

CHAPTER-I

INTRODUCTION

1.1 Crop importance

Groundnut (*Arachis hypogaea* L.) is a member of *Papilionaceae* subfamily of the *Fabaceae* family, is the most important edible oil seed crop in the world and rightly called as the 'King of oilseeds'. It is one of the most important food and cash crops of our country. Besides being a valuable source of all the nutrients, it is a low-priced commodity as well. That is why, it is also being touted as wonder nut and poor man's cashew nut. In addition, it is also known as peanuts, earthnuts and manila nuts. It is grown in tropical and subtropical areas and thrives between 25-28°C temperature with below 500 mm rainfall and under loamy and black soils. It has its origin in South America and was introduced into India in the first half of the 16th century (John *et al.*, 1955). Around 1800, the crop was referred to as being cultivated together with turmeric in Mysore. The South Arcot district (Madras) in 1850-51 was reported to cultivate 4,000 acres under groundnut, the largest area under the crop in any princely state in India at that time. Thereafter, the crop got popularity as a major oilseed crop in the country and spread from a mere 0.36 million hectare (mha) during 1909-10 (Seshadri, 1962) to 5.53 mha in 2013-14 (Anon., 2014) with varied fluctuations over the time period. Similarly, production also increased from 0.39 million tonnes (mt) to 9.67 million tonnes during the same period. Owing to its high content of digestible proteins (22-30%), vitamins (E, K and B group), minerals (phosphorus, calcium, magnesium and potassium) and phytosterols (Savage and Keenan, 1994) groundnut has gained importance as a food crop in the recent years.

Coming to Gujarat, the Overall groundnut acreage has jumped from 1.295 million hectares in 2015-16 to 1.642 million hectare in 2016-17. The kharif production of groundnut in the state is estimated to have increased by 97 per cent to 2.94 million tonnes in 2016-17 from 1.495 million tonnes in 2015-16 as per the survey by Solvent Extractors Association of India (SEA), India (Source: Commodity Online, 2016).

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Though the groundnut crop has shown progress in terms of its area and production, its yield in the country is low and more fluctuating because of the limited use of modern inputs including HYVs and its rainfed cultivation under resource poor conditions. Thereby, growth in groundnut cultivation is not only inconsistent but also oscillatory in nature (Rajarathinam and Parmar, 2011). But there are signals that the agricultural sector has responded to agrarian as well as economic reforms that were initiated during Green Revolution (1966) and Liberalization (1991) eras. With liberal deployment of high yielding varieties and agricultural inputs coupled with assured irrigation opportunities, the country has made an impressive progress on the food front during Green Revolution era which has resulted in the increased production of food grains (Acharya *et al.*, 2012). The initiation of economic reforms in India in 1991 also brought about major changes in the macroeconomic policy framework of the planned economy. With liberalization, private participation was encouraged in all aspects of agriculture including seed, plant nutrition, plant protection, mechanization and marketing (Pangayarselvi *et al.*, 2014). The policy led to the promotion of exports and bringing in better cultivation technologies from off-shores, leading to rapid agricultural growth. This has resulted in the shifting of cropping pattern from food-grain crops towards crops of high value and, in some cases, export oriented crops.

Groundnut plays a crucial role in the world economy and particularly in Indian economy. In 2014-15, the groundnut production was very low at about 65.57 lakh tonnes (*Kharif* 50.75 lakh tonnes) in the country, which was 32.5 per cent less than previous year. Thereby, the groundnut price which was earlier to Rs. 700 per 20 kg in November, 2013 increased upto Rs. 800 per 20 kg in November, 2014 and further to around Rs. 1000 per 20 kg in June, 2015. In *kharif* 2015-16, the area under groundnut in India was about 39.19 lakh ha while production was only around 51 lakh tonnes.

Though the monsoon was set in fourth week of June, 2015 and continued till third week of September, but one dry spell of one and half month in August-September badly affected groundnut crop at pegging stage, and resulted in below normal yields. The area under *kharif* groundnut in 2015-16 was about 1.296 mha slightly less than the previous year (1.352 mha) and production also remained low around 1.7 million tonne as against 1.947

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million tonne in previous *kharif* season. This production was sufficient to meet the consumption demand of Gujarat state, but export demand which showed improvement from 0.51 million tonne in 13-14 to 0.70 million tonne in 2014-15 will led to increase in groundnut price, as the trend continued.

The groundnut price ruling around Rs. 840 per 20 kg in various markets of Gujarat remained firm with slight ups and downs and went up after harvesting season in the year 2015-16. The Government fixed the MSP of Rs. 806 per 20 kg, for the year 2015-16. Total area under *kharif* oil seeds in the country in 2015-16 was estimated to be slight higher at 18.644 million hectare as against 18.339 million hectare in 2014-15 and total oil seeds production was also observed to be higher than the previous year. Despite that the import of edible oils was found to be around 3.5 million tonne in 2015-16.

Considering crop production and reviewing traders' reports, the research team of Department of Agricultural Economics, Junagadh Agricultural University has analysed the historical monthly price data of groundnut pods. The price forecasting analysis revealed that the prices of groundnut small (pods) may remain in the range of Rs. 820 to 900(4100 - 4500 Rs./qtl) and bold (pods) Rs. 860 to 940 per 20 kg (4300-4700 Rs./qtl) during November, 2015 to January, 2016. Hence, farmers were suggested to take their own decision to store groundnut and sell after January, 2016.

Groundnut yield has become very low in most Asian countries, owing to a number of biotic and abiotic stresses, apart from its cultivation on marginal lands. Moisture stress and frequent droughts, disease and pest attacks, low input use, *etc.* are the major production constraints. In addition, low output prices reduce incentives for farmers to invest in productivity enhancing technologies such as improved seeds, fertilizers and pesticides. Groundnut being a rainfed crop, its yield is largely determined by the quantum and temporal distribution of rainfall, in spite of which it performs well under low rainfall conditions if the rainfall is evenly distributed during the growing period. Moisture stress at critical growth stages can reduce yield substantially. The total production losses in groundnut due to all constraints at their moderate severity were estimated about 12.74 lakh tonnes, which amounts to an economic loss of Rs. 1783.34 crores (Dhandhalya and Shiyani, 2009). Irrigation is limited to a very small proportion of the total groundnut area.

Hence, groundnut yield is uncertain and production is riskier, discouraging farmers from investing in technology, inputs and irrigation. Thereby, it is no coincidence, that one of the main factors limiting improvement in groundnut productivity is the lack of adoption of improved technologies.

1.1.1 Global scenario

Groundnut is cultivated in more than one hundred countries around the globe. The yield levels of the crop vary significantly in all the major producing countries as a result of difference, in climate, soil, farming system and seed varieties (Anon., 2001). During 2014-15, the world production of groundnut stood at 42.3 million tonnes, coming from 25.7 million hectare area. India, China, Nigeria and USA are the major groundnut producing countries of the world with 70 per cent production and 50 per cent area share. India has the highest acreage under groundnut cultivation and ranks second in production, next only to China (Table 1.1).

Table 1.1. Groundnut production performance in major producing countries during 2014-2015

Country	Area (mha)	Area share (%)	Production (mt)	Production Share(%)	Yield (kg/ha)
China	4.63	19.37	16.55	39.88	3573.68
India	5.07	21.18	6.91	16.49	1349.81
Nigeria	2.72	11.36	3.07	7.41	1127.81
Indonesia	0.53	2.21	1.16	2.81	2213.33
USA	0.54	2.24	2.44	5.92	4537.15
Others	10.50	43.64	11.43	27.49	1089.97
World	23.99	100.00	41.57	100.00	1735.55

Note: 'mha' refers to million hectares and 'mt' refers to million tonnes.

(Source: Anon., 2016)

1.1.2 National scenario

Groundnut, rapeseed, mustard and soybean are the major oilseeds grown in the country besides other oilseeds *viz.*, sunflower, safflower, sesame, castor, linseed and niger over 28.53 million hectare (16 per cent of the total gross cropped area) with a production of 32.88 million tonnes (Anon., 2014). Groundnut is the most important oilseed crop grown in the country as it contributes roughly around 20 per cent (5.86 mha) and 23 per cent (8.26 mt) of area and production, respectively to the total oilseed sector. The crop is mostly cultivated during *Kharif* season and in *rabi* season it is being cultivated with

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less than one fifth of gross area of *kharif*. But the yield level of *rabi* groundnut is observed to be higher when compared to *kharif* groundnut. It is also pertinent to note that less than one third of the total groundnut acreage alone in the country is grown under irrigated condition leading to low groundnut productivity compared to the other major cultivating countries. The states of Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu are the five major groundnut growing destinations and they altogether contribute around 87 to 89 per cent of area and production, respectively at the national level (Table 1.2). Gujarat happens to be the deciding state for groundnut production and trade in the country as it contributes nearly half of the national production from mere one third of its national acreage.

Table 1.2. Groundnut production performance in major producing Indian states during 2014-2015

State	Area (mha)	% to All India	Production (mt)	% to All India	Yield (kg/ha)
Gujarat	1.84	33.27	4.92	50.88	2670
Andhra Pradesh	1.39	25.14	1.23	12.72	890
Tamil Nadu	0.34	6.15	0.96	9.93	2812
Rajasthan	0.47	8.50	0.91	9.40	1943
Karnataka	0.73	13.20	0.66	6.83	907
Others	0.76	13.74	0.99	10.24	1302
All India	5.53	100.00	9.67	100.00	1750

Note: 'mha' refers to million hectares and 'mt' refers to million tonnes.

(Source: Anon., 2014)

1.1.3 Scenario in Gujarat

In Gujarat, about 85 per cent of the total area under groundnut is confined to the six districts in the Saurashtra region alone *viz.*, Junagadh, Rajkot, Amreli, Bhavnagar, Surendranagar and Jamnagar. About 90 per cent of the groundnut growing soils in the state are medium black. The rest of the 10 per cent are sandy loams confined to the districts of Bhavnagar and Amreli. About 80 per cent of the total groundnut area is under Virginia Runner type varieties. Gujarat cultivates groundnut in about 1.84 million hectare with an annual production of 4.92 million tonnes and productivity of 2670 kilograms per hectare during 2014-15 (Anon., 2014).

1.2 Practical utility of the research problem

The aspects of cost and returns in groundnut crop cultivation directly affect the production of the crop which in turn leads to changes in its acreage under cultivation. Thereby, in this study, the trends in terms of area, production, productivity, cost of cultivation, profitability, Farm Harvest Price (FHP), Minimum Support Price (MSP) and Resource Use Efficiency (RUE) of groundnut cultivation is analyzed in the state of Gujarat during the periods of Pre-Liberalization (1980-81 to 1991-92) and Post-Liberalization (1992-93 to 2015-16). The policy makers are finding it difficult to formulate appropriate pricing policies for the groundnut growers as there are very few studies that consider the twin objectives of cost of cultivation and profitability. The credit institutions are also finding it difficult to decide the scale of finance for crop loans for groundnut and groundnut growers as there is dearth of studies related to profitability of the crop. Thereby, the present study has attempted to answer the issues related to groundnut profitability and its temporal variations in the state of Gujarat along with appropriate suggestions for market and pricing policy reform.

1.3 Objectives

Overall, the study has attempted to highlight and present interrelationships between various aspects related to groundnut *viz.*, area, production, productivity, cost of cultivation, profitability, Farm Harvest Price (FHP), Minimum Support Price (MSP) and Resource Use Efficiency (RUE) in the state of Gujarat.

The specific objectives of the study are as follows:

1. To project structural changes in the growth dimensions (i.e. area, production and productivity) of groundnut crop in the state of Gujarat during pre and post-liberalization eras;
2. To analyze the cost structure dynamics and the corresponding levels of FHP and MSP of groundnut crop;
3. To examine the trends in the profitability and income measures of groundnut crop; and
4. To estimate and compare resource use efficiency of groundnut cultivation.

1.4 Hypothesis

The formulated hypothesis in this study is that the growth rate of area, production, productivity FHP and MSP of groundnut in the Post-Liberalization Period will be comparatively greater than the Pre-Liberalization Period. Percentage analysis will be carried out to study the performance of all such growth dimensions. In addition, the components of trend factor and cyclical factor will also be worked out in the analysis.

1.5 Limitations of the study

1. The study was limited to two periods (1980-81 to 1991-92 and 1992-93 to 2015-16) since the availability of time series data for longer period of time is difficult.
2. The study was limited to groundnut crop only because of the time requirement for collection and analysis of data.
3. The study was based only on secondary data and thereby may not be suitable for generalization at individual farmer's field.

1.6 Presentation of the study

The study has been comprised of with five chapters. In Chapter-I, the nature and importance of the research problem, specific objectives of the study have been presented. And Chapter-II deals with the review of the past studies related to the study, whereas, Chapter-III gives an overview of the study area, nature and sources of data, analytical tools employed for evaluating the objectives and interpreting the results and various concepts used in the study. A brief summary and discussion of the overall results and the main findings of the study have been presented through a variety of tables in the Chapter-IV. Lastly, Chapter-V includes summary and conclusions.