groundnut in the state Chhattisgarh So, Mahasamund district was selected purposively for study. The total area and production of groundnut crop in Mahasamund district is 5370 ha and 8072 metric tonnes, respectively. The area, production and productivity of groundnut in different districts of state is given in table 4.8



Map I: - Map of India and Chhattisgarh

# Mahasamund (CHHATTISGARH)



Map II: - Map of Mahasamund district

### 3.1.2 Selection of tehsil and block

The Mahasamund district has five blocks, that is, Saraipali, Basna, Pithora, Bhagbhara and Mahasamund. Out of these, 3 blocks were selected which are Saraipali, Basana and Pithora because these three blocks contribute majorly in area of groundnut crop. The area of groundnut in different blocks of Mahasamund district is given in Table 3.1.

Table 3.1: Block wise area of Groundnut in Mahasamund District in 2013-2014

S.N.	Block	Area (ha.)	% of total Area in district
1	Mahasamund	160	2.98
2	Bhagbhara	75	1.39
<b>3</b>	<b>Pithora</b>	<b>1768</b>	<b>32.94</b>
<b>4</b>	<b>Basna</b>	<b>1617</b>	<b>30.11</b>
<b>5</b>	<b>Saraipali</b>	<b>1750</b>	<b>32.58</b>
	<b>Total</b>	<b>5370</b>	<b>100</b>

Source: District statistical book, Mahasamund, Chhattisgarh (2014)

### 3.1.3 Selection of villages

There are 226 numbers of villages in Saraipali, 219 villages in Basna and 238 villages in Pithora. Two per cent villages from each of the three selected blocks were randomly selected. Accordingly, five villages from Saraipali, four villages from Basna and five villages from Pithora block were selected randomly. The names of selected villages were Bonda, Girsha, Limgaon, Patsendri, Khairmal, Singhanpur, Umriya, Thakurpali, Udela, Saldih, Gopalpur, Anshula, Sarkanda and Khuteri (Table 3.2.)

### 3.1.4 Selection of groundnut growers

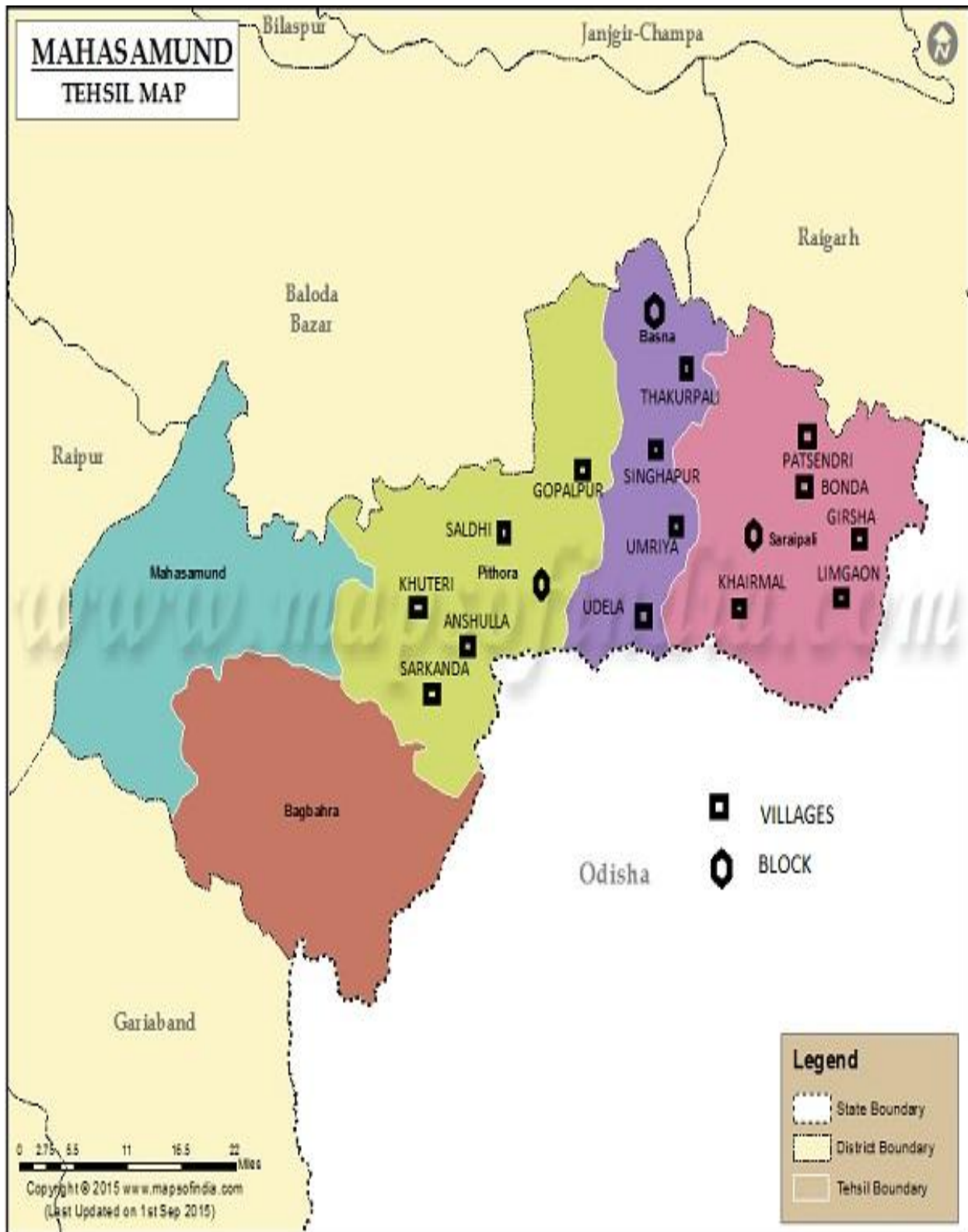
11 groundnut farmers from each of the 14 selected villages were sampled to collect the required information. In all, a total 154 groundnut farmers were selected for the present study. These farmers were classified into different categories based on their land holding i.e. marginal (upto 1.00 ha), small (1.01 ha to 2.00 ha), medium (2.01 ha to 4.00 ha) and large (above 4.00 ha) farmers (Table 3.3).

Table 3.2: Sampled villages and number of households under different categories in the study area

S.No.	Blocks	Villages	Marginal	Small	Medium	Large	Total
1	Saraipali	Bonda	2	3	4	2	11
2	Saraipali	Girsha	1	4	5	1	11
3	Saraipali	Limgaon	1	6	2	2	11
4	Saraipali	Patsendri	2	2	4	3	11
5	Saraipali	Khairmal	2	2	5	2	11
6	Basna	Singhanpur	2	2	3	4	11
7	Basna	Umriya	1	4	5	1	11
8	Basna	Thakurpali	3	2	4	2	11
9	Basna	Udela	3	1	5	2	11
10	Pithora	Saldih	1	2	4	4	11
11	Pithora	Gopalpur	4	2	3	2	11
12	Pithora	Anshula	1	2	6	2	11
13	Pithora	Sarkanda	2	4	4	1	11
14	Pithora	Khuteri	2	5	3	1	11
	<b>Total</b>	<b>14</b>	<b>27</b>	<b>41</b>	<b>57</b>	<b>29</b>	<b>154</b>

Table 3.3: Number of sampled households under different categories in the study area

S.No.	Particular	Number of selected households	Per cent
1	Marginal	27	17.53
2	Small	41	26.62
3	Medium	57	37.01
4	Large	29	18.83
	<b>Total</b>	<b>154</b>	<b>100</b>



**Map III: - Map of Block and Villages**

### **3.1.5 Selection of market intermediaries**

The groundnut producers in the study area sell their produce to different market intermediaries. To collect the required information related to marketing aspects from each market intermediaries i.e. Channel-I: Producer- Consumer, Channel-II: Producer-Village trader- wholesaler, Channel-III: Producer- Wholesaler and Channel-IV: Producer – Oil miller, an appropriate 42 seller as sample were considered involved in the trade of groundnut crop in these study area.

### **3.2 Method of enquiry and data collection**

The study was based on both primary as well as secondary data. The method of enquiry was conducted by survey method and collection of information was based on primary and secondary information. The cross-sectional data were obtained from the survey of sample cultivator of groundnut through personal interview with the help of pre-tested and structured schedules. The primary data included information regarding the general information, land utilization pattern, source of irrigation, cropping pattern, production, productivity, cost of cultivation and marketing pattern. Cost of cultivation included variable and fixed cost. The variable cost consists of field preparation, sowing, transplanting, fertilizer and manure, inter-culture, earthing up, plant protection, irrigation, harvesting and threshing and interest on working capital are considered as variable cost. The fixed cost consists of rental value of owned land, land revenue, depreciation cost and interest on fixed capital. Marketing pattern included marketable surplus, quantity sold, price received by producers from different intermediaries, marketing cost and market margins were gathered and analyzed.

The secondary data were collected from reviews, literature and from various government sources including the Directorate of Agriculture, Land commissioner of Chhattisgarh etc. The data on area, production and productivity of groundnut crop was also collected from these sources to work out the compound growth rate of area, production and productivity of groundnut crop.

### 3.3 Analytical tools

#### 3.3.1 Computation of growth rate

The compound growth rates in area, production and productivity of groundnut crop was worked out in the Chhattisgarh state and Mahasamund district by fitting an exponential function. The following formula was used for this purpose.

$$Y = \alpha \beta^t$$

$$\text{Log } Y = \text{log } \alpha + t \text{ log } \beta$$

Where,

Y= Area/ production /productivity of groundnut crop

$\alpha$ = Constant

$\beta$ = Regression coefficient

t= time in year

Compound growth rate (%) = (Antilog  $\beta$ -1)100.

#### 3.3.2 Cost concepts

The cost concepts approach to farm costing is widely used in India. To work out the cost of cultivation standard method of cost of cultivation employed by Commission on Agricultural Costs and Price (CACP), Directorate of Economics and Statistics, Government of India was adopted which include Cost A<sub>1</sub>, Cost A<sub>2</sub>, Cost B<sub>1</sub>, Cost B<sub>2</sub>, Cost C<sub>1</sub>, Cost C<sub>2</sub> and Cost C<sub>3</sub>. Various costs have been worked out by applying following method

Cost A<sub>1</sub> = All actual expenses in cash and kind incurred in production.

Cost A<sub>1</sub>: Consists of following 14 items of costs:-

1. Value of hired human labour (permanent & casual)
2. Value of owned bullock labour
3. Value of hired bullock labour
4. Value of owned machinery
5. Hired machinery charged
6. Value of fertilizers

7. Value of manure (produced on farm and purchased)
8. Value of seed (both farm-produced and purchased)
9. Value of insecticides and fungicides.
10. Irrigation charges (both of the owned & owned and hired tube wells, pumping sets etc.)
11. canal-water charges
12. Land revenue, cesses and other taxes
13. Depreciation on farm implements (both bullock drawn & worked with human labour, farm building and farm machinery).
14. Interest on the working capital.

Cost  $A_2$  = Cost  $A_1$  + Rent paid for Leased in Land.

Cost  $B_1$  = Cost  $A_1$  + Interest on value of owned fixed capital assets (excluding land)

Cost  $B_2$  = Cost  $B_1$  + rental value of owned land (Net of land revenue) and rent paid for leased-in land.

Cost  $C_1$  = Cost  $B_1$  + Imputed value of family labour.

Cost  $C_2$  = Cost  $B_2$  + Imputed value of family labour.

Cost  $C_3$  = Cost  $C_2$  + 10% of Cost  $C_2$  on account of managerial function performed by farmer.

### **Estimate of cost and income parameters**

#### **1. Family Human Labour**

The value of family human labour used on the farm was imputed at the hiring wage rates prevailing in the area.

#### **2. Manual and bullock operated farm**

Farms using both manual and bullock power for different operations in agriculture.

#### **3. Machine operated farm**

The farms using machine power for different operations in agriculture

#### **4. Seed**

The cost of home grown seeds was calculated at the market rates prevailing in the area at the time of sowing.

#### **5. Manures**

Farm yard manures produced on the farm are valued at the prevailing rates in the locality (i.e. per cart load basis). Purchased manures are charged at the actual prices paid plus transportation cost. The residual effect of the farm manures has been ignored.

#### **6. Fertilizers**

Fertilizer, such as DAP (Dia-Amonium phosphate, Urea, Murate of potash are charged at the actual price paid plus transportation cost.

#### **7. Plant Protection Charges**

This includes the actual cost of insecticides, pesticides, fungicides used plus the hiring charges of appliances.

#### **8. Irrigation Charges**

The cost under this head is exclusively related to irrigated crops. The actual source of irrigation is tube wall, canal and well. The days of human labour put in for irrigation are taken into account as irrigation charges.

##### **❖ Interest on working capital:**

It was calculated @ 4% per annum for half of the crop period.

##### **❖ Interest on fixed capital:**

It was calculated @ 10% per annum for the crop period.

##### **❖ Rental value of owned land:**

Evaluated on the basis of prevailing rates in the village for identical type of land or on the basis of responses obtained from the village farmers'

##### **❖ Land Revenue and other cesses**

The land revenue and other cases were apportioned among the crops followed on the basis of the proportionate area under crops and their duration.

### ❖ Depreciation

It represents the value by which a farm resource decreased in value as result of cause other than a change in general price of the item. Straight line method was used for calculating the depreciation

$$\text{Depreciation} = \frac{\text{Purchase value of the asset - Junk value}}{\text{No. of useful years of life (expected life)}}$$

### 3.3.3 Income measures

#### (a) Gross income

It includes the final price of main product and by product of the crop.

$$\text{Gross income} = \text{Net income} + \text{Cost C}$$

#### (b) Net income

$$\text{Net income} = \text{Gross income} - \text{Cost C}$$

#### (c) Family labour income

It is measured on earning of a farmer and his family for his labour and managerial work. It is equal to gross income minus total expenses excluding wage of unpaid family labour.

$$\text{Family labour income} = \text{Gross income} - \text{Cost B}$$

#### (d) Farm business income

It is a measure of earning of farmer and his family for his capital investment, labour and managerial work.

$$\text{Farm business income} = \text{Gross income} - \text{Cost A}_1$$

#### (e) Farm investment income

This is the sum of net income, rental value of owned land and interest on fixed capital.

$$\text{Farm investment income} = \text{Farm business income} - \text{Imputed value of family labour.}$$

**(f) Input-output ratio**

It can be expressed as the ratio of output to input. The ratio was calculated as:

$$\text{Input-output ratio} = O/I$$

Where,

O = Total output

I = Total input

**3.3.4 Disposal pattern**

To examine the marketing pattern of groundnut at different categories of farms, simple analysis was done. To estimate the marketable surplus of produce, total quantity used for different purposes is deducted from total production of crop.

**Marketable surplus**

**Marketable surplus = Total production – Total consumption**

$$MS = P - (C + S)$$

Where,

MS – Marketable Surplus

P - Total Production

C - Family Consumption

S - Quantity kept for seed

**3.3.5 Marketing cost and margin****Marketing cost**

The total expenditure incurred by each agency is estimated in marketing cost. All these items are added to obtain the per quintal marketing cost of groundnut as follow-

$$C = C_f + \sum C_{mi}$$

Where,

C = Total marketing cost of produce (Rs/quintal),

C<sub>f</sub> = Cost paid by farmer (Rs/quintal),

C<sub>mi</sub> = Cost incurred by ith middleman in the buying and selling (Rs/quintal)

### **Gross margin**

The gross margin at each successive stage of marketing of groundnut crop will be worked out by taking the difference of sale price and purchase price. The following formula is used to work out the per quintal gross margin for each marketing agency-

$$MG = S_i - P_i$$

Where,

MG = Gross margin,

$S_i$  = Sale value of produce for  $i$ th intermediaries,

$P_i$  = Purchase value of produce for  $i$ th intermediaries,

$i$  = Type of intermediaries

### **Net margin**

The net margins of the  $i$ th type of market intermediary are calculated as under-

$$N_{mi} = P_{ri} - (P_{pi} + C_{mi})$$

Where,

$N_{mi}$  = Net margin of  $i$ th type of market intermediary,

$P_{ri}$  = per quintal price received of produce by  $i$ th type intermediaries,

$P_{pi}$  = per quintal purchase price of produce by the  $i$ th type intermediary,

$C_{mi}$  = per quintal marketing cost incurred by  $i$ th type intermediary

### **Producer's share in consumer's rupee**

To calculate the producer's share in consumer rupee will be worked out by using the following formula-

$$P_s = (P_f / P_{cj} \times 100)$$

Where,

$P_s$  = Producer share in consumer rupee

$P_f$  = Net price received by farmer

$P_{cj}$  = Price paid by consumer

### **3.4. Background of the study area**

A research programmed requires knowledge of the region in which the investigation is being carried out. Understanding the general characteristics of the study area is very essential to carry out the research. In this sub-section, background information about the study area is given. The study was conducted in Mahasamund district of Chhattisgarh state during the year kharif crops for 2014-15. Mahasamund is a district of the state of Chhattisgarh in Central India. Mahasamund is the district and divisional headquarter. 14 villages of 3 blocks, Pithora, Saraipali and Basna of Mahasamund district of Chhattisgarh were selected for further study. The selected villages represent appropriately well to the agro-climatic and socio-economic situation of Mahasamund District as well as Chhattisgarh. To understand the general characteristics of the study area, a brief description about location, distribution of land holding, soil and topography, climate and rainfall, human population, land use pattern, water resources, transport and communication, profile of the studied villages, basic infrastructural facilities of the study area is presented in this chapter.

#### **3.4.1 General profile of Mahasamund District**

The general profile of Chhattisgarh and Mahasamund district is presented in Table 3.4. Mahasamund district is spread out in an area of 496300 ha in the Central-East of Chhattisgarh State. The district lies between 20°47' to 21°31'30" latitude and 82°00' to 83°15'45" longitude, surrounded by districts of Raigarh and Raipur of Chhattisgarh State and Nawapara and Bargarh of Orissa. Out of total villages (20306) of Chhattisgarh State, this district has 1190 populated and 10 forest villages. The district has 5 tehsil and 5 development block. The total geographical area of the state is 13790 thousand hectare. Out of which Mahasamund district is spared over in 496300 (3.60 per cent) hectares. The topography of Chhattisgarh state is divided in three parts i.e. Chhattisgarh plain, Northern hills and Bastar plateau. Out of this three Mahasamund district comes under plain region of Chhattisgarh state.

Table 3.4: General profile of Chhattisgarh and Mahasamund district

S.No.	Particulars	Chhattisgarh	Mahasamund
1	Geographical Area	13790 (000) ha.	496.3 (000) ha. (3.60)
2	Latitude	17°46' to 24°50'	20°47' to 21°31'30"
3	Longitude	80°15' to 84°20'	82°00' to 83°15'45"
4	No. of Tehsils	149	5 (3.36)
5	Populated Villages	20306	1190 (5.86)
6	Forest village	210	10 (4.76)
7	No. of Gram Panchayats	9139	545 (5.20)
8	No. of Janpad Panchayats	146	5 (3.42)
9	Total Population (According to 2011 Census)	24795956	10,32,275
10	Total Male Population	12452426	5,11,475
11	Total Female Population	12343530	5,20,800
12	Total Literates (%)	71.04	6,44,482 (67.64)
13	Total Male Literates (%)	81.4	3,68,907 (81.58)
14	Total Female Literates (%)	60.6	2,25,575 (54.04)

Source: Department of Agriculture and Statistics, Mahasamund, 2011.

Note: Figure in parenthesis indicate percentages to the total

### 3.4.2 Soil and topography

The topography of this district indicates abundance of granite rocks of the Archean Period to stratified rocks of Cuddupah group of upper Cambrian age, and alluvial soil and sand of recent age are found in abundance in the district. Also found in the region are Neo-granite, Dolerite and Quartz in intrusive forms. The soil in the

Block is composed at clay, clay loam. The clay soil is locally known as “Matiyar” and “Domat”, the soil is fertile and grows a variety of crops both in Kharif and Rabi season. The other type of soil found in the Block are sandy loam, concrete and saline soils. The soil is fertile alluvial in character and suited for cultivation of large varieties.

### 3.4.3 Climate and rainfall

Mahasamund districts climate varies from humid to dry sub-humid climate like sub-tropical climatic condition. The district has three distinct seasons viz. winter, summer and rainy. The district receives rainfall varies from 895 mm to 1500.5 mm but average mean annual rainfall is 1434.2 mm and average rainfall intensity 23.44 with 65-75 rainy days and is received both by South West monsoon (75-80 %) and North East monsoon (10-15 %). Temperature of Mahasamund district in summer ranges from 42°C to 30°C with an average of 35.15°C and in winter it ranges from 26°C to 15°C with an average of 20.73°C. (Table 3.5)

Table 3.5: Yearly Rainfall distribution of Mahasamund district (2007–2013)

S.NO.	Year	Rainfall
1	2007	1318.8
2	2008	999.2
3	2009	1305.1
4	2010	1084.8
5	2011	1310.3
6	2012	1391.2
7	2013	1355.7
<b>Average annual rainfall</b>		<b>1434.2</b>

Source: Hydromet Division, Indian Meteorology Department, Mahasamund district, 2013

### 3.4.4 Land use pattern

The total geographical area of the State is 13790000 hectare. Out of the total geographical area, Mahasamund district has 496300 hectare area constituting 3.60 per cent. The cropping intensity of the district is 119.17 per cent as compared to 131.27

per cent in the State. The land utilization pattern of the study area is presented in the Table 3.6.

Table 3.6: Land utilization pattern of Chhattisgarh and Mahasamund district

S.NO.	Particulars	Chhattisgarh area (ha.)	Mahasamund area (ha.)
1	Total geographical area	13789836	496300 (3.60)
2	Area under Forest	6349000	110200 (1.74)
3	Land under non-agriculture use	1004000	47510 (4.73)
4	Permanent pasture and grazing land	855000	30250 (3.54)
5	Cultivable waste land	346000	8210 (2.37)
6	Fallow land (old fallow + current fallow)	523000	13060 (2.50)
7	Net cropped area	4710000	263780 (5.60)
8	Grossed cropped area	6183000	314370 (5.08)
9	Cropping Intensity (%)	131.27	119.17

Source: Department of Agriculture and Statistics, Mahasamund, 2014-2015

Note: Figures in parenthesis indicate percentages of total geographical pattern

### 3.4.5 Water resources

Lack of irrigation is the main problem in the study area. Most of the farmers depend on the rains to grow the paddy crop during kharif season. The area under various sources of irrigation is presented in table 3.7. Figures presented in the table indicate that tube well is main source of irrigation in this district as it has 51.23 per cent irrigation in Mahasamund district. These figures show that farmers are keen interested to create their own irrigation facility at their farm in order to ensure the irrigation in the crop. Canal, pond and wells are other source of irrigation which

contributes 37.49 per cent, 6.09 per cent and 0.80 per cent respectively in Mahasamund district. Increased area under tube well irrigation is clearly shows that the dependency on canal, ponds and wells is decreasing in the study area.

Table 3.7: Source-wise irrigated area in Mahasamund district (2014-15)

S.No.	Source of irrigation	Area (ha)
1	Canal	40941 (37.49)
2	Tube well	55951 (51.23)
3	Wells	881 (0.8)
4	Ponds	6654 (6.09)
5	Others	4768 (4.36)
	<b>Total</b>	<b>109195</b> <b>(100)</b>

Note: Figures in parentheses indicate the percentages to total area under irrigation.

Source: Agricultural Statistics, 2015, Commissioner of land records, Govt. of Chhattisgarh

### 3.4.6 Cropping pattern

Being a mono-cropped region, paddy is the main cereal crop of the district during kharif season. Nearly 74.35 per cent area is allocated under paddy crop in kharif season. However, several other crops are also being grown in kharif as well as during rabi season in this district, although the area under cultivation is very less. The cropping pattern and area under different crops in Mahasamund district is presented in table 3.8. The total area under different crops in kharif and rabi season is observed as 83.91 per cent and 7.58 per cent respectively. Remaining 8.51 per cent of the total cropped area is allocated during summer season in the district.

Table 3.8: Cropping pattern of Mahasamund district

S.NO.	Season/Crops	Area (000 ha.)
<b>Kharif</b>		
1	Paddy	233.74 (74.35)
2	Sorghum	0.03 (0.01)
3	Maize	0.43 (0.14)
4	Kodo	0.05 (0.02)
5	Pigeon-pea	1.16 (0.14)
6	Mung	4.28 (1.36)
7	Urd	11.44 (3.64)
8	Groundnut	5.53 (1.75)
9	Sesamum	1.08 (0.34)
10	Niger	0.01 (0.003)
11	Vegetable	5.06 (1.60)
12	Other	1 (0.32)
	<b>Sub Total</b>	<b>263.78</b> <b>(83.91)</b>
<b>Rabi</b>		
1	Wheat	3.16 (1.01)
2	Lathyrus	9.23 (2.93)
3	Alsi	3.02 (0.96)
4	Mustard	1.28

		(0.41)
5	Gram	1.32
		(0.42)
6	Vegetable	4.24
		(1.35)
7	Other	1.56
		(0.50)
<b>Sub Total</b>		<b>23.81</b>
		<b>(7.58)</b>
<b>Summer</b>		
1	Paddy	23.49
		(7.47)
2	Vegetable	2.06
		(0.65)
3	Other	1.23
		(0.39)
<b>Sub Total</b>		<b>26.78</b>
		<b>(8.51)</b>
<b>Total cropped area</b>		<b>314.37</b>
		<b>(100)</b>
<b>Net area sown</b>		<b>263.78</b>
<b>Cropping Intensity (%)</b>		<b>119.17</b>

Source: Department of Agriculture and Statistics, Mahasamund, 2013.

Note: Figure in parenthesis indicate percentages to total cropped area

The area under paddy is observed to be as 81.82 per cent of the total cropped area of the district. The remaining area is allocated under other crops like urd, groundnut, wheat, kodo, lytharus, mustard, sesame, gram, and maize in this district. Urd is second most important crop of the region during kharif season which occupies 3.64 per cent area of the gross cropped area. Groundnut is also the district as an important oilseed crop among farmers.

### 3.4.7 Distribution of land holdings in Mahasamund district

The distribution of land holding is presented in table 3.9. It can be seen from the table total numbers of land owners was found to be 170426 in Mahasamund district, that maximum number of land owners belongs to marginal categories

covering 14.68 per cent and minimum number of land owners belongs to large categories covering 34.52 per cent of the total area in Mahasamund block.

Table 3.9: Distribution of land holding in Mahasamund district

S.No.	Particulars	Mahasamund district	
		Numbers	Area (in hectare)
1	Marginal	86257 (50.43)	41634 (14.83)
2	Small	43006 (25.23)	61342 (21.85)
3	Medium	26732 (15.67)	80839 (28.80)
4	Large	14431 (8.67)	96865 (34.52)
<b>Total</b>		<b>170426</b> <b>(100.00)</b>	<b>280680</b> <b>(100.00)</b>

Note: Figures in parentheses indicate percentage to total land holding.

Source: District statistical booklet (2009), District Planning and Statistical Office, Mahasamund (C.G.)

### 3.4.8 Population distribution and Demographic features

The demographic features are presented in table 3.10. The total population of Mahasamund district was 10, 32,275 of which male and female were 5, 11,475 and 5, 20,800 respectively, of which 88.3% population is rural and rest 11.6% population is urban. The growth rate of population is 20 per cent as compared to population as per 2001. Average literacy rate of Mahasamund district is 67.64 per cent in which 81.58 per cent male and 54.04 per cent female were literate. Sex ratio in Mahasamund district is 1017 female per 1000 male which is very high as compared to India's average national sex ratio of 940 (Census 2011).

Table 3.10: Demographic features of Mahasamund district

<b>S. No.</b>	<b>Particulars</b>	<b>Mahasamund district</b>	<b>Percentage of total population</b>
1	Total population	10,32,275	100
A	Male	5,11,475	49.54
B	Female	5,20,800	50.45
C	Rural	912166	88.3
D	Urban	120109	11.6
2	Sex ratio (female /1000 male)		
A	Rural	1021	-
B	Urban	995	-
3	Literacy (District)	644482	67.64
A	Male	368907	81.58
B	Female	275575	54.04
4	Population growth rate (2001-2011)	20	-
5	Percentage of district population to state population	4.16	-
6	Total ST population of the District	232485	22.52
7	Population density (per sq. km)		216

Source: Census report 2011, Mahasamund district.

### 3.4.9 Administrative units of the study area

Chhattisgarh state is administratively divided into 27 districts one of which is Mahasamund. It consists of 1145 villages. Mahasamund district administratively divided into 5 Tehsils and 5 developmental blocks. (Table 3.11)

Table 3.11: Administrative units of Mahasamund district

S.No.	Units	Number
1	Sub division	2
2	Tehsils	5
3	Sub Tehsils	3
4	Blocks	5
5	Municipal council	1
6	Nagar palika	3
7	Nagar panchayat	3
8	Janpad panchayat	5
9	Gram panchayat	545
10	Total village	1145
11	Patwari circle	146
12	Revenue inspector division	10
13	Police station	7
14	Police post	5
15	Lok sabha constituency	1
16	Assembly constituency (Area no.)	4
17	Electrified villages	1111
18	Drinking water villages	1120

Source: [www.mahasamund.nic.in](http://www.mahasamund.nic.in)

## CHAPTER – IV

### RESULTS AND DISCUSSION

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The present chapter deals with the results and discussion of various objectives of the study. The chapter is arranged in different sub-sections according to objectives of the study. The demographic features of the sampled households and growth rate in groundnut and in terms of area, production and productivity is described in sub-section 4.1 and 4.2 respectively. Section 4.3 discusses about cost and returns in cultivation of groundnut. Marketing pattern of groundnut in the study area is discussed section 4.4. Last sub section of the chapter i.e. section 4.5 discusses about the constraints faced by the farmers in groundnut production and marketing.

#### **4.1 Socio-economic and demographic profile of the sample farmer in the study area**

The present study covers a sample of 154 farmers in farm size group i.e. less than 1 hectare, 1 to 2 hectare, 2 to 4 hectare and above 4 hectare. The study of structure of sample farms and farms family is most important because of the fact that it influences the resource use pattern as well as marketing of farm produce. Further, age, sex and education wise distribution of family members, farm family, and intensity of cropping etc. also affect the production.

Therefore, in the present chapter an attempt has been made to analyzed data on distribution of farms and cultivated area under different size group of farms.

##### **4.1.1 General characteristics**

The general characteristics of the sampled households are presented in Table 4.1.and figures 4.1, 4.2, and 4.3. It can be seen from the table that the male population was seen slightly higher than female being 54.58 per cent and in case of female it was 45.42 per cent. The overall family size was found to be 5.53 it was highest in

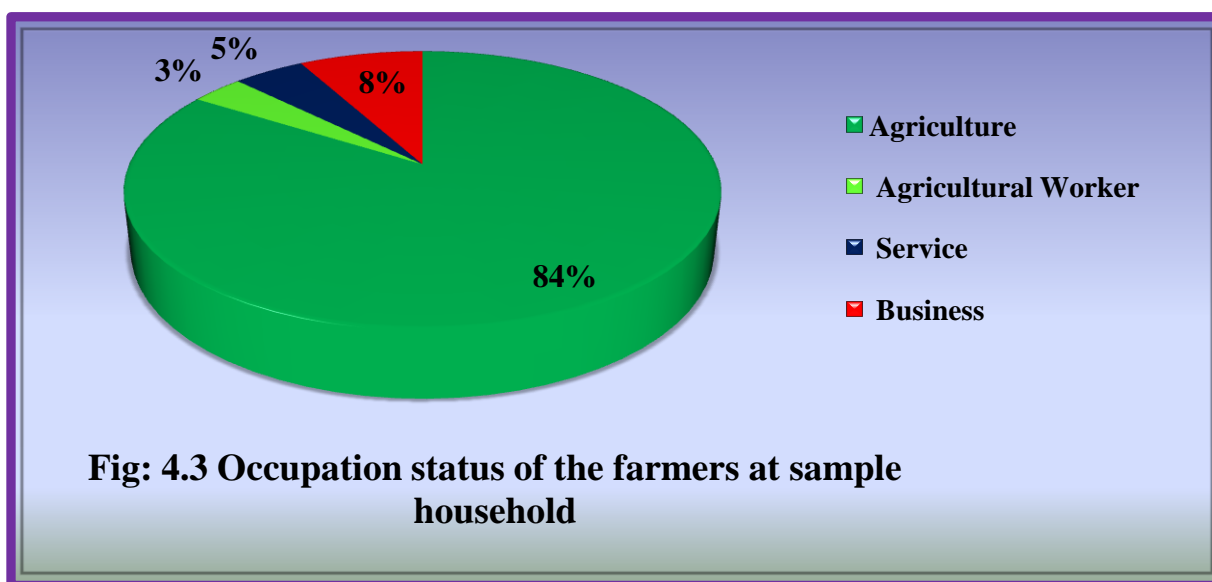
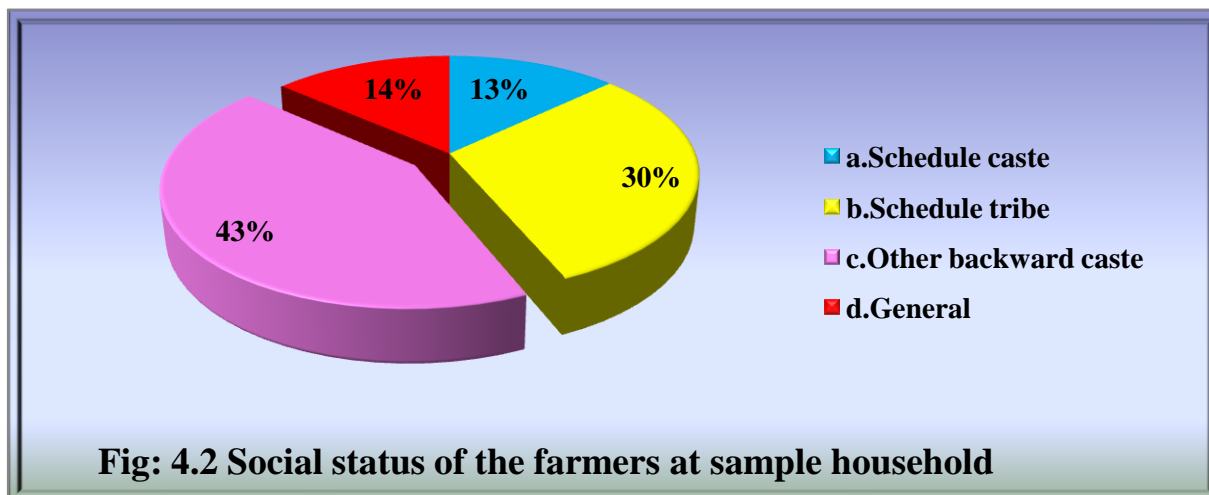
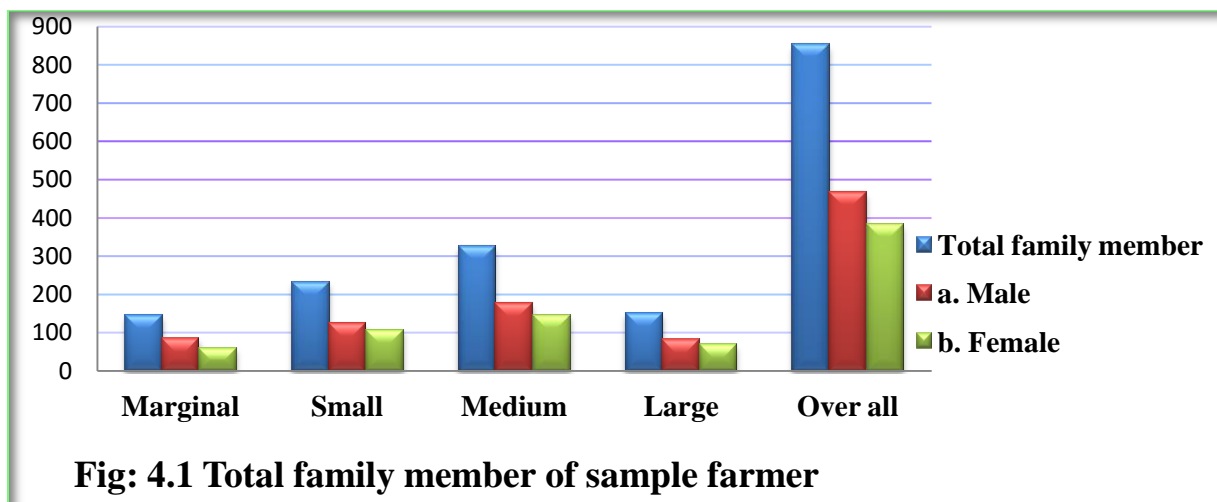
and lowest in large farms i.e. 5.17. About 58.80 per cent population belonged to 15-60 years age group in this sample. The population below the 15 years of age consists about 28.64 per cent while remaining of 11.85 per cent population fall in the group of above 60 years. The overall per thousand male to female ratio was observed low 1000:828 in this population. The schedule caste, schedule tribes, other backward caste and general caste consists 12.99 per cent, 30.52 per cent, 42.86 per cent, and 13.64 per cent, respectively of the total sampled groundnut farmers. It is clear from this table; about 83.94 per cent of working group is involved in agriculture at sample farms. The percentage of agriculture as the main occupation is estimated at about 83.94 per cent, 79.50 per cent, 85.42 per cent, 87.21 per cent and 80.52 per cent in case of overall, marginal, small, medium and large farmers, respectively. Business which pottery, grocery shops, cycle repair shops etc is the second important source of income where 8.03 per cent people depend on business. The other source of income of the farmers is government and private service, and wages in the study area. It was noticed that only 4.62 per cent sampled households were engaged in government and private services.

Table 4.1: General characteristics of sample farmers in the study area

<b>S. No.</b>	<b>Particulars</b>	<b>Marginal</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>	<b>Over all</b>
<b>1</b>	<b>Total no. of households</b>	<b>27</b>	<b>41</b>	<b>57</b>	<b>29</b>	<b>154</b>
2	Total family member	144 (100)	233 (100)	325 (100)	150 (100)	852 (100)
	a. Male	84 (58.33)	125 (53.650)	175 (53.83)	81 (54.00)	465 (54.58)
	b. Female	60 (41.67)	108 (46.35)	150 (46.17)	69 (46.00)	387 (45.42)
	Average family member	5.33 (3.70)	5.68 (2.44)	5.7 (1.75)	5.17 (3.45)	5.53 (0.65)
	Per thousand male to female ratio	714.28	864	850.71	851.85	1000:828
<b>3</b>	<b>Age groups (years)</b>	<b>Marginal</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>	<b>Overall</b>
	<b>a. Below 15 years</b>					
	i Male	27 (18.75)	44 (18.88)	70 (21.54)	22 (14.67)	163 (19.13)
	ii Female	6	23	38	14	81

		(4.17)	(9.87)	(11.69)	(9.33)	(9.51)
	<b>b. 15-60 Years</b>					
	i Male	49 (34.03)	66 (28.33)	87 (26.77)	49 (32.67)	251 (29.46)
	ii Female	50 (34.72)	68 (29.18)	89 (27.38)	43 (28.67)	250 (29.34)
	<b>c. Above 60 years</b>					
	i Male	8 (5.56)	15 (6.44)	18 (5.54)	10 (6.67)	51 (5.28)
	ii Female	4 (2.78)	17 (7.30)	23 (7.08)	12 (8.00)	56 (6.57)
<b>4</b>	<b>Social group</b>	<b>Marginal</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>	<b>Over all</b>
	a. Schedule caste	5 (18.52)	6 (14.63)	6 (10.53)	3 (10.34)	20 (12.99)
	b. Schedule tribe	13 (48.15)	15 (36.59)	14 (24.56)	5 (17.24)	47 (30.52)
	c. Other backward caste	8 (29.63)	14 (34.15)	28 (49.12)	16 (55.17)	66 (42.86)
	d. General	1 (3.70)	6 (14.63)	9 (15.79)	5 (17.24)	21 (13.64)
	<b>Total</b>	<b>27 (100)</b>	<b>41 (100)</b>	<b>57 (100)</b>	<b>29 (100)</b>	<b>154 (100)</b>
<b>5</b>	<b>Occupation</b>	<b>Marginal</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>	<b>Over all</b>
	a. Agriculture	83 (79.05)	123 (85.42)	150 (87.21)	62 (80.52)	418 (83.94)
	b. Agricultural worker	11 (10.48)	6 (4.17)	0 (0.00)	0 (0.00)	17 (3.41)
	c. Govt. & private service	2 (1.90)	7 (4.86)	8 (4.65)	6 (7.79)	23 (4.62)
	d. Business	9 (8.57)	8 (5.56)	14 (8.14)	9 (11.69)	40 (8.03)
	Working members	105 (100)	144 (100)	172 (100)	77 (100)	498 (100)

Note: Figures in the parentheses indicate the percentages to total number of family members



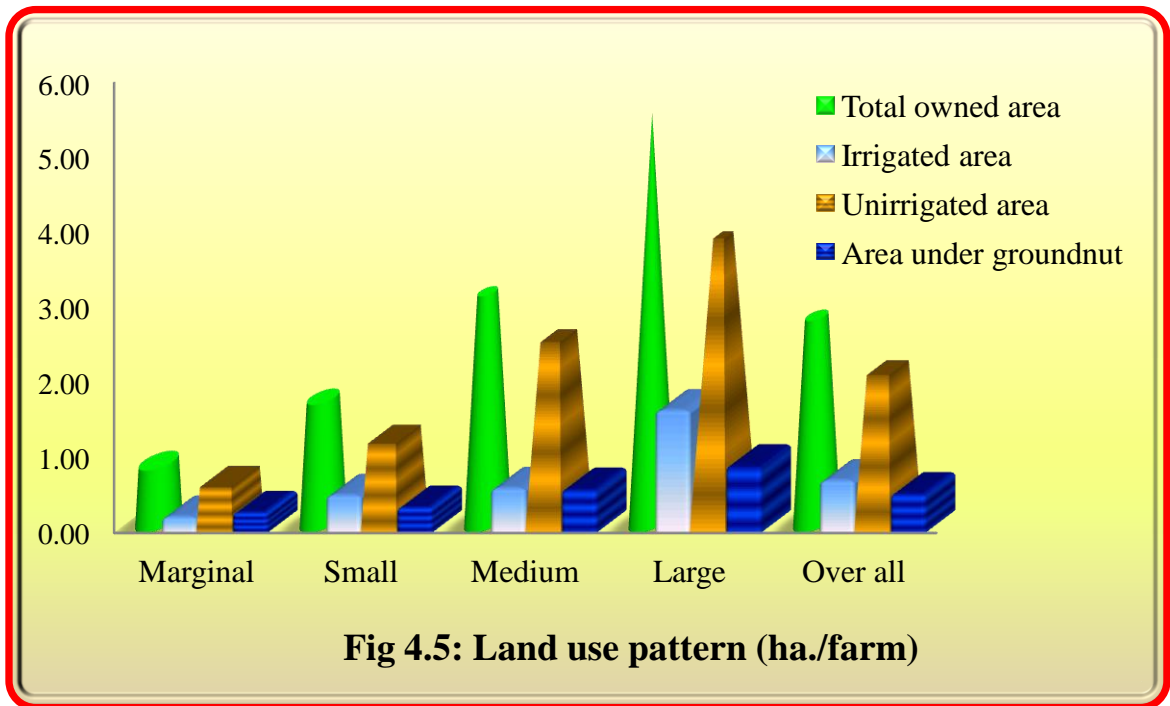
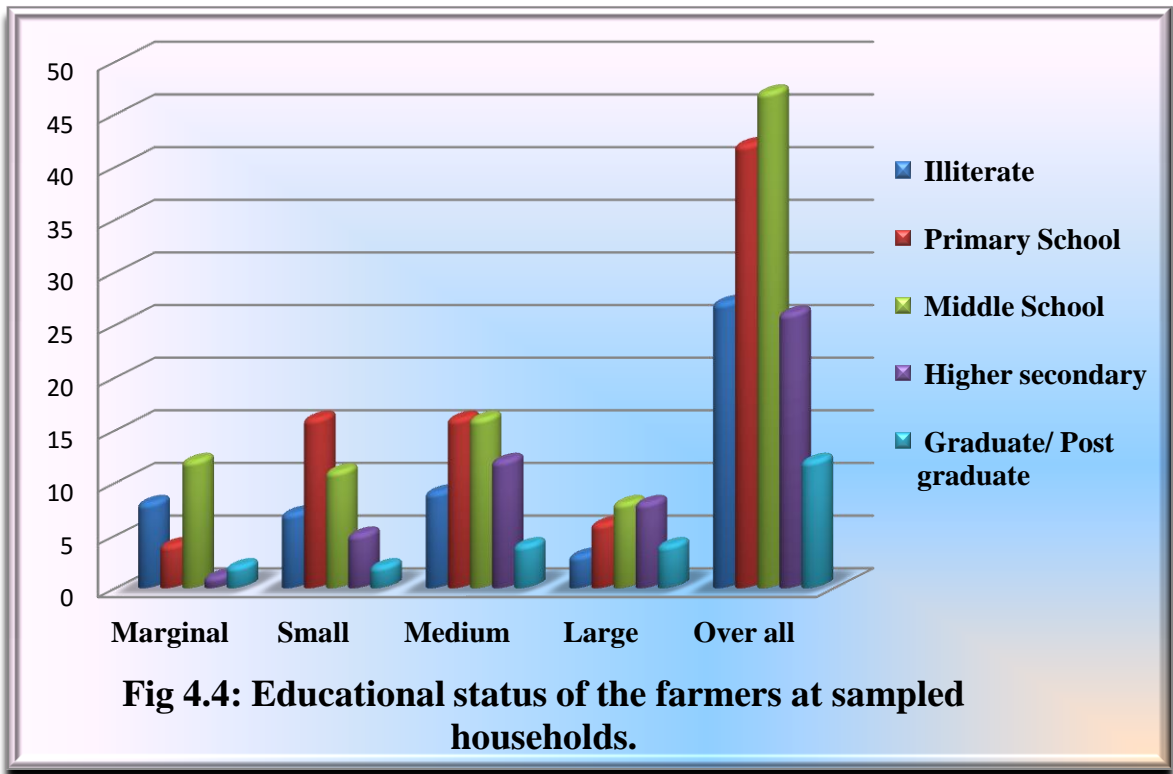
#### 4.1.2 Educational status of the sample farmer

Educational status of the respondents presented in Table 4.2 and figure 4.4 as it is one of the most important pre-requisites for the development the individual as well as for the society, community and nation. The education gained by the individual of any society and community reflects the overall situation of that particular community. On an overall literacy percentage was found 82.46 per cent among sampled households. Category wise education percentage was found highest in case of large farms; it may be due to higher income of the large farms. 13.79 per cent were found graduates and post graduates in case of large farms. It has been also observed in case of large and medium categories that no one works as an agricultural labour in others fields.

Table 4.2: Educational status of the sample farmer

<b>Education</b>	<b>Marginal</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>	<b>Over all</b>
a. Illiterate	8 (29.63)	7 (17.07)	9 (15.79)	3 (10.34)	27 (17.53)
b. Primary School	4 (14.81)	16 (39.02)	16 (28.07)	6 (20.69)	42 (27.27)
c. Middle School	12 (44.44)	11 (26.83)	16 (28.07)	8 (27.59)	47 (30.52)
d. Higher secondary	1 (3.7)	5 (12.2)	12 (21.05)	8 (27.59)	26 (16.88)
e. Graduate/ Post graduate	2 (7.41)	2 (4.88)	4 (7.02)	4 (13.79)	12 (7.79)
<b>Total</b>	<b>27</b> <b>(100)</b>	<b>41</b> <b>(100)</b>	<b>57</b> <b>(100)</b>	<b>29</b> <b>(100)</b>	<b>154</b> <b>(100)</b>
Literacy percentage	70.36	82.93	84.21	89.66	82.46

Note: Figures in parentheses indicate percentage to total



### 4.1.3 Land use pattern

Size of holding and irrigated area at sampled farms is presented in Table 4.3. and fig 4.5. The per farm total cultivated area is observed to be during kharif season at 0.80 hectares, 1.66 hectare, 3.06 hectare and 5.44 hectare at marginal, small, medium and large farms, respectively along with 2.74 hectare as an overall average. The overall irrigated area is only 25.43 per cent to the total cultivated land. The percentage of irrigated area varied from 26.39 at marginal farms to 30.12 per cent at small farms, 19.38 per cent at medium farms and 29.98 per cent at large farms. The overall allocation of area under groundnut was found to be 19.15 per cent of the total cultivated area.

Table 4.3: Size of land use pattern at sampled farms (ha/farm)

S. No.	Particulars	Marginal	Small	Medium	Large	Over all
1	Total cultivated area	0.80 (100)	1.66 (100)	3.06 (100)	5.44 (100)	2.74 (100)
2	Area under cultivation	0.80 (100)	1.66 (100)	3.06 (100)	5.44 (100)	2.74 (100)
3	Irrigated area	0.21 (26.39)	0.50 (30.12)	0.59 (19.38)	1.63 (29.98)	0.70 (25.43)
4	Un irrigated area	0.59 (74.07)	1.16 (69.72)	2.47 (80.72)	3.81 (70.11)	2.04 (74.62)
5	Area under groundnut	0.27 (34.26)	0.34 (20.73)	0.58 (19.09)	0.90 (16.48)	0.52 (19.15)

**Note:** Figures in the parentheses indicate the percentages to the total cultivated area.

### 4.1.4 Source of irrigation

Category wise area under various sources of irrigation is presented in table 4.4 and figure 4.6. Table shows that tube well and canals are the main sources of irrigation as 98.65 per cent of the area is irrigated by these two sources in the sampled farms. These figures are clear indication that farmers of this region are very cautious about the irrigation in agriculture. Remaining area is covered by wells as another source of irrigation in the district. On an overall tube wells contributed 71.18 per cent area under irrigation which was highest at 100 per cent in marginal category of farmers and

lowest in large 57.78 farms respectively. The total irrigated area though is very less at 0.52 ha. per farm.

Table 4.4: Source wise irrigated area at sampled farms (ha./farm)

S. No.	Source	Marginal	Small	Medium	Large	Over all
1	Tube well	0.27 (100)	0.25 (73.53)	0.44 (75.86)	0.52 (57.78)	0.37 (71.18)
2	Canal	0 (0.00)	0.07 (21.52)	0.14 (24.20)	0.38 (42.15)	0.14 (27.47)
3	Well	0 (0.00)	0.02 (7.17)	0.00 (0.00)	0.00 (0.00)	0.01 (1.25)
<b>Total</b>		<b>0.27</b> <b>(100)</b>	<b>0.34</b> <b>(100)</b>	<b>0.58</b> <b>(100)</b>	<b>0.90</b> <b>(100)</b>	<b>0.52</b> <b>(100)</b>

**Note:** Figures in the parenthesis indicate the percentage to total irrigated area.

#### 4.1.5 Cropping pattern followed by sampled groundnut farmers

The cropping pattern at sampled farms is presented in Table 4.5. and fig. 4.7. It may be seen that the total cropped area is observed to be 0.96 ha., 1.95 ha., 3.67 ha. and 6.53 ha. and 3.28 at marginal, small, medium, large and overall farms respectively. The highest cropped area is found to be in kharif season among all the categories. The area under different crops in kharif season is observed to be 83.72 per cent, 84.99 per cent 83.46 per cent 83.38 per cent and 83.57 at Marginal, small, medium, large and overall farms. It is evident that with 62.48 per cent (2.05 ha.)/farm was the principal crop followed by groundnut at 16 per cent (0.52 ha.)/farm for the sampled farms in kharif season. The area under different crops in rabi season was observed to be 16.39 per cent at overall farm. The overall cropping intensity was quite low at 119.70 per cent at sampled household (Table 4.8). It is concluded that the cropping intensity is almost equal at marginal, small, medium and large farm. In view of the low cropping intensity of the sampled farmed there is a need to increase to same by enhancing irrigation facilities in the study area. The area under kharif groundnut was observed at 0.27 ha./farm, 0.34 ha./farm and 0.58 ha./farm, 0.90 ha./farm and 0.52 ha./farm (28.55%, 17.65%, 15.92%, 13.73%,16.00%) at marginal, small, medium, large and overall of total cropped area, respectively.

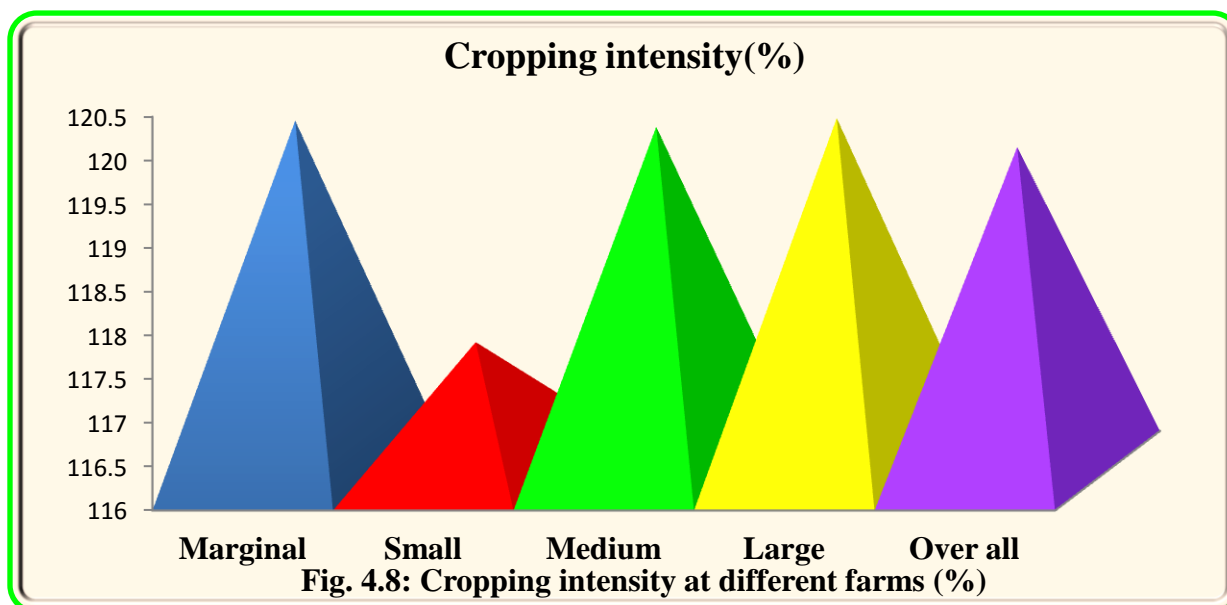
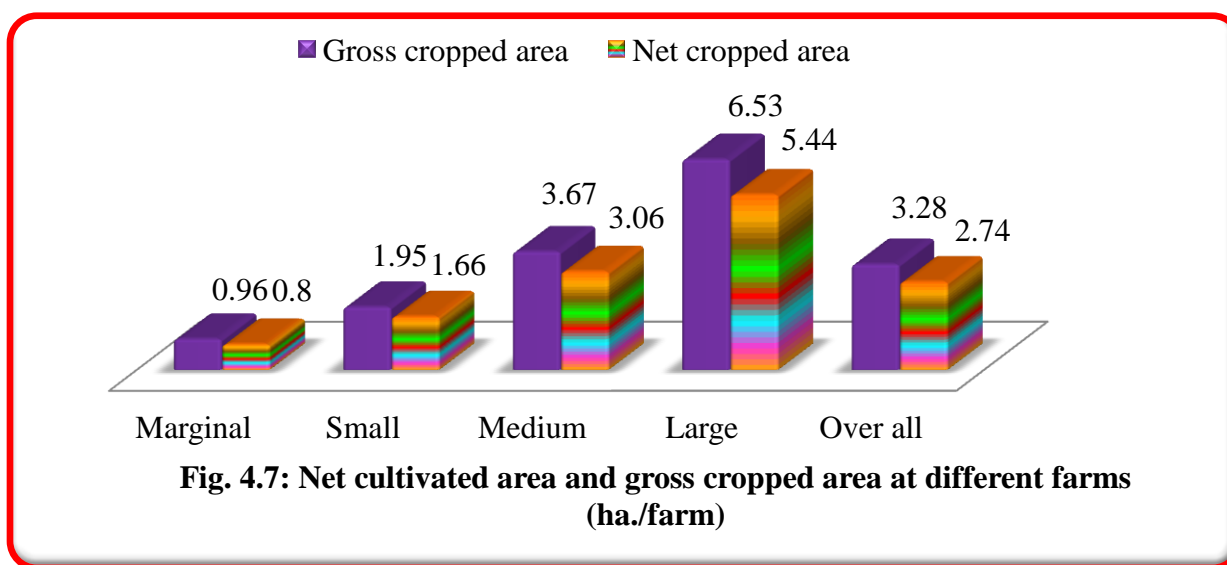
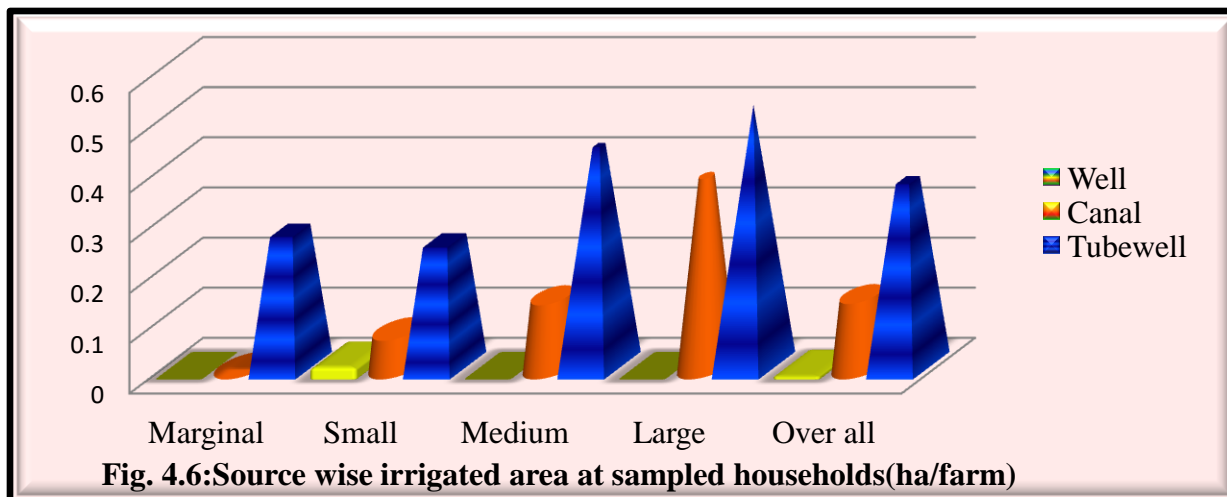


Table 4.5: Cropping pattern followed by sampled farmers (ha./farm)

S. No.	Particulars	Marginal	Small	Medium	Large	Over all
1	<b>Kharif</b>					
	a. Paddy	0.45 (47.07)	1.18 (60.55)	2.31 (63.00)	4.25 (65.06)	2.05 (62.48)
	b. Groundnut	0.27 (28.55)	0.34 (17.65)	0.58 (15.92)	0.90 (13.73)	0.52 (16.00)
	c. Black gram	0.04 (4.44)	0.06 (2.96)	0.07 (1.96)	0.13 (1.95)	0.07 (2.24)
	d. Green gram	0.02 (2.51)	0.03 (1.76)	0.06 (1.63)	0.12 (1.80)	0.06 (1.75)
	e. Red gram	0.00 (0.00)	0.04 (2.06)	0.03 (0.86)	0.04 (0.58)	0.03 (0.90)
	f. Sesamum	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.014 (0.21)	0.003 (0.08)
	g. Tomato	0.004 (0.46)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.001 (0.02)
	h. Brinjal	0.001 (0.12)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)
	i. Other vegetable	0.01 (0.58)	0.00 (0.00)	0.004 (0.10)	0.003 (0.05)	0.003 (0.09)
	<b>Subtotal land</b>	<b>0.80 (83.72)</b>	<b>1.66 (84.99)</b>	<b>3.06 (83.46)</b>	<b>5.44 (83.38)</b>	<b>2.74 (83.57)</b>
2	<b>Rabi</b>					
	a. Paddy	0.05 (5.40)	0.22 (11.38)	0.57 (15.54)	1.07 (16.42)	0.48 (14.67)
	b. Black gram	0.01 (0.77)	0.01 (0.38)	0.004 (0.10)	0.003 (0.05)	0.005 (0.16)
	c. Green gram	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	d. Tomato	0.03 (3.09)	0.03 (1.50)	0.01 (0.33)	0.003 (0.05)	0.02 (0.55)
	e. Brinjal	0.01 (0.77)	0.00 (0.00)	0.004 (0.10)	0.003 (0.05)	0.003 (0.10)
	f. Other vegetable	0.06 (6.56)	0.04 (2.00)	0.02 (0.53)	0.01 (0.11)	0.03 (0.91)
	<b>Subtotal land</b>	<b>0.16 (16.59)</b>	<b>0.30 (15.26)</b>	<b>0.61 (16.59)</b>	<b>1.09 (16.69)</b>	<b>0.54 (16.39)</b>
	<b>Gross cropped area</b>	<b>0.96 (100)</b>	<b>1.95 (100)</b>	<b>3.67 (100)</b>	<b>6.53 (100)</b>	<b>3.28 (100)</b>
	<b>Net cropped area</b>	<b>0.80</b>	<b>1.66</b>	<b>3.06</b>	<b>5.44</b>	<b>2.74</b>
	<b>Cropping intensity (%)</b>	<b>120</b>	<b>117.47</b>	<b>119.93</b>	<b>120.03</b>	<b>119.70</b>

**Note:** Figures in the parentheses indicate the percentages to the total cropped area.

#### **4.1.6 Livestock inventory of sampled farms**

The livestock inventory at the sampled farms is presented in Table 4.6. The investment made on livestock is observed as Rs.19590, Rs.19430, Rs.20820 and Rs.19550 at marginal, small, medium and large farms. On an overall, the value of livestock is estimated as Rs.20000 per households. It is interesting to note that per farm number of bullock is 0.44 numbers at marginal to zero at large farms. They did not owned any bullock and depends upon tractor for ploughing there fields.

#### **4.1.7 Equipments inventory of sampled farms**

Table 4.7 shows the total equipment inventory at the sampled farms. The overall value of farm equipment is estimated as Rs.830200 per household, which varies from Rs.33000, Rs.347600, Rs. 141770 and Rs. 396310 at marginal, small, medium and large farms respectively.

### **4.2 Compound growth rates in area, production and productivity of groundnut**

To examine the growth rates in area, production and productivity of groundnut crop of Mahasamund and state Chhattisgarh for the period of 2002-03 to 2013-14, exponential form was estimated.

#### **4.2.1 Area, production and productivity of groundnut in Chhattisgarh state (2013-14)**

The area, production and productivity of total groundnut are presented in Table 4.8. The total area under and production of groundnut cultivation in Chhattisgarh state is observed as 29186 ha and 42396 metric tonnes. Raigarh and Mahasamund district is major groundnut growing districts which are combined contributing more than 43.69 per cent to total area and production of groundnut in the Chhattisgarh state. The area under groundnut cultivation in these two districts is observed as 7364 ha and 5370 ha respectively of total area under this crop. Similarly, the production of these two districts is estimated at 18271 metric tonnes of the total production in the state. Raigarh is the highest groundnut producing district of Chhattisgarh however it is due to large area under groundnut cultivation.

Table 4.6: Livestock inventory of sampled farms (Rs. In thousands)

S. No.	Particulars	Marginal		Small		Medium		Large		Over all	
		Number	Value	Number	Value	Number	Value	Number	Value	Number	Value
1	Cow	0.70	8.44 (43.11)	0.73	7.56 (38.91)	0.58	7.16 (34.38)	0.48	6.17 (31.57)	0.62	7.31 (36.53)
2	Calf	0.52	3.19 (16.26)	0.34	2.02 (10.42)	0.35	2.53 (12.13)	0.38	3.59 (18.34)	0.38	2.71 (13.54)
3	Bullock	0.44	4.33 (22.12)	0.24	2.63 (13.56)	0.11	1.23 (5.90)	0.00	0.00 (0.00)	0.18	1.92 (9.58)
4	Poultry	0.19	0.04 (0.19)	1.59	0.36 (1.83)	0.98	0.78 (3.77)	0.48	0.10 (0.53)	0.91	0.41 (2.06)
5	Goat	0.48	3.59 (18.34)	0.90	6.85 (35.27)	1.21	9.12 (43.82)	1.31	9.69 (49.56)	1.02	7.66 (38.28)
	<b>Total</b>		<b>19.59</b> <b>(100)</b>		<b>19.43</b> <b>(100)</b>		<b>20.82</b> <b>(100)</b>		<b>19.55</b> <b>(100)</b>		<b>20.00</b> <b>(100)</b>

Table 4.7: Equipment inventory of sampled farms (Rs. In thousands)

S. No.	Particulars	Marginal		Small		Medium		Large		Over all	
		Number	Value	Number	Value	Number	Value	Number	Value	Number	Value
1	Tractor	0	0 (0.00)	0.05	26.83 (77.18)	0.26	133.33 (94.05)	0.41	202.24 (51.03)	0.11	57.34 (69.07)
2	Electric pump	0.15	2.67 (80.81)	0.41	6.44 (18.52)	0.30	4.49 (3.17)	0.52	7.52 (1.90)	0.21	3.19 (3.84)
3	Diesel pump	0.11	0.63 (19.08)	0.12	0.83 (2.39)	0.07	0.53 (0.37)	0.07	0.62 (0.16)	0.06	0.39 (0.47)
4	Harvester	0	0 (0.00)	0	0 (0.00)	0	0 (0.00)	0.14	179.31 (45.24)	0.02	20.47 (24.66)
5	Plough	0	0 (0.00)	0.05	0.66 (1.89)	0.23	3.42 (2.41)	0.41	6.62 (1.67)	0.11	1.63 (1.96)
	<b>Total</b>		<b>3.30</b> <b>(100)</b>		<b>34.76</b> <b>(100)</b>		<b>141.77</b> <b>(100)</b>		<b>396.31</b> <b>(100)</b>		<b>83.02</b> <b>(100)</b>

Note: Figures in the parentheses indicate the percentages to the total value of livestock and equipments.

Table 4.8: Area, production and productivity of groundnut in Chhattisgarh state (2013-2014)

S.No.	District	Area (ha)	Production (MT)	Productivity (Kg/ha)
1		7364	10199	1384
	Raigarh	(25.25)	(24.05)	
<b>2</b>	<b>Mahasamund</b>	<b>5370</b>	<b>8072</b>	<b>1503</b>
		<b>(18.44)</b>	<b>(19.00)</b>	
3	Jashpur	4034	7462	1849
		(13.82)	(17.60)	
4	Surajpur	3450	4509	1306
		(11.82)	(10.63)	
5	Surguja	2813	3802	1351
		(9.63)	(8.96)	
6	Balrampur	1436	1783	1241
		(4.92)	(4.20)	
7	Bilaspur	1012	1306	1290
		(3.46)	(3.08)	
8	Janjgir-Champa	806	1139	1413
		(2.76)	(2.68)	
9	Mungeli	728	1029	1413
		(2.49)	(2.42)	
10	Gariyaband	540	660	1222
		(1.85)	(1.55)	
11	Balodabajar	458	599	1307
		(1.56)	(1.41)	
12	Korba	341	484	1419
		(1.16)	(1.14)	
13	Kabirdham	301	598	1986
		(1.03)	(1.41)	
14	Bametara	275	469	1705
		(0.94)	(1.10)	
16	Koriya	185	186	1005
		(0.63)	(0.43)	
17	Raipur	49	61	12441
		(0.16)	(0.14)	
	<b>Total</b>	<b>29186</b>	<b>42396</b>	<b>1452.61</b>
		<b>(100.00)</b>	<b>(100.00)</b>	

Source: Directorate, Land Record, Raipur and Directorate of Economics and Statistics (2014)

#### 4.2.2.1 Area, production and productivity of groundnut in Mahasamund district and Chhattisgarh state

The area, production and productivity of groundnut in Mahasamund district and Chhattisgarh state is presented in Table 4.9, Figure 4.9, 4.10, 4.11, 4.12, 4.13 and 4.14. The area of groundnut decreased from 7,298 ha. in 2002-03 to 5,370 ha. in 2013-14 showing a tremendous decrease in the area of Mahasamund, Production of groundnut increased from 7077 metric tonnes in 2002-03 to 8072 metric tonnes in 2013-2014. The productivity of groundnut varied from 0.97 tonnes/ha. to 1.50 tonnes/ha. during this period. Due to the process of diversification in Mahasamund district the farmers were taking paddy crop in particular in place of groundnut crop on their upland farm situation apart from the use of groundnut area for non- agricultural purpose. The improvement in productivity was due to new improved variety of groundnut, availability and inputs in the study area.

#### 4.2.2.2 Compound growth rate in area, production and productivity of groundnut

Table 4.9: Area, production and productivity of groundnut in Mahasamund district and Chhattisgarh State

S.N	Years	Mahasamund district			Chhattisgarh state		
		Area (ha)	Production (mt)	Productivity (t/ha.)	Area (ha)	Production (mt)	Productivity (t/ha.)
1	2002-03	7,298	7077	0.97	34,450	38200	1.1
2	2003-04	7,262	7666	1.05	36,322	40252	1.1
3	2004-05	7,232	7933	1.09	34,085	38105	1.11
4	2005-06	6,996	6613	0.94	32,813	35263	1.07
5	2006-07	7,027	7718	1.09	28,022	31832	1.13
6	2007-08	5,881	7050	1.19	26,964	33914	1.25
7	2008-09	5,756	6865	1.19	26,381	32941	1.24
8	2009-10	6,223	8041	1.29	29,376	34946	1.18
9	2010-11	5,690	7030	1.23	29,587	37357	1.26
10	2011-12	5,220	6830	1.3	28,413	37503	1.31
11	2012-13	4,660	7080	1.51	25,310	34880	1.37
12	2013-14	5,370	8072	1.5	25,601	37300	1.45

Source: Directorate, Land Record, Raipur and Directorate of Economics and Statistics (2013-2014)

The data obtained from secondary sources were analyzed to obtain estimates of compound growth rates of area, production and productivity of groundnut for 12 years from 2002-03 to 2013-14 (Table 4.10.) The area under groundnut in Mahasamund district was negative and non-significant with the growth rate of -3.80 per cent. Production of groundnut in Mahasamund district was partially positive and non-significant with the growth rate as 0.03 per cent while the productivity was observed to be positive and non-significant with the growth rate as 3.97 per cent. Table indicated that area of groundnut in Chhattisgarh state was negative and significant with the growth rate as -2.82 per cent. Production of groundnut in Chhattisgarh state was observed to be negative and non-significant with the growth rate -0.39 per cent while the productivity was observed to be positive and non-significant with the growth rate 2.52 per cent. Likewise in case of Chhattisgarh state it was noticeable to observe that the area under groundnut had significantly reduce as result of concerted efforts on the part of the farmers to diversify in to paddy, maize, pulses other oilseeds and vegetable etc. However keeping in view, the overall oilseeds production and requirement in the state of Chhattisgarh and country, there is a need to encourage oilseeds production in general, and that of groundnut, in particular by providing good quality seeds, improved technology, input, marketing and price support.

Table 4.10: Compound growth rate of area, production and productivity of groundnut in Mahasamund district and Chhattisgarh state

S.No.	Region	Compound growth rate Over all (2002-03 to 2013-2014)
<b>1</b>	<b>Mahasamund district</b>	
	a. Area	-3.80
	b. Production	0.03
	c. Productivity	3.97
<b>2</b>	<b>Chhattisgarh state</b>	
	a. Area	-2.82*
	b. Production	-0.39
	c. Productivity	2.52

**Note:** \* Significant at 1% level of significance

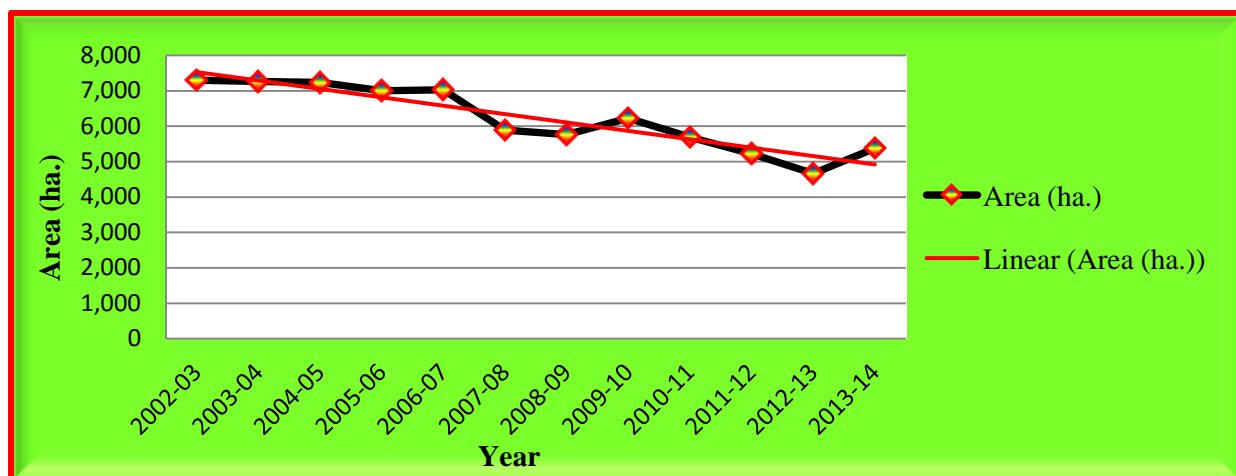


Fig. 4.9: Trend in area of groundnut in Mahasamund district

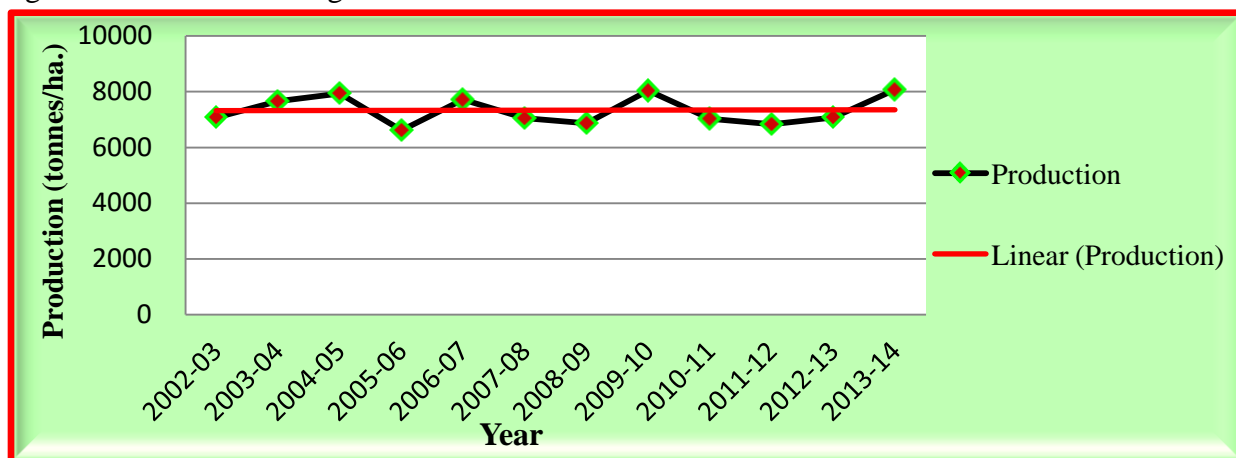


Fig. 4.10: Trend in production of groundnut in Mahasamund district

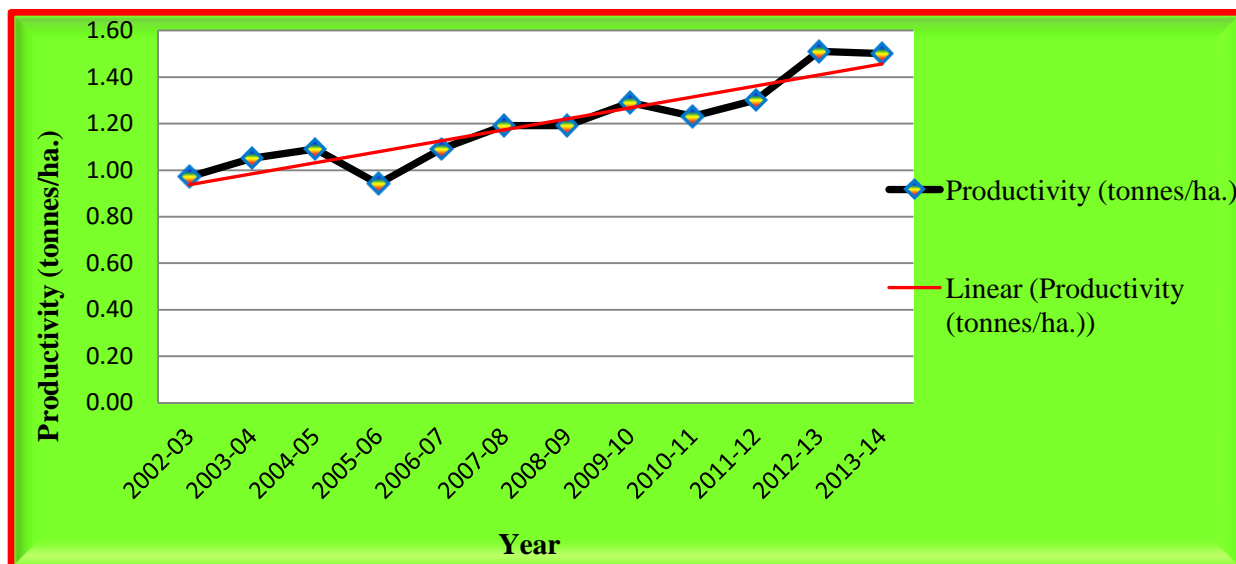


Fig. 4.11: Trend in productivity of groundnut in Mahasamund district

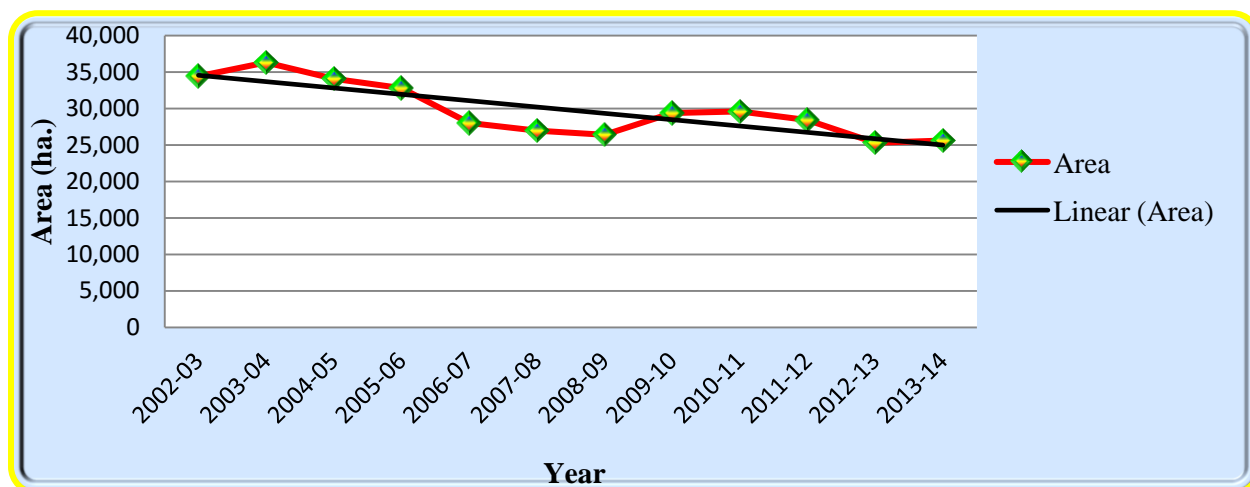


Fig. 4.12: Trend in area of groundnut in Chhattisgarh state

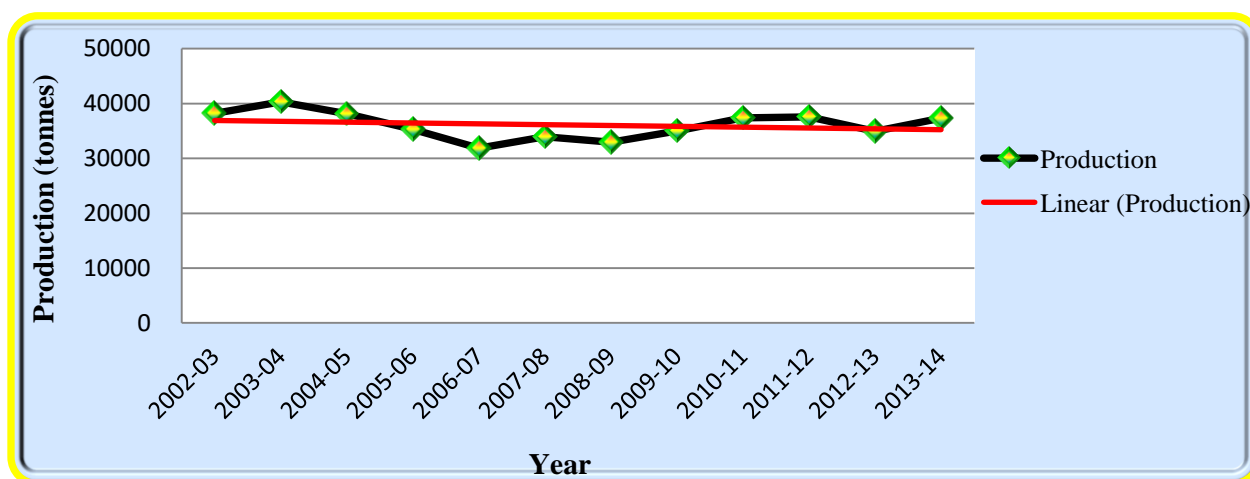


Fig. 4.13: Trend in production of groundnut in Chhattisgarh state

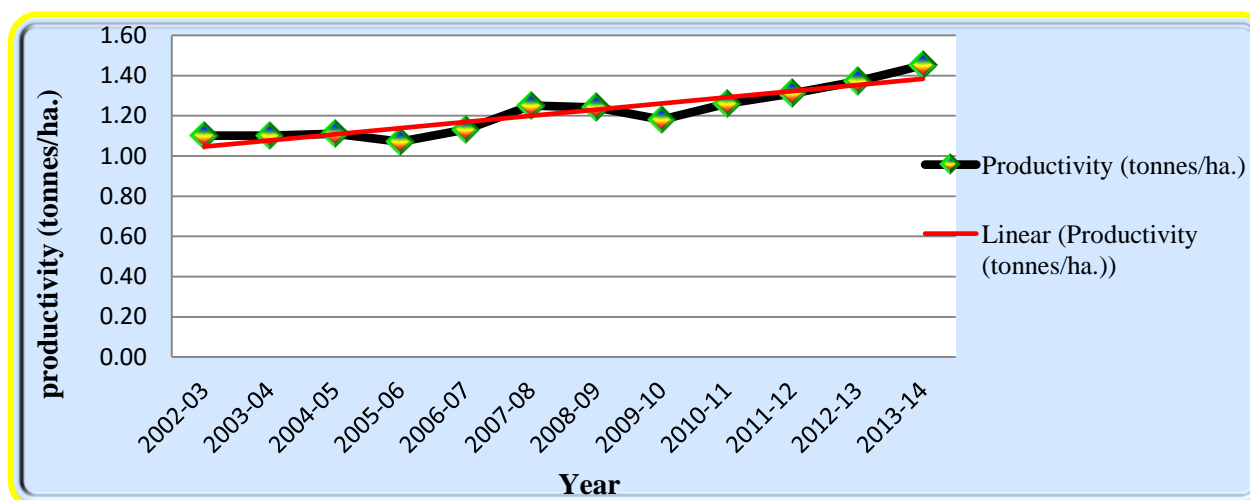


Fig. 4.14: Trend in productivity of groundnut in Chhattisgarh state

### **4.3 Economics of crop production of groundnut crop**

The different operations necessary in the groundnut cultivation were field preparation, manuring, fertilizer application, sowing, intercultural operation, earthing up, plant protection, irrigation, harvesting, threshing, transportation and packing. Costs were mainly divided into labour and input cost according to operation as per size of farm. Input cost constituted seed cost, manure and fertilizer, plant protection, irrigation charges, interest on working capital. Labour cost and input cost is together called operational cost or variable cost. Fixed cost composed of land revenue, depreciation on implements; rental value of land and interest on fixed capital.

#### **4.3.1 Operation wise cost of cultivation of groundnut crop at sample households**

Cost incurred on different operations of groundnut cultivation at sampled farms in study area is presented in Table 4.11(fig 4.15 and 4.16). It reveals that on an overall, the total cost of cultivation of groundnut was observed to be Rs.36057.57 per ha. out of which operational cost was estimated to be Rs. 25956.92 per ha. (71.99 per cent) and fixed cost was Rs. 10100.65 per ha. (28.01 per cent). The higher cost of cultivation was found at large farms followed by medium, small and marginal farms.

The major operational cost was observed as Rs. 6349.21per ha. (17.61 per cent) on seed and sowing which varied from Rs. 5904.06 per ha. at marginal farms to Rs. 6493.46 per ha. at large farms respectively. It is clear from the table that the cost of seed was increasing in general, as the size of holding increased. This variation was mainly due to higher price and better quality of seed used by the respective farmers.

Harvesting and threshing were the second costliest operation on which overall cost incurred was Rs.4155.43 per ha. (11.52 per cent to the total cost). Other costlier items followed were manuring and fertilizer Rs. 4103.43 per ha. (11.38%), intercultural operations Rs. 3435.34 per ha. (9.53%), field preparation Rs. 3175.23 per ha. (8.81%) and plant protection Rs. 2287.96 per ha. (6.35 %) in groundnut production.

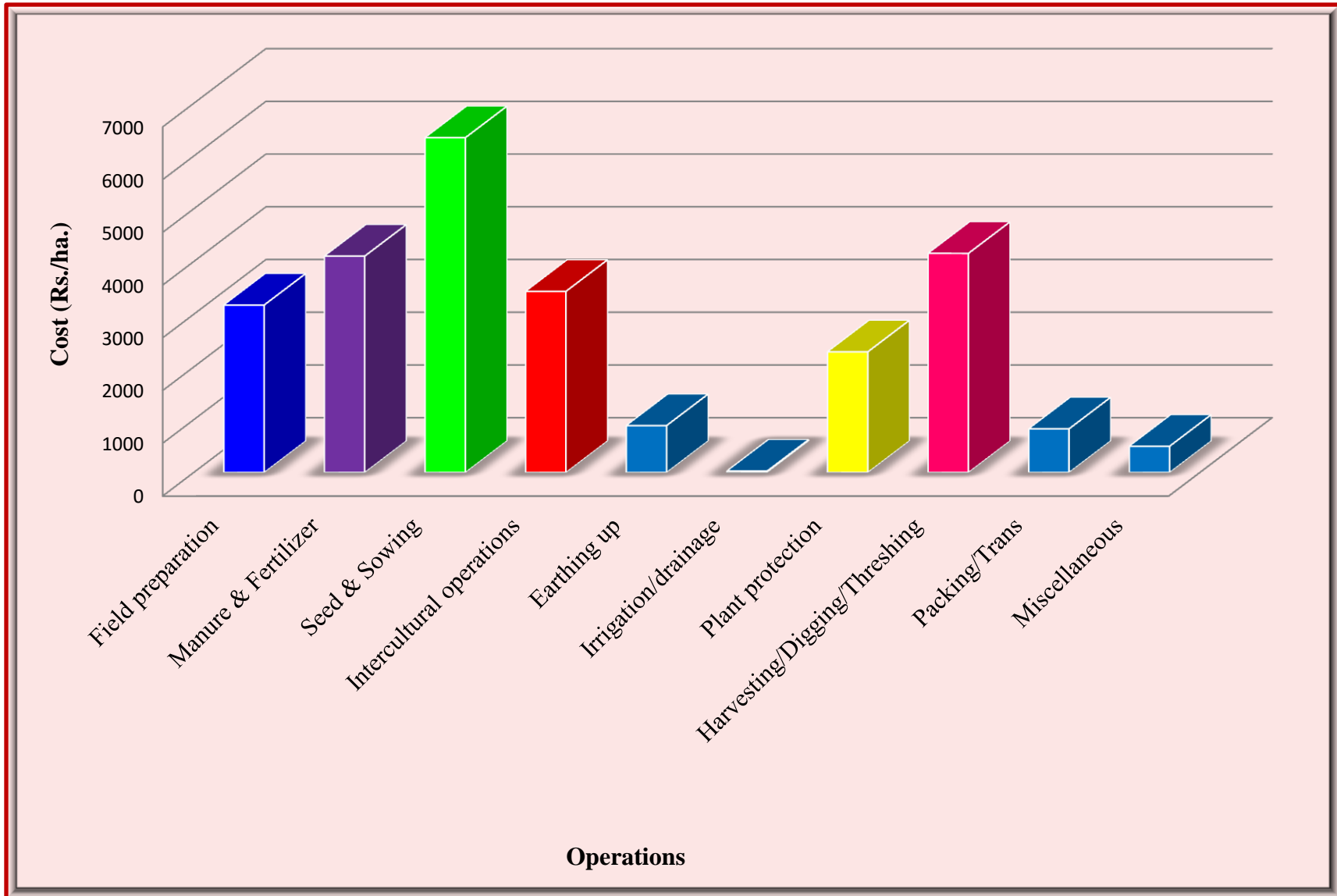


Fig. 4.15: Cost wise comparison of different operations in groundnut cultivation

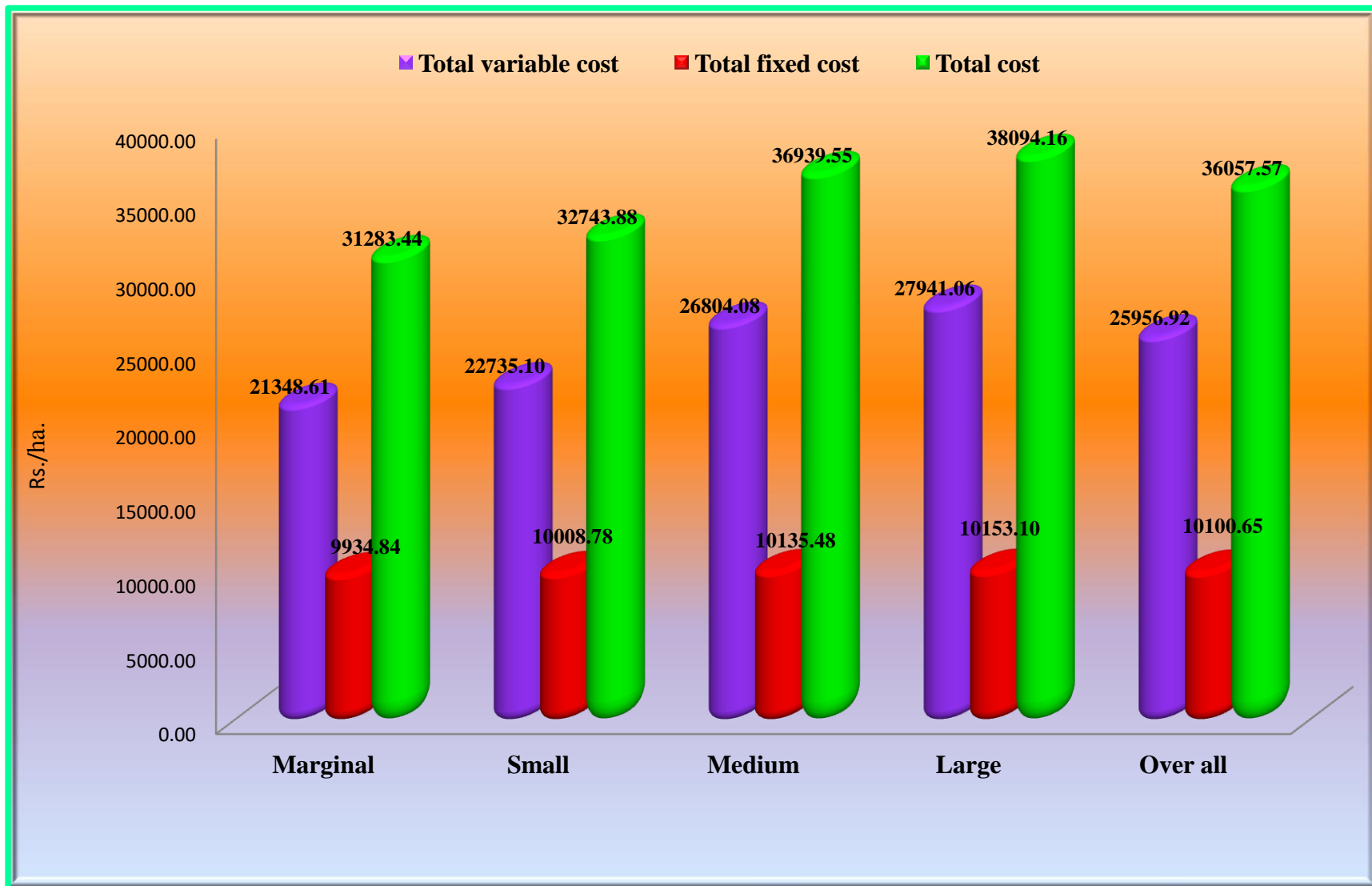


Fig. 4.16: Operations wise cost in groundnut cultivation

Table 4.11: Operation wise cost of cultivation of groundnut crop (Rs/ha.)

S.N	Operations	Marginal	Small	Medium	Large	Over all
A.	Variable cost					
1	Field preparation	2658.11 (8.50)	2722.89 (8.32)	3266.67 (8.84)	3450.77 (9.06)	3175.23 (8.81)
2	Manure & Fertilizer	3298.65 (10.54)	3537.21 (10.80)	4342.65 (11.76)	4339.62 (11.39)	4103.43 (11.38)
3	Seed & Sowing	5904.06 (18.87)	6060.95 (18.51)	6457.66 (17.48)	6493.46 (17.05)	6349.21 (17.61)
4	Intercultural operations	2704.06 (8.64)	3129.70 (9.56)	3499.20 (9.47)	3728.85 (9.79)	3435.34 (9.53)
5	Earthing up	0.00 (0.00)	0.00 (0.00)	1100.60 (2.98)	1354.62 (3.56)	889.37 (2.47)
6	Irrigation/drainage	0.00 (0.00)	17.01 (0.05)	24.02 (0.07)	42.31 (0.11)	26.48 (0.07)
7	Plant protection	1727.03 (5.52)	2108.43 (6.44)	2258.86 (6.12)	2582.31 (6.78)	2287.96 (6.35)
8	Harvesting/Digging/Threshing	3718.92 (11.89)	3741.32 (11.43)	4147.45 (11.23)	4514.62 (11.85)	4155.43 (11.52)
9	Packing/Trans	655.41 (2.10)	663.36 (2.03)	891.29 (2.41)	882.31 (2.32)	827.00 (2.29)
10	Interest on working capital	139.14 (0.44)	169.55 (0.52)	215.67 (0.58)	244.53 (0.64)	209.38 (0.58)
11	Miscellaneous	543.24 (1.74)	584.69 (1.79)	600.00 (1.62)	307.69 (0.81)	498.08 (1.38)
	<b>Sub total</b>	<b>21348.61</b> <b>(68.24)</b>	<b>22735.10</b> <b>(69.43)</b>	<b>26804.08</b> <b>(72.56)</b>	<b>27941.06</b> <b>(73.35)</b>	<b>25956.92</b> <b>(71.99)</b>
<b>B</b>	<b>Fixed Cost</b>					
12	Land Revenue	5.00 (0.02)	5.00 (0.02)	5.00 (0.01)	5.00 (0.01)	5.00 (0.01)
13	Depreciation on implements	206.76 (0.66)	277.18 (0.85)	397.84 (1.08)	414.62 (1.09)	364.67 (1.01)
14	Rental value of owned land	9250.00 (29.57)	9250.00 (28.25)	9250.00 (25.04)	9250.00 (24.28)	9250.00 (25.65)
15	Interest on fixed capital	473.08 (1.51)	476.60 (1.46)	482.64 (1.31)	483.48 (1.27)	480.98 (1.33)
	<b>Sub total</b>	<b>9934.84</b> <b>(31.76)</b>	<b>10008.78</b> <b>(30.57)</b>	<b>10135.48</b> <b>(27.44)</b>	<b>10153.10</b> <b>(26.65)</b>	<b>10100.65</b> <b>(28.01)</b>
<b>C</b>	<b>Total cost (A+B)</b>	<b>31283.44</b> <b>(100.00)</b>	<b>32743.88</b> <b>(100.00)</b>	<b>36939.55</b> <b>(100.00)</b>	<b>38094.16</b> <b>(100.00)</b>	<b>36057.57</b> <b>(100.00)</b>

Note: Figure in parenthesis was percentage to the total cost of cultivation.

The total fixed cost was higher at large farms at Rs. 10153.10 per ha. (26.65 per cent) followed by marginal Rs. 9934.84 per ha. (31.76 per cent), small Rs. 10008.78 per ha. (30.57 per cent) and medium Rs. 10135.48 per ha. (26.65 per cent) farms. The overall rental value of land which was observed equal for all farms size groups was found to be Rs. 9250 per ha. (25.65 per cent of the total cost), which was the principal component of the total fixed cost of cultivation of groundnut. Total operational cost increased with increase in size of farm. This was due to use of high inputs such as new seeds, fertilizers and plant protection chemicals for the cultivation of groundnut crop at sample households.

#### **4.3.2 Input wise cost of cultivation of groundnut crop**

Table 4.12 and fig. 4.17 clearly shows input wise cost of cultivation of groundnut per hectare was found to be highest in case of large farms and lowest in case of marginal farms. Cost of cultivation showed increasing trend from marginal to large farmers. It is due to the fact that large farmers could incur more expenditure on modern farm inputs like quality seed, fertilizers, plant protection chemicals, hired labour and machinery etc.

The cost of inputs used for groundnut cultivation under sample farms was estimated in Rs. per hectare. Table reveals that overall cost of input used for groundnut was found to be Rs.25956.92 per ha. (71.99 per cent). which varies from Rs. 21348.61 per ha. (68.24 per cent) at marginal farms to Rs. 27941.07 per ha. (73.35 per cent) at large farms.

The costliest item of input for cultivation of groundnut crop was human labour which was 39.26 per cent to total. The overall share of human labour cost was noticed to be Rs.14157.26 per ha. family labour cost was Rs. 7295.96 per ha. (23.32 per cent) at marginal farms to Rs. 3243.85 per ha. (8.52 per cent) at large farms. Hired labour cost was Rs. 4581.08 per ha. (14.64 per cent) at marginal farms to Rs. 11814.23 per ha. (31.01 per cent) at large farms (fig. 4.18).

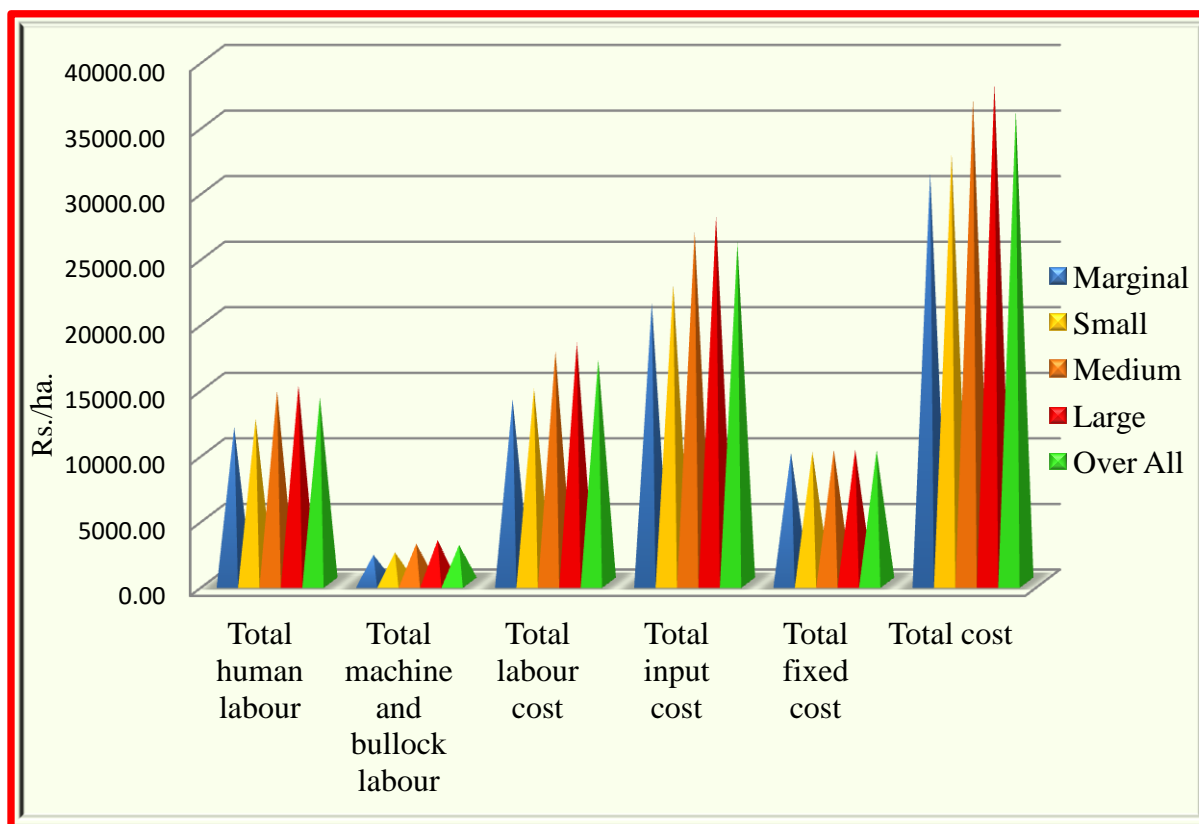


Fig. 4.17: Input wise cost in groundnut cultivation

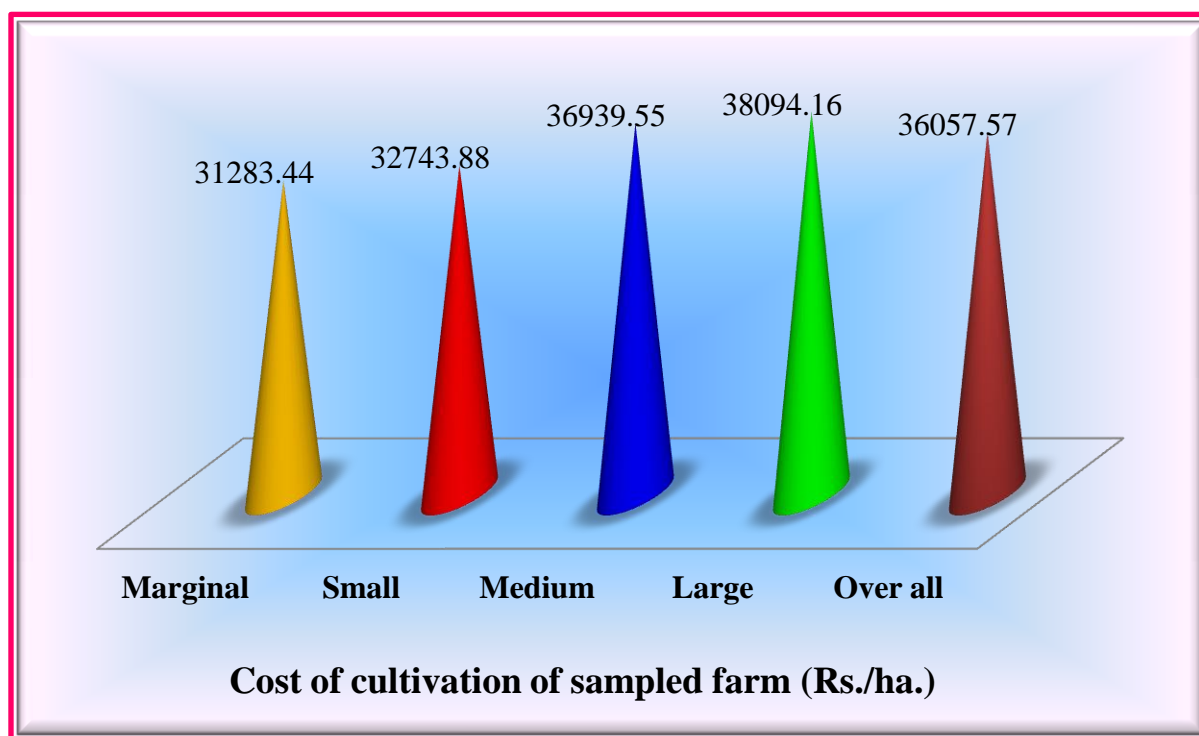


Fig. 4.18: Category wise cost of cultivation of groundnut

Table 4.12: Input wise cost of cultivation of groundnut crop

(Rs/ha.)

S. No	Particulars/ Input cost	Marginal	Small	Medium	Large	Over All
1	<b>Human labour</b>					
	(a)Family	7295.96 (23.32)	5906.45 (18.04)	5020.13 (13.59)	3243.85 (8.52)	4809.78 (13.34)
	(b)Hired	4581.08 (14.64)	6608.08 (20.18)	9642.44 (26.10)	11814.23 (31.01)	9347.48 (25.92)
	<b>Total human labour</b>	<b>11877.04</b> <b>(37.97)</b>	<b>12514.53</b> <b>(38.22)</b>	<b>14662.58</b> <b>(39.69)</b>	<b>15058.08</b> <b>(39.53)</b>	<b>14157.26</b> <b>(39.26)</b>
2	<b>Bullock and Machinery</b>					
	(a) Owned Bullock	229.73 (0.73)	42.52 (0.13)	30.03 (0.08)	0.00 (0.00)	40.84 (0.11)
	(b) Owned Machine	0.00 (0.00)	244.51 (0.75)	1270.27 (3.44)	1757.69 (4.61)	1131.67 (3.14)
	(c) Hired Machine	1893.24 (6.05)	2030.47 (6.20)	1684.69 (4.56)	1494.23 (3.92)	1702.88 (4.72)
	<b>Total machine and bullock labour</b>	<b>2122.97</b> <b>(6.79)</b>	<b>2317.50</b> <b>(7.08)</b>	<b>2984.99</b> <b>(8.08)</b>	<b>3251.92</b> <b>(8.54)</b>	<b>2875.38</b> <b>(7.97)</b>
3	<b>Total labour cost</b>	<b>14000.01</b> <b>(44.75)</b>	<b>14832.03</b> <b>(45.30)</b>	<b>17647.56</b> <b>(47.77)</b>	<b>18310.00</b> <b>(48.07)</b>	<b>17032.65</b> <b>(47.24)</b>
4.	Seed	3540.54 (11.32)	3568.39 (10.90)	3713.21 (10.05)	3750.00 (9.84)	3683.95 (10.22)
5.	Manure	1479.73 (4.73)	1652.73 (5.05)	1997.00 (5.41)	1888.46 (4.96)	1854.60 (5.14)
6.	Fertilizer	1287.84 (4.12)	1287.74 (3.93)	1672.07 (4.53)	1823.08 (4.79)	1618.36 (4.49)
7.	Plant protection chemicals	901.35 (2.88)	1207.65 (3.69)	1534.54 (4.15)	1882.69 (4.94)	1531.49 (4.25)
8	Irrigation charges	0.00 (0.00)	17.01 (0.05)	24.02 (0.07)	42.31 (0.11)	26.48 (0.07)
9	Interest on working capital	139.14 (0.44)	169.55 (0.52)	215.67 (0.58)	244.53 (0.64)	209.38 (0.58)
<b>A</b>	<b>Total input cost</b>	<b>21348.61</b> <b>(68.24)</b>	<b>22735.10</b> <b>(69.43)</b>	<b>26804.08</b> <b>(72.56)</b>	<b>27941.07</b> <b>(73.35)</b>	<b>25956.92</b> <b>(71.99)</b>
<b>B</b>	<b>Total fixed cost</b>	<b>9934.84</b> <b>(31.76)</b>	<b>1008.78</b> <b>(30.57)</b>	<b>10135.48</b> <b>(27.44)</b>	<b>10153.10</b> <b>(26.65)</b>	<b>10100.65</b> <b>(28.01)</b>
<b>C</b>	<b>Total cost (A + B)</b>	<b>31283.44</b> <b>(100.00)</b>	<b>32743.88</b> <b>(100.00)</b>	<b>36939.55</b> <b>(100.00)</b>	<b>38094.16</b> <b>(100.00)</b>	<b>36057.57</b> <b>(100.00)</b>

Note: Figure in parenthesis was percentage to the total cost of cultivation.

Table shows that share of total human labour was the maximum to the total input cost for groundnut followed by seed cost (10.22 per cent). The overall total bullock labour cost (0.11 per cent), over all machine labour (7.86 per cent) manure and fertilizer cost estimated was (9.63 per cent) per cent and plant protection chemicals (4.25 per cent) cost observed. Keeping and view the high proportion of human labour cost there is a need to reduce the same by developing promoting and incentivizing small scale machinery for groundnut cultivation. It was observed that the groundnut cultivators had not applied the recommended dose of fertilizers there by resulting in reduced yield of groundnut. In view of this, it is imperative to educate and create awareness about the proper application of inputs in order to increase production and productivity of groundnut in the study area.

#### **4.3.3 Cost on the basis of cost concept at sample households**

The cost and returns on the basis of cost concept in the production of groundnut is presented in Table 4.13 and Fig. 4.19. On an overall Cost-A<sub>1</sub>, Cost-A<sub>2</sub> Cost-B<sub>1</sub>, Cost-B<sub>2</sub>, Cost-C<sub>1</sub>, Cost-C<sub>2</sub>, and Cost-C<sub>3</sub> as Rs. 21516.80 per ha., Rs. 21516.80 per ha., Rs. 21997.78 per ha., Rs. 31247.78 per ha., Rs. 26807.56 per ha., Rs. 36057.56 per ha., and Rs. 39663.31 per ha. for groundnut respectively, on the sample farms. All costs were comparatively higher at large farms followed by marginal, small and medium farms.

It shows that capital spending on production increased with increase in the farm size. This was because the large farmers purchased more inputs in each and every season which were required for production of groundnut and also income source at large farms enabled them to purchase costlier inputs as well hiring the labour for performing different activities in groundnut cultivation.

#### **4.3.4 Yield, cost and return of groundnut at the sampled farms**

The data of farm measure is presented in Table 4.14 and Fig 4.20, 4.21, and 4.22. The overall production was worked out as 14.90 quintal per ha. and by product was 13.66 quintal per ha. which ranges from about 13.70 quintal per ha. and by product 16.22 quintal per ha. at marginal farms to 15.10 quintal per ha. and by product 13.46 quintal per ha. at large farms.

Table 4.13: Break-up of cost, cost concept wise cost in groundnut at the sample farm

(Rs. /ha)

S.N.	Costs/Category	Marginal	Small	Medium	Large	Over-all
	<b>Break-up cost</b>					
1	Cost A <sub>1</sub> (All actual expenses)	14264.41	17110.82	22186.79	25116.83	21516.80
2	Cost A <sub>2</sub> =Cost A <sub>1</sub> + Rent paid for leased in land	14264.41	17110.82	22186.79	25116.83	21516.80
3	Cost B <sub>1</sub> =Cost A <sub>1</sub> + Interest on value of owned fixed capital	14737.49	17587.42	22669.43	25600.31	21997.78
4	Cost B <sub>2</sub> = Cost B <sub>1</sub> + Rental value of owned land & Rent paid for leased in land	23987.49	26837.42	31919.43	34850.31	31247.78
5	Cost C <sub>1</sub> =Cost B <sub>1</sub> + imputed value of family labour	22033.45	23493.87	27689.56	28844.16	26807.56
6	Cost C <sub>2</sub> = Cost B <sub>2</sub> + imputed value of family labour	31283.45	32743.87	36939.56	38094.16	36057.56
7	Cost C <sub>3</sub> = Cost C <sub>2</sub> + 10% of Cost C <sub>2</sub> on account of managerial function performed by farmer.	34411.79	36018.25	40633.51	41903.57	39663.31

The overall cost of cultivation for groundnut was observed to be Rs.36057.56 per ha. The overall gross income was observed as Rs.58368.01 per ha. in the study area which ranges from Rs. 53828.05 per ha. at marginal farms to Rs.60956.75 per ha. at large farms. The overall cost of production was found to be Rs. 2419.97 per quintal which ranges from Rs. 2283.46 per quintal at marginal farms to Rs. 2465.64 per quintal at large farms. On an overall, net income estimated was Rs. 22310.45 per ha. which ranges from Rs. 22544.60 per ha. at marginal farms to Rs. 22862.59 per ha. at large farms. Overall family labour income by separating Cost B<sub>2</sub> from gross income was Rs. 27120.23 per ha. which varies from Rs.29840.26 per ha. at marginal farms to Rs. 26106.44 per ha. at large farms. It shows, family labour income was higher at marginal farms followed by small, medium, and large farms.

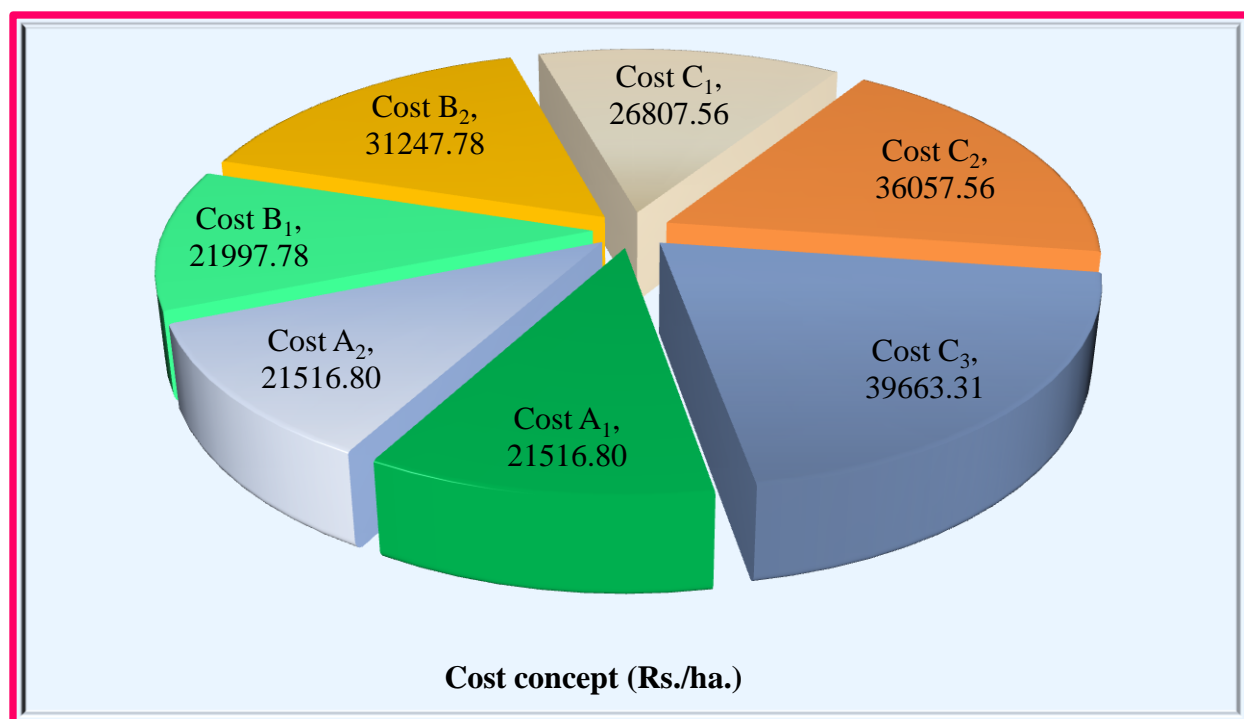


Fig. 4.19: Cost concept estimates of groundnut cultivation in sample households

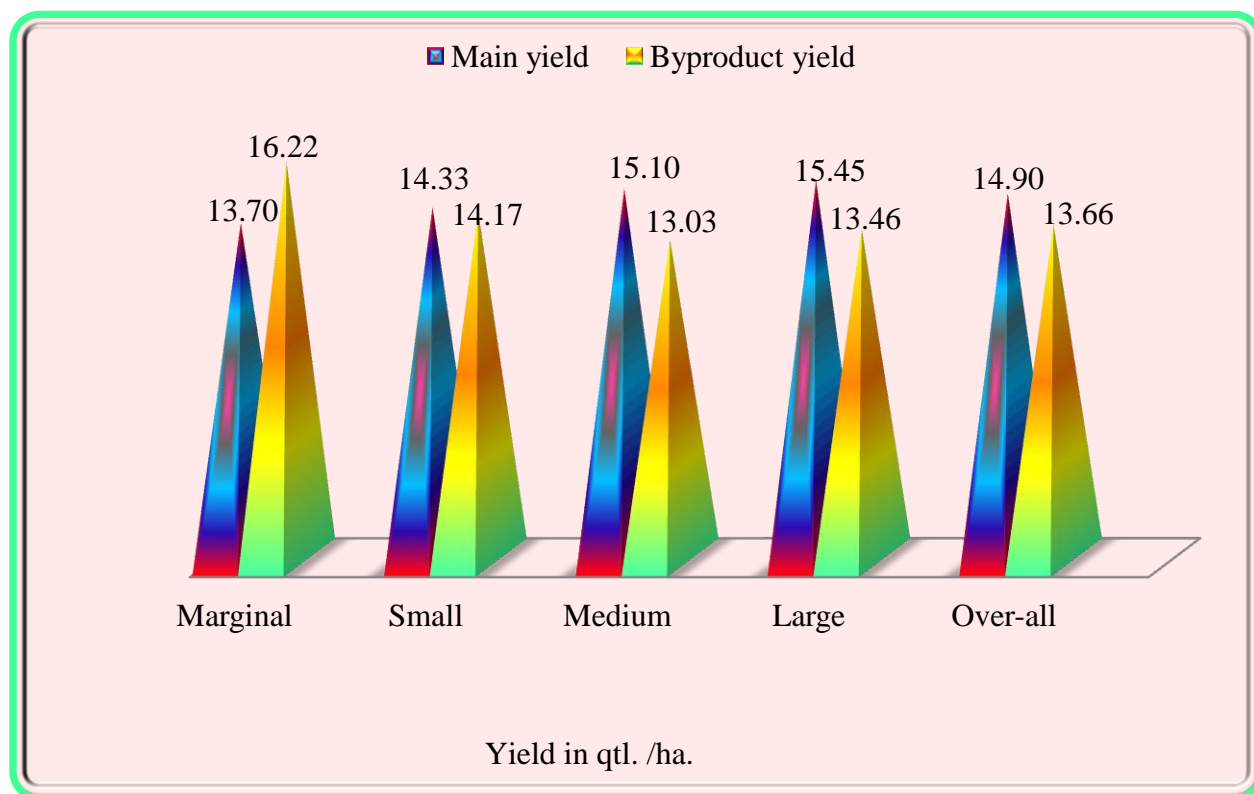


Fig. 4.20: Overall production of main and by product of groundnut in sample households

Overall, farm business income was Rs. 36851.21 per ha, ranges from Rs. 39563.64 per ha. at marginal farms to Rs. 35839.92 per ha. at large farms. Farm business income was calculated by separating Cost A<sub>1</sub> from gross income which was higher at marginal farms as their Cost A<sub>1</sub> was minimum followed by, small, medium, and large farms respectively. Overall, farm investment income was found to be Rs. 32041.43 per ha. Small farms had higher farm investment income followed by marginal, medium and large farms. It was due to better management of farm and groundnut crop by small farms than that of marginal, medium and large farms.

The overall price received per quintal for groundnut was observed to be Rs. 3854.03 per ha. and it range from marginal farm Rs. 3865.93 per ha. to Rs. 3881.72 per ha. at large farms. It may be noted that the highest price for groundnut was received by large farm followed by marginal, medium and small farm. Overall, net returns per rupee or input – output ratio for groundnut crop was 1:1.61 which ranges from 1:1.72 at marginal farm to 1:1.60 at large farms. Input – output ratio was found maximum in case of marginal farms followed by small, large and medium farms. It is due to the fact that increased productivity on marginal to large farms was result of extra cost incurred which decreased the input-output ratio. Secondly, family labours do work more efficiently on the farms and marginal farmers were using more family labours as compared to hired labours whereas contribution of family labour found decreasing with the increase in farm size. In view of finding of this study, it may be suggested that there is a need to increase the profitability from groundnut cultivation by the use of low cost farm machinery, good quality and high yielding varieties, use of balanced fertilizers and agro chemical, improved package and practices, effective extension along with conducive policy measures.

#### **4.3.5 Income over different cost at sampled farms**

The incomes over different costs were also worked out (Table 4.15 and fig 4.23). The overall per hectare income over Cost-A<sub>1</sub>, Cost-A<sub>2</sub>, Cost-B<sub>1</sub>, Cost-B<sub>2</sub>, Cost-C<sub>1</sub>, Cost-C<sub>2</sub> and Cost-C<sub>3</sub> calculated was Rs.36851.21, Rs.36851.21, Rs.36370.23, Rs. 27120.23, Rs. 31560.45 Rs. 22310.45 and Rs.18704.70 respectively.

Table 4.14: Yield, cost and return of groundnut on the sample farm

(Qtl/ha.&amp; Rs./ha.)

S.No	Particulars	Marginal Farmers		Small Farmers		Medium Farmers		Large Farmers		Over-all	
		Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt
1	Main yield	13.70	3865.93	14.33	3831.95	15.10	3850.18	15.45	3881.72	14.90	3854.03
	Income-1	52963.19		54911.86		58137.64		59972.64		57424.99	
		Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt	Qt/ha.	Rs/Qt
2	By-product yield	16.22	53.33	14.17	73.66	13.03	71.05	13.46	73.10	13.66	69.03
	Income-2	864.87		1044.06		926.03		984.11		943.02	
3	Gross income(Income 1 + Income 2)	53828.05		55955.92		59063.67		60956.75		58368.01	
4	Cost of cultivation	31283.45		32743.87		36936.56		38094.16		36057.56	
5	Net income(Gross income-Cost C)	22544.60		23212.05		22127.11		22862.59		22310.45	
6	Cost of production (Rs. /qt.)	2283.46		2284.99		2446.13		2465.64		2419.97	
7	Family labor income(Gross income-Cost B)	29840.26		29118.50		27144.24		26106.44		27120.23	
8	Farm business income=Gross income-Cost A1	39563.64		38845.10		36876.88		35839.92		36851.21	
9	Farm investment income= Net income + rental value of own land + interest on fixed capital	32267.68		32938.65		31859.75		32596.07		32041.43	
10	Input output ratio	1:1.72		1:1.70		1:1.59		1:1.60		1:1.61	

The overall input-output ratio was estimated 1:1.61 which was higher at marginal farms followed by large farms.

Table 4.15: Income over different cost at sampled farms (Rs./ha.)

S.N.	Income over different cost	Marginal	Small	Medium	Large	Overall
1	Income over Cost A <sub>1</sub>	39563.64	38845.09	36876.88	35839.91	36851.21
2	Income over Cost A <sub>2</sub>	39563.64	38845.09	36876.88	35839.91	36851.21
3	Income over Cost B <sub>1</sub>	39090.56	38368.49	36394.24	35356.43	36370.23
4	Income over Cost B <sub>2</sub>	29840.56	29118.49	27144.24	26106.43	27120.23
5	Income over Cost C <sub>1</sub>	31794.60	32462.04	31374.11	32112.58	31560.45
6	Income over Cost C <sub>2</sub>	22544.60	23212.04	22124.11	22862.58	22310.45
7	Income over Cost C <sub>3</sub>	19416.26	19937.66	18430.16	19053.17	18704.70
	<b>Gross income</b>	<b>53828.05</b>	<b>55955.92</b>	<b>59063.67</b>	<b>60956.75</b>	<b>58368.01</b>
	<b>Input output ratio</b>	<b>1:1.72</b>	<b>1:1.70</b>	<b>1:1.59</b>	<b>1:1.60</b>	<b>1:1.61</b>

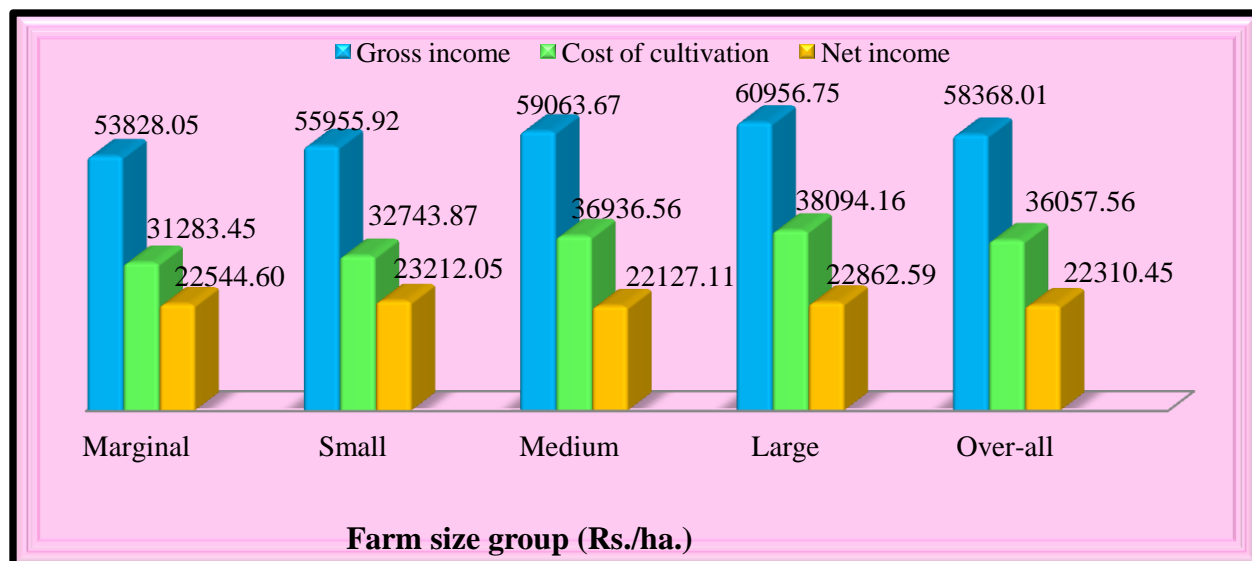


Fig. 4.21: Gross income, cost of cultivation and net income in groundnut production

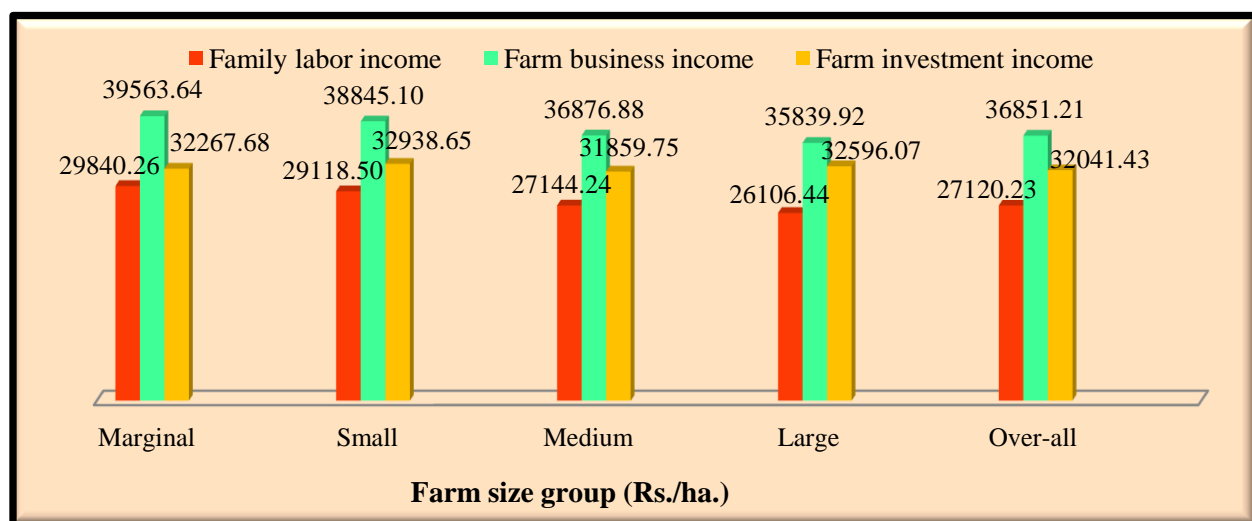


Fig. 4.22: Overall farm labour, business and investment income measures in sample households

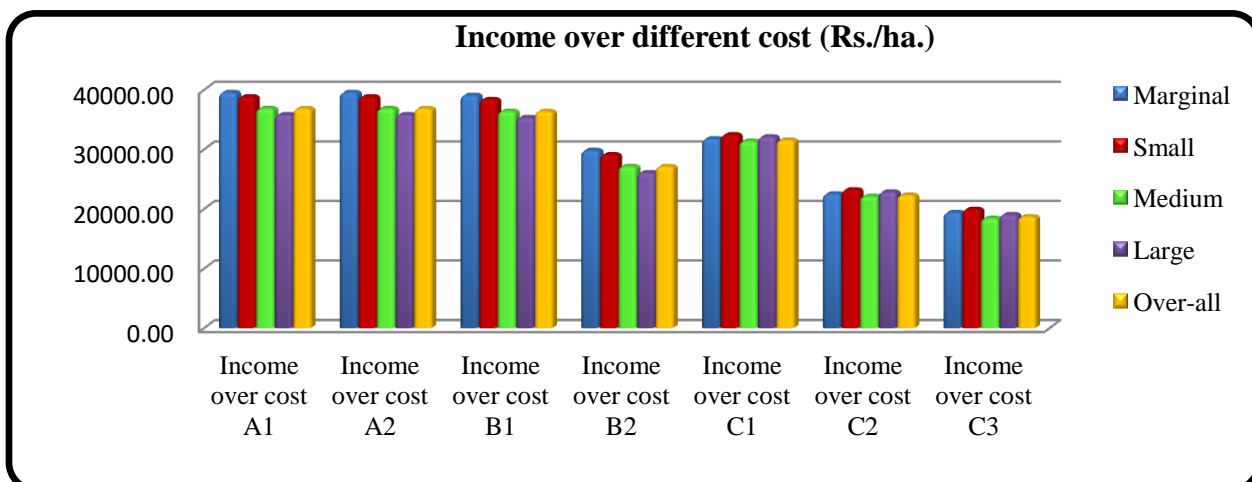


Fig. 4.23: Income over different cost at sampled farms

## **4.4 Marketing of groundnut**

### **4.4.1 Marketable surplus**

The marketable surplus of groundnut at sampled farms of Mahasamund district is shown in Table 4.16 (fig. 4.24 & fig. 4.25). The total quantity produced of groundnut is estimated at 3.70 qtl/farm (13.70 qtl/ha.) at marginal, 4.87 qtl/farm (14.33 qtl/ha.) at small farms, 8.75 qtl/farm (15.10 qtl/ha.) at medium farms and 13.90 qtl/farm (15.45 qtl/ha.) at large farms and 7.81 qtl/farm (14.90 qtl/ha.) on an overall respectively. The production at these farms was found the increasing as the size of holding increased. Out of this, on an overall was 3.71 per cent (0.29 qtl/farm) are retaining for consumption purpose. The quantity for the use of seed for next year was observed as almost 3 per cent of the total production as farmers generally purchased the new seed for sowing this crop. Remaining 92.06 per cent (7.19 qtl/farm) quantity of groundnut was ready with the grower dispose off to fulfill their other domestic needs.

Table clearly reveals that the marketable surplus of groundnut was observed as 90.81 per cent, 93.22 per cent, 93.83 per cent and 92.66 per cent of total production at marginal, small, medium and large farms respectively. The overall marketable surplus of groundnut was found to be 7.19 qtl/farm (13.83 qtl/ha.) constituting 92.06 per cent to the total quantity produced in Mahasamund district of Chhattisgarh.

### **4.4.2 Marketing channel**

A marketing channel is a set of practices or activities necessary to transfer the ownership of goods, from the point of production to the point of consumption. It is the way products and services get to the end-user, the consumer; also know as a distribution channel. Keeping in view the importance of different marketing channels in the disposal of groundnut, the following marketing channels were identified in the study area. Channel-I: Producer- Consumer, Channel-II: Producer- Village trader-wholesaler, Channel-III: Producer- Wholesaler, Channel-IV: Producer – Oil miller.

Table 4.16: Marketable surplus of groundnut at sampled farms

S.No.	Particulars	Marginal		Small		Medium		Large		Overall	
		Qtl/ha.	Qtl/farm	Qtl/ha.	Qtl/farm	Qtl/ha.	Qtl/farm	Qtl/ha.	Qtl/farm	Qtl/ha.	Qtl/farm
1	Total quantity produced	13.70 (100)	3.70 (100)	14.33 (100)	4.87 (100)	15.10 (100)	8.75 (100)	15.45 (100)	13.90 (100)	14.90 (100)	7.81 (100)
2	Quantity retained for the seed	0.68 (4.96)	0.18 (4.86)	0.48 (3.35)	0.16 (3.29)	0.40 (2.65)	0.23 (2.63)	0.39 (2.52)	0.35 (2.52)	0.48 (3.22)	0.24 (3.07)
3	Consumption	0.56 (4.09)	0.15 (4.05)	0.47 (3.28)	0.15 (3.08)	0.54 (3.58)	0.31 (3.54)	0.74 (4.79)	0.66 (4.75)	0.57 (3.83)	0.29 (3.71)
4	Total quantity utilized	1.24 (9.05)	0.33 (8.92)	0.95 (6.63)	0.32 (6.57)	0.94 (6.23)	0.54 (6.17)	1.13 (7.31)	1.01 (7.27)	1.07 (7.15)	0.55 (7.04)
5	Marketable surplus	12.46 (90.95)	3.36 (90.81)	13.38 (93.37)	4.54 (93.22)	14.16 (93.77)	8.21 (93.83)	14.32 (92.69)	12.88 (92.66)	13.83 (92.82)	7.19 (92.06)

Note: Figures in parentheses indicate percentages to total quantity produced.

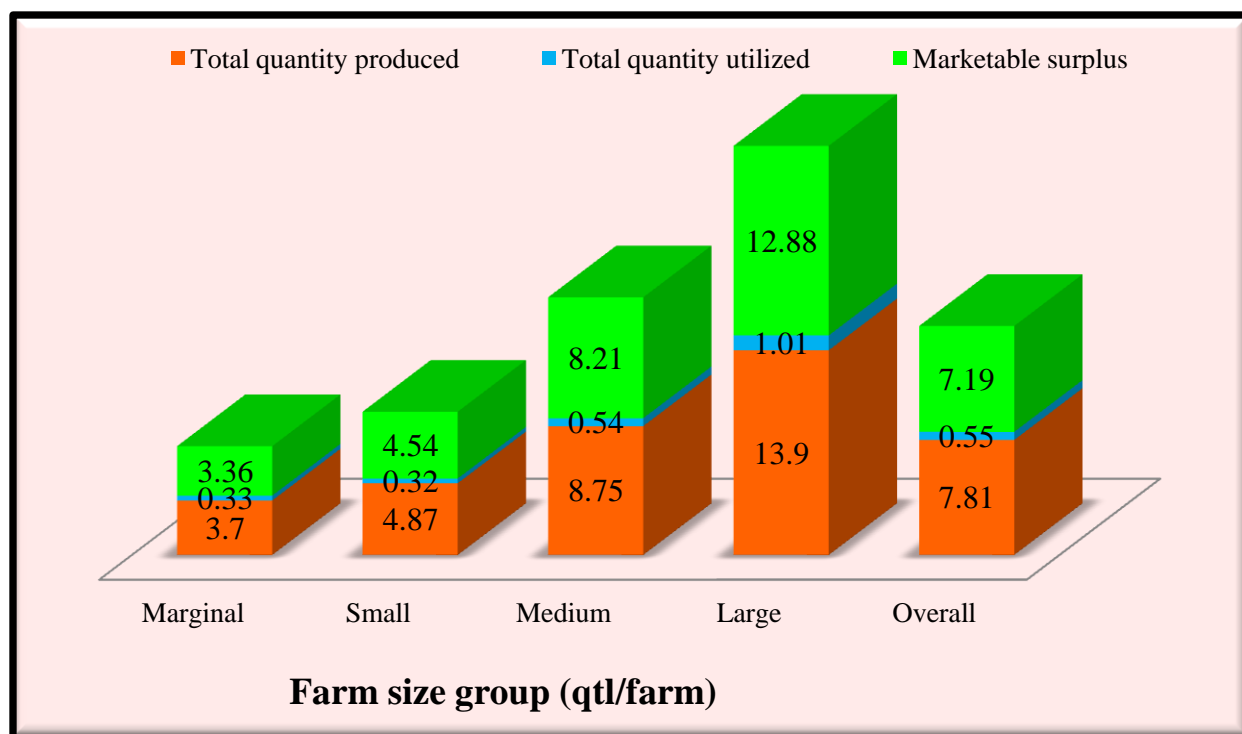


Fig.4.24: Marketable surplus of groundnut at sampled farms in quintal/farm

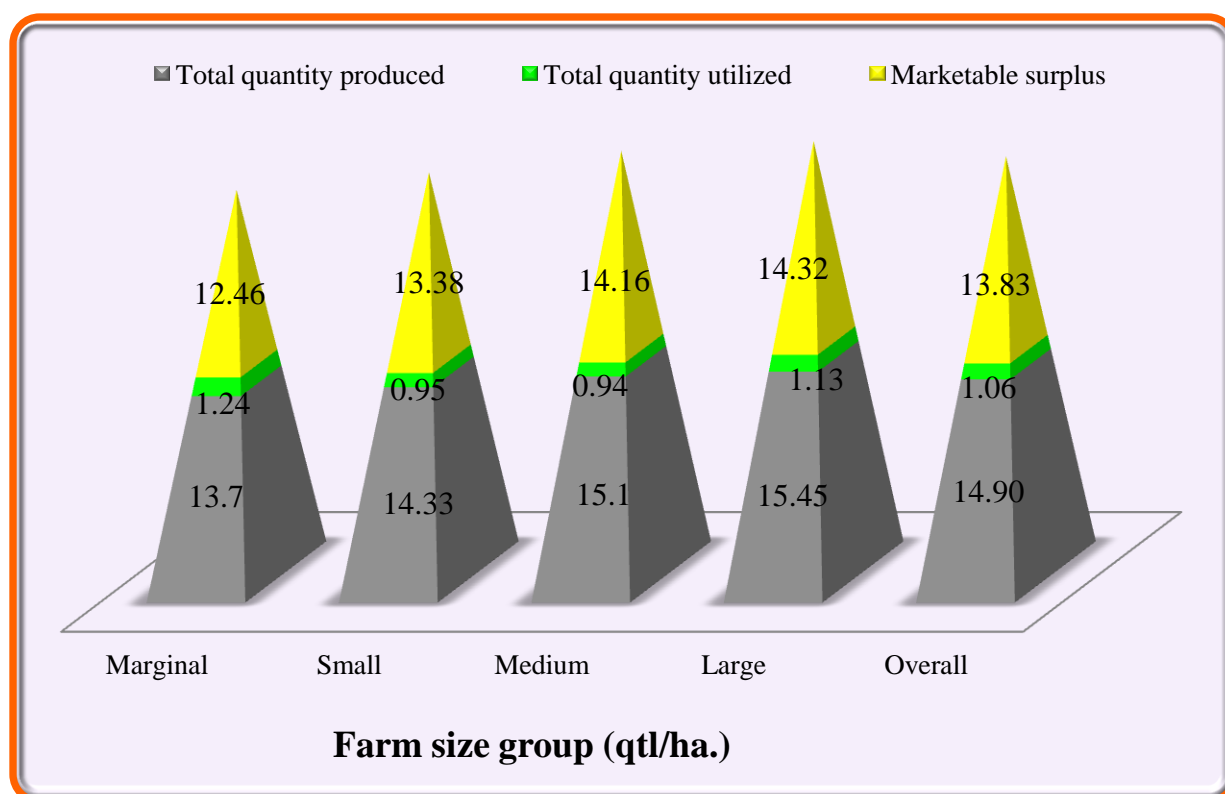


Fig.4.25: Marketable surplus of groundnut at sampled farms in quintal/ha.

### **4.4.3 Marketing pattern of groundnut at sampled farms**

#### **4.4.3.1 Quantity sold by producer at sampled farms**

It is clear from the Table 4.17 that three marketing intermediaries i.e. village traders, wholesalers and oil millers were involved in groundnut trading in Mahasamund district of Chhattisgarh. It is interesting to note that whereas the quantity of produce is increasing as the size of holding increased in case of village traders, it is decreasing as the size of holding increased in case of wholesaler and oil miller. It imply that wholesalers and oil millers is popular among relatively larger farmers while relatively marginal and smaller producers like to sell their produce through village traders in Mahasamund district of Chhattisgarh. The quantity sold through village traders is as 100 per cent at marginal farms followed by 100 per cent at small farms and 31.43 per cent at medium farms. Figures 4.26 are observed as 43.43 and 43.65 per cent at medium and large farms in case of wholesalers respectively. The quantity sold through oil millers is as 25.14 and 56.35 per cent at medium and large farms. On an overall the quantity sold through village traders, wholesalers and oil millers is estimated as 55.46 per cent, 23.14 per cent and 21.40 per cent in Mahasamund district of the study area.

#### **4.4.3.2 Price received by producers from different marketing functionaries**

The price received by producers from different intermediaries is shown in Table 4.18 and fig. 4.27. The producers who have been disposing off their produce directly to the consumer received better price as compared to those who sold their produce to other functionaries at the overall Rs. 3857.45 per quintal. Village traders show their presence just after harvesting the crop. During this period they purchase most of the quantity of producers at the rate of Rs. 3818.33 per quintal and sold it to wholesaler at the rate of Rs.3900 per quintal. This price was, in fact, quiet low the prime reason for offering so low prices has been found to be the poor bargaining power of the producers and forced sold (just selling the produce no matter what price they are getting) of product as farmers has already taken money in advance from them.

Table 4.17: Quantity of groundnut sold by producer to different marketing functionaries of the sample household

S.N.	Farm size	Village trader		Wholesaler		Oil miller		Total	
		Qtl/ha.	Qtl/farm	Qtl/ha.	Qtl/farm	Qtl/ha.	Qtl/farm	Qtl/ha.	Qtl/farm
1	Marginal	12.46 (100)	3.36 (100)	0 (0)	0 (0)	0 (0)	0 (0)	12.46 (100)	3.36 (100)
2	Small	13.38 (100)	4.54 (100)	0 (0)	0 (0)	0 (0)	0 (0)	13.38 (100)	4.54 (100)
3	Medium	4.45 (31.43)	2.60 (31.67)	6.15 (43.43)	3.54 (43.12)	3.56 (25.14)	2.07 (25.21)	14.16 (100)	8.21 (100)
4	Large	0 (0)	0 (0)	6.25 (43.65)	5.60 (43.61)	8.07 (56.35)	7.27 (56.44)	14.32 (100)	12.88 (100)
5	Overall	7.57 (55.46)	2.58 (35.88)	3.20 (23.14)	2.28 (31.71)	2.96 (21.40)	2.33 (32.41)	13.83 (100)	7.19 (100)

Note: Figures in parentheses indicate percentage to total production.

Table 4.18: Price received by producer's from different marketing functionaries

(Rs./ quintal)

S.N.	Farm size	Consumer	Village trader	Wholesaler	Oil miller
1	Marginal	3865.93	3810	0	0
2	Small	3831.95	3820	0	0
3	Medium	3850.18	3825	3840	3860
4	Large	3881.72	0	3840	3870
5	Overall	3857.45	3818.33	3840	3865

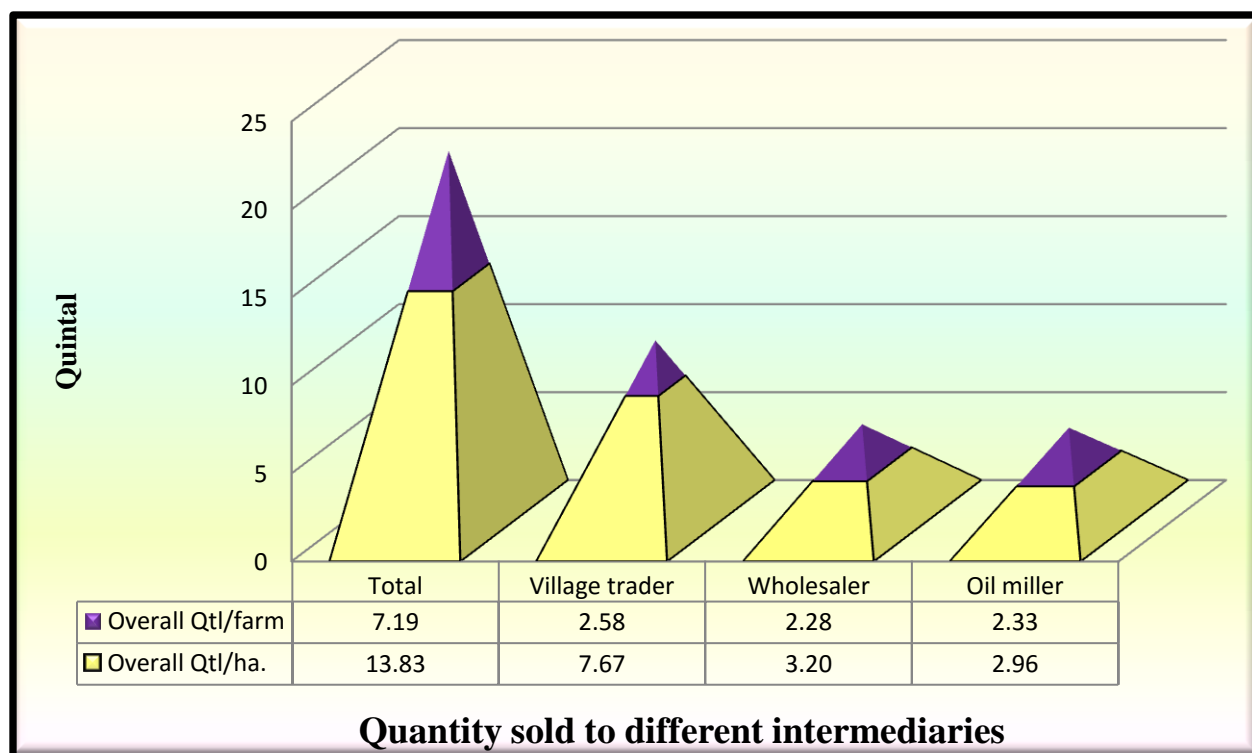


Fig 4.26: Quantity sold of groundnut through different intermediaries by sampled farmers

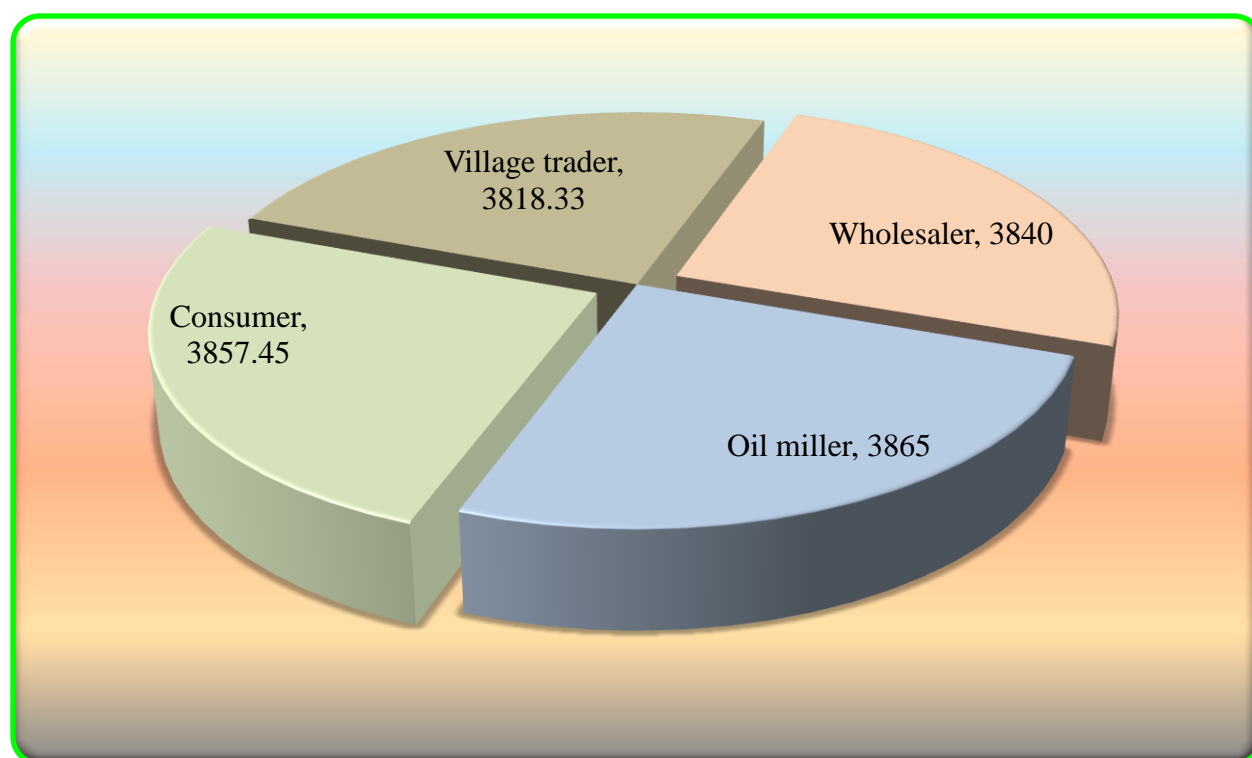


Fig 4.27: Price received by producer from different marketing functionaries

However, the producers who sold their produce to the wholesalers directly, they receive relatively higher price i.e. Rs. 3840 per quintal of their produce and the producers sell their produce to the oil miller directly, they receive relatively higher price i.e. Rs. 3865 per quintal of their produce.

#### **4.4.4 Marketing cost of groundnut crop**

Table 4.19 and figures 4.28 presented the marketing cost incurred by different functionaries. The marketing cost incurred by producers in Channel-I was Rs. 22.44 per quintal. The marketing charges paid by the producer, village traders and wholesalers were estimated as Rs. 17.5 per quintal, Rs. 34.01 per quintal and Rs. 47.43 per quintal in Channels-II. Most of the groundnut producers sold their marketable surplus through the Channel-II and incurred very high cost as compared to Channel-I. The marketing cost of producer and wholesaler were Rs. 21.87 per quintal and Rs. 47.43 per quintal in Channel-III respectively and marketing cost of producer was Rs.22.47 per quintal in Channel-IV respectively. The farmers incurred maximum expenditure on transportation on an average i.e. Rs. 21.07 per quintal. Total marketing cost was found out to be highest in Channel-II (Rs.98.94 per quintal) followed by in Channel-III and channel-IV i.e. Rs. 69.30 and Rs. 22.47 per quintal respectively and minimum in Channel-I (Rs. 22.44 per quintal) indicating that longer Channel incurred higher marketing costs.

#### **4.4.5 Marketing margin and price spread of groundnut in Mahasamund district**

The difference between price paid by consumer and price received by producers is price spread and the share that goes to the different functionaries in the market is marketing margin. It was worked out with use of theoretical concept presented in (Table 4.20). In Channel-I the groundnut producer direct sold to the consumer at the rate of Rs.3857.45 per quintal. In Channel -II the groundnut producers disposed off the produce to the village traders at the rate of Rs. 3818.33 per quintal mainly due to inconvenience in transportation of small quantity of produce. The village trader's sold this produce to the wholesalers at the rate of Rs. 3900 per quintal and received the total margin as Rs. 47.66 per quintal which is 1.22 per cent.

Table 4.19: Marketing cost incurred by producer and different functionaries in different channels in Mahasamund district

(Rs./quintal)

S.No.	Particulars	Channel-I	Channel-II			Channel-III		Channel-IV
		Producer	Producer	Village trader	Wholesaler	Producer	Wholesaler	Producer
1	Transportation	10.74 (47.86)	7.35 (42)	15.37 (45.19)	25.46 (53.68)	10.67 (48.79)	25.46 (53.68)	10.67 (47.49)
2	Loading & Unloading charges	2.47 (11.01)	2.47 (14.11)	3.55 (10.44)	5.57 (11.74)	2.47 (11.29)	5.57 (11.74)	2.47 (10.99)
3	Packing charges	1.58 (7.04)	1.58 (9.03)	1.85 (5.44)	2 (4.22)	1.58 (7.22)	2 (4.22)	1.58 (7.03)
4	Cleaning and dressing @ Rs. 5	5 (22.28)	5 (28.57)	5 (14.70)	5 (10.54)	5 (22.87)	5 (10.54)	5 (22.25)
5	Commission charges @ Rs. 5	0 (0)	0 (0)	5 (14.70)	5 (10.54)	0 (0.00)	5 (10.54)	0 (0.00)
6	Miscellaneous	2.65 (11.81)	1.10 (6.29)	3.24 (9.53)	4.4 (9.28)	2.15 (9.83)	4.4 (9.28)	2.75 (12.24)
	Total cost	22.44 (100)	17.5 (100)	34.01 (100)	47.43 (100)	21.87 (100)	47.43 (100)	22.47 (100)

Note: Figures in the parentheses indicate the percentage to total marketing cost.

They spent Rs.17.5 per quintal for different operations like transportation, loading and unloading charges, cleaning and dressing and labour charges etc on an average. The wholesaler bought the produce at the rate of Rs. 3900 per quintal from village trader and sold it at the rate of Rs. 4050 per quintal. The wholesaler incurred Rs. 47.43 per quintal as marketing cost and receives Rs.102.57 per quintal as net margin which was 2.53 per cent of the price received by wholesaler in Channel II. The total marketing cost is estimated as Rs. 98.94 per quintal in this Channel- II. The groundnut producer sold this produce to the wholesalers at the rate of Rs. 3840 per quintal in Channel III. The wholesaler bought the rate of Rs. 4050 per quintal in Channel III; wholesaler incurred Rs. 47.43 per quintal as marketing cost and received Rs. 162.57 per quintal as net margin which was 4.01 per cent of the price received. In Channel- IV the groundnut producers received Rs. 3865 per quintal which was the highest price in marketing Channels.

#### **4.4.6 Producer's share in consumer's rupee under different marketing channels**

From Table 4.27 and figure 4.29 it is evident that out of all the intermediaries involved in marketing of groundnut, producer's share in consumer's rupee has been found to be highest in Channel -I (99.41 per cent) whereas it was found to be minimum in Channel IV i.e. (93.72 per cent). It was calculated as 97.45 per cent and 94.27 per cent for Channel II and Channel III.

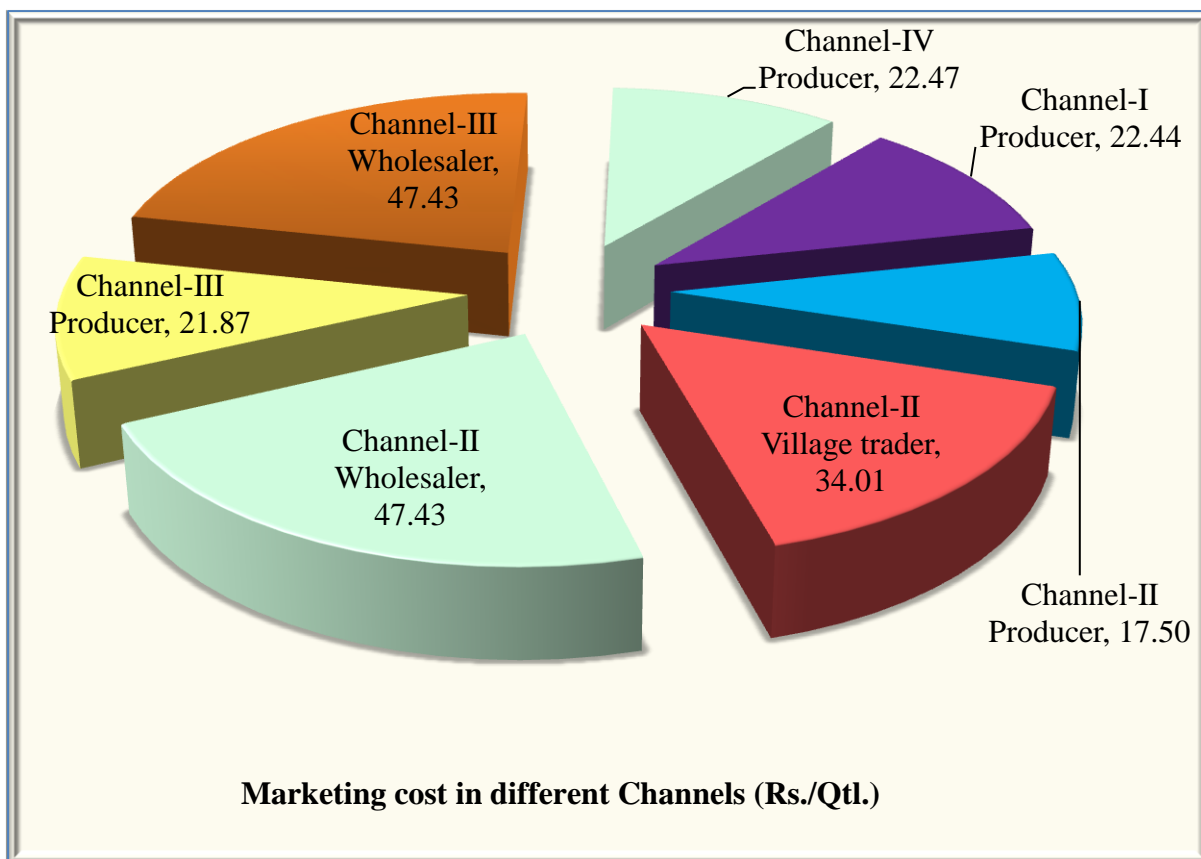


Fig 4.28: Marketing cost incurred by producer and different functionaries in different Channels

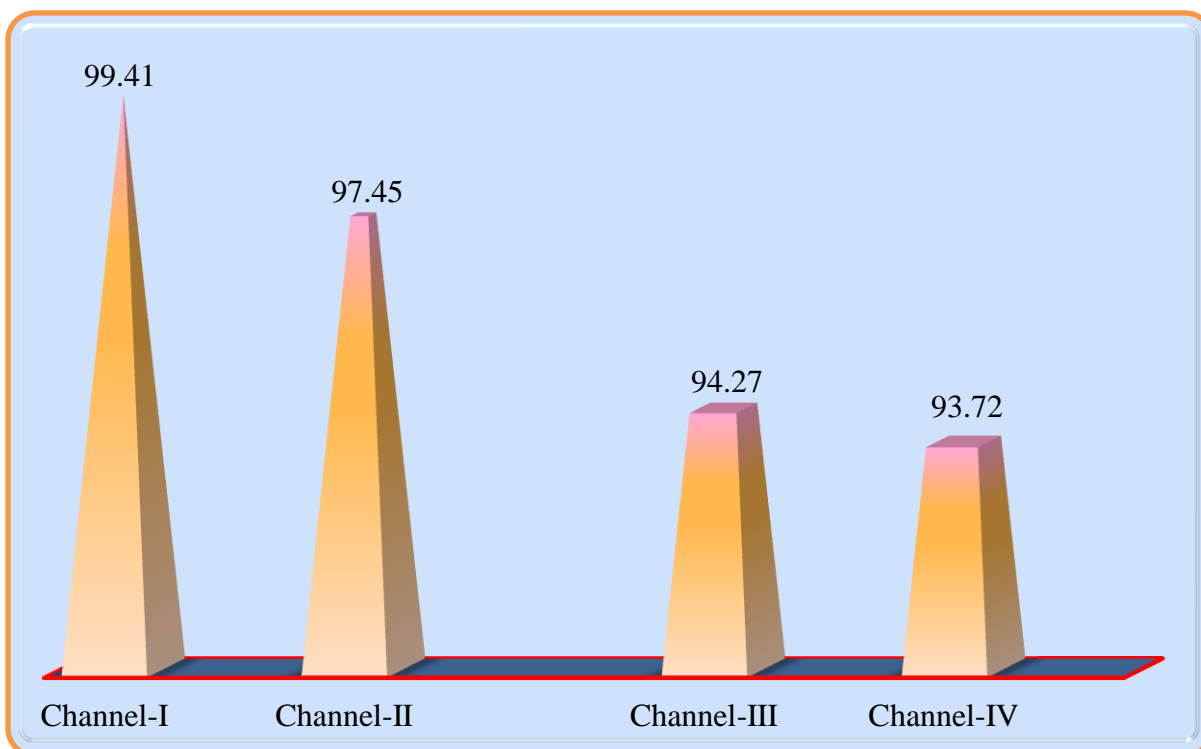


Fig 4.29: Producer's share in consumer's rupee (%) under different marketing channels

Table 4.20: Marketing margins and price spread (Rs. /Quintal) under various identified marketing channels

	<b>Market Functionaries</b>	<b>Price received (Rs.)</b>	<b>Price paid (Rs.)</b>	<b>Marketing cost (Rs.)</b>	<b>Producer's price (Rs.)</b>	<b>Absolute margin</b>	<b>Percent margin</b>	<b>Producer share in consumer's rupee in per cent</b>
Channel-I	Producer	3857.45		22.44	3835.01			99.41
	Consumer		3857.45					
Channel-II	Producer	3818.33		17.5	3800.83			97.45
	Village trader	3900	3818.33	34.01		47.66	1.22	
	Wholesaler	4050	3900	47.43		102.57	2.53	
Channel-III	Producer	3840		21.87	3818.13			94.27
	Wholesaler	4050	3840	47.43		162.57	4.01	
Channel-IV	Producer	3865		22.47	3842.53			93.72
	Oil miller	4100	3865					

## **4.5 Major constraints in groundnut production and marketing**

### **4.5.1 Constraints in production of groundnut**

The constraints in groundnut production are presented in Table 4.21. Lack of financing was a major constraint in the study area as all groundnut producers were facing this problem. This problem can be overcome by providing easy loans on soft rates to the groundnut farmers at their doorsteps by financial institutions the groundnut growers felt that it was inconvenient and time taking procedure to get the money from financial institutions. Consequently, they were forced to take required money from money lenders of village at higher rates of interest in order to fulfill their financial requirement for groundnut production. Lack of receiving funds for groundnut production from financial institution was also constraint in the study area (100.00 per cent). In view of this, it is suggested that the financial institutions should make easy and quick procedures to issue the desired crop loan to the groundnut producers by deploying their field staff i.e. agricultural officers at the doorsteps of the groundnut growers specially, marginal and small farmers.

Lack of seed treatment was viewed as a major constraint by the groundnut growers (100.00 per cent) in the study area. In view of this, there is a need to educate the groundnut farmer on using good and bold seeds for sowing, treating the seeds with fungicides, Captan or Thiram at the rate of 4g/kg of seed and inoculating seed with the culture of *Rhizobium* in the soils besides making them available in the study area at proper time by the agriculture and extension department.

Lack of sufficient soil testing facilities was also a major constraint as about 95.45 per cent groundnut growers faced this problem. An immediate step should be taken at the level of government to establish soil testing labs at panchayat level in order to estimate and apply appropriate doses of fertilizers in the groundnut crop. This step will reduce the cost of cultivation on one side and will improve the soil fertility on the other side.

A large number of groundnut growers perceived that the lack of irrigation facilities (85.71 per cent) was one of the major constraints in groundnut cultivation in the study area. Accordingly, capital investment on enhancing irrigation should receive

priority in the region. Banks may consider micro-irrigation system and fencing as major components for extending investment credit to take care of higher production and productivity.

Majority of groundnut farmers were of the view that there was lack of improved and high yielding variety of the groundnut crop in the region (82.47 per cent). Even if it were there, it was not available to them. Looking to this, there is a need to develop and make available improved and high yielding varieties of groundnut crop in the study area.

There is also a gap as far as the awareness and adoption of latest technical knowledge about the groundnut crop is concerned in the study area. Majority of the groundnut growers (77.92 per cent) faced this particular constraint. In view of this, effective and strengthened extension efforts are very much needed in the study area.

Lack of recommended package and practices, particularly, doses of fertilizer, insecticides and pesticides were perceived by 76.62 per cent of groundnut farmers. Timely advice in this direction may improve the production of groundnut in the study area, in particular.

About 69.48 per cent groundnut farmers reported that they were not aware about the name and quantity of needed insecticides and pesticides in case, their groundnut crop was infested by any disease or pest. In such conditions, they were completely dependent on the shopkeeper who sold the insecticides/pesticides.

Major constraints pertaining to cultivation of groundnut under study were lack of resources (63.63 per cent), generally faced by marginal and small category farmers. Due to this reason, these farmers were not able to invest for better production technology. There is a need for creation of groundnut grower's co-operative societies which can cater to the needs of the farmers related to groundnut production.

About 49.09 per cent groundnut farmers reported that they were not aware about the crop insurance scheme, lack of sufficient fund to purchase different inputs for groundnut crop cultivation (54.55 per cent), generally faced by marginal and small category farmers.

Table 4.21: Constraints in production of groundnut

N= 154

S.No.	Constraints	Number of Respondents	
		Yes	No
1	Do you face any problem in financing from the financial institution	154 (100.00)	0 (0.00)
2	Have you received the funds for groundnut production from financial institution?	0 (0.00)	154 (100.00)
3	Lack of seed treatment	154 (100.00)	0 (0.00)
4	Are there sufficient soil testing facilities in your area?	7 (4.55)	147 (95.45)
5	Have you sufficient irrigation water facilities?	22 (14.29)	132 (85.71)
6	Lack of improved and high yielding varieties of groundnut	127 (82.47)	27 (17.53)
7	Are you aware about the latest technical knowledge of the crop?	34 (22.08)	120 (77.92)
8	Lack of recommended package of practices of the groundnut in the study area	118 (76.62)	36 (23.38)
9	Do you know the recommended dose of different agro chemicals and fertilizers for groundnut?	47 (30.52)	107 (69.48)
10	Lack of resources i.e. equipment etc.	98 (63.63)	56 (26.36)
11	Are you aware about the crop insurance scheme?	63 (40.91)	91 (59.09)
12	Have you sufficient fund to purchase different inputs for crop cultivation	70 (45.45)	84 (54.55)
13	Have you problem of availability of labour during the crop season?	65 (42.21)	89 (57.79)
14	So you have any problem to get machines on hire basis for groundnut production?	20 (12.99)	134 (87.01)

Note: Figures in parenthesis indicate percentage of total respondents

The scarcity of labour is another problem as 42.21 per cent of groundnut farmers perceived it. This problem becomes more acute at the time of sowing, intercultural and harvesting stage of the crop. Consequently, the farmers have to pay higher wages in order to complete the work in time.

#### **4.5.2 Constraints in marketing of groundnut**

Marketing constraints of groundnut are presented in table 4.22. As much as 92.86 per cent farmers were not satisfied with the price received in Mahasamund district while more than 73.38 per cent farmers were of this opinion that groundnut cultivation was less profitable due to low price realized and low productivity as compared to paddy crop in the same cases of land cultivation in Mahasamund district.

About 89.61 per cent farmers felt that lack of awareness about the market information was also a problem. It may be suggested that the news about the prices and other aspects of groundnut in the daily newspaper, television and radio should be disseminated in the study area.

Lack of visits to regulated market regularly with 74.03 per cent groundnut producers was another constraint due to the fact that there markets were based at for distances from the places of groundnut producers.

Lack of sufficient number of processing unit in the villages is the major problem faced by groundnut producers (74.02 per cent) in the study area. Groundnut sector has potential to grow by improving productivity and production for which institutional credit is a must. Credit is needed for setting up of processing units, export credit, etc.,. Banks should provide credit to the farmers/processors/exporters for the purpose keeping in view the Banking Plans by NABARD.

Lack of implementation of support price in the villages is the major problem faced by groundnut producer (73.38 per cent). Almost groundnut all farmers told that no intermediary was prepared to give the support price if produce was sold by farmers in the villages. Lack of transportation facilities and roads was observed most severe problem in marketing of groundnut with 71.43 per cent, specifically in the study area.

Table 4.22: Constraints in marketing of groundnut at sample households

N=154

S.No.	Constraints	Number of Respondents	
		Yes	No
1	Are you satisfied with the price received	10 (6.49)	143 (92.86)
2	Weather the market news was some special important in groundnut crop production and marketing	138 (89.61)	16 (10.39)
3	Weather you visit regulated market regularly	40 (25.97)	114 (74.03)
4	Lack of sufficient number of processing unit	40 (25.97)	114 (74.02)
5	Will the support price affect the production of crop	113 (73.38)	41 (26.62)
6	Lack of transportation facilities and road from village to market	110 (71.43)	44 (28.57)
7	Lack of storage facilities in growing area	109 (70.78)	45 (29.22)
8	Low price paid to farmer's due to high marketing margin	107 (69.48)	47 (30.51)
9	Problem of small quantity	103 (66.88)	51 (33.11)
10	Low demand of final product	98 (63.64)	56 (36.36)

**Note:** Figures in parenthesis indicate percentage of total respondents.

There is lack of adequate scientific storage facilities in the villagers (70.78 per cent). Storage is the other problem faced by the farmers. Proper infrastructure should be made available to farmers to store their produce by government. Government farmers were forced to sell their produce due to non availability of proper storage facilities.

More than 66.88 per cent groundnut producer perceived that transportation of small quantity of produce was not an economical option if they sold their small produce in the market.

## CHAPTER – V

# SUMMARY AND CONCLUSIONS

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### 5.1 Summary

Agriculture plays an important role in economic development among several important sectors which contribute to total national product. Oilseeds occupy about 14.60 per cent of gross cropped area and account for nearly 4.49 per cent of total cropped product and 7.23 per cent of the export and import value of all the agricultural export and import commodities. Groundnut is called as the ‘King’ of oilseeds. It is also called as wonder nut and poor men’s cashew nut. It is one of the most important cash crops of our country. It is a relatively low-priced commodity but a valuable source of all the nutrients. Groundnut oil is primarily used in the manufacturing of vegetable oil. The seed of groundnut contains about 45 per cent oil and 26 per cent protein. The oilcake obtained after the extraction of the oil is a valuable organic manure and animal feed. It contains 7-8 per cent nitrogen, 1.5 per cent phosphorus and 1.5 per cent potash.

Today it is one of the most important cash crops of our country. Especially in the developing countries, groundnut has to play an important role both as oil and food crop. In India, about 10 kg groundnut per capita is available for domestic consumption. Fat and oil consumption averages less than 5 kg per capita per year. In most of the developing countries it provides high quality cooking oil and is an important source of protein for both human and animal diet and also provides much needed foreign exchange by exporting the kernels and cake.

India is one of the largest producers of oilseeds in the world and oilseeds occupy an important part in the Indian agricultural economy. Groundnut occupies an area of 5 million hectares with productivity of around 1735 kg/ha and the production is about 8 million tonnes (2013-2014). In India, 80 per cent of the groundnut crop is grown during *kharif* season under rainfed conditions. Gujarat, Andhra Pradesh,

Rajasthan, Tamil Nadu and Karnataka are the leading producers in the country and account nearly 90 per cent of the total output.

Chhattisgarh state consists of 27 districts. Out of which Mahasamund district contributes 19 per cent and occupies second rank in area and production of groundnut after Raigarh district. The total area and production under groundnut crop in Mahasamund district is 5370 ha. and 8072 metric tonnes respectively. The average productivity of the crop is 1503.17 kg per hectare in the district, which is higher than the state average but much less than the country's productivity.

Looking to the priorities of enhancing agricultural income through crop diversification and the need to encourage oilseeds cultivation, it is imperative to investigate the growth, economics of production and marketing of groundnut through this study. The present study will give the answers to some of the important questions regarding aspects like growth of groundnut crop, cost of cultivation, returns from this crop, marketing pattern and constraints in its production and marketing. Therefore, a systematic research work is required to carry out for this crop in order to make available useful information to the farmers who want to grow this crop. Accordingly, this study was under taken with the following specific objectives.

1. To work out the growth rate of area, production and productivity of groundnut in Mahasamund district and Chhattisgarh state.
2. To work out the cost and return of groundnut crop in the study area.
3. To examine the marketing pattern of groundnut in the study area.
4. To identify the constraints in groundnut production and marketing and suggest some policy measures in order to improve the same.

The Mahasamund district has five blocks, that is, Saraipali, Basna, Pithora, Bhagbhara and Mahasamund. Out of these, 3 blocks were selected which are Saraipali, Basana and Pithora because these three blocks contribute majorly in area of groundnut crop in the district. There are 226 numbers of villages in Saraipali, 219 villages in Basna and 238 villages in Pithora. Two per cent villages from each of the three

selected blocks were randomly selected. Accordingly, a total of fourteen villages, including five villages from Saraipali, four villages from Basna and five villages from Pithora block were selected randomly. The names of selected villages were Bonda, Girsha, Limgaon, Patsendri, Khairmal, Singhanpur, Umriya, Thakurpali, Udela, Saldih, Gopalpur, Anshula, Sarkanda and Khuteri

The primary data were collected for kharif season for the crop year 2014-15. Primary data related to costs and returns, marketing etc of groundnut crop. were collected from the respondents using well designed questionnaires and schedules. The secondary data regarding the area, production and productivity of groundnut in Mahasamund district, Mahasamund district and Chhattisgarh state were collected from published sources, government owned websites and offices etc. To work out the status of groundnut and Chhattisgarh, compound growth rates were estimated, to work out the cost of cultivation the CACP standard method of cost of cultivation was adopted, to work out the marketing pattern of groundnut, constraints in production and marketing of groundnut etc. standard methods including tabular, arithmetic and statistical analyses were used.

## **5.2 Conclusion**

1. The schedule caste, schedule tribes, other backward caste and general caste consists 12.99 per cent, 30.52 per cent, 42.86 per cent, and 13.64 per cent, respectively of the total sampled groundnut farmers.
2. About 58.80 per cent population belonged to 15-60 years age group in this sample. The overall male-female ratio was observed low at 1000:828 in this population.
3. The overall literacy of sampled groundnut farmers was observed high (82.46 per cent) in the study area.
4. The percentage of agriculture as the main occupation is estimated at about 83.94 per cent, 79.05 per cent, 85.42 per cent, 87.21 per cent and 80.52 per cent in case of overall, marginal, small, medium and large farmers, respectively.

5. The per farm total cultivated area is observed to be 0.80 hectare, 1.66 hectare, 3.06 hectare and 5.44 hectare at marginal, small, medium and large farms, respectively along with 2.74 hectare as an over-all average. The overall highest cropped area is found to be during kharif season at 83.57 per cent.
6. The overall percentage of irrigated area is only 25.43 per cent to the total cultivated land. The most of the area under irrigation is covered by tube well (71.18 per cent) followed by canal (27.47 per cent).
7. The overall cropping intensity was quite low at 119.70 per cent at sampled groundnut households.
8. The investment made on livestock is observed as Rs. 19590, Rs. 19430, Rs. 20820 and Rs. 19550 at marginal, small, medium and large farms. Over all the value of livestock is estimated as Rs. 20000 per households. The overall value of farm equipment is estimated as 830200 per households.
9. Mahasamund district shows non-significant and negative growth in area, production was partially positive and non-significant and the productivity was observed to be positive and non-significant. In Chhattisgarh state, area under groundnut shows significant negative growth rate, production non-significantly negative, though the productivity was observed to be positive and non-significant.
10. The overall cost of cultivation was estimated as Rs. 36057.56 per ha. for groundnut crop respectively in study area.
11. The overall value of gross income, net income, family labour income, farm business income and farm investment income per hectare came to Rs. 58368.01 per ha., Rs. 22310.45 per ha., Rs. 27120.23 per ha., Rs. 36851.21 per ha. and Rs. 32041.43 per ha. for groundnut crop, respectively.
12. The costs and returns on the basis of cost concept were worked out as on an overall Cost-A<sub>1</sub>, Cost-A<sub>2</sub>, Cost-B<sub>1</sub>, Cost-B<sub>2</sub>, Cost-C<sub>1</sub>, Cost-C<sub>2</sub> and Cost-C<sub>3</sub> as Rs. 21516.80, Rs. 21516.80, Rs. 21997.78, Rs. 31247.78, Rs. 26807.56, Rs. 36057.56 and Rs. 39663.31 per hectare for groundnut respectively, on the sample farms.

13. The overall production and per quintal price was worked out as 14.90 quintal per ha. and Rs.3854.99 per quintal for groundnut respectively in study area.
14. The income over different cost in groundnut at the sample farms as on an overall income over Cost-A<sub>1</sub>, income over Cost-A<sub>2</sub>, income over Cost-B<sub>1</sub>, income over Cost-B<sub>2</sub>, income over Cost-B<sub>2</sub>, income over Cost-C<sub>1</sub>, income over Cost-C<sub>2</sub> and income over Cost-C<sub>3</sub> were worked out to Rs. 36851.21, Rs. 36851.21. Rs. 36370.23, Rs. 27120.23. Rs. 31560.45, Rs. 22310.45 and Rs. 18704.70 per hectare for groundnut crop respectively, on the sample farms.
15. The overall input-output ratio for the groundnut crops was found to be 1:1.61.
16. The per farm marketable surplus of groundnut was estimated to be 3.36, 4.54, 8.21 and 12.88 quintal constituting 90.81 per cent, 93.22 per cent, 93.83 per cent and 92.66 per cent of the total production at marginal, small, medium and large farms respectively. On an overall, the marketable surplus in groundnut was found to be 7.21 quintal constituting 92.06 per cent to total production.
17. Four marketing Channels of groundnut crop were observed in the study area as Channel-I: Producer- Consumer, Channel-II: Producer- Village trader- wholesaler, Channel-III: Producer- Wholesaler, Channel-IV: Producer – Oil miller.
18. The per farm quantity sold by marginal, small and medium farmers to village traders was observed as 100.00 per cent, 100.00 per cent and 31.67 per cent, respectively. The quantity sold by medium and large farmers to wholesalers and oil millers was observed as 43.12 per cent and 43.61 per cent, 25.21 per cent and 56.44 per cent respectively. On an overall, the quantity sold through village traders, wholesalers and oil millers was estimated as 35.88 per cent, 31.71 per cent and 32.41 per cent respectively in the marketing of groundnut in the study area.
19. The price received by groundnut producers from different marketing functionaries on an overall was worked out to Rs. 3857.45 per quintal, Rs. 3818.33 per quintal, Rs. 3840 per quintal and Rs. 3865 per quintal from consumer, village trader, wholesaler and oil miller.

20. The marketing cost incurred in Channel-I, Channel-II, Channel-III, Channel-IV was observed as producer 22.44 Rs. in Channel-I, producer 17.5 Rs., village trader 34.01 Rs. and wholesaler 47.43 Rs. in Channel-II, producer 21.87 Rs. and wholesaler 47.43 Rs. in Channel-III and producer 22.47 Rs. in Channel-IV.
21. The marketing margins were observed in Channel-II Rs. 47.66, Channel-III Rs. 102.57 and Channels-IV is Rs. 162.57 under identified marketing channels of groundnut.
22. The most important constraints in groundnut cultivation faced by the farmers were lack of financing at reasonable rate of interest, lack of receiving funds for groundnut production from financial institution and lack of seed treatment at 100.00 per cent. Lack of sufficient soil testing facilities was also an important constraint at 95.45 per cent followed by lack of irrigation facilities (85.71 per cent), lack of improved and high yielding variety of the groundnut crop (82.47 per cent), lack of latest technical knowledge about the crop (77.92 per cent), lack of recommended package and practices (76.62 per cent) and lack of resources i.e. money (63.63 per cent).
23. In case of the major constraints observed in sampled farm for marketing of groundnut, it was found that as much as 92.86 per cent farmers were not satisfied with the price received in Mahasamund district. About 89.61 per cent farmers felt that lack of awareness about the market information was also a problem. Lack of visit to regulated market regularly with 74.03 per cent groundnut producers followed by lack of sufficient number of processing units in the villages was the major problem faced by groundnut producers (74.02 per cent) in the study area. Lack of implementation of support price of groundnut in the villages was another major problem faced by groundnut producers (73.38 per cent). There is lack of adequate scientific storage facilities in the villages (70.78 per cent). More than 66.88 per cent groundnut producer perceived that transportation of small quantity of produce was not an economical option if they sold their small produce in the market.

### 5.3 Policy implications and suggestion for future works

On the basis of findings of this study, some policy measures are suggested to improve the production and marketing of groundnut.

1. An immediate step should be taken at the level of government to establish soil testing labs at panchayat level in order to estimate and apply appropriate doses of fertilizers in the groundnut crop. This step will reduce the cost of cultivation on one side and will improve the productivity and soil fertility on the other side.
2. A good number of high yielding varieties of groundnut crop should be introduced in the study area to increase the productivity and production of groundnut crop in the Mahasamund district.
3. Non-availability of quality seeds in adequate quantity is one of the constraints in groundnut production. Increasing seed replacement rate, production and distribution of quality certified seed, establishment of seed bank to ensure availability of seeds at the time of natural calamities, involving farmers' organization, NGOs and other private organizations with incentive package for seed production, promotion of Seed Village Scheme, training of agricultural graduates, progressive farmers and seed societies for quality seed production are essential.
4. In view of this, there is a need to educate the groundnut farmer on using good quality and bold seeds for sowing, treating the seeds with fungicides, Captan or Thiram at the rate of 4g/kg of seed and inoculating seed with the culture of *Rhizobium* in the soils besides making them available in the study area at proper time by the agriculture and extension department should be accorded priority.
5. Extension support on sowing of groundnut at the optimum time, using the optimum seed-rate and optimum spacing and using adequate quantities of balanced fertilizers, depending upon the tract, variety, season etc.
6. Groundnut is mostly grown in dry lands as subsistence crop. Short duration intercrops like sorghum, green gram, black gram, Soya bean etc need to be

- popularized in groundnut cropping system to optimize the land utilization and as a security to the dry land farmers in case of groundnut crop failure.
7. Labour is a major factor of production for the cultivation of groundnut crop. About 48 per cent share of labour was observed in groundnut. Looking to the need of labour for the production of groundnut, some specific policy such as deployment of MGNREGA labourers during the peak period of crop production and small scale intervention mechanization for groundnut cultivation should be encourage by government.
  8. In order to generate appropriate, profitable, environmentally safe, sustainable and cost effective technology to reduce the damage of pests and diseases, the groundnut growers need to be educated, trained and supported.
  9. Irrigation facilities should be developed so that area under rabi crops like groundnut and wheat can be increased substantially. Accordingly, capital investment on enhancing irrigation should receive priority in the region. Banks may consider micro-irrigation system and fencing as major components for extending investment credit to take care of higher production and productivity.
  10. Poor drainage/water stagnation during rainy season causes heavy losses to groundnut on account of low plant stand and increased incidence of plant diseases. Ridge planting and earthing up has been found effective in ensuring optimal plant stand and consequently higher yield. Accordingly, training and skills on unproved methods like there should be imported to groundnut farmers.
  11. Usually the prices of groundnut rule below the minimum support price (MSP) declared by Government of India. The benefits of these prices are taken up by the trading lobby whereas the same processed groundnut products becomes very costly and beyond the reach of the same producer. To minimize the price gap in the chain of producer to consumer it is important to have the intervention of the Government of India through the active role of some institutional buyers like National Agricultural Cooperative Marketing Federation of India (NAFED).

12. Groundnut suffers heavy losses due to stored grain pests. The quality of seeds stored in the traditional storage structures also deteriorates. Further, there are no small processing units to convert oilseed pod into oil and other byproducts. This compels the growers to dispose of their produce immediately after harvest at low price. Low cost oil mill and metal storage bins should be made available to the groundnut farmers.
13. Direct marketing enables producers and millers and other bulk buyers to economize on transportation cost and improve price realization. It also provides incentive to large scale marketing companies i.e. millers and exporters to purchase directly from producing areas will helps in better marketing of groundnut and increase profit of the producer and also encourage the farmers for retail sale of their produce. The concept of direct marketing of groundnut by the farmer to the consumers/millers without any middlemen has to be popularized.
14. Ever increasing prices of farm inputs is another constraint faced by the groundnut farmers. It should be kept in control by checking the prices charged by private traders through government intervention.
15. Some schemes should be launched by the government to support small scale mechanization for groundnut production.
16. State has KVKs almost in all districts of the state. Organizing both on campus and off campus training programmes by agriculture department and Krishi Vigyan Kendra's (KVK) for the practicing groundnut farmers, farm women and rural youth on skills like soil-conservation, improved production technology, fertilizer management, plant protection, post harvest technology, value addition to the produce, vermiculture, nutrition & health and other income generating activities will help the groundnut farming community. Frontline demonstrations (FLD's) should be conducted under real farm situations. Training on the productivity potentials and profitability of the latest groundnut crop production technologies, improved variety / hybrid/ seed treatment/ fertilizer / plant protection etc.

- recommended for different agro – ecological and groundnut growing situations should be extended to groundnut farmers by the KVKs in the state.
17. Groundnut sector has potential to grow by improving productivity and production for which institutional credit is a must. Credit is needed for cultivation of the crop, irrigation, setting up of processing units, export credit, etc. Banks should provide credit to the groundnut farmers/processors/exporters for the purpose.
  18. Government credit is not easily and timely available and outreach of most public micro-finance institutions is limited, resulting in the farmers to depend on private money lenders/ input dealers with exorbitant interest rates. Need to extend liberal and timely credit facilities to groundnut growers.
  19. Using Farmers' Clubs for propagating the message of contract farming would help both the companies as well as the groundnut farmers who are willing to take recourse to contract farming. This will also ensure linking of these farmers with bank branches for their credit needs.
  20. Government should strengthen extension efforts to train, convince and encourage farmers for oilseeds cultivation, in general and groundnut in particular.

## REFERENCES

---

- Anonymous. 2002-2014. Agricultural Year Table. Commissioner of Land Revenue Raipur, Chhattisgarh. pp -54-64.
- Anonymous. 2014. FAO, Statistical Year Book. Europe and Central Asia Food and Agriculture, FAO, Rome, Italy. pp – 133,162.
- Anonymous. 2014. FAO, World Oilseeds Record. Europe and Central Asia Food and Agriculture, FAO, Rome, Italy. pp – 40.
- Anonymous. 2014. Pocket Book on Agricultural Statistics. Directorate of Economics and Statistics, Department Agriculture and Co-operation, Ministry of Agriculture, Government of India, India. pp – 26-32,66-73.
- Baidiyavadra, D.A. (1993). Knowledge, technological gap and constraints of groundnut growers. M.Sc.(Ag.) Thesis, Gujarat Agricultural University, Sardarkrushinagar, Gujarat (India).
- Chavda, V. N. (1998). Adoption of groundnut based inter/relay cropping system by the groundnut based inter/relay crop growers of Junagadh District. M.Sc.(Ag.) Thesis, Gujarat Agricultural University, Sardarkrushinagar, Gujarat (India).
- Choudhary, B., Mohanty and Naik, D. (1991). Trends in Area, Production and Productivity of Groundnut in Orissa in Comparison with National and Global Level. *Agricultural Situation in India*, pp-437-441.
- Devaraja, T.S. (2004). Producers v/s Consumers Price Parity for the Vegetables in Rural and Urban Markets of Southern Karnataka, *Indian Journal of Agricultural Marketing*, Vol.46: No.1.
- Gupta S. (2000). “Acreage response of major oilseed crops in Punjab”, *Agricultural situation in India*, March.
- Gupta S.P. (1997). “Growth performance and variability of groundnut crop in India: A state wise analysis”, *Indian journal of agricultural economics*, Vol. 52, No. 03, July.
- Jothirajan, A. (2005). An economic study of oilseed production with reference to groundnut cultivation in madurai district, Tmilnadu, Madurai kamraj university, Tamil nadu, pp. 27-39.

- Karshayal, S.(2008). An economic analysis of production and marketing of linseed in Durg district of Chhattisgarh State. M.Sc. Thesis I.G.K.V., Raipur, Chhattisgarh. pp 66-89.
- Kurrey, D. K. (2014). An Economic Analysis of Production and Marketing of Major Oilseeds in Raigarh District of Chhattisgarh, M. Sc. (Ag.) Thesis, Department Of Agricultural Economics, submitted to Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) pp-54-59.
- Lawwa, R. and A. k. (2008). “Growth performance of oilseed in Rajasthan”, Agricultural situation in India, Vol. LXV, No. 9, pp: 589-592.
- Madhusudhana. B. (2008). A survey on area, production and productivity of groundnut crop in India. *Journal Of Economics And Finance* 1 (3):1-7
- Manjunatha, B. N. Lakshminarayan, M. T. and Vaster, C.S. (2001). “New post-harvest technologies in groundnut an awareness” farmers Karnataka Journal of Agricultural Sciences; 14(4):1113-1114.
- Mehrotra, A. (2011). Commodity Specific Study Groundnut, pp-19-22.
- Mundinamani, S.M. and Mahajanshethi, S.B. (2001). “Impact of KOF’s market intervention operation on oilseeds market structure and price- A case study of groundnut”, Indian journal of agricultural economics, Vol. 56., No. 02., April-June.
- Naidu, V. Balakrishnama. Siva, A. Sankar and Leelavathi, C. (2014). Trends in area, production and productivity of selected oil seed crops in Andhra Pradesh. *International Journal of Multidisciplinary Research and Development*. 1(7): 366-369.
- Narayan, P. Chauhan, M S and Chauhan, S. (2011). "Oilseeds Scenario In India". *Agriculture Today*, December 2011, pp. 40–43.
- Pant, D.C. and Pal, Predeep (2004), Comparative Economics of Agro-processing units for Groundnut in Southern Rajasthan, *Indian Journal of Agricultural Marketing*, Vol, 18, No.1, January-April, p.50-57.
- Patel, A. (2009). An economic analysis of production and marketing of sunflower in Raigarh district of Chhattisgarh State. *M.Sc. Thesis I.G.K.V., Raipur, Chhattisgarh*. pp 50-75.
- Patel, A.S. (1997). “Development of Agriculture in Gujarat”- A Crop Pattern Aspect” Arthavikas, Department of Economics, Sardar Patel University, Vallabh Vidhyanagar., Vol. XXXIII, Nos. 1 & 2, January-December.

- Poudel, S.A., Basavaraja, H. and Kunnal, L.B. (2012). Growth in area, production and productivity of major crops in karnataka, University of agricultural sciences, Dharwad, 25(4): pp 431-436.
- Pratibha, G., Korwar, G.R., and Sharma, K.L. (2004). Production potential of different oilseed crops on farm evaluation. *Journals of oilseeds research*, 21(2): 322-324.
- Ramasamy, C. and K.N.Selvaraj (2002). "Pulses, oilseed and coarse cereals: why they are slow growth crops", *Indian journal of agricultural economics*, Vol. 57, No. 3, pp: 289- 314.
- Rao, V.Y. and Raju, V.T. (2005). "Growth and instability of groundnut, (*Arachis hypogaea* L.) production in Andhra Pradesh: district wise analysis". *Journal of oilseeds research*, 22(1): 141-149.
- Sadeesh, J.A. (2006). Growth and instability analysis of major oilseed in India, *Agricultural situation in India*. 179-189.
- Samui, R. P., Kulkarni, P. S. and Vaidya, N. G. (2005), "On growth and fluctuation of production, area and yield of sugarcane in the districts of Maharashtra". *Agric. Situ. India*, 52 (1):41-53.
- Sawant S.D. (1997), Performance of Indian agriculture with special reference to regional variations, *Indian journal of agricultural economics*, Vol. 52, No. 03, July-sept.
- Shelke, R.D., Deshmukh, K.V and Chavan, R.V. (2015). Marketing pattern and price spread of groundnut in maharashtra state, college of agriculture, Vasantao Naik Marathwada Krishi Vidyapeeth.
- Shenoi, P.V. (2003), Impact assessment of oilseeds research in India and kinds of contribution of research in overall increase in oilseed production and productivity, *Indian journal of agricultural economics*, 57(3): 289-315, July.
- Singh, A. J. and Dhaliwal, S. (1993), Production performance, potentials and prospects for oilseeds in India. *Indian J. Agric. Econ.*, 48 (3): 357-361.
- Singh, G. and Chandra, H. (2004). Production and economic factors growth in cultivation of groundnut in India. *Journal of Oilseeds Research*, 21(1).
- Singh, G.N. and Verma, A.R (1978), Economics of Production, Marketing & Production of Groundnut in District unnao (U.P), *Indian Journal of Agricultural Marketing*, Vol.XXI, No.1, April.
- Singh, J. (2007). "Present agricultural scenario in India," *Kuruksetra*, July.

Sita rambabu, v., Farukh , Md. and Solmon R. paul, K. (2014). “Estimating growth rates, Decomposition analysis & instability of groundnut crop production in Andhrapradesh.

Sonnad, J.S, Raveendran, N., Ajjan,N. And Selvaraj,K.N. (2011). Growth Analysis of Oilseed Crops In India during Pre and Post WTO Periods\*. *Karnataka Journal of Agriculture Science*, 24(2):184-187.

Vanraj, S. B. (2008). An economic analysis of production and marketing of groundnut in Raigarh district of Chhattisgarh State. M.Sc. Thesis, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh. pp 50-56.

Velavan C. and Balakrishanan V. (2000), “Resource use efficiency in groundnut cultivation of salem. District- Tamil Nadu”. Vol. 52, No. 05.

### **Websites**

[www.agricoop.nic.in](http://www.agricoop.nic.in)

[www.agropedia.iitk.ac.in](http://www.agropedia.iitk.ac.in)

[www.apy.dacnet.nic.in](http://www.apy.dacnet.nic.in)

[www.indiastat.com./agriculture](http://www.indiastat.com./agriculture)

[www.Chhattisgarhstat.com](http://www.Chhattisgarhstat.com)

[www.mahasamund.gov.in](http://www.mahasamund.gov.in)

**APPENDIX- A**  
Schedule for interview

**DEPARTMENT OF AGRICULTURAL ECONOMICS  
INDIRA GANDHI KRISHI VISHWAVIDLAYA RAIPUR (C.G.)  
“PRODUCTION AND MARKETING OF GROUNDNUT IN MAHASAMUND  
DISTRICT OF CHHATTISGARH: AN ECONOMIC ANALYSIS”**

**Advisor: - Dr. Hulas Pathak**

Date	
------	--

**Investigator: - Sandeep Patel**

**Farmer Schedule**

**A. General information**

1. Name of farmers -----

2. Age -----3. Education -----

4. Caste (Gen./SC/ST/OBC)-----5. Village -----

6. Post -----7. Tehsil -----

8. District -----9. State -----

10. Occupation 1.Agricultural-----2.Others -----

**B. Details of the family**

S. N.	Name of family member	Relation to head	Sex M/F	Age	Education	occupation		
						FTW	PTW	Other
	Total							

\* 1 =Illiterate, 2 = Primary, 3 =High School, 4 =College, 5 = University

**C. Details of land holding****Land use**

Particulars		Area(ha)	Irrigation (ha)		Soil type	Land quality 1 High Quality 2 Medium Quality 3 Low Quality
			Irrigated	Un-irrigated		
Owned land	i. Cultivated					
	ii. Fallow					
Leased in						
Leased out						
Total land						

**D. Cropping pattern**

Season	Crops	Variety	Area (ha.)		Production (quintal)	Value (Rs)
			Irrigated	Un-irrigated		
Kharif						
(A)Total Kharif						
Rabi						
(B)Total Rabi						
Summer or Zaid						
(C)Total Summer or Zaid						
Total cropped area (A+B+C)						

**E. Source of irrigation**

S. No.	Particulars	Area (ha)	Irrigation charges
1.	Tank		
2.	Canal		
3.	Tube well		
4.	Bore well		
5.	Stop dam		
6.	Other		
	Total		

**F. Inventory**

Source	Number	Purchased value (Rs.)	Present value (Rs.)
<b>A. Animal</b>			
a. Cow			
b. Bullock			
<b>c. Calf</b>			
d. Buffaloes			
e. Poultry			
f. Goat			
g. Piggeries			
h. Others			
i.			
j.			
k.			
l.			
<b>B. Machine</b>			
a. Tractor/ Trolley			
b. Electric pump			
c. Diesel pump			
d. Cultivator			
e. Bullock cart			
f. Other			
g.			
h.			
i.			
<b>C. House</b>			
a. Kaccha/Pucca			
b. Farm house			
c. Store			
d. Other			
e.			
f.			
g.			

### G. Economics of Production.

#### 1. Cost of cultivation (Rs./ha.)

Crop -----Variety -----Area -----  
-----Irrigated----- Unirrigated -----

#### a. Operational cost

S. N	Operation	Family human labour (days)			Hired human labour (days)			Bullock power			Machine power			Total Cost at Particular operation
		M	F	T	M	F	T	O	H	R	O	H	R	
1.	Field preparation													
2.	Seed treatment													
3.	Sowing													
4.	Application of Manure & fertilizer													
5.	Intercultural operations													
6.	Earthing up													
7.	Irrigation/drainage													
8.	Plant protection													
9.	Harvesting/Digging & Threshing													
10.	Packing/Transportation													
11.	Miscellaneous													
	Total													

M= Male, F = Female, T = Total, O = Family labour, H = Hired labour, R= Rate/unit (Rs.)

**b. Input cost**

S.N.	Input	Quantity	RSR	Quantity	Rate(Rs.) / unit	Total value (Rs.)
1.	Seed a. b.					
2.	FYM					
3.	Fertilizers 1.Nitrogen 2.Potash 3.Phosphorus 4.others					
4.	Plant protection chemicals 1 2 3					
Total						

\*RSR= Recommended seed rate

c. Irrigation charges -----per ha.

d. Interest on working capital -----

e. Fixed cost

a) Rental value of owned land / leased in land (Rs.) -----

b) Land revenue (Rs.) -----

**Production**

Particular	Quantity produced (Qts.)	Consumption (Kg)	Quantity Sold (Qts.)	Rate (Rs)	Total Value (Rs)
<b>Groundnut</b>					
<b>By product</b>					
<b>A</b>					
<b>B</b>					
<b>Total</b>					

**Crop and Price Information**

	<b>Groundnut</b>
Area	
Main Yield	
Price per quintal	
Byproduct yield	
Price for Byproduct	
Total	

### **H. Marketing cost**

1. Name of crop .....
2. Quantity in each month sold (quintal) .....
3. To whom sold .....
4. Selling place .....
5. Price (Rs. /Qts.) .....
6. Distance to marketing place .....
7. Means of transportation a) Tractor b) Truck c) Bullock cart d) Other
8. Transportation charge (Rs.) .....
9. Loading/unloading charge .....
10. Commission charge (Rs.) ..... Miscellaneous .....
11. Packaging cost (Rs./q) .....
12. Bagging.....
13. Total marketing cost (Rs./Qts) .....

<b>Groundnut</b>	<b>Sale price of produce (Rs. /qts.)</b>	<b>Actual price of produce received (Rs. /qts.)</b>	<b>Total Marketing Charges (Rs./qts.)</b>

<b>I. Constraints in production of crops:</b>	
<b>QUESTIONS</b>	<b>Y/N</b>
1. Lack of latest technical knowledge about the crop If yes why?	
a. No frequent visit of scientist of kvk b. No visit to farmer's fair c. No visit to research station d. Not view the TV program related to agriculture e. Any other	
2. Lack of improved and high yielding varieties If yes, then	
a. Non availability of HYV seed b. Not timely available in market c. Not possible due to high price of seed d. Any other specify	
3. Lack of seed treatment	
a. No knowledge about seed treatment b. Cost of seed treatment is high c. Any other	
4. Lack of recommended package and practices of the crop in the region If yes, why	
a. No. such type of recommendation are available b. Not frequent visit of extension workers c. Not proper interest of farmer's d. Any others	
5. Lack of resources i.e. Money, equipment etc. If yes, then How you managing money?	
a. From bank b. From relatives c. From trader's/ commission agents d. Any other source	
6. Lack of irrigation water If yes, then how you irrigate your crop?	
a. Have you your own irrigation system b. Have you hired irrigation water c. Do you completely depend on rains	
7. Lack of labour Yes/No If yes then in which operation	
a. Weeding / thinning	
b. Harvesting and threshing	
8. Lack of nutrients in soil and lack of sufficient soil testing facilities If yes, then how you come to know the nutrient requirement of plant?	
a. ....	
b. ....	
9. Lack of financing at reasonable rate of interest If yes then what your	

suggestion.	
a.	
b.	
10. Attack of insect, pest and disease If yes, Specify them	
a.	
b.	
c.	
11. Any other	
<b>II. Constraint in marketing of crop:</b>	
<b>QUESTIONS</b>	<b>Y/N</b>
1. Low price paid to farmer's due to high marketing margin If Yes, What should be done?	
a. Sale after grading	
b. Sale during slack season	
c. Increase the support price	
d. Any other	
2. Lack of transportation facilities and road from village to market	
3. Whether you face problem because the quantity is small If Yes, then What steps you have taken to pool your produce?	
a. ....	
b. ....	
4. Lack of regulated market and co-operative market	
5. Whether you visit regulated market regularly If no give reasons for not going to the regulated markets	
a.	
b.	
c.	
6. Lack of storage facilities in growing area	
7. Whether you like to store your produce in storage to get high prices?	
8. Lack of support price	
9. Will high (increase) support price affect the production of crop?	
10. Lack of awareness about market news and intelligence	
11. What media do you have for marketing news?	
a. News paper	
b. Radio	
c. Television	
d. Other	
12. How soon the news is disseminated/spread in producing area:	
a. Within 2 days	

b. Within 4 days c. Within 9 days d. Never	
13. What type of market news you will prefer and in which form	
a. Demand of produce b. Supply of produce c. Price of produce d. All the above	
14. Whether you are satisfied with present method of sale and purchase of produce prevailing in mandi If No, then given you suggestion	
1. -----	
2. -----	
15. Is there any kinds of mal-practices prevailing on the groundnut marketing? If yes, then mention it	
1. -----	
2. -----	
3. -----	
16. Lack of implementation of MSP in groundnut..?	
17. Any other	

**Signature of the interviewer.....**

**APPENDIX- B**

Name of sampled households

Saraipali Block			Pithora Block		
S. No.	Farmer	Village	S. No	Farmer	Village
1	Kishori Lal Patel	Bonda	1	Mukesh Sahu	Saldih
2	Hem Lal Nishad	Bonda	2	Hirsing	Saldih
3	Gahki Sahu	Bonda	3	Ribay Bai	Saldih
4	Seeta ram Patel	Bonda	4	Johan Sing	Saldih
5	Ramesh Lal Patel	Bonda	5	Ram Ji Nishad	Saldih
6	Girdhari Sahu	Bonda	6	Bhim Rav Mandavi	Saldih
7	Omkar Prashad	Bonda	7	Manesh Patel	Saldih
8	Thakur Ram Sahu	Bonda	8	Gulam Nabi	Saldih
9	Puneet Sahu	Bonda	9	Dovashu Sahu	Saldih
10	Nehru Nishad	Bonda	10	Tijout Patel	Saldih
11	Raja Ram Patel	Bonda	11	Dharmraj Patel	Saldih
12	Gopi Sonkar	Girsha	12	Hemant Kumar	Gopalpur
13	Murari Sahu	Girsha	13	Sagar Ram Painkra	Gopalpur
14	Gangadhar Yadav	Girsha	14	Nageshwar Painkra	Gopalpur
15	Manohar Patel	Girsha	15	Anil Painkra	Gopalpur
16	Lalla Sahu	Girsha	16	Durli Chandra	Gopalpur
17	Bihari Patel	Girsha	17	Khemchandra Verma	Gopalpur
18	Bhikhari Sahu	Girsha	18	Kanhaiya Lal Sahu	Gopalpur
19	Dular Dau Patel	Girsha	19	Malkhan Patel	Gopalpur
20	Ratan Sahu	Girsha	20	Sukhcharan Verma	Gopalpur
21	Laxman Varma	Girsha	21	Punalal Patel	Gopalpur
22	Shasikant Yadav	Girsha	22	Baldev Patel	Gopalpur
23	Kishan Janghel	Limgaon	23	Girdhar Rana	Anshula
24	Rekha Lal Verma	Limgaon	24	Lakhan Patel	Anshula
25	Kishan Nishad	Limgaon	25	Salik Sahu	Anshula
26	Ravindra Janghel	Limgaon	26	Ashok Patel	Anshula
27	Domma Nishad	Limgaon	27	Bhaktiyaram Verma	Anshula
28	Hadmoram Kashyap	Limgaon	28	Hargun Chandrakar	Anshula

29	Raghu Ram	Limgaon	29	Lumkas Verma	Anshula
30	Pilu Kashyap	Limgaon	30	Ganesh Verma	Anshula
31	Sukul Kashyap	Limgaon	31	Manoj Munjariya	Anshula
32	Gyaneshwar Prashad Sinha	Limgaon	32	Ganesh Nag	Anshula
33	Harishchandra Lahere	Limgaon	33	Samlu Kasyap	Anshula
34	Mandas Sahu	Patsendri	34	Masuram More	Sarkanda
35	Pratap Sinha	Patsendri	35	Baliyar	Sarkanda
36	Ishwar Sinha	Patsendri	36	Sampat Thakur	Sarkanda
37	Dwarka Rana	Patsendri	37	Baldev Kashyap	Sarkanda
38	Mannu Devangan	Patsendri	38	Kishan Lal Verma	Sarkanda
39	Dwarka Prashad Naik	Patsendri	39	Hinsa Ram Sahu	Sarkanda
40	Kapil Sinha	Patsendri	40	Narshingh Patel	Sarkanda
41	Namdev Deshlehere	Patsendri	41	Nand Kumar Verma	Sarkanda
42	Satrughan Yadav	Patsendri	42	Kallu Rana	Sarkanda
43	Kamla Bai Lehre	Patsendri	43	Bharosa Patel	Sarkanda
44	Korabhara Das	Patsendri	44	Dharam Bariyan	Sarkanda
45	Shantosh Kumar Rana	Khairmal	45	Ram Lal Patel	Khuteri
46	Manikdas Lehre	Khairmal	46	Naresh Patel	Khuteri
47	Amar Singh	Khairmal	47	Ishwari Das Deheria	Khuteri
48	Nanahu Kashyap	Khairmal	48	Amoli Patel	Khuteri
49	Dileep Rana	Khairmal	49	Dharmraj Mandle	Khuteri
50	Netram Patel	Khairmal	50	Krishna	Khuteri
51	Madho Kevat	Khairmal	51	Amardas Deheria	Khuteri
52	Shukhendra Patel	Khairmal	52	Sonuram Ratre	Khuteri
53	Dilharan Patel	Khairmal	53	Nathu Kashyap	Khuteri
54	Laxaman Patel	Khairmal	54	Vishal Mandle	Khuteri
55	Puniram Kevat	Khairmal	55	Basant Das Patel	Khuteri

Basna Block					
S. No.	Farmer	Village			
1	Kailash Sahu	Singhanpur	23	Surendra patel	Thakurpali
2	Balwant Baghel	Singhanpur	24	Ganesh patel	Thakurpali
3	Bbihari Sahu	Singhanpur	25	Dayaram Satnami	Thakurpali
4	Gowardhan Kashyap	Singhanpur	26	Bharat khetrapal	Thakurpali
5	Rameshwar Sahu	Singhanpur	27	Dharm Das	Thakurpali
6	Lakhan Lal Kevat	Singhanpur	28	Shankar Patel	Thakurpali
7	Radheshyam Sahu	Singhanpur	29	Ganga Ram	Thakurpali
8	Manharan Kevat	Singhanpur	30	Shampat patel	Thakurpali
9	Bharat Lal Sahu	Singhanpur	31	Mundiya Sahu	Thakurpali
10	Ghanshyam Sahu	Singhanpur	32	Dhaniram	Thakurpali
11	Dilip Patel	Singhanpur	33	Mangal	Thakurpali
12	Ghasiyaram Kurrey	Umriya	34	Kushal chand	Udela
13	Phekuram Sahu	Umriya	35	Damru Sahu	Udela
14	Kalicharan Kashyap	Umriya	36	Anant Ram	Udela
15	Bhagwali Sahu	Umriya	37	Dayalu Satnami	Udela
16	Dukhiram Patel	Umriya	38	Lalhu Das	Udela
17	Bhola Suryawanshi	Umriya	39	Jaldhar Kurrey	Udela
18	Dashrath Lal Sahu	Umriya	40	Ramlal	Udela
19	Ramnarayan Kevat	Umriya	41	Kartik	Udela
20	Shayam Bhaw Kevat	Umriya	42	Vikram Kevat	Udela
21	Vishawnath Suryawanshi	Umriya	43	Dayaram	Udela
22	Ramkhelawan Patel	Umriya	44	Ramchandra	Udela

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Membership of Professional Societies (If any) : No

Awards / Recognitions (If any) : No

Publications (If any): In numbers only : No

  
Signature



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