EXPORT PERFORMANCE OF GROUNDNUT IN INDIA

THESIS

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Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola
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DECLARATION OF STUDENT

I hereby declare that, the experimental work and its interpretation in the thesis entitled **"EXPORT PERFORMANCE OF GROUNDNUT IN INDIA"** or part thereof has neither been submitted for any other degree or diploma of any University, nor the data have been derived from any thesis or publication of any University or scientific organization. The source of materials used and all the assistance received during the course of investigation have been duly acknowledged.

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CERTIFICATE

This is to certify that, thesis entitled **"EXPORT PERFORMANCE OF GROUNDNUT IN INDIA"** submitted in partial fulfilment of the requirements for the degree of **"Master of Science in Agriculture (Agricultural Economics)"** of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola is a record of bonafide research work carried out by **PALLEPATI ASHWINI** under my guidance and supervision.

The subject of the thesis has been approved by the Student's Advisory Committee.

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(D) Abbreviations

%	:	Per cent
/	:	Per
Agril.	:	Agricultural
AoA	:	Agreement on Agriculture
APMC	:	Agricultural Produce Marketing Committee
APEDA	:	Agricultural and Processed foods Export Development Authority
CAGR	:	Compound Annual Growth Rate
CGR	:	Compound Growth Rate
CII	:	Coppock's Instability Index
CV	:	Coefficient of Variation
CSO	:	Central Statistical Organization
DRC	:	Domestic Resource Cost
EPC	:	Effective Protection Coefficient
et al.	:	Et alia (and associate)
etc.	:	Etcetera
EU	:	European Union
FAO	:	Food and Agricultural Organization
FDI	:	Foreign Direct Investment
Fig.	:	Figure
FY	:	Financial Year

GDP	:	Gross Domestic Product
Govt.	:	Government
ha.	:	Hectares
i.e.	:	That is
J.	:	Journal
Kg	:	Kilogram
m	:	Million
MT	:	Metric Tonnes
M. Sc.	:	Master of Science
NPC	:	Nominal Protection Coefficient
No.	:	Number
Ph. D.	:	Doctor of Philosophy
PAM	:	Policy Analysis Matrix
Qty.	:	Quantity
Res.	:	Research
RCA	:	Revealed Comparative Advantage
Rs.	:	Rupees
SAARC	:	South Asian Association for Regional Cooperation
Sr. No.	:	Serial Number
SRP	:	Subsidy Ratio to Producers
TE	:	Triennium Ending
UAE	:	United Arab Emirates
UAS	:	University of Agricultural Sciences

UK	:	United Kingdom
Unpub.	:	Unpublished
USA	:	United States of America
Viz.	:	Namely
Vol.	:	Volume
WTO	:	World Trade Organization
Yrs.	:	Years

(F) THESIS ABSTRACT

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ABSTRACT

The present study entitled “Export Performance of Groundnut in India” was undertaken to know growth and instability in area, production, productivity and export of groundnut, trend in domestic and international prices and competitiveness of groundnut export. The nature of data used

for the study is entirely based on secondary source of data from 1988-89 to 2017-18.

The growth in area, production, productivity and export of groundnut was measured by Compound Growth Rate. Coefficient of Variation and Coppock's Instability Index were used for working out the instability in area, production, productivity and export of groundnut. Quadratic production function was used to study the trend in domestic and international prices of groundnut. The export competitiveness of groundnut was measured by Nominal Protection Coefficient.

There is increase in agriculture exports but percentage share of agriculture export to total export was decreasing due to increase in share of manufacturing sector, service sector etc. There is increase in quantity of India's groundnut export to world groundnut export.

The growth rate of groundnut area in India is found to be negative and significant during period I, period II and overall period of the study. The growth rate of production was non-significant during over all period. The growth rate of productivity was positive and significant during period II and over all period. The growth of export quantity and export value was found to be positive and significant during period I, period II and overall period.

The area of groundnut exhibited less variability with coefficient of variation at 11.79 per cent and 12.24 per cent in period I and period II, respectively and it was 19.44 per cent in over all period. The production of groundnut exhibited less variability with coefficient of variation at 18.65 per cent and 19.31 per cent in period I and over all period, respectively, while it was highest in period II at 20.62 per cent. The variability in productivity was less in period I with 14.37 per cent and it was higher with 21.85 per cent and 24.75 per cent in period II and overall period, respectively. As regard to the export quantity and export value of groundnut the highest variation was observed with 87.74 per cent and 127.75 per cent in over all period.

Coppock's Instability Index shows the highest variation in export value of the groundnut at 65.09 per cent, followed by export quantity at

39.16 per cent during over all period. Instability in ground area and productivity was higher in over all period and the instability in production was higher in period II.

Trend in domestic price of groundnut was increasing at increasing rate. Trend in international price of groundnut was decreasing at increasing rate.

The NPC value of groundnut showed the average NPC value as 00.88 per cent and 00.97 per cent in period I and period II, respectively and the NPC value for over all period was 00.92 per cent. It indicates moderately competitiveness in international market.

CHAPTER I

INTRODUCTION

1.1 Background Information

Agriculture is the most significant sector of Indian economy. Indian agriculture sector accounts 18.00 per cent of India's gross domestic product (GDP) and provides employment to 50.00 per cent of the countries workforce. About 68.00 per cent population lives in rural areas. The main occupation of rural people is agriculture. About 75.00 per cent of its population and 66.67 per cent of labour force directly or indirectly is dependent on agriculture for livelihood. Large number of important industries like jute, textiles, edible oils, tobacco, sugar etc. receives the raw materials produced by agriculture sector. All types of crops representing cereals, pulses, oilseeds, fibres, spices and condiments and many other are grown in our country.

Indian agriculture plays a vital role in internal and external trade of the country. Agriculture is the backbone of Indian economy. India exports excess food and agricultural products. It helps in increasing the foreign exchange. India has ranked tenth in terms of agricultural exports. India's foreign trade is deeply associated with agriculture sector. Agriculture accounts for about 14.70 per cent of the total export earnings. Agricultural exports were 44.00 per cent of total exports in FY 1960 and decreased to 18.60 in 1988 and to 13.20 per cent during the year 2017-18. India ranks among the top three producers in world's in most of the agricultural commodities but it ranks 10th in global agricultural export. High and increasing domestic demand due to large and rising population and increasing income adversely affects India's agricultural exports (Ansari and Khan, 2015).

Groundnut (*Arachis hypogaea) is* one of the world's important oilseed crops. Its seeds are rich sources of edible oil and protein. Groundnuts are also known as peanuts or monkey nuts, are the edible seeds of a legume plant that grow to maturity in the ground. It is cultivated in nearly 100 countries, over 90.00 per cent of which are developing

countries. India occupies a prominent position in the world oilseeds industry with contribution of around 10.00 per cent in worldwide production.

Groundnuts have a rich nutty flavour, sweet taste, crunchy texture and over and above a relatively longer shelf life. Soil conditions in some producing regions are ideally suited for dry, clean, spotless groundnuts in shell. Groundnut is essentially a tropical plant. It requires a long and warm growing season. The most favourable climatic conditions for groundnut are a well distributed rainfall of at least 50 centimetres during growing season, abundance of sunshine and relatively warm temperature. It seems that plant will grow best when the mean temperature is 21^0C to 26.5^0C. Lower temperatures are not suitable for its proper development. During ripening period, it requires about a month of warm, dry weather. Groundnuts in India are available throughout the year due to a two-crop cycle harvested in March and October. Groundnut is important protein crop in India grown mostly under rain-fed conditions.

Groundnut is called as the 'king' of oilseeds. It is one of the most important food and cash crops of India. Groundnut plays a vital role in bringing down the oil deficit in India. While being a valuable source of all the nutrients, it is a low priced commodity. Groundnut is also called as wonder nut and poor man's cashew nut. Groundnut is particularly valued for its protein content with 26 per cent protein. On equal weight basis groundnuts contain more protein than meat and about two and a half times more than eggs. In addition to protein, groundnuts are a good source of calcium, phosphorus, iron, zinc and boron. It also contains vitamin 'E' and small amounts of vitamin 'B' complex. Being an oilseed crop, it contains 40.00 to 49.00 per cent of oil. Peanuts have a variety of industrial end uses. Paint, varnish, lubricating oil, furniture polish and insecticides are made from peanut oil. Many cosmetics contain peanut oil and its derivatives. The protein portion is used in the manufacture of some textile fibres. Peanut shells are used in the manufacture of plastic, wallboard, abrasives, fuel, cellulose and mucilage.

China and India are the major producers of groundnut followed by African countries and central South America. Groundnut is the major oilseed crop of India. India is the second largest producer of groundnuts in the world. The states of India *i.e.* Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu account for about 90 per cent of groundnut producing area. Area under groundnut was 4898.00 (000 hectares) during the year 2017-18. The production of groundnut in India was 7461.53(000 Tonnes) during the year 2016-17. Gujarat ranked first with a share of 42.31 per cent among the Indian states. Rajasthan and Andhra Pradesh were in the second and third positions with a share of 15.28 per cent and 08.08 per cent, respectively during the year 2016-17. The production of groundnut in India reached 9179.00(000 Tonnes) during the year 2017-18. And the productivity of groundnut in India was 01.87 MT per hectare during the year 2017-18.

For decades after independence in 1947, India embarked on a program of autarky (national economic self-sufficiency) which included import substitution policies. By 1991, however, a sluggish economy combined with the forces of globalization led to a more open Indian economy. There was simultaneously a gradual rise in exports, imports, foreign direct investment (FDI), and overall economic growth. India exports approximately 7500 commodities to about 190 countries. India's share to world export was 00.46 per cent during the year 1988-89 and increased to 01.69 percent during 2017-18. The global trade reforms of early 90s and the establishment of WTO in mid 90s resulted in increased interaction of Indian economy with rest of the world economies which brought a vast change in India's farm economy and especially in oilseed sector. Globalization increased the availability of cheap imported palm oil in India consequently decreased crushing demand for groundnut domestically. On the other hand its demand for direct consumption and export has increased in recent past. As a result perspective of groundnut in the country has changed from major source of edible oils to table purpose in recent period.

India exports groundnut to more than 75 countries including Indonesia, Malaysia, UAE, Gulf, Srilanka, Philippines, Canada, UK and EU

countries. Indian groundnut export had accounted 22321.00 MT for the worth of Rs.20.93 crores during the year 1988-89. The country has exported 504019.21 MT of groundnuts to the world for the worth of Rs. 3386.30 crores during the year 2017-18. The export of groundnut has been increasing significantly. Major export destinations were Indonesia, Vietnam, Soc Republic, Philippines, Malaysia and Pakistan Ir. Groundnut export is very thin in world market because domestic consumption is high in major groundnut producing countries. Only less than five per cent of global groundnut production is traded internationally. Most of the edible groundnuts are not cultivated for export purposes. In other words, producers do not usually grow the groundnut varieties best adapted to specific export market uses.

1.2 Importance of the study

India has a comparative advantage in the production and the exports of agricultural commodities. Exports of these commodities are the main source of foreign exchange earnings. In several agricultural sectors, India is the world's leading or one of the largest producers. The agricultural sector in the country is known for its high degree of product diversity. The complementary nature of a number of important Indian agricultural products, in comparison to those produced in west and other countries provide India considerable export opportunities to these markets. At present, the Indian agriculture industry is on the brink of a revolution, which will modernize the entire food chain, as the total food production in the country is likely to double in the next ten years.

There is need to study the export and factors which are responsible to enhance the exports from the country. India has high agricultural production. Even our export in world trade is very small. With a view to promote agriculture in the country and to fetch remunerative returns to the farming community in the sustained manner, the state and the central government have been encouraging export of agriculture and food products from India. Therefore, it is imperative to study the market opportunities and to plan for appropriate export marketing strategy and policy so as to strengthen the export trade in groundnut. Indian groundnut

has more demand in world market. In view of importance of export trade of groundnut, the study entitled “Export performance of groundnut in India” was made to know the status and prospects of groundnut.

1.3 Objectives of the study

1. To estimate the growth in area, production, productivity and export of groundnut
2. To work out the instability in area, production, productivity and export of groundnut
3. To study the trend in domestic and international prices of groundnut
4. To study the export competitiveness of groundnut

1.4 Hypotheses

1. There is growth in area, production, productivity and export of groundnut in India.
2. Groundnut has better competitiveness in international market**.**

1.5 Scope and Limitations

Scope of the study

In the preview of WTO and AoA, the trade policy reforms resulted in increased competitiveness in agricultural production and trade. The competitiveness of Indian groundnut in term of production and export in post-WTO period is crucial to analyze groundnut sustainability in domestic and international markets. Influence of the factors like, area, production, domestic and international prices on the groundnut export from India need to be studied. The study of change in direction of export will identify major outlets and their prudence over the period and this study helps in finding export competitiveness of groundnut. It will aid in export promotion policies to strengthen the export performance of Indian groundnut in international market.

To know the reasons behind the decreasing acreage under groundnut since onset of globalization, the present study has become formidable and imperative. It will be helpful to all stakeholders and agencies involved in production and export of groundnut in designing

suitable future policies to face the challenges ahead. The findings of the study will be of immense use to the government institutions and agencies which are playing the key role in marketing and price policy formulation at central and state level in the country. Overall, information on production and export will be useful to the policy makers for encouraging domestic production and to enhance the export from India. It will help in order to sustain the image of India as regular and reliable groundnut exporter to the world market.

Limitations of the study

The present study is focused on a single crop Groundnut. The present study is purely based on the secondary data hence accuracy of the findings is subject to the precision and truthfulness of information used in the study. Often data from various sources may not agree with each other and some efforts to choose the better among them are inevitable. Care has been taken to avoid personal bias in such decisions. However, the limitations inherent in the secondary data are to be recognized.

CHAPTER II

REVIEW OF LITERATURE

The review of literature is one of the important aspects in the research process which helps researcher to get acquainted with the subject matter under study and channelize future efforts in desirable directions. It provides necessary guidelines and helps the researcher to delineate the research problem.

The main purpose of this study is to determine the growth in area, production, productivity and export of groundnut, to work out the instability in area, production, productivity and export of groundnut over the study period, to study the trend in domestic and international prices of groundnut and to study the export competitiveness of groundnut. Several research workers have worked on the problem in different regions. This chapter takes brief account of research work in growth and instability in area, production, productivity and export and trend in domestic and international prices and export competitiveness of groundnut. This chapter has been organised into the following subsections.

1. Growth and instability in area, production, productivity and export of groundnut.
2. Trend in domestic and international prices of groundnut.
3. Export competitiveness of groundnut.

2.1 Growth and instability in area, production, productivity and export of groundnut

Narappanavar (1984) in his Ph.D. dissertation on the oils and oilseeds economy of India - an econometric analysis analyzed the inter-temporal changes in area, production and yield of groundnut during 1954 to 1979. In 1970s, groundnut accounted 46.92 per cent to the total oilseeds area and contributed 66.54 per cent to the total oilseeds production. The major groundnut producing states in India were Andhra Pradesh, Tamil Nadu, Gujarat, Karnataka, Maharashtra, Madhya Pradesh and Uttar

Pradesh jointly contributed around 90.00 per cent to national area and production each. Gujarat's share improved from 22.09 to 25.15 per cent in area and 20.39 to 28.47 per cent in production from 1954-55 to 1978-79, respectively. The coefficient of variation in case of area, production and yield was observed as 22.93, 23.23 and 20.15 per cent, respectively indicated highest instability in groundnut production followed by area and yield.

Singh and Dhaliwal (1993) have studied the production performance of oilseeds in India from 1965 to 1991. The study revealed that, the growth rates of production and yield of groundnut were found to be 02.59 and 02.90 per cent respectively during period I (1965-66 to 1975-76) whereas area recorded the negative growth rate of 00.31 per cent. During period II (1976-77 to 1990-91) the growth rates of area, production and yield were found to be 01.18, 02.68 and 01.50 per cent, respectively. They also revealed that, the production performance of groundnut was improved in period II as compared to period I.

Tripathy and Srinivasa Gowda (1993) analyzed the growth, instability and area response of groundnut in Orissa from 1970-72 to 1989-90. They found that, groundnut area and production recorded the significant growth of 10.36 and 10.29 per cent, respectively. Yield of groundnut was found with a negative growth rate of 00.06 per cent. The coefficient of variation in case of area, production and yield during period I (1970-71 to 1979-80) was observed as 10.81, 17.85 and 17.52 per cent, respectively indicated highest instability in groundnut production followed by yield and area. The coefficient of variation in case of area, production and yield during period II(1980-81 to 1989-90) was observed as 06.89, 08.68 and 07.88 per cent, respectively.

Addisu (2000) analyzed the production instability and factors determining the area and yield of major oil seed crops. The factors influencing area and yield of oil seeds were studied by employing regression analysis, where area and yield were regressed on selected causal factors such as irrigation, relative prices, rainfall and labour wages. These factors showed significant impact on area and yield of oil seeds.

Talawar (2004) in his book Peanut in India mentioned that, groundnut area in India expanded after second half of the 18th century. By 1850, about 1000 hectares was under peanut cultivation in the Madras Presidency of India which doubled in the next decade. Later by 1895, about 70,000 hectares were sown with groundnuts. Between 1910 and 1945, the crop spread from Madras to Gujarat, and gradually to all the way down to the south-west of India. He also mentioned that before the Second World War, groundnut was exported from India as kernels (Shelled) and pod (In-shell). The average annual export of groundnut kernels during the triennium ending 1938-39 was about 40.00 per cent of total production in the country. He considered that India had a tremendous potential of exporting groundnuts to countries, mainly UK, Holland, Russia, Indonesia, Japan, New Zealand, and Australia.

Pandey *et al.* (2005) estimated the instability in oilseeds production in India during 1986-2002. They have analyzed the instability in productivity for the major oilseeds in selected states of India. The study revealed that, except for groundnut in Andhra Pradesh, yield of oilseeds in the selected states was higher during the period II (1994-95 to 2001-02). The yield instability in terms of coefficient of variation showed a mixed response in groundnut. Groundnut has shown the variability in yield with 40.92 per cent during the overall study period. It increased in Andhra Pradesh and declined in Gujarat during period II. The instability of yield increased in the case of rapeseed and mustard and decreased in sunflower and soybean.

Karnool *et al.* (2007) estimated the growth in groundnut exports during pre- (1984-85 to 1994-95) and post-WTO period (1995-96 to 2004-05). During pre-WTO period, groundnut exports in quantity, value and price term recorded the significant growth of 10.82, 16.34 and 00.71 per cent, respectively. In post-WTO, this growth became insignificant for export quantity and value term while, export price increased significantly indicated that groundnut export from India was adversely affected by liberalization of trade in agriculture.

Vaishali (2010) studied performance of Indian agriculture exports among SAARC countries. The study revealed that, the compound growth rate of export quantity of Mango was 58.17 per cent and for Onion it was 55.43 per cent for the period 1991-92 to 2008-09. The compound growth rate of export value of Mango was 69.25 per cent and for Onion it was 152.72 per cent for overall study period (1991-92 to 2008-09). The compound growth rate of export of mango and onion was significant.

Chand *et al.* (2011) estimated the instability and regional variations in Indian agricultural output and productivity of major agricultural commodities across states. In groundnut, the instability in groundnut area has decreased from 09.52 to 05.85 per cent from 1951 to 2007 but production instability has doubled from 14.07 to 29.81 from pre to post-WTO period respectively due to higher instability in the groundnut yield in later period. Production instability in a crop depends significantly on the irrigation coverage of a crop which was only 17.00 per cent in groundnut. The major cause of increase in instability in groundnut yield was the occurrence of frequent and severe droughts during 1994-95 and 2008-09, respectively.

Kannan and Sundaram (2011) analyzed the trends and patterns in India's agricultural growth in major crops including groundnut during 1967-68 to 2007-08. The percentage share of groundnut area to gross cropped area shown decreasing trend as 04.42, 04.14, 03.68 and 03.20 per cent during TE 1970-71, TE 1980-81, TE 2000-01 and TE 2007-08, respectively. Similarly trend in proportionate share of value groundnut output to total value of output (at 1999-2000 Prices) also decreased 03.94, 03.28, 02.36 and 02.16 during respective triennial endings. Groundnut area, production and yield growth (%) was measured at 0.00, 1.64 and 1.64, respectively during 1967-68 to 1979-80; 01.65, 03.76 and 02.08 during 1980-81 to 1989-90; -02.31, -01.25 and 01.08 during 1990-91 to 1999-00; -00.40, 03.00 and 03.41 during 2000-01 to 2007-08. During overall period 1967-68 to 2007-08 area decreased at -00.26 per cent whereas its production increased at 0.86 per cent and yield increased at 01.12% in the country. Therefore the period of 90s was worst for Indian

groundnut because its production recorded negative growth during this period.

Amarender Reddy (2013) studied agricultural productivity growth of various crops in Orissa during the period 1971-2008. The study revealed that, the compound annual growth rates of oilseeds in India. The area, production and productivity have shown the growth rate of 01.37 per cent, 03.05 per cent and 01.68 per cent, respectively during period I (1971 to 1990). During period II (1991 to 2008), the growth rates of area, production and productivity of oilseeds were found to be 00.04 per cent, 01.54 per cent and 01.49 per cent, respectively.

Lokapur *et al*. (2014) studied the production and export of groundnut from India. They revealed that, among the major groundnut growing Indian states, Gujarat was the leading state in the country with the share of 33.26 per cent contributing 32.37 per cent of the nation's groundnut production. And the quantity of groundnut exported over the years rose from 1.3 lakh tons in 2000-01 to 4.1 lakh tons in 2010-11. The increase export was in tune with increase in production as India is the major producer and consumer of groundnut.

U.Rani *et al.* (2014) in their study on competitiveness of major crops in post-WTO period in Andhra Pradesh found the weakening performance of groundnut crop in the state. The growth rate of groundnut production was negative with -1.55 per cent in AP. More than this, productivity started plummeting from 787 kilograms per hectare in 1985-86 to 728 kilograms per hectare in 2005-06 with a negative growth rate of 00.86 per cent per annum. Growth in its area, production and productivity in post-WTO period was depressing with negative trends due to decline in domestic prices and high fluctuations in yield. But in pre-WTO period, area and production grew at a high rate of 04.15 per cent and 05.20 per cent respectively along with yield increased at 00.99 per cent.

Meena *et al.* (2015) in their study on dynamics of oilseeds and edible oilseed sector in India analyzed changing scenario of oilseed sector between 1980 and 2010 and found a huge transformation in post-WTO period. The share of groundnut area to total oilseeds acreage was

39.52 per cent during TE 1982-83, declined to 22.36 per cent by TE 2009-10, similar trend was seen in area share of others oilseeds, decreased from 32.73 to 14.01 per cent. Whereas share of soybean to total oilseeds acreage increased from just 3.43 per cent in TE 1982-83 to 35.07 per cent by TE 2009-10. The groundnut was the largest cultivated oilseeds before implementation of AoA.

Pattnaik and Shah (2015) in their study on trends and decomposition of agricultural growth and crop output in Gujarat analyzed agricultural productivity and cropping pattern from 1990-91 to 2010-11. They found that, the area under groundnuts declined over the period, constituted around 15.00 per cent of the total cropped area during 2010-11. Groundnut yield registered more than 10.00 per cent annual growth rate with higher instability of more than 30.00 per cent coefficient of variation during 1990-91 to 2010-11.

Nethravathi and Yeledhalli (2016) studied the growth and instability in area, production and productivity of different crops in Bengaluru division. The results revealed that, Bengaluru urban had the highest CAGR (compound average growth rate) which was 24.26 per cent productivity of avarage was significant at 5 per cent level. In Bengaluru Rural the highest CAGR was 22.26 per cent in productivity of avare (significant at 1 per cent). Production of chrysanthemum had growth of 22.36 per cent was the highest annual growth and 04.00 per cent (area of tamarind) was found to be lowest instability for selected crops in Chitradurga, In Davanagere the highest CAGR was observed in productivity of tomato at 9.12 per cent. In Kolar district, 19.65 per cent instability observed in production of avare & was significant at one per cent. In Shivamogga district highest CAGR observed in production of sunflower to an extent 29.57 per cent. In Tumkuru area under green chillies was growing at rate of 34.46 per cent per annum.

Sharma (2016) studied development programmes and performance of oilseeds sector in India. The study revealed that the area, production and yield of oilseeds in India have grown at a compound annual rate of 01.40 per cent, 03.40 per cent and 02.00 per cent, respectively

during the period 1970-71 to 2012-13. Growth in area and production of soybean and sunflower was found to be higher as compared to other oil seed crops. Overall instability in area under oilseeds was found to be 08.00 per cent, while fluctuation in production was 14.00 per cent and yield instability was 09.50 per cent during the study period. Instability of groundnut area, production and productivity were found to be 10.40 per cent, 19.90 per cent and 15.50 per cent, respectively during overall study period.

Audichy Ranjana *et al*. (2017) studied the production and export performance of Indian groundnut from 2004-05 to 2013-14. The study revealed that, groundnut production has shown a positive annual growth of 00.44 per cent at national level. The groundnut production was maximum in the year 2013-14 and it was minimum during 2012-13. The productivity of groundnut has shown a positive growth rate of 03.43 per cent per annum at national level. The groundnut productivity was maximum in the year 2013-14 (1765 kg/ha) and it was minimum during 2006-07 (865 kg/ha). Groundnut export had shown very high positive and significant growth rate of 15.89 per cent per annum in terms of quantity. The export quantity of groundnut has fluctuated between 177 thousand tonnes to about 833 thousand tonnes in the study period. The highest quantity of groundnut was exported during the year 2011-12(833 thousand tonnes) and lowest during the year 2004-05 (177 thousand tonnes). The export quantity of groundnut showed a lot of variations during the period under consideration. Export quantity of groundnut from India had increased till 2011-12 and thereafter during 2012-13 and 2013-14, fall in exported quantity was observed and exported quantity became 510 thousand tonnes in the year 2013-14. And it also revealed that quantity of groundnut exported had shown instability of 21.58 per cent which indicate that during the study period export of groundnut was stable. This may be due to demand for Indian groundnut got better in international market in recent times. Moreover, groundnut price was also competitive since domestic market was not so high. At all India level, area under groundnut showed

instability of 06.56 per cent. Groundnut production and productivity had showed instability of 24.39 and 19.99 per cent respectively.

R.Sangeetha *et al*. (2017) studied an econometric analysis on groundnut markets in India. They revealed that, the compound annual growth rates (CAGRs) of area, and production during the study period (1950-51 to 2015-16) were found to be -00.88 and 00.47 respectively. Gujarat ranked first in area and production followed by Andhra Pradesh and Tamil Nadu. The data revealed that, more than 80.00 per cent of production was contributed by Southern States alone while the oil products were used throughout India.

Meena *et al.* (2018) in their study on assessing export competitiveness of Indian groundnut. They revealed that, at all-India level, groundnut acreage shrunk significantly due to negative growth (at CAGR of -2.08%) from 1996-97 to 2013-14 . Its production was found highly unstable with non-significant growth. Production was found with a compound growth rate of 00.17 per cent and yield recorded significant positive growth of 02.30 per cent per annum during the overall study period. Instability in area, production and productivity was found to be 09.0, 40.00 and 34.00 per cent respectively. They also revealed that, export quantity of groundnut has shown the significant growth rate of 11.35 per cent and and instability with 80.00 per cent during the overall study period.

2.2 Trend in domestic and international prices of Groundnut

Verma (1985) studied the seasonal fluctuations in the prices of groundnut in district Unnoo (U.P.) and stated that the adjusted seasonal index arrivals of groundnut in Bhagarman market for a period of 1981-82 to 1983-84 was the highest in the month of December (400.54) and lowest in month of September (02.14). It was observed that the market arrivals of groundnut gradually increased from the month of October (21.27) to November (222.90) and reached its peak by December (400.54) and thereafter gradually decreased in January (280.55), Febraury (04.62) and March (45.84). The adjusted seasonal index of prices of groundnut reached to its peak in the month of August (119.52). The adjusted seasonal index

was observed as minimum in the month of October (75.93) followed by November (82.87) and December (85.21).

Patel (1988) in his study on fluctuating prices and farm enterprise in Indian agriculture observed that, by 1980-81 most of the prices increased by either cent per cent or more than that of the year 1970-71. Though the extent of such rise varied widely, the estimates of coefficient of variation for the individual crop price indices during the study period worked out to 19.62 per cent for cereals, 31.42 per cent for pulses, 26.97 per cent for oilseeds and 21.74 per cent for all agricultural commodities.

Doddaiah and Chengappa (1991) observed that the time series data pertaining to annual prices of groundnut, groundnut oil and groundnut cake exhibited an increasing trend over the seven year period. The average rate of increase per year per quintal was Rs. 42.54 for groundnut, Rs. 106.13 for groundnut oil and Rs. 8.58 for groundnut cake for the period 1981-87. The seasonality in prices of groundnut and groundnut oil were more pronounced when compared to the price of groundnut oilcake. The variability in the prices of groundnut and oil was further confirmed by the coefficients of variation in seasonal indices and prices.

Mishra and Shrivastava (1998) examined the extent of variation in arrivals and relative prices of gram and soybean in different seasons in two mandis of M.P. The trend value of total arrival of gram was about 52.00 per cent during harvesting season. In case of soybean it was 74.00 per cent. The price in general was the lowest during the harvest season and increased in post harvest and pre harvest season in both the cases of gram and soybean.

Guledgudda (2005) studied trend in wholesale prices of raw cashew nut. The trend analysis revealed that, the linear growth in wholesale prices of raw cashew nut in different markets of India were found to be increasing trend and also shows highly significant at one per cent level of probability. Among the markets the increase in wholesale price trend was found highest in Goa market followed by Kerala, Andhra Pradesh, Karnataka and Tamil Nadu.

Pandey *et al.* (2005) estimated the instability in oilseeds production in India during 1986-2002. They revealed that the prices of oilseeds decreased in all the selected states during period II (1994-95 to 2001-02) as compared to those in period I (1986-87 to 1993-94), except for sunflower in Karnataka. The price instability in groundnut was 13.42 per cent during overall study period. The price instability increased in the cases of rapeseed and mustard in Punjab, sunflower in Maharashtra and soybean in Madhya Pradesh during period II as compared to that in period I. In all other cases, the instability in prices reduced. This may be due to the imports of cheaper edible oilseeds and oils during period II, which kept prices of major oilseeds low but stable in the country.

Yogisha G. M. (2005) studied the trend in arrival and price of groundnut, onion, ragi and potato in Bangalore, Chikkaballapur, Chintamani, Kolar, Srinivaspur markets over the period of 1994-95 to 2004-05. She found an increasing prices in the initial period followed by decreasing prices in the later period. Increasing price trend was found in case of Bangalore and Chintamani. Chikkaballpur and Srinivaspur showed exactly reverse of the above where in the initial periods prices was decreasing and in the mid period it started increasing while in the later period the prices was decreasing. Kolar showed increasing trend in initial period later it found to be decreasing.

Thanuja (2006) studied trend in domestic and international prices of ginger. The study revealed that trend in domestic prices of ginger was fluctuating in the late periods of WTO. The domestic prices depended on the supply of ginger, number of traders and buyers, gulf crises in the early and mid nineties. Devaluation of rupee was also a main reason for the cheaper export price. In late periods of WTO the prices again started decreasing due to supply outstripping the demand globally. The international prices of Cochin ginger were found to be decreased in late 90’s and now it was fluctuating due to competition from the countries like China, Nigeria and Thailand. In the late period, the situation of fluctuating prices was due to imbalance between supply and demand for ginger.

Murthy *et al.* (2014) examined the trend in prices and arrivals of Grapes in Hyderabad market. It has been observed that, the analysis of data on prices and arrivals of grapes coming to Hyderabad market for the period from 1991-92 to 2000-01 indicated that the prices were growing at rate of 08.67 per cent per annum and arrivals at the rate of 22.04 per cent annum.

Sangeetha *et al.* (2017) studied an econometric analysis on groundnut markets in India. They studied the causal relationship among the markets price of major Groundnut markets in India were approached through Granger's Causality technique. They revealed that existence of mostly bidirectional causality as well as unidirectional causality markets among groundnut of Tamil Nadu. The unidirectional relationship was found for the pair of Tamil Nadu and Gujarat markets indicates that price of Gujarat market influence the price of Tamil Nadu market whereas, the price of Tamil Nadu market does not influence the price Gujarat market during the investigation period. Similarly, unidirectional causality was exerted on Gujarat price by Andhra Pradesh and Tamil Nadu price by Andhra Pradesh. Karnataka and Tamil Nadu exerted bidirectional causality among them. Thus a strong integration of major groundnut markets in India is confirmed that the price of one market influence the price of other markets through the result of the study.

2.3 To study the export competitiveness of Groundnut

Gulati *et al.* (1990) worked out the protection coefficients for groundnut in India by selecting three different groundnut growing states under both import and export competition hypothesis. Domestic price of groundnut was about 50 per cent more than import price, which implied that groundnut received a significant degree of protection from the existing policies under import competition hypothesis. The NPCs of Gujarat, Andhra Pradesh and Tamil Nadu were 01.47. 01.50, 01.53 under importable hypothesis and 01.87, 01.96 and 01.95 under exportable hypothesis respectively, indicating the level of incentives in groundnut was found higher under export competition hypothesis than under import competition hypothesis indicated its export competitiveness in international market.

Ravi and Reddy (1998) examined the export competitiveness of selected agricultural commodities with special reference to Karnataka using nominal protection coefficient technique. Among, the six commodities studied, Karnataka lacked comparative advantage in most of the crops except cotton. The export potential of Jowar, maize, groundnut and sunflower were significantly low. Even though, Karnataka is the leading coffee exporting state, in recent times, domestic market seems to be more favorable compared to the export market. Unlike cereals and oilseeds, Karnataka has an absolute advantage in case of cotton export. India need to capitalize this advantage by ensuring its position as a dependable long term supply source of quality cotton through progressive export policies.

Shinoj and Mathur (2006) have studied comparative advantage of India in agricultural export during post-reform period. He opined that exports of various agricultural commodities from India have comparative advantage. India has enjoyed a comparative advantage in tea and coffee exports but has depicted a declining trend over the years. Gradual decline in India's comparative advantage was also observed in spices and cashew. India strengthened its position in exports of oil meals in global markets. India does not have a comparative advantage in fresh fruits and fresh vegetables. The study also revealed export of tea, coffee, spices, etc. had been negatively affected by trade reform policies.

Karnool *et al.* (2007) have studied the economics of production and global competitiveness of groundnut in Karnataka over the period of 20 years from 1984-85 to 2004-05. The result of the study has shown competitive disadvantage during pre-WTO period, as values of NPC and DRC are more than one. But, during the post-WTO period, the competitiveness has increased as is evident from the NPC and DRC values which turned out be less than one. The study suggested harnessing the competitiveness of Karnataka in groundnut cultivation.

Rajur (2007) studied the export competitiveness of chilli. The Nominal Protection Coefficients (NPCs) indicated that the chilli crop was competitive for exports to other countries. The Sri Lanka was found to be highly loyal market for export of Indian chilli as indicated by the retention of

their previous shares of chilli exports from India by 25.00 per cent. USA retained about 19 per cent of its previous share of chilli exports from India.

Vaishali (2010) conducted study on competitiveness of major agricultural commodities among SAARC countries. She observed that, India was in a competitive position in rice, mango and onion with the NPCs values of 00.98, 00.97 and 00.89 respectively for the period 2008-09. India did not comparative advantage in export of wheat as its value is equal to unity for the period 2008-09. The study of competitiveness indicating NPC less than unity shows that Indian rice, mango and onion are more competitive among the SAARC countries.

Babu *et al.* (2012) analyzed the growth performances and export competitiveness of cashew export from India from 2006 to 2011. He measured the compound annual growth rate of 04.57 per cent with coefficient of variation of 10.84 per cent. The revealed comparative advantage of India in export of cashew was found much greater than unity in all the studied year which indicated a positive sign and provides an immense opportunity for cashew exporters.

Ngwira *et al.* (2012) assessed the competitiveness of traditional and improved technologies of groundnut production in Malawi using a Policy Analysis Matrix approach. The analysis of Malawian groundnut production using the PAM methodology shows that both traditional as well as improved technologies were privately and socially profitable. They concluded that protectionist policies that would raise domestic groundnut prices above the import parity prices determined in world markets were unnecessary. They found higher profits with improved technology than traditional technology. They also suggested that government investments would yield a significant rate of return and reduce dependence on world markets. In addition to investments in improved seed technology, government should also invest in improved technologies for post harvest handling. Net profit transfer was found negative (-MK9547.60), indicated that net effect of the policies was to tax the groundnut local technology through the low selling prices of groundnuts.

Guledgudda *et al.* (2014) studied the export performance of cashew nut. The study revealed that, the NPC for the period 2014 under exportable hypothesis was 00.98, which also revealed that the domestic prices received by the farmers were lower than the international prices, which also implies that the domestic producers were disp rotected or rather taxed compared to situation prevailing under free trade condition. USA was one of the most stable countries among major importers of Indian cashew kernel as indicated by the high retention probability of 70.49 per cent. India could not retain the previous export share to Singapore. The major competitors for India in the world market are Vietnam, Brazil, Indonesia and Tanzania.

Rani *et al.* (2014) measured the trade competitiveness of groundnut in Andhra Pradesh along with other crops during two time periods, *viz.,* pre-WTO (1985-86 to 1994-95) and post-WTO period (1995-96 to 2004-05). The results of policy analysis matrix for groundnut revealed that DRC was less than one in both the periods indicated comparative advantage in groundnut production. Further, in post-WTO period DRC was much less (00.44), indicated higher competitiveness in groundnut production. EPC was more than one pre-WTO period which states that the state is not an efficient producer of groundnut. EPC was 00.53 in post-WTO period which shows that the groundnut production efficiency of the state was improved over the years. In pre-WTO period positive SRP showed that groundnut production was protected by state which started declining in post-WTO period as revealed by negative SRP. NPC was less than one in both the periods which shows the competitiveness. It decreased over period, from 00.90 in pre-WTO period to 00.54 in post-WTO period showed increased competitiveness.

Ansari and Khan (2015) analyzed the agricultural trade scenario of India including its direction, composition and potential for the period 2001 to 2013. They found that agricultural export growth rate drastically came down from 21.78 per cent during 1991-95 to 05.55 per cent in 1996-00. However, it picked up subsequently and reached 16.07 per cent during 2006-10, and jumped to 31.71 per cent during 2011-14.

The per cent share of oilseeds to total agri. export has shown mixed trend varying from 05.10 per cent in 2001 to 4.4 per cent in 2013 with high level of 05.70 per cent in 2010. The Revealed Comparative Advantage (RCA) index revealed that India has significant export potential in oilseeds as well. Despite continuous fall in oilseeds RCA from 20.44 in 2001 due to intensive competition in the global market, to 08.02 in 2013, which is still second best RCA of agricultural products exported from India. This showed that India still enjoys RCA for export of oilseeds and there is considerable potential for its expansion.

Audichy Ranjana *et al*. (2017) studied the production and export performance of Indian groundnut from 2004-05 to 2013-14. The study revealed that, the NPC values from period 2009-10 to 2013-14 revealed that groundnut exported from India was moderately competitive during the whole study period to all importing countries except Pakistan. It was less competitive for Pakistan during the study period except the year 2012-13 in which it was observed moderately competitive. Not a single country was highly competitive during the study period. Groundnut was found to be moderately competitive during the study period because of high reference price of groundnut in these years in comparison to the domestic price of groundnut.

Meena *et al*. (2018) have assessed export competitiveness of Indian groundnut. They revealed that the NPC values during period I (1996-97 to 2004-05) and period II (2005-06 to 2013-14) were found to be 00.80 and 00.75 and it was 00.78 during overall study period. The study revealed that export of groundnut from India is competitive and has great potential in international market.

CHAPTER III

METHODOLOGY

The objective of any investigation is to draw the useful conclusion in the light of objectives of the study in order to arrive at meaningful conclusion. It is essential to the investigator to adopt appropriate method and procedure. Keeping in this view, this chapter has devoted to explain the methodology adopted to fulfil the objectives of the study. The present investigation was undertaken to study the “Export Performance of Groundnut in India”. This chapter discusses the methodology used for conducting the study under following headings.

3.1 Nature and source of data

3.2 Period of study

3.3 Analytical tools and techniques

3.4 Material required

3.5 Place, time and duration of research work

3.1 Nature and source of data

In the view of groundnut as an important oilseed crop and its increased utilization in the industrial application, is traded in domestic and also in international market. This market has become more speculative and hence groundnut was purposively selected for the study.

The nature of data that was used for study was entirely based on secondary source of data. The annual data on area, production, productivity, export quantity, export value, domestic prices and international prices was compiled from Agriculture and Processed food products Export Development Authority (APEDA), Food and Agriculture Organization (FAO), Agricultural Produce Marketing Committee (APMC) and other Government publications.

3.2 Period of study

The data regarding production and export of groundnut in India was collected from 1988-89 to 2017-18, which includes the data of 30

years. The time series data has been divided into two sub periods and overall period.

- Period I (1988-89 to 2002-03)
- Period II (2003-04 to 2017-18)
- Overall period (1988-89 to 2017-18)

3.3 Analytical Tools and Techniques

The data was collected from secondary sources subjected to appropriate analytical techniques in order to arrive at a meaningful conclusion. The different analytical techniques used in the study as follows.

3.3.1 Simple Tabular Analysis

3.3.2 Growth Rate Analysis

3.3.3 Instability Analysis

3.3.4 Trend Analysis

3.3.5 Nominal Protection Coefficient

3.3.1 Simple Tabular Analysis

The data collected were presented in tabular form to facilitate easy comparisons. The data were summarised with the aid of statistical tools like percent share etc., to obtain the meaningful results.

3.3.2 Growth Rate Analysis

The growth rates were used to measure the past performance of the economic variables. The growth in area, production, productivity, export quantity and export value etc were analysed by using exponential growth function.

$$Y=ab^t$$

Where,

Y = Area /Production / Productivity / Export quantity / Export value

t= Time variable

b = Regression coefficient

a = Intercept

The compound growth rates ‘r’ was computed by using the following formula.

CGR (r) = [Antilog (logb) – 1] x 100

Where,

r = Compound growth rate

3.3.3 Instability Analysis

Instability in export is expected to hamper the process of economic development. The degree of instability in area, production, productivity and export of groundnut were measured by using Coefficient of Variation (CV) and Coppock’s Instability Index (CII).

3.3.3 a) Coefficient of Variation (CV)

The coefficient of variation measures the variation around the trend and it is expressed in percentage.

Coefficient of Variation (CV) = $\frac{\sigma}{\bar{X}} \times 100$

Where,

σ = Standard deviation

$$s = \sqrt{\frac{\sum(X - \bar{X})^2}{n}}$$

Where,

$\bar{X}$ = Arithmetic mean

X= Variable

n = Number of observations

3.3.3 b) Coppock’s Instability Index (CII)

Coefficient of instability is another measure of instability besides coefficient of variation. The coefficient of variation measures the absolute variation. Coppock’s Instability Index (CII) is close approximation of the average year to year percentage adjusted for the trend and pronounced than the absolute variation.

Coefficient of instability was worked out using Coppock's Instability Index (CII).

The Instability Index = **[Antilog ($\sqrt{V\ \log}$)-1]×100**

$$Vlog = \frac{\sum \left(log \frac{X_{t+1}}{X_t} - m \right)}{N}$$

Where,

X_t = Area/ Production/ Productivity/ Export quantity/ Export value of groundnut export in year t

N = Number of years

m = Arithmetic mean of the difference between the log of X_t and $X_{(t-1)}$, $X_{(t-2)}$ etc.

V log =Logarithmic variance of the series.

3.3.4 Trend Analysis

The trend in domestic and international price of groundnut was measured by using best fitted function.

3.3.5 Nominal Protection Coefficient (NPC)

NPC was computed to determine the extent of competitive advantage enjoyed by the commodity in the context of free trade. The coefficient shed light on whether a country has comparative advantage in the export of that commodity in the free trade scenario or not. The NPC is defined as the ratio of the domestic price to the world reference price of the commodity under consideration. Symbolically,

$$NPC = \frac{P_d}{P_r}$$

Where,

P_d = Domestic Price of Commodity

P_r = World reference price of the commodity

If NPC > 1, the commodity is protected, compared to the situation that would prevail under free trade and if NPC < 1, the commodity is disprotected.

CHAPTER IV

RESULTS AND DISCUSSION

The present investigation had been undertaken with a view to study “Export performance of groundnut in India”. This chapter deals with general information regarding export, growth, instability and export performance of groundnut, trend in domestic and international prices of groundnut and export competitiveness of groundnut. Data was analyzed for a period 1988-89 to 2017-18 and the major findings of this study are presented in this chapter.

4.1. Export performance of groundnut

The performance of export was studied on following points.

4.1.1 India’s share of World export

4.1.2 India’s Agricultural export to Total export

4.1.3 India’s share in World groundnut export

4.1.1. India’s share of World Export

India’s share in world export at different points of time was worked out and presented in table 4.1.1.

Table 4.1.1. India’s share of World export

Value (Rs. 000 crores)

Sr. No.	Year	World Export	India's Export	India's share of World export(%)
1	1988-89	3992.69	18.41	0.46
2	1993-94	11571.27	65.78	0.57
3	1998-99	22705.60	137.95	0.61
4	2003-04	35338.42	274.66	0.78
5	2008-09	70326.93	847.60	1.21
6	2013-14	111046.62	1844.94	1.66
7	2017-18	115472.73	1948.92	1.69

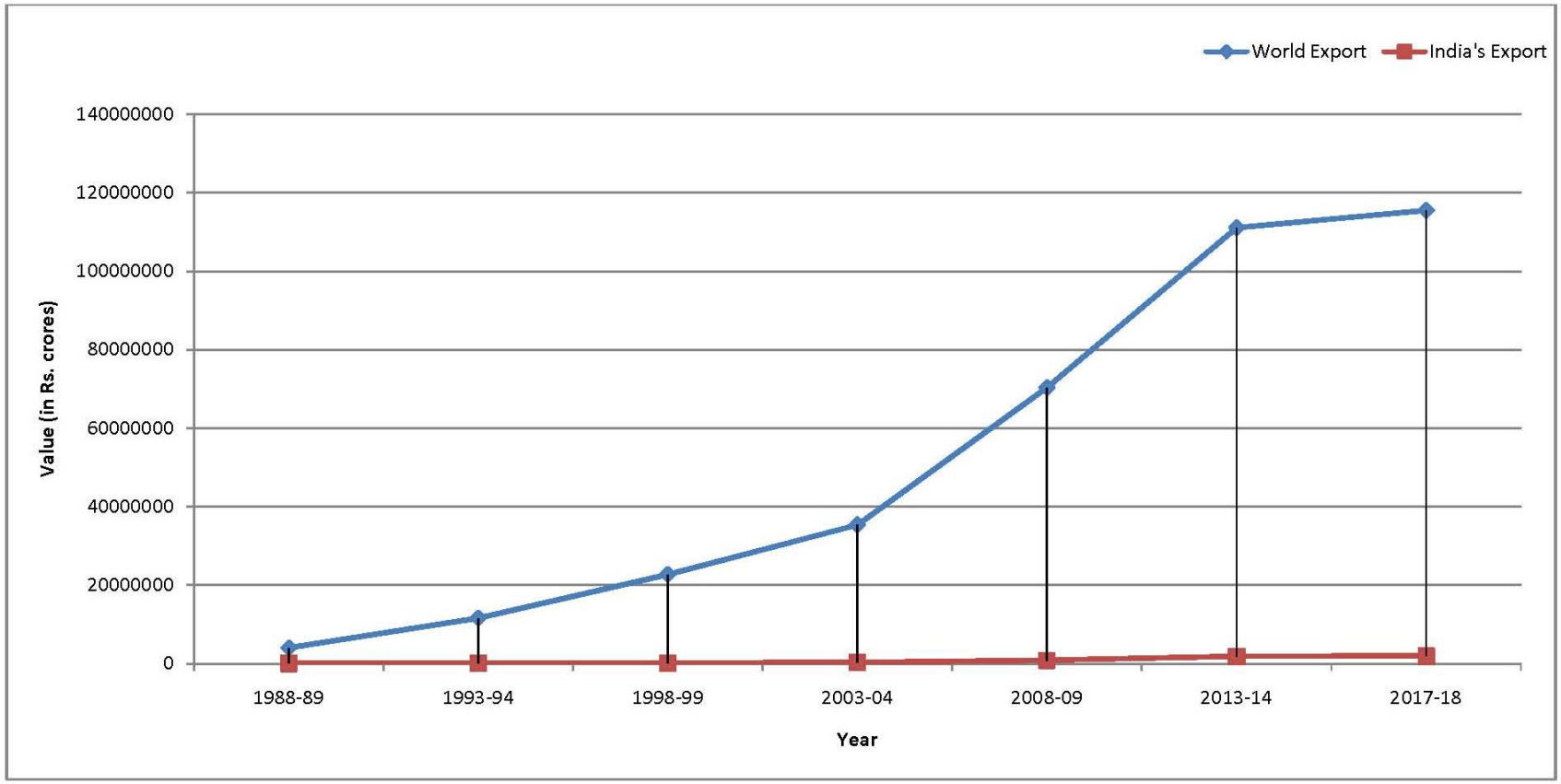

Fig.1.India's share in World export

It was observed from the table 4.1.1 that India's export during 1988-89 was Rs.18.41(000) crores which increased to Rs. 1948.92 (000) crores during 2017-18. This shows that India's export was increased greatly. In terms of share in world export India's export was 0.46 per cent in 1988-89 rose to 1.69 per cent during 2017-18. In short India's share is hardly more than one per cent of the World Exports.

4.1.2. India's Agricultural Export to Total Export

The total exports of agriculture and allied products and also the share of agricultural export to total export of the country is presented in the table 4.1.2.

Table 4.1.2. India's agricultural Export to total export

Value (Rs.000crores)

Sr. No.	Year	Total Export	Agricultural Export	Agricultural export share(%)
1	1988-89	18.417	3.44	18.69
2	1993-94	65.78	12.70	19.32
3	1998-99	137.95	25.72	18.65
4	2003-04	274.66	33.56	12.22
5	2008-09	847.60	92.45	10.91
6	2013-14	1844.94	261.84	14.19
7	2017-18	1948.92	257.20	13.20

It was observed from the table 4.1.2 that as compared to 1988-89 our total export increased from Rs. 18.41(000) crores to Rs. 1948.92(000) crores in 2017-18. The agricultural export in 1988-89 was Rs. 34.43(000) crores which had increased to Rs. 2572.04(000) crores in 2017-18. Although over the years agriculture export has increased many fold but the share of agricultural export to the total export has decreased from 18.69 per cent in 1988-89 to 13.20 per cent in 2017-18. This decline in the share was due to the growth in the share of other sectors like service and Manufacturing etc.

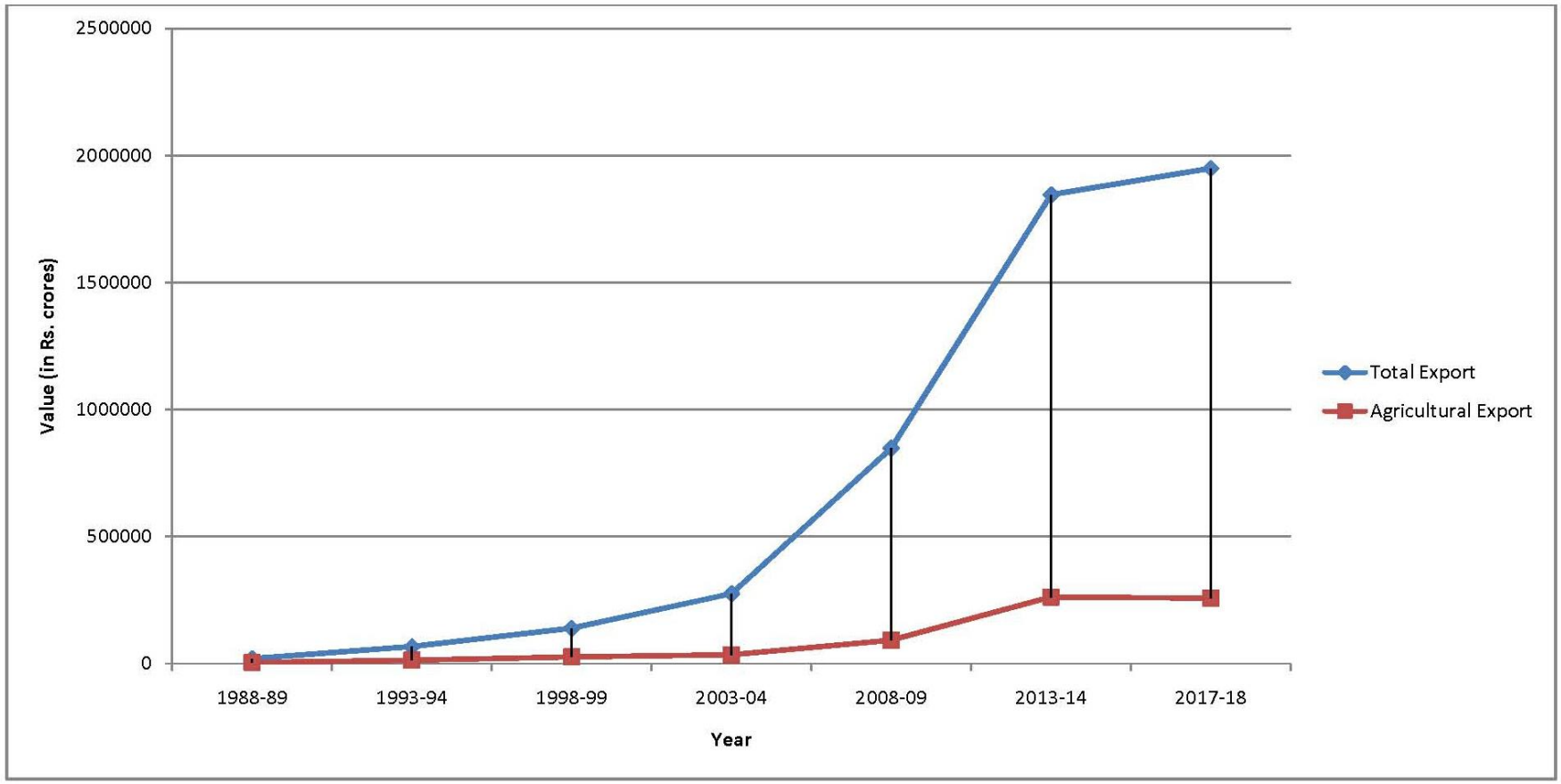

Fig.2. India's Agricultural export to Total export

Therefore, it is depicted that, the agricultural sector has been playing a key role in the composition of Indian exports. Thus, the Table 4.1.2 highlights the surprising fact that the share of Indian agricultural export has been slowly declining in the recent years.

4.1.3. India's share in World Groundnut Export

The world groundnut export and India's groundnut export and also India's share of world groundnut export were presented in the Table 4.1.3.

Table 4.1.3. India's share in World groundnut export

(Quantity in MT)

Sr. No.	Year	World groundnut Export	India's groundnut Export	India's share (%) in World groundnut export
1	1988-89	861913.00	22321.00	2.59
2	1993-94	1041670.00	236461.00	22.70
3	1998-99	1014081.00	58263.19	5.75
4	2003-04	1063473.00	176109.32	16.56
5	2008-09	1196346.00	297890.40	24.90
6	2013-14	1671318.00	509664.85	30.49
7	2017-18	2539430.00	504019.21	19.85

It was observed from the table 4.1.3 that Indian groundnut export during 1988-89 was 22321 MT which increased to 504019.21 MT during 2017-18. In terms of share of India's groundnut export to world groundnut export was 2.59 per cent in 1988-89 was raised to 19.85 per cent in 2017-18.

However India's export of groundnut was found to be facing rapid fluctuations year by year. It indicates increased demand for groundnut and its products in domestic market and the increased export potential in international market.

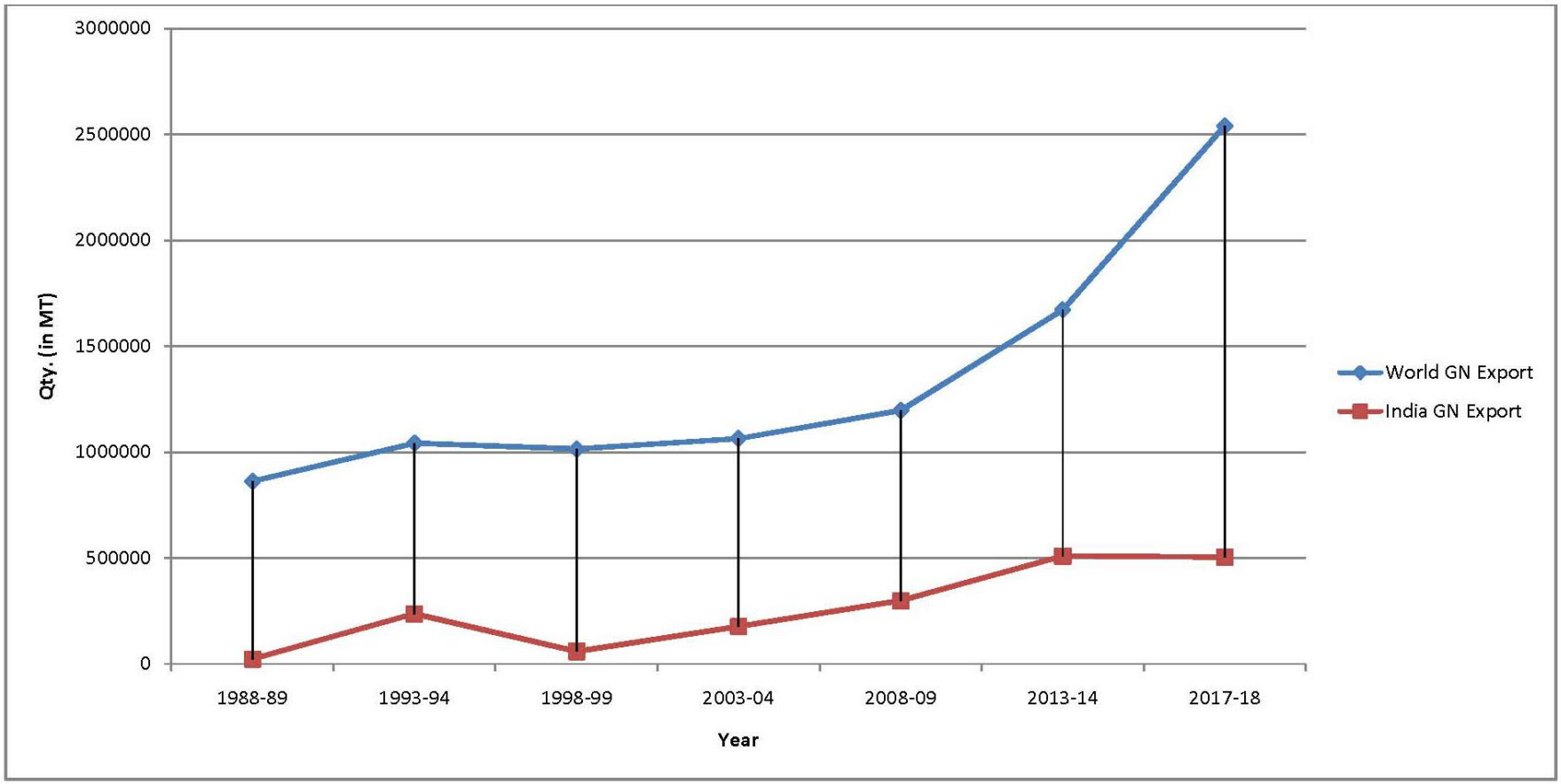

Fig.3. India's share in world groundnut export

Table 4.1.4. Major destinations for export of groundnut from India, 2017-18

Rank	Importing country	Qty (MT)	Share (%)	Value (Rs. Lakh.)	Share (%)
1	Indonesia	218786.72	43.40	150536.56	44.45
2	Vietnam	50780.60	10.07	32051.08	9.46
3	Philippines	44180.35	8.76	30396.61	8.97
4	Malaysia	34565.08	6.85	25730.60	7.59
5	Pakistan	28022.55	5.56	14642.47	4.32
6	Russia	14794.43	2.93	9841.95	2.90
7	Ukraine	11549.20	2.29	7774.86	2.29
8	Thailand	10829.03	2.14	7673.92	2.26
9	Iran	10150.86	2.01	6284.62	1.85
10	Nepal	10424.02	2.06	5212.24	1.54
	Others	69936.37	13.93	48485.00	14.37
	Total	504019.21	100.00	338629.88	100.00

Source: APEDA

Currently, during 2017-18, India exported 5.04 lakh tonnes groundnut, accounted for 33.86 crore rupees. In last three years, India exported groundnut to more than hundred countries. But more than 80 per cent of total export was mainly shipped to top ten destinations. It was observed from the table 4.1.4 that, during 2017-18, Indian groundnut was mostly landed in Indonesia (43.40%), Vietnam (10.07%), Philippines (8.76%), Malaysia (6.85%) and Pakistan (5.56%) which jointly accounted almost three fourth of total export from India in terms of quantity. Indonesia stood in first place with a share of 43.40 per cent in terms of export quantity and with a share of 44.45 per cent of export value. Vietnam and Philippines stood in second and third positions in the series. All the countries other than the top ten destinations have accounted for 13.93 per cent of total export from India in terms of quantity and 14.37 per cent in terms of value.

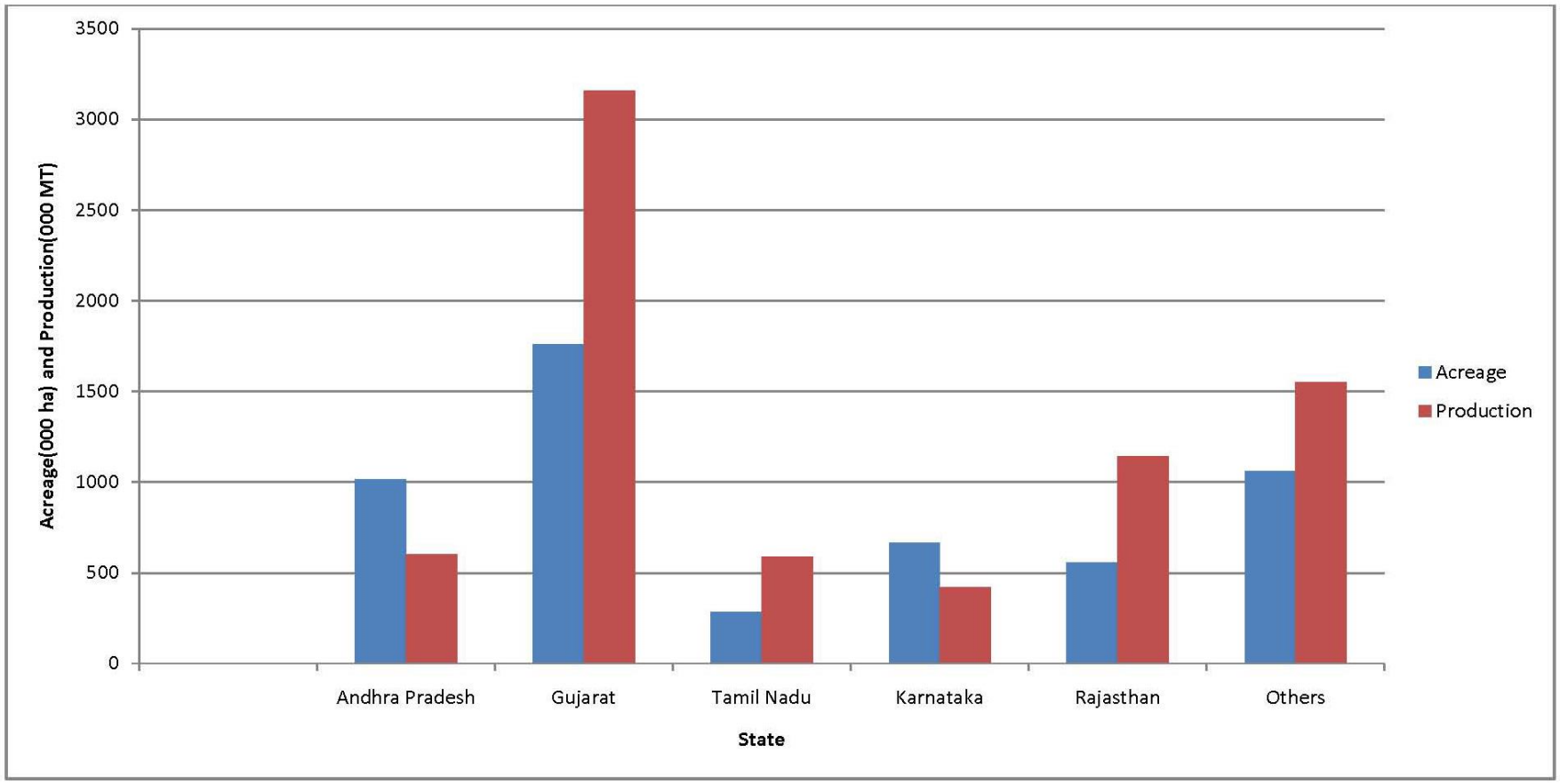

Fig.5. Major groundnut producing states in India

Table 4.1.5. Share of major states in area and production of groundnut in India, 2016-17

State	Acreage (000 ha)	Share (%)	Production (000 MT)	Share (%)
Andhra Pradesh	1013.00	18.98	603.00	8.08
Gujarat	1759.00	32.95	3157.32	42.31
Tamil Nadu	282.49	5.30	588.85	7.89
Karnataka	666.00	12.47	419.00	5.61
Rajasthan	556.09	10.41	1140.61	15.28
Others	1061.46	19.89	1552.75	20.83
Total	5338.04	100.00	7461.53	100.00

It was observed from the table 4.1.5 that during 2016-17 Gujarat ranked first among the Indian states both in area and production with a share of 32.95 per cent and 42.31 per cent, respectively. Though Andhra Pradesh was in second place in case of area with a share of 18.98 per cent its share in production was only 8.80 per cent and this was due to low productivity of groundnut in that state. The same was observed in the case of Karnataka where its share in area was 12.47 per cent but the share in total production was only 5.61 per cent. Rajasthan, with a share of 15.28 per cent in total production stood in second place after Gujarat even with a low share of 10.41 per cent of total area. This was mainly because of high productivity of groundnut in Rajasthan. Tamil Nadu shared 5.30 per cent of area and 7.89 per cent of total production.

4.2. Analysis of Growth Rates

This study attempts to analyze the performance of groundnut exports with respect to area, production, productivity and export quantity and export value. The exponential functional form was employed to compute the growth rates and the results are presented in Table 4.2.1.

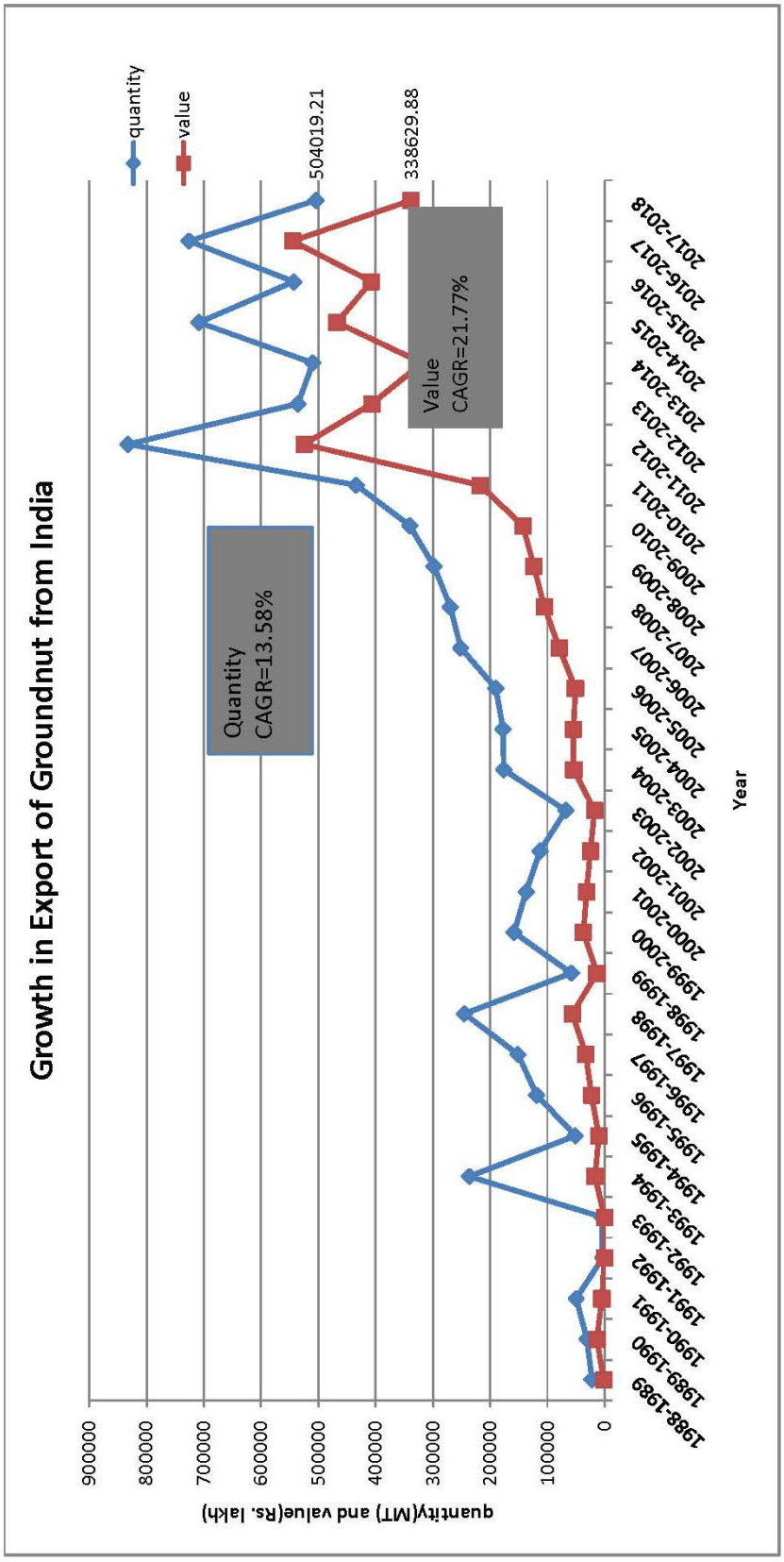

Fig.6. Growth in export of groundnut from India

Table 4.2.1 Compound Growth Rates of area, production, productivity, export quantity, export value

(per cent per annum)

Sr. No.	Particulars	Area	Production	Productivity	Export Quantity	Export Value
1	Period I	-2.58*	-3.11*	-0.55	17.28**	25.55*
2	Period II	-2.21*	0.65	2.93**	10.99*	19.98*
3	Overall Period	-2.11*	-0.38	1.77*	13.58*	21.77*

,* *significant at 1 per cent, at 5 per cent level of significance*

The above table 4.2.1 revealed that in overall period area of groundnut had shown a negative growth rate of 2.11 and found to be statistically significant at one per cent level of significance*(* shows that the area of groundnut was decreasing during overall study period). The growth rate of production was found to be non significant. Whereas the productivity of groundnut had shown a positive growth rate of 1.77 per cent per annum and was statistically significant at one per cent level of significance indicating the increased productivity. This reveals that even when area and production of groundnut have been decreasing, productivity was found to be increasing and this may be due to the usage of high yielding varieties and intensive cropping of groundnut.

In period I, area had shown a negative growth rate of 2.58 per cent per annum and in period II, it had shown a negative growth rate of 2.21 per cent per annum and found to be statistically significant at one per cent level of significance in both the periods. Growth rate of production in period I was negative with 3.11 per cent per annum and found to be statistically significant at one per cent level of significance. In period II the growth rate of production was found to be non significant. In period I, productivity had shown a negative growth rate of 0.55. The growth rate of productivity was found to be 2.93 per cent per annum and statistically significant at five per cent level of significance during period II.

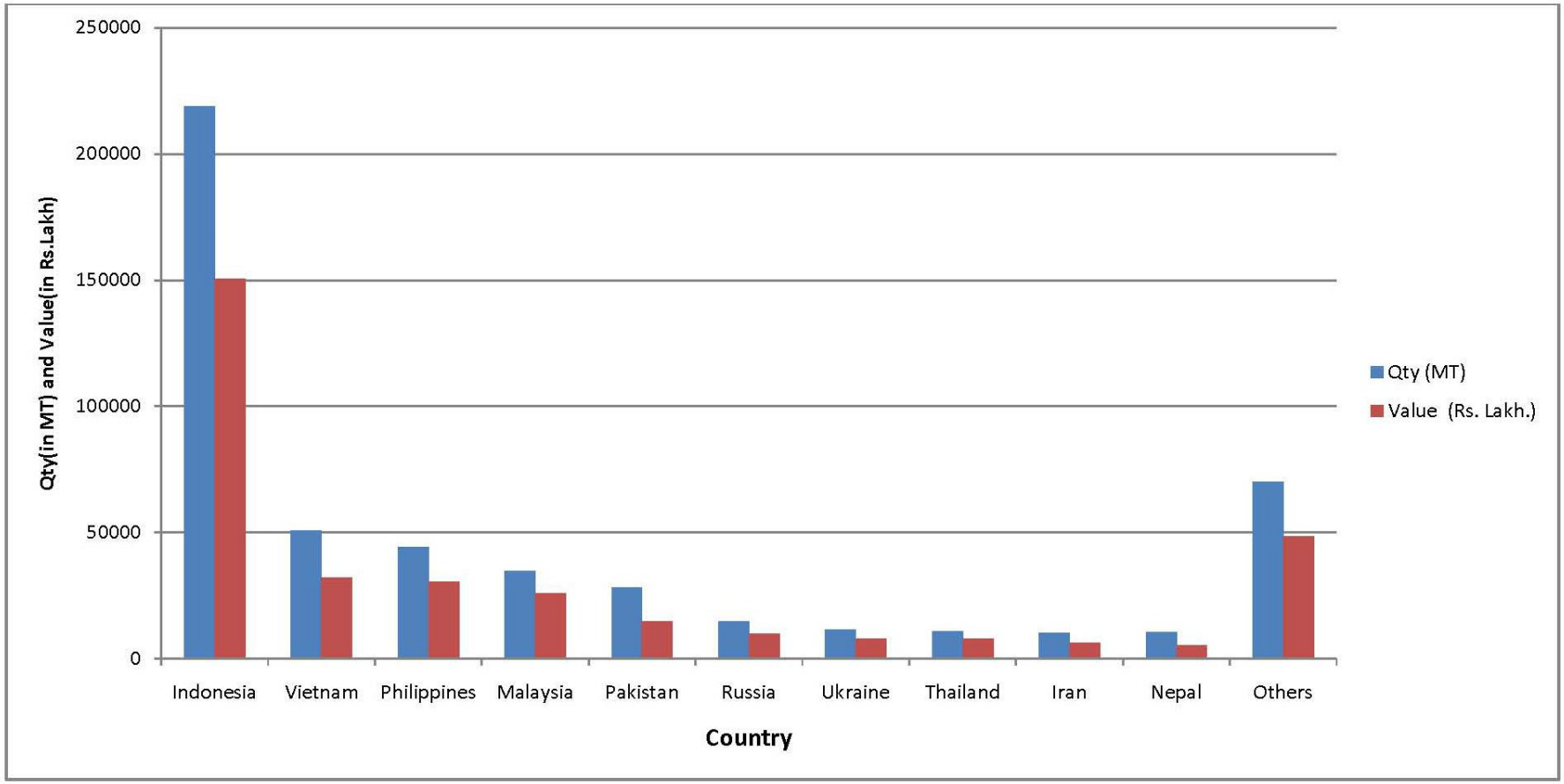

Fig.4. Major destinations of groundnut export from India

In case of export of groundnut the table revealed that in overall period export quantity and export value have shown the growth rates of 13.58 and 21.77 per cent per annum respectively and were found to be statistically significant at one per cent level of significance. This shows that the export quantity and export value have been increasing throughout the study period.

Similar trend was observed in period I and period II. The export quantity and export value were increased by 17.28 and 25.55 per cent per annum in period I and by 10.99 and 19.98 per cent per annum in period II respectively.

The results obtained are in close agreement with the findings of Kannan and Sundaram (2011) concluded that there was a negative growth in area, production of groundnut. Karnool (2007) concluded that, groundnut was export significant in terms of quantity and value in India.

4.3 Instability Analysis

In order to study the extent of fluctuations in area, production, productivity, export quantity, export value during the study period, co-efficient of variation and coppock's instability index were worked out and results are presented in Table 4.3.1 and Table 4.3.2.

Table 4.3.1. Co-efficient of Variation of area, production, productivity, export quantity, export value

Period	Particulars	Area	Production	Productivity	Export Quantity	Export Value
Period I	MEAN	7583.80	7410.33	0.98	96541.61	18550.46
	SD	894.13	1381.96	0.14	77611.23	16134.70
	CV (%)	11.79	18.65	14.37	80.39	86.98
Period II	MEAN	5590.73	7330.13	1.32	432998.56	255880.53
	SD	684.10	1511.35	0.29	212419.03	182250.39
	CV (%)	12.24	20.62	21.85	49.06	71.22
Over All Period	MEAN	6587.27	7370.23	1.15	264770.08	137215.50
	SD	1280.31	1423.50	0.28	232309.21	175292.78
	CV (%)	19.44	19.31	24.75	87.74	127.75

It could be seen from Table 4.3.1 that, the area under groundnut production exhibited less variability with co-efficient of variation at 11.79 per cent and 12.24 per cent in period I and period II and in overall period co-efficient of variation was 19.44 per cent. The production of groundnut exhibited higher variability as that of area with co-efficient of variation at 18.65 per cent and 20.62 per cent in period I and period II and with co-efficient of variation of 19.31 per cent in overall period. And in case of productivity co-efficient of variation was 24.75 per cent showing higher variability in overall period. The co-efficient of variation was 14.37 and 21.85 per cent in period I and period II respectively showing higher variability in period II as that of period I.

As regard to the export quantity of groundnut high variation observed was 87.74 per cent in overall period. The co-efficient of variation was 80.39 per cent in period I and 49.06 per cent in period II revealing lesser consistency in period I as compared to period II. Export earnings in terms of export value showed highest instability in overall period with 127.75 per cent of co-efficient of variation. The co-efficient of variation was 86.98 per cent in period I and 71.22 per cent in period II revealing higher inconsistency in period I as compared to period II. From the above discussion it is clear that groundnut has shown inconsistent export performance.

Table 4.3.2. Coppock's Instability Index of area, production, productivity, export quantity, export value (per cent)

Sr. No.	Particulars	Area	Production	Productivity	Export Quantity	Export Value
1	Period I	11.30	12.36	11.63	36.46	40.22
2	Period II	11.30	12.47	12.49	16.91	24.18
3	Overall Period	12.17	12.37	12.69	39.16	65.09

It could be revealed from the table 4.3.2 that the variation observed in area, production and productivity was 12.17, 12.37 and 12.69 per cent respectively during overall period. In period I higher variation took

place in case of production with 12.36 per cent as compared to area with 11.30 per cent and productivity with 11.63 per cent. In period II, the higher variation was observed in productivity with 12.49 per cent as that of 11.30 per cent in area and 12.47 per cent in production.

In case of export value the variation observed was 65.09 per cent in overall period and 40.22 per cent and 24.18 percent in period I and period II, respectively. It shows higher variation in period I as that of period II. And for export quantity the variation found in overall period was 39.16 per cent. It was 36.46 per cent in period I and 16.91 per cent in period II revealing that variation was higher in period I as compared to period II.

The discussion thus revealed that instability in groundnut production and productivity was increasing. Findings can be correlated with Chand *et al*. (2011).

4.4 Trend in domestic and International prices of groundnut

The trend equations were fitted to assess the domestic and international prices. Depending upon its better fit, the trends and the results are assessed and presented under different categories namely trend in domestic price and trend in international price.

The trend in international price was studied for groundnut by regressing domestic price and international price with time as the variable. The quadratic function is fitted to the data and sign and significance of the quadratic coefficient 'c' indicate the magnitude and direction of the change in the trend in the price. The results of the quadratic function are presented in Table 4.4.1.

Table 4.4.1 Trend in Domestic and International prices

Sr.No.	Trend	Intercept (a)	X (b)	X^2 (c)	R^2	F value
1.	Domestic Price	863.89	26.32	6.25	0.90*	124.19
2.	International Price	1319.34	-19.19	7.95	0.93*	178.70

**significant at 1 per cent level of significance*

The analysis reveals that the R^2 value (0.90) was statistically significant at one per cent level of significance for domestic price. However, sign of 'b' was positive (26.32) and sign of quadratic term 'c' was positive (6.25) which indicates that the trend in domestic price of groundnut was increasing at increasing rate. And the R^2 value (0.93) for international price was statistically significant at one per cent level of significance. The sign of 'b' was negative (-19.19) and sign of quadratic term 'c' was positive (7.95) this had shown that the trend in international price of groundnut was decreasing at increasing rate.

4.5. Export competitiveness of groundnut

The export competitiveness of groundnut was analyzed using Nominal Protection Co-efficient. The competitiveness of market depends upon NPC ratio. When NPC ratio is less than 0.5, market is highly competitive, when NPC ratio is in between 0.5 to 1, the market is moderately competitive and when NPC ratio is greater than one, then market is non- competitive. It was computed and presented in Table 4.5.1.

Table 4.5.1 Export competitiveness of groundnut

Sr. No.	Particulars	NPC (Pd/ Pr)
1	Period I (1988-89 to 2002-03)	0.88
2	Period II (2003-04 to 2017-18)	0.97
3	Overall Period (1988-89 to 2017-18)	0.92

The Table 4.5.1 shows that, at an overall level, the NPC value of groundnut export was worked out to 0.92. It indicates that groundnut was moderately export competitive in international level and proves that commodity is protected in international market but when it was analyzed for the two different periods in period I and period II, it was observed that the average NPC values were 0.88 and 0.97 respectively which also indicates moderate export competitiveness for both the period I and period II. Hence, the hypothesis i.e. Indian groundnut has better competitiveness in International market is accepted here. The results obtained are in close agreement with the findings of Karnool *et al.* (2007), Audichy Ranjana *et al.* (2017), they concluded that Indian groundnut is competitive for international market.

CHAPTER V

SUMMARY AND CONCLUSIONS

Groundnut is one of the most important oilseed crops. Groundnut occupies a predominant position in terms of world oilseed production, accounting for about 25 per cent of the total oilseed production.

Trade in agricultural goods can play a significant role in Less Developed Countries. Many less developed countries like India have a comparative advantage in the production of agricultural goods and the exports of these goods are the main source of foreign exchange earnings. India which is dominant agrarian economy has a great potential in this regard. In view of importance of export trade of groundnut, such a type of study entitled “Export performance of groundnut in India” was made to know the status and prospects of groundnut with the following specific objectives.

1. To estimate the growth in area, production, productivity and export of groundnut.
2. To workout the instability in area, production, productivity and export of groundnut.
3. To study the trend in domestic and international prices of groundnut.
4. To study the export competitiveness of Indian groundnut.

The required data for the present study have been collected from APEDA, FAO, IndiaStat and Agriculture Producing Market Committee (APMC).

The data regarding area, production, productivity, export, domestic price and international price of groundnut in India was collected from 1988-89 to 2017-18, which includes 30 years data. The period has been divided into Period I (1988-89 to 2002-03), Period II (2003-04 to 2017-18), and Overall period (1988-89 to 2017-18).

The data collected from secondary sources was subjected to appropriate analytical techniques in order to arrive at meaningful

conclusions. The different analytical techniques used in the study were Simple Tabular Analysis, Growth Rates analysis, Instability analysis, Trend Analysis and Nominal Protection Coefficient.

The results of the study are summarized as follows.

Growth rate analysis revealed that in overall period area of groundnut had shown a negative growth rate of 02.11 per cent per annum showing the declining trend from 8529(000 hectares) during 1988-89 to 4898(000 hectares) during 2017-18. The growth rate of production was found to be negative with 0.38 per cent per annum. This shows that production of groundnut had been decreased from 9659(000 MT) to 9179(000 MT) during the overall study period. The productivity of groundnut had shown a positive growth rate of 1.77 per cent per annum indicating the increased productivity with 1.13 MT per hectare during 1988-89 to 1.87 MT per hectare during 2017-18. In case of export of groundnut it revealed that in overall period export quantity and export value have shown the growth rates of 13.58 and 21.77 per cent per annum respectively. Groundnut export quantity had increased from 22321 MT during 1988-89 to 504019 MT during 2017-18 and Export value had increased from 20.93crores during 1988-89 to 3386.29crores during 2017-18. This shows that the export quantity and export value have been increasing throughout the study period.

Instability analysis revealed that area under groundnut showed less variability with a coefficient of variation of 19.444 per cent in overall period. Production and productivity were found with the coefficient of variation of 19.31 and 24.75 per cent respectively. This reveals that productivity have shown highest variation followed by area and production. As regard to the export quantity of groundnut high variation observed was 87.74 per cent in overall period indicating less consistency. Export earnings in terms of export value showed highest instability in overall period with 127.75 per cent of co-efficient of variation. From the above discussion it is clear that groundnut has shown inconsistent export performance.

Coppock's Instability Index of area, production and productivity were found to be 12.17, 12.37 and 12.69 per cent respectively. Export quantity had shown high inconsistency with the coppock's instability index of 39.16 per cent. The highest variation was observed in export value of groundnut i.e. 65.09 per cent in overall period showing least consistency.

Trend in domestic price of groundnut was increasing at increasing rate. Trend in international price of groundnut was decreasing at increasing rate. R^2 was statistically significant for domestic prices and international prices.

At an overall level, the NPC values of groundnut export was worked out to 0.92, it indicates moderately export competitiveness of groundnut in international level and proves commodity is protected in international market.

Conclusions

The following conclusions were made from the present study.

1. India's share in world export has increased from 0.46 per cent to 1.69 per cent from 1988-89 to 2017-18.
2. India's share of Agricultural export to India's total export is continuously declining over the years from 18.29 per cent to 13.20 per cent during 1988-89 to 2017-18.
3. There is increase in agriculture exports but percentage share of agriculture export to total exports was decreasing due to increase in share of manufacturing sectors and service sectors etc.
4. India's share of world groundnut export has increased from 2.59 per cent to 19.85 per cent during the overall study period.
5. The growth rate of groundnut area in India was found to be negative and significant during period I,II and in the overall period.
6. The growth rate of groundnut production in India was negative in period I and overall period whereas it was positive in period II.

7. The growth rate of productivity of groundnut was found to be positive and significant in period II and in overall period and it was negative during period I.
8. The growth rate for export quantity and export value was found positive and significant for period I, period II and overall period.
9. Area of groundnut exhibited less variability with co-efficient of variation of 11.79 per cent and 12.24 per cent in period I and period II, while it was high in overall period with co-efficient of 19.44 per cent.
10. Production of groundnut exhibited less variability with co-efficient of variation of 18.65 per cent and 20.62 per cent in period I and period II, while it was 19.31 per cent in overall period.
11. Productivity of groundnut exhibited less variability with co-efficient of variation of 14.37 per cent and 21.85 per cent in period I and period II, while it was high in overall period with co-efficient of 24.75 per cent.
12. Export quantity of groundnut exhibited more variability with co-efficient of variation of 80.39 per cent and 49.06 per cent in period I and period II, while it was high in overall period with co-efficient of 87.74 per cent.
13. Export value of groundnut exhibited more variability with co-efficient of variation of 86.98 per cent and 71.22 per cent in period I and period II, while it was high in overall period with co-efficient of 127.75 per cent.
14. Coppock's Instability Index shows the highest variation in export value of groundnut i.e. 65.09 per cent in overall period. In case of area, production, productivity and export quantity for overall period it was 12.17, 12.37, 12.69 per cent and 39.16 per cent and respectively.
15. Trend in domestic price of groundnut was increasing at increasing rate. Trend in international price of groundnut was decreasing at increasing rate.
16. The NPC value of groundnut showed that in period I with average NPC value as 0.88 and NPC value for the period II was 0.97 and for overall period it was 0.92 which indicate moderate export competitiveness in international market.

Policy Implications

a. There is immense scope to expand India's potential of groundnut. High priority should be given to increase the production and export of groundnut. This is necessary to meet the increasing domestic demand on one hand and to build up a sustainable supply to meet international markets for earning foreign exchange through groundnut export in other hand.

Following policy suggestion has been proposed.

1. Groundnut acreage at country level shown decreasing trend. There is need to arrest further decrease with appropriate policy support like contract farming with the help of processing cum exporting firms in respective areas. There is need to augment production and productivity to sustain export in long run.

CHAPTER VI

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APPENDIX-I

Area, Production and Productivity of Groundnut in India

Year	Area (in '000 hectare)	Production (In '000 MT)	Productivity (in MT/hectare)
1988-1989	8529.00	9659.00	1.13
1989-1990	8710.00	8101.00	0.93
1990-1991	8309.00	7515.00	0.90
1991-1992	8668.00	7095.00	0.82
1992-1993	8166.00	8565.00	1.05
1993-1994	8322.00	7829.00	0.94
1994-1995	7849.00	8062.00	1.03
1995-1996	7525.00	7581.00	1.01
1996-1997	7595.00	7589.00	1.00
1997-1998	7088.00	7370.00	1.04
1998-1999	7396.00	8980.00	1.21
1999-2000	6867.00	5250.00	0.76
2000-2001	6559.00	6410.00	0.98
2001-2002	6238.00	7028.00	1.13
2002-2003	5936.00	4121.00	0.69
2003-2004	5987.00	8127.00	1.36
2004-2005	6640.00	6774.00	1.02
2005-2006	6736.00	7993.00	1.19
2006-2007	5615.00	4864.00	0.87
2007-2008	6292.00	9183.00	1.46
2008-2009	6165.00	7168.00	1.16
2009-2010	5478.00	5429.00	0.99
2010-2011	5856.00	8266.00	1.41
2011-2012	5264.00	6964.00	1.32
2012-2013	4721.00	4694.00	0.99
2013-2014	5505.00	9714.00	1.76
2014-2015	4769.00	7402.00	1.55
2015-2016	4597.00	6733.00	1.46
2016-2017	5338.00	7462.00	1.40
2017-2018	4898.00	9179.00	1.87

Source: www.indiaagristat.com

APPENDIX-II

Export of Groundnut from India

Year	Export Quantity (MT)	Export Value(IN Lac.)
1988-1989	22321.00	2093.00
1989-1990	31173.00	3423.33
1990-1991	49572.00	5436.00
1991-1992	3637.00	733.67
1992-1993	4343.00	772.39
1993-1994	236461.00	17112.29
1994-1995	51123.00	10131.63
1995-1996	118908.00	23068.59
1996-1997	151354.86	33159.30
1997-1998	245129.26	56629.93
1998-1999	58263.19	13966.31
1999-2000	158109.63	37175.87
2000-2001	137065.65	31640.29
2001-2002	112812.81	25093.84
2002-2003	67850.74	17820.42
2003-2004	176109.32	54430.43
2004-2005	177154.12	54702.37
2005-2006	190053.33	51368.78
2006-2007	251428.66	79846.00
2007-2008	269587.65	105407.79
2008-2009	297890.40	123900.94
2009-2010	340246.33	142593.29
2010-2011	433753.23	217840.60
2011-2012	832616.92	524644.76
2012-2013	535637.38	406536.10
2013-2014	509664.85	318773.48
2014-2015	708386.24	467536.89
2015-2016	542726.41	407563.26
2016-2017	725704.35	544433.45
2017-2018	504019.21	338629.88

Source:www.apeda.nic.in

APPENDIX-III

Domestic and International prices of Groundnut

Year	International price (Rs./qtl)	Domestic price (Rs./qtl)
1988-1989	937.68	880.00
1989-1990	1098.17	886.00
1990-1991	1096.59	1185.00
1991-1992	2017.24	1400.00
1992-1993	1778.47	1342.00
1993-1994	723.68	1392.00
1994-1995	1981.81	1300.00
1995-1996	1940.04	1291.10
1996-1997	2190.83	1851.00
1997-1998	2310.21	1852.00
1998-1999	2397.11	1938.00
1999-2000	2351.27	1155.00
2000-2001	2308.40	2619.00
2001-2002	2224.38	1340.00
2002-2003	2626.41	2508.00
2003-2004	3090.72	3087.00
2004-2005	3087.84	2736.00
2005-2006	2702.86	2825.00
2006-2007	3175.69	3059.00
2007-2008	3909.96	4049.00
2008-2009	4159.28	4436.00
2009-2010	4190.88	4449.00
2010-2011	5022.22	5258.00
2011-2012	6301.15	5905.00
2012-2013	7589.76	6875.00
2013-2014	6254.57	7483.00
2014-2015	6600.03	5608.00
2015-2016	7509.55	6000.00
2016-2017	7502.14	6875.00
2017-2018	6718.59	5688.00

Source: www.fao.org