CHAPTER 2

REVIEW OF LITERATURE OF GROUNDNUT CULTIVATION

A comprehensive review of literature is an essential part of any scientific investigation. Therefore, an attempt has been made to reviews the research studies related to groundnut cultivation in India and Gujarat. The findings of the available research works have been presented under the following Sections. Section I Area, Production and Yield of groundnut. Section II Cost of cultivation, Prices of Groundnut and Other things related to Groundnut.
SECTION I

AREA, PRODUCTION AND YIELD OF GROUNDNUT

Area under Groundnut

Patel Arun S. (1997)\(^1\) examined various factors affecting the area of groundnut in his article “Development of agriculture in Gujarat”. Despite of working of unfavorable factors like the low level of yield associated with its high degree of instability and poor irrigation facility the relative area under groundnut increased in the state as also in all the major Saurashtra districts except Jamnagar. This is principally due to relatively high farm harvest price and relatively higher increase in it, as compared to other crops. The situation so observed is clearly reflected in the significant positive relationship between income terms of trade and the area changes under groundnut.

Gupta Satyendra P. (1997)\(^2\) worked on irrigation and groundnut cultivation in his article “Growth performance and variability of groundnut crop in India: A state wise analysis”. He suggested that groundnut cultivation should be increased under assures irrigation in all those states where yield was not contributing while the area contribution was positive and significant. Thus assured irrigation will not only reduce the variability in production but also sustain the yield.

Gupta Shakuntla (2000)\(^3\) examined oilseed’s area on his paper “Acreage response of major oilseed crops in Punjab”. He examined that India enjoys the distinction of having largest cultivated area under cultivation in the world with over

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26 million hectares. Also among the agriculture commodities in India, oilseeds from the second largest agricultural commodities after cereals sharing 14 per cent of the countries Gross Cropped Area and accounts for nearly 5 per cent of gross national product and 10 percent of the value of all agriculture commodities. Among the various edible oilseeds crops, both groundnut and rapeseed & mustard enjoyed prominent position and their share is the largest both in terms of area and output of the edible oil.

Gupta Shakuntla (2000)\textsuperscript{4} examined the area of groundnut in Punjab in his article “Acreage response of major oilseed crops in Punjab”. He noted that since groundnut is an unirrigated crop, as the irrigated area increases, the area under it is bound to decrease. This fact is amply portrayed by the negative significant value on gross irrigated area variable. Similar conclusions emerged from the computed elasticity coefficient. This suggests that groundnut cultivation in Punjab is confined to marginal lands which are not very prone to irrigation facilities.

He also reported that in this paper that that elasticity with respect to irrigation and lagged area are much higher than price elasticity as well as yield elasticity of acreage. Whereas risk variables elasticity fall under low response category and these variables imprinted their negative influence on acreage under groundnut. Between irrigation and logged area, the elasticity with respect to irrigation accounts for a greater amount of change in acreage than lagged area elasticity. This variable caused the maximum proportion of change in acreage under groundnut in Punjab state. The negative elasticity with reference to irrigation shows that farmers are very sensitive to changes in irrigation and displacing area following an increase in irrigated area. In fact, both at the state and district level, irrigation and lagged area appear to be

\textsuperscript{4} Ibid
significant variables causing greater influence on the farmer’s decision-making process.

Velavan C. and Balakrishanan V. (2000) reported in their research paper “Resource use Efficiency in Groundnut Cultivation of Salem District, Tamil Nadu” that groundnut is the most important oilseed crop in India. It ranks first both in acreage and production among the oilseed crops. It is reported that of the total oilseed cropped area, groundnut area accounted to be 70 per cent in 1950s but over years the area under groundnut has declined to 33 per cent as on 1996, still groundnut is a major oilseed crop in India.

Pandey M. P. (1980) examined impact of irrigation development on groundnut cultivation in his article “The impact of irrigation on rural development: A case study Kiuly-Badua-Chandan command area”. He examined that the irrigation is the key to increasing agricultural output per hectare and per unit of farm labor in developing nations. The demand for irrigation water generated by modern agricultural techniques is different from those that arise from traditional methods of cultivation. Irrigation systems built for the older technologies of traditional farming are not usually suitable for modern and high-output agriculture. Irrigation as it has developed in India has been found to be suffering because of factors like faulty head-works, the silting up off reservoirs, seepage from canals and water courses, improper and inadequate drainage and field channels, etc.

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Patel Arun S. (2004)\textsuperscript{7} examined the cropping pattern in his research report “Review of agricultural policy in Gujarat”. He reported that the decade wise cropping pattern of Gujarat indicates that, the area under non-food grain crops increase gradually while, among non food grain crops groundnut substantially increased in the first decade, but consistently declined thereafter.

Patel Arun S. (2006)\textsuperscript{8} noted in his book “Review of agricultural policy in Gujarat” that the importance of groundnut has increased substantially and at present most important single crop occupying highest share in gross cropped area. Groundnut is mostly rainfed crop, it is most important crop in Saurashtra region where rainfall is moderate and uncertain. Hence, performance depends on rainfall situations. Yield improvement is not observed to any significant extent because of rain effect.

Patel Arun S. (2004)\textsuperscript{9} was reported in this research report “Review of State Agriculture Policy in Gujarat Part - 1” that the entire period of 1949-96, when divided into pre i.e., 1949-68 and post green revolution period i.e., 1968-96 for all the performance was better in the pre as compared to the post green revolution period due to relatively better growth rate of area. He noticed that higher growth rate for various non food grain crops as compared to that for different food grain crops and it was mainly due to the overall shift in crop pattern from food grain crops to non food grain crops

Patel Arun S. (2006)\textsuperscript{10} was observed in this book “Review of State Agriculture Policy in Gujarat” that over the period of fifty years development, among the non food grains crops area under groundnut substantially increased with about 22 per cent

in the first decade, i.e., TE 1963 but consistently declined thereafter and it was 16.57 per cent in TE2001

Patel Arun S. (2004)\textsuperscript{11} was observed the nature of performance of crops in research report namely “Review of State Agriculture Policy in Gujarat – Part 1” that during various periods and noticed that 1) during 1949 to 1968 the performance of groundnut crop was good, 2) during 1971 to 81, it was also good and 3) during 1981 to 1996, it was very good performed.

Patel Arun S. (2006)\textsuperscript{12} was observed the area under groundnut crops in book “Review of State Agriculture Policy in Gujarat” that He also observed that this crop has importance increased substantially. At present most important single crop occupying highest share in GCA. The groundnut is mostly rainfed crop. It is most important crop in the Saurashtra zones where rainfall is moderate and uncertain. Hence, the performance depends on rainfall situation.

Hirway Indira (2002)\textsuperscript{13} noted in her book “Dynamics of development in Gujarat” that the growth in the sixties was largely due to the extensive cultivation and expanding irrigation facilities while the growth in the seventies was due to the Green Revolution or the seed fertilizer revolution. The negative or low growth rate of agriculture in the eighties and the nineties is largely because of the saturation of results of the earlier strategies and the lack of adoption of a new approach based on new technology.

\textsuperscript{13} Hirway Indira (2002), “Dynamics of development in Gujarat”. Published for Center for development alternatives, Ahmedabad by Concept publishing company, New Delhi
Mathur Nitin and Kashyap S.P. (2002)\textsuperscript{14} worked out in their book “Dynamics of development in Gujarat” and noted that in the last three decades area oilseeds moved from 23.5 to 27.5 percent. Increase in the share mustard from 0.14 to 3.4 percent was largely responsible for such an increase in oilseeds area. Irrigated cultivation of mustard is gaining importance in the state over the years. Groundnut on the other hand is losing importance, its share falling from 21 to 18 percent and is probably being replaced by other rabi oilseeds such as castor.

Patel A.S. (1997)\textsuperscript{15} examined at the district level, varying degree of shift in crop pattern in his research paper “Development of Agriculture in Gujarat” and he observed that from food grain to non-food grain crops for 11 district, viz., Kheda, Sabarkantha, Baroda Bhavnagar, Rajkot, Junagadh, Jamnagar, Surendranagar, Amreli, Panchmahals and Kutch. For the remaining five district viz., Mehsana, Banaskantha, Surat, Ahmedabad and Bharuch, the shift was from non-food grain to food grain crops.

He also noted that for all the Saurashtra and Kutch districts a shift in crop pattern was from food grain to non food grain crops. Beside, an important but common feature for all these districts expect Surendranagar and Amreli relates to a substantial rise in the share of groundnut region and hence it is not expected to show a substantial shift of cropped area in favor of groundnut, yet the shift was positive.

Sharma Vijay, Patnaik Saradendu, Hiren Tilala (2007)\textsuperscript{16} noticed in their book “Edible Oil and Oilseeds Economy of India” that the oilseeds acreage increased significantly during the 80s and early 1990s mainly because of price support and various oilseeds development programmes launched by the government. However,

\textsuperscript{14} Mathur Nitin and Kashyap S.P. (2002)”Dynamics of development in Gujarat” Published for Center for development alternatives, Ahmedabad by Concept publishing company, New Delhi
during 1990s area under oilseeds remained constant at about 25 million ha and declined in some years.

Jhala M. L. (1997) revealed in his working paper “Demand, Supply and Prices of Edible Oils - An Analysis of Past Trends and Projections for the Future” that the demand for edible oil has increased steadily as a result of rising population, rise in incomes and due to high income elasticity of demand for edible oils. The Government had the full knowledge of the likely trends of the demand and the supply and hence the deficit of edible oils, thanks to the projections made by the National Commission of agriculture (1976) and the Long Term Edible oil plan (1978) of the Government of India. Despite this, there was a total mis-match between the production shortfall—measured by the difference between indigenous production and demand for oils, and the actual imports of edible oils for a fairly long periods of time that is from mid-seventies to the mid-eighties. The Government could not achieve the goal of price stability of edible oils and oilseeds despite the fact that the imports constituted as large as 40 per cent of domestic production of edible oils during this period. It delayed the march to words the attainment of self-reliance in the oil seeds sector. It was in the year 1988-89 that the irrational import policy was abandoned and as reported earlier, the marginal output of vegetable oils country registered a quantum jump with a nine-fold rise in it. Even the area under edible oilseeds which was stagnant around 168 lakh hectares for long prior to 1988-89 registered a 50 per cent rise by the year 1993-94. The rational import policy via its positive effect if prices could deliver the goods.

Production and Yield of Groundnut

Shanmugam K. R. (2003)\(^{18}\) has examined the resources efficiency for groundnut in his article “Technical efficiency of rice, groundnut and cotton farms in Tamilnadu” The results of this article indicates that the land and labor inputs are significant determents of output of almost all crops in Tamilnadu. The other cost variable is significant only in irrigated groundnut. The returns to scale parameters for production of almost all crops are close to one (constant returns to scale). There are considerable evidences that the observed outputs of all principal crops selected for the study are less than their respective potential outputs due to technical inefficiency. The average technical efficiency values of rising rice, irrigated groundnut and rain fed groundnut the efficiency is below 60 per cent, indicating that they could cut input resources up to 40 per cent without any production loss. Thus the sample farms could increase the outputs of crops and thereby farm income through better use of available resources, given the state of technology.

Patel Arun S. (1997)\(^{19}\) reported that the contribution of groundnut in his article “Development of agriculture in Gujarat”. In terms of groundnut production, India’s share was only 29 per cent. Elsewhere groundnuts are consumed directly as nuts just like almonds and cashewnuts and their prices are similar to those.

Sawant S. D. (1997)\(^{20}\) has worked on the yield of groundnut in his article “Performance of Indian agriculture with special reference to regional variations”. He examined that the output growth rate which was 108 per cent in the pre-1981 period exceeded the level of 6 per cent in the post-1981 period. Both area and yield

components contributed significantly to this dramatic expansion in output, though the
contribution of the former was greater than that of yield component. Expansion in the
output of oilseeds continued beyond 1991 with undiminished pace. This outstanding
performance of oilseeds must certainly be the result of changed policy environment
for them reflected in the special programmes undertaken since the Sixth Plan for
promoting their cultivation.

Velavan C. and Balakrishanan V. (2000)\(^\text{21}\) found out the shares of oilseed in
his working paper “Resource use Efficiency in Groundnut Cultivation of Salem
District, Tamil Nadu”. They noted that the output of oilseeds in India doubled from
108.3 lakh tones in 1985-86 to 220.2 lakh tones in 1995-96. Much of this increase
comes from increase in production area rather than yield. India accounts for about 8
per cent of global output of oilseeds but, uses 15 per cent of groundnut cultivable area
to produce it.

Singhal Vikas (1995)\(^\text{22}\) noted in his book “Hand Book of Indian Agriculture”
that India stands first in the Production of groundnut, sesameum and castor, second in
rapeseed-mustard, third in Linseed and fourth in cotton seed in the world.

Singh Jitendra (2007)\(^\text{23}\) worked on oilseed in his paper “Present Agricultural
Scenario in India” and noted that the oil seeds are source of oil, protein, sugar, fatty
acids and vitamins. There has been more than five times increased oil seeds
production during the period of 1950 to 2005. At present, the total oil seeds
production is around 24.84 million tonnes in India. India’s major oil seeds crop is
groundnut. It occupies 35.2 per cent area with 28.6 per cent world’s production in
India. India ranks first in production of groundnut in the world. India is the fourth

\(^{22}\) Singhal Vikas (1995), Handbook of agriculture
\(^{23}\) Singh Jitendra (2007), “Present Agricultural Scenario in India”, Kuruksetra, July
largest vegetable oil economy in the world next to U.S., China and Brazil. Besides India is the second largest producer of rice and cotton which yield valuable rice bran oil and cotton seed oil.

**Production and yield of groundnut**

Vashishtha Prem S. (2003)\(^2\) was studied the issues related to oilseeds in the “Slow growth Crops: Coarse Cereals, Oilseeds and Pulses”. He examined that substantial yield gap existed in the case of this crops covering groundnut crop. The author noted that there is need to identify specific oilseeds in specific areas where yield gap is significant and also investigate the reasons which have prevented exploitation of this potential as well as to identify the price and other factors explicitly for taking appropriate policy measures. There is need to focus on developing transgenic varieties in the case of certain oilseeds. He also pointed out that the Indian farmers were not sufficient in producing certain oilseeds.

Patel Arun S. (2006)\(^2\) has revealed on overall principal crops of Gujarat in “Review of State Agriculture Policy in Gujarat” as are follows:

Agro climatically Gujarat state has been divided into Eight Zones, which provide a wide varieties of soils and environment suitable to grow majorly all crops. This State is only predominance of non food grains crops after the Kerala. From farming, they are high value crops compared to food grain crops offering a fairly food opportunity to earn relatively high income: such crops are groundnut, rapeseed and mustard, castor, Sesamum, cotton, sugarcane and tobacco. Among these crops the productivity of groundnut is poor only compared to other mentioned crops.


The state has the longest coast line in the country which provides good scope to trade with ease with national and international markets and substantial scope for the development of sea products and fairly good infrastructural net work of transport and communication.

Gujarat can be a major state in the development of agro processing industries which for the enterprising people.

Patel Arun S. (2006)\textsuperscript{26} was observed in this book “Review of State Agriculture Policy in Gujarat” that during 1949-96 the productivity annual growth rate was higher than 2.50 per cent in respect of all food grains including chilies, potatoes, castor, mustard and tobacco but the growth rate of groundnut was very poor which covering around 17 per cent of gross cropped area in the TE 2000-01. The yield improvement is not observed to any significant extent mainly due to rain effect. Beside, the HYVs have shown a moderate impact also.

\textsuperscript{26}Patel Arun S. (2006), Op. cit
SECTION II
COST OF CULTIVATION, PRICES OF GROUNDNUT

Cost of Cultivation of Groundnut

Velavan C. and Balakrishanan V. (2000)\textsuperscript{27} examined components of cost of cultivation for groundnut in their researched worked “Resource use Efficiency in Groundnut Cultivation of Salem District, Tamil Nadu” and noted that the production function analysis revealed that there was a possibility to increasing the irrigated groundnut production by increased use of human labour, machine labour, bullock labour and by increasing application of nutrients. Similarly for rainfed groundnut, there was a possibility of increasing production by increased use of human labour, nutrients and other costs. Further, the analysis clearly showed that withdrawal of machine and bullock labour will make the groundnut production profitable in the study area as the study showed that there was an over use of these two inputs. The ratio of marginal value product to marginal cost for nutrients (5.2) was comparatively higher than other inputs in the irrigated condition. It also reveals that there was more scope for increasing the production by increasing application of nutrients in irrigated condition. In the rainfed situation marginal value product to marginal cost ratio (3.56) indicated that there was a scope for increasing the production by increasing the application of plant protection chemicals, gypsum and bio-fertilizers. So, it is necessary to educate the farmers to use scientific methods of production in order to achieve the potential output through proper extension activities.

Shanmugam K.R. (2003)\textsuperscript{28} analysis in his an article “Slow Technical Efficiency of Rice, Groundnut and Cotton Farms in Tamil Nadu” and examined in interstate comparisons, Tamil Nadu ranked second in terms productivity of groundnut production.

\textsuperscript{27} Velavan C. and Balakrishanan V. (2000), Op. cit
after Punjab according to the estimates in 1997-98. In this connection he measures the farm specific technical efficiency of raising major principal crops including groundnut. He used the cost of cultivation scheme’s data for the year 1990-91 to 1992-93 i.e. three years. The results indicate that land and labour inputs are the significant determinants of output of almost all crops in the state. The other variable is also significant for this crop. He noted that observed outputs of all studied principal crops are less than their respective potential outputs due to technical inefficiency. The average technical efficiency values of raising for irrigated and rainfed groundnut in this state are 68 per cent and 76 per cent respectively. The technical efficiency of raising irrigated groundnut is relatively high in own land cultivation as compared to that in leased land cultivation. Farms having a high proportion of family members with above middle school education are more efficient in raising groundnut.

**Prices or Market of Groundnut**

Mundinamani S. M. and S. B. Mahajanshethi (2001)²⁹ analyzed on market of groundnut “Impact of KOF’s market intervention operation on oilseeds market structure and prices – A case study of groundnut”. Trader participation in groundnut transaction was only 2 to 3 per cent of the enrolled firms in four markets, while it varied between 14 to 20 per cent in other markets. Co-operative Oilseeds Growers Federation (KOF) figured as one of the top four firms only in two markets. Even though, its share was less than 14 per cent. In the rest of the markets its share was a meager 2 to 3 percent. As such, the predominance of private trade in groundnut, which existed before the entry of the KOF, still continued. Thus the role of the KOF in reducing market concentration has been very limited. The KOF market intervention

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operation however, has played a significant role in establishing groundnut prices in the peak period in all study markets. The wide fluctuations in lean period prices could mainly attributed to the absence of procurement by the KOF and the dominance of private trading forces. The results of the study highlighted the importance of the KOF’s existence and its market intervention operation in the state.

Ranjana Kumar (2005)\textsuperscript{30} reported in his “Constrains facing Indian agriculture: Need for policy intervention” Reforms in agriculture price policy, taking in to account domestic and world price conditions of agriculture output rather than only on the basis of a measure of production costs.

Patel Arun S. (1997)\textsuperscript{31} examined the prices of oilseed in this article “Development of agriculture in Gujarat”. According to him, by comparing international prices and domestic prices of edible oils it is being tried to prove that oilseeds cultivation is inefficient in India and that we should depend on imports more. However, it is forgotten that domestic prices of high quality of oils like groundnut oil, sunflower oil etc. are compared with cheap palm oil prices in the world to put forward this argument.

Velavan C. and Balakrishnan V. (2000)\textsuperscript{32} reported in their working paper “Resource use Efficiency in Groundnut Cultivation of Salem District, Tamil Nadu” and repowered that groundnut production not only decides the prices of groundnut oil in any year but also the prices of other major edible oils. So, the efficient utilization of the resources is necessary for increasing the production and productivity of groundnut.

\textsuperscript{30} Ranjana Kumar (2005), Op. cit
\textsuperscript{32} Velavan C. and Balakrishnan V. (2000), Op. cit
Sarkar Debnarayan (1993)33 “Production, Productivity and Marketing of Pulses and Oilseeds” studied marketing of pulses and oilseeds in Habra Block (North 24 parganas) of West Bengal during 1989-90. He reported that the prevailing unorganized marketing system has failed to provide the benefit of the widespread use of modern agricultural practice to the primary producers, especially the marginal and small farmers. By and large, the oilseeds and pulses markets were neither competitive nor efficient. The marketing channels for most of the producers were restricted to a particular marketing agent with the farmers were tied for the various obligations. Most of the producers failed to receive remunerative prices for their produce sold in the market. He was of opinion that there should be a strong co-operative marketing, the improvement in transport and storage facilities for better marketing of oilseeds in the area. Further, he opined to design a marketing policy so as to encourage the entry of new purchasers, prevent unfair trade practices, widen the access to credit and input marketing facilities.

Tyagi V. P. et.al (1993)34 “Marketing of Oilseeds and Pulses” concluded that the producers got less than 65 percent of the consumer’s rupee in oilseeds and pulses and the maximum share went to the wholesalers and retailers. They suggested that there is an urgent need for co-operativization of marketing, storage, transport and processing of mustered, arhur and gram.

Mundinamani (1994)35 analyzed the market structure in Karnataka. The analysis revealed that oilseeds trade was mostly controlled by a few big firms who were mostly wholesale traders cum oil processors. In Karnataka, three marketing

channels were identified, of which selling through commission agents was most popular in terms of number of farmers attached and the quantity sold. From the viewpoint of marketing costs and margins, selling through village traders was negligible in terms of both number of farmers attached and quantity sold. He suggested that marketing performance of oilseeds could be improved by encouraging the intervention of co-operative in marketing of oilseeds and their products.

Acharya and Agarwal (1980)\textsuperscript{36} worked out the linear growth in farm harvest prices of important oilseeds and oilseeds as a group during the year 1960-61 to 1975-76 for the state of Rajasthan in their research work “Agricultural Prices analysis and Price Policy in Rajasthan”. The period of study has been divided into two sub-periods viz., 1960-61 and 1970-71 to 1975-76. The study revealed that during the first period the increase in farm harvest prices of oilseed ranged between 7.79 percent to 8.70 percent per annum. It was being maximum for groundnut and minimum for rapeseeds-mustered. The linear growth for all the individual oilseed crops as well as for oilseed as a group was negative during the period 1970-71 to 1975-76. Thus, the prices of oilseed crops recorded an increase before 1970 and decline thereafter.

Sharma and Singh (1987)\textsuperscript{37} worked on product price in their research paper “Changing Structure of Factor and Product Prices in Punjab Agriculture” and stated that the rate of increase in price was higher in gram (10.02%), followed by desi cotton (8.46%), groundnut (8.03%) and rapeseed mustered (8.01%) during the period 1960-61 to 1983-84 in Ludhiana district of Punjab State.


Ninan (1988)\textsuperscript{38} reported in his article “Factors Influencing Growth and Instability in Oilseeds Production - The Case of Groundnut and Rapeseed- mustered” that the prices of rapeseed mustered and groundnut oil increased at a compound rate of 8.81% per annum, as against 6% per annum increase in general price level during the period 1951-52 to 1980-81 in the country.

Bhatt and Shiyani (1989)\textsuperscript{39} revealed in their research article “The Change in Behavior of Market Arrivals and Prices of Groundnut : in Amreli Regulated Market (Gujarat)” that the wholesale prices of groundnut in Amreli regulated market of Gujarat increased at a linear growth rate of 2.67 percent per annum during 1970-71 to 1987-88.

Kahlon and Gurumurthi (1981)\textsuperscript{40} in their working research paper “Role of Policy in Expending Oilseed Production” and reported that market price structure was more favorable for oilseed crops as compared to that for cereals with price ratio for oilseeds improving by 27 percent over the two periods 1952-453 to 1964-65 and 1967-68 to 1978-79. The study highlighted the volatile character of oilseeds prices in the country as a whole.

Patel K. A. (1988)\textsuperscript{41} reported in his article “Fluctuating Prices of farm Enterprises in Indian Agriculture” and found out that higher magnitude of instability in wholesale prices of pulses (cv.% 31.42), followed by oilseeds (cv.% 18 to 23) during the period 1970-71 to 1980-81 in the state of Gujarat.

\textsuperscript{40} Kahlon and Gurumurthi (1981) “ Role of Policy in Expending Oilseed Production” Agri. Situ. In India, 36 (5) :361-64.
Kuchhadiya *et al* (1989)\(^{42}\) have examined the yield and price on their article “Instability of Crop Yields and Product Prices in Saurashtra Region of Gujarat” and studied the variability in farm-harvest prices of various crops in Saurashtra region of Gujarat state during 1960-61 to 1986-87. They concluded that oilseeds have shown higher instability in farm-harvest prices than cereals.

Kag (1994)\(^{43}\) was worked on “Marketing of Mustard in Banaskatha District of Gujarat State” and found out the coefficient of variation (cv %) in order to know the variability in prices and arrivals of mustered in five selected markets of Banaskantha district of Gujarat during 1983-84 to 1992-93. The result of the study revealed that variability in arrivals ranged from 107.75 to 135.84 percent (cv %) among the different selected markets while instability in prices did not show much variation among the different markets (30.06 to 32.05 cv %).

**Other related to Groundnut**

Sawant S. D. (1997)\(^{44}\) reported about instability in yield of groundnut in his paper “Performance of Indian agriculture with special reference to regional variations” and noted that Utter Pradesh and Gujarat were exceptional with high degree of instability and absence of significant positive growth output of Oilseeds.

Ranjana Kumar (2005)\(^{45}\) reported in his worked that “Constrains facing Indian agriculture: Need for policy intervention” India continues to be predominantly an agrarian economy and without improvements and developments in this sector, the economy as a whole cannot expect to achieve and maintain a balanced and sustainable growth trend.

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\(^{45}\) Ranjana Kumar (2005) “Constrains facing Indian agriculture: Need for policy intervention”, Indian journal of agricultural economics, Vol. 60, No. 01, Jan –March
Narayanamoorthy A. (2007) worked out in his article “Deceleration in agricultural growth – Technology fatigue or Policy fatigue?” and noted that the 53rd meeting of the National Development Council was specifically called to discuss and finalized strategies to rescue agriculture from its current sludge. The Prime minister and his colleagues were also rightly recognized that enhancing agricultural growth is essential for achieving the macro objective of ‘INCLUSIVE GROWTH’ set for the 11th Five year plan. However, while pointing out various weakness of the sector, most of the speakers emphasized that “technology fatigue” is one of the prime reason for the slow growth of agriculture experienced since the mid 1990s. Surprisingly, the prime minister also shared the same opinion in his inaugural address of the meeting. He mentioned “One feature that stands out is the lack of any breakthrough in agricultural production technology in recent years. There is a technology fatigue, which we need to address”.

Hirway Indira (2002) “Dynamics of development in Gujarat” Gujarat receives only one rainfall from June- July to September\ October period which varies widely from a merge 340 mm. in west Kutch to 1800 mm in southern hills in Dangs. The rainfall is erratic and concentrated, with the average number of rainy days varying from 20 in Kutch to 40-45 in South Gujarat. In spite of this, the south Gujarat region is endowed with some perennial rivers and the north Gujarat region has, had a good ground water potential. He exploitation of water resources in the state however has been far from judicious. The irrigation infrastructure as well as the subsidy pattern has not taken care of sustained use of the water resources. As a result the state is facing water problems today.

Yadava, J.S. (1997)\textsuperscript{48} revealed in his research project namely “Annual Progress Report of All India Co-ordinate Research Project on rapeseed- Mustard” that the seriousness and ill effects of edible oil shortage, it has become imperative for policy makers and research workers in agriculture to bring about rapid breakthrough in oil seed production. Further, the solution to the oil crisis will require an efficient marketing system and the modernization of the processing and distribution system to protect the interest of all the participants in the commodity system for oilseeds. Keeping this in view, Technology Mission on oilseeds set up by the Government of India in 1986 took a number of innovative and integrated measures to harness the best production, processing and marketing technologies. The major thrust of the Technology Mission was to minimize the drain of valuable foreign exchange and to achieve self-sufficiency in edible oil sector.

Jhala M. L. (1997)\textsuperscript{49} revealed in his working paper “Demand, Supply and Prices of Edible Oils - An Analysis of Past Trends and Projections for the Future” that the vegetable oil production depends mainly on oilseeds and oil bearing materials available within the country. This availability has fluctuated not only from year to year but also from period to period mainly because oilseed are grown in those areas where rainfall is generally low and highly uncertain, with very limited access to irrigation. Nor there is any significant technological breakthrough in oil seeds yields as has been the experience with “green revolution” crops.

Hirway Indira (1994)\textsuperscript{50} noted in her book “Dynamics of Development in Gujarat: Some issues” that there is a general belief that in any arid and semi-arid


\textsuperscript{49} Jhala M. L. (1997), Op. cit

\textsuperscript{50} Hirway Indira (1994) “Dynamics of Development in Gujarat: Some issues”, Centre For Development Alternative, Ahmedabad
region, water shortage is a gift of nature. This argument is frequently put forth to explain the water shortage of Gujarat. However, this is quite far from the truth. The combination of climate, physiographic and geology in different regions of the state did provide naturally favorable conditions for water resources in most regions of the state about three decades ago.

Salinity ingress is another serious environmental problem of the state. It has affected adversely the quality of water supply on the one hand, and agricultural productivity of land on the other. Government of Gujarat conducted the first survey on salinity in 1960, the year when the state was formed. According to this survey, the salinity was observed mainly in some coastal villages located right on the sea coast covering about 1,232 sq. km. area in the six districts of Saurashtra. The pace of salinisation accelerated between 1960 to 1975 and particularly between 1975 to 1993. The saline area in the state increased more than 8 times during this period. This was primarily because of (a) the destruction of mangroves on the sea coast, (b) over drafting of (sweet) ground water in the coastal regions and (c) over drafting of ground water in other regions. The extent of salinity has increased also in canal irrigated area due to the overuse of (cheap) canal water resulting in water logging in these regions. It has been estimated by the Gujarat Ecology Commission (GEC) that about 30 per cent area of the state will be affected by excess salinity by 2001 AD if radial actions are not taken to control its ingress. The most damaged area will be the region around the Gulf of Kambhat and the coastal Saurashtra (GEC 1997). Government of Gujarat has set up several committees and task forces on salinity since 1970 when the first committee was set up for salinity ingress in Saurashtra and Kutch. This was followed by Kapoor Committee (1974), the Shivraj Committee (1978), the Dutch Mission in early nineties, and the recent Coastal Zone Management Plan (CZMP) (1996).
Somehow, the recommendations of these committees and task forces have not been implemented seriously, as a result increasing salinity of land and water is a major environmental problem of agricultural growth of the state threatening the sustainability of agricultural growth on the one hand and worsening the problem of drinking water on the other.

Singh Jitendra (2007)\textsuperscript{51} revealed in his paper “Present Agricultural Scenario in India” and noted that a research on groundnut is important because of the crop’s important dietary contribution, its use as a crop and income generator, its potential in meeting part of the global demand for vegetable oils, its secondary value as animal feed and fodder, and its contribution to the sustainability of mixed cropping systems. The CGIAR believes that research on groundnut can resolve major production constraints.