A Comprehensive Survey onof Groundnut production in Gardens in Pollachi Taluk of Tamil Nadu Gardens

Abstract

India has is an abode of nine oilseeds; viz., groundnut, rapeseed-mustard, soybean, sunflower, safflower, sesame, niger, castor and linseed. Groundnut is called the 'King of Oilseeds' and is an important oilseed crop inof Tamil Nadu with multipleifarious uses. A survey was undertaken by Coconut Research Station, Aliyarnagar among fifty groundnut growers gardens of groundnut farmers to understandcomprehend the management strategies being adopted and the constraints faced by them onin the farm front. About 80 % of the farmers sow TMV and VRI varieties especially during chithirai pattam. About 90 % of the respondents weed by do hand atweeding on 20 and 45 DAS and eighty percent of the farmers spread apply farmyard manure for their farms. Aroundbout 60 % of the farmers use simple apply either straight or complex fertilizers for their farms. All thosee surveyed respondents apply gypsum in varying doses and adopt with varied doses and need based plant protection measures as requiredare being adopted by them. Yield in the gardensfrom the surveyed are betweengardens ranged from 1300 – 1500 kg ha^{-1}. Groundnut cultivation iscompromised vitiated by peacock damage and the threat of wild boar,as well as labour shortages menace besides labour scarcity.

Key words : Groundnut, Weeding, Fertilizer, Plant Protection, Resource Constraint

Introduction

Groundnut (*Arachis hypogaea* L.) is an important oilseed crop in India which ranksoccupies first position in terms of area and second in terms of production in the country's as far as the oilseed scenario of the nation is considered. Globally, China leads the way in terms ofranks first in groundnut production followed by India, Nigeria, USA, Sudan and Senegal. In India, groundnut are grown cultivation spreads over an area of 6.10 m.ha with a production of 10.24 m.t and productivity of 1703 kg ha^{-1}. The production volume of groundnut from 2013 – 2024 of India is depicted in **Fig. 1** and the productivity of groundnut from 1961-2022 is depicted in **Fig. 2.**

Comment [UW1]: Why does this survey pose the problem in two or three lines,is it the fact that the yield of peanuts is low?.....

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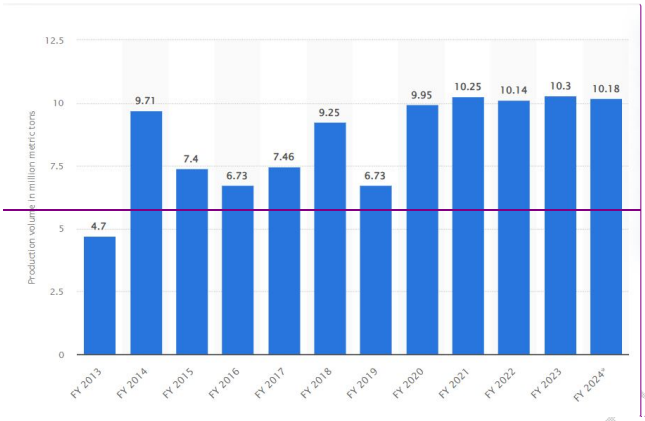
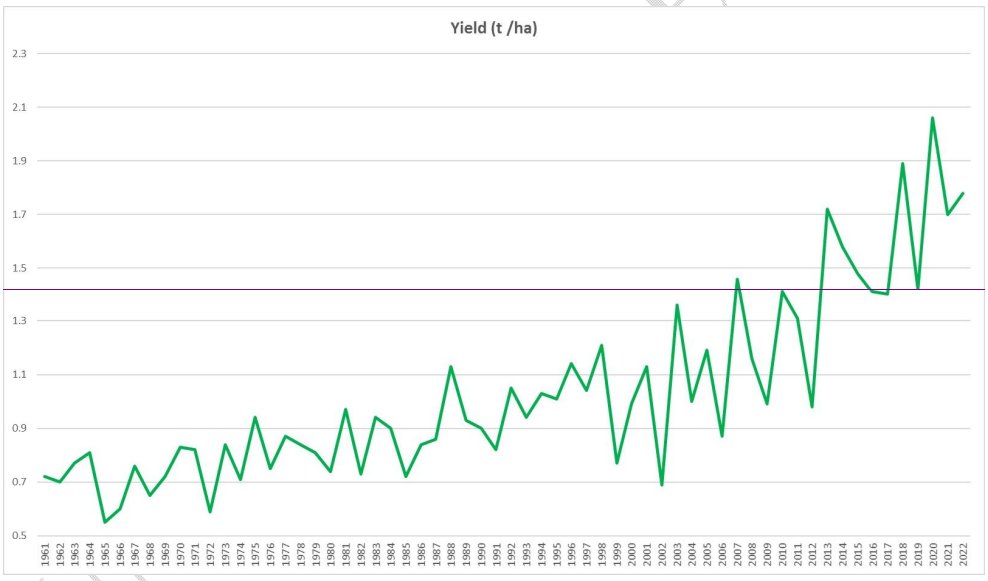


(Statista, 2024)

Fig. 1. Production volume of groundnut in India (2013-2024)



(Statista, 2024)

Fig. 2. Productivity of groundnut in India (1961 - 2022)

The major~~top~~ groundnut producing states in India are Gujarat, Andhra Pradesh, Tamil Nadu, Rajasthan, Karnataka, Madhya Pradesh, Telengana and Maharashtra. According to the Ministry of Agriculture and Farmers Welfare (2021-22), groundnut production in Tamil Nadu is 10.47 lakh tonnes (lt) from~~with~~ an area of 3.72 lakh hectares. The Price of groundnut per quintal in Tamil Nadu is the highest among all the

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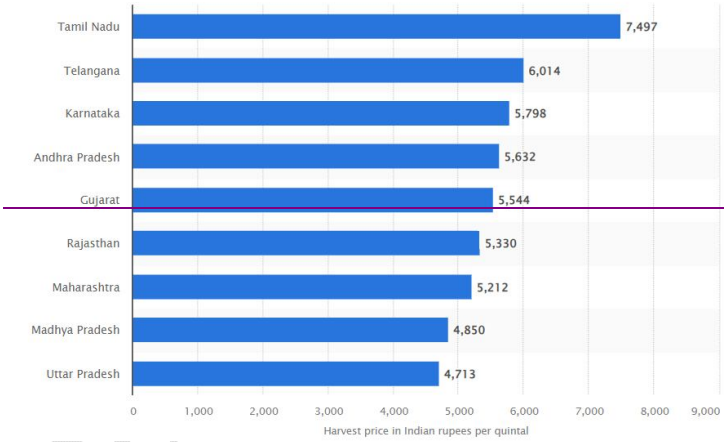
~~compared to any other~~ state of the countrynation (Statista, 2024) ~~(Fig. 3)~~. The main groundnut producing ~~Major groundnut-growing~~ districts in Tamil Nadu are~~include~~ Namakkal, Salem, Erode, Pudukkottai, Kachipuram, Cuddalore, Dharmapuri, Krishnagiri and Ariyalur. Declining productivity associated with poor soil fertility is a constants concern ~~Nagging worry~~ in groundnut cultivation ~~is the declining productivity associated with poor soil fertility status~~. ~~The~~ Iinformation on production constraints will make it possible to classify themm ~~help rank them~~ according to their importance including agronomic (e.g., variety, cultural practices), abiotic (drought), and biotic (e.g., late leaf spot, insect pests) constraints which will help formulate strategies to overcome them by adopting scientific approaches.It is therefore ~~Hence it is~~ imperative to understand farmers' perceptions of ~~the perception of farmers in~~ groundnut cultivation and bottlenecks they face~~d~~ in this area ~~groundnut farming~~.



~~(Statista, 2024)~~

~~**Fig. 3. Price of groundnut per quintal in various states of India**~~

Materials and Methods

A survey was conducted in fifty groundnut gardens of Pollachi taluk by collecting primary data during kharif and rabi periods using a pre-structured questionnaire. ~~The~~ Ggroundnut growers were identified with the help of ~~the~~ officials of the State Department of Agriculture. Details were collected ~~gathered~~ regarding ~~the~~ varieties grown~~cultivated~~, farmers' preferences, irrigation, nutrient management and plant protection measures ~~being~~ adopted by ~~the~~ farmers and the yield obtained.

Comment [UW4]: It is necessary to represent the study areas on the map using shapes in word

The Pollachi taluk (10.662°N 77.0065°E) **(Fig. 4)** ~~taluk~~ comprises three blocks *viz.,* Anaimalai, Pollachi (North) and South ~~blocks~~. Pollachi is located ~~situated~~ near the center of the South Indian Peninsula, surrounded by Western Ghats. Its ~~has an~~ average altitude is ~~elevation of~~ 293 metres (961 ft) on the banks of the River Aliyar ~~river~~. The area is hilly and rocky, drained by several rivers and covered by is thick~~ly~~ forest~~ed~~ with marshes ~~lands~~ and scattered patches of grass. The city receives most of its ~~town receives majority of the~~ rainfall from the south west monsoon ,which~~Southwest monsoon~~ arrives via ~~ing through~~ the Palghat gap, and has an ~~receives an~~ average annual rainfall of around 1,274 mm (50.2 inches). The city's economy depend mainly on agriculture. ~~of the town is predominantly dependent on agriculture.~~ Coconut, jaggery, vegetables and livestock~~cattle~~ contribute to the agricultural production ~~output~~.

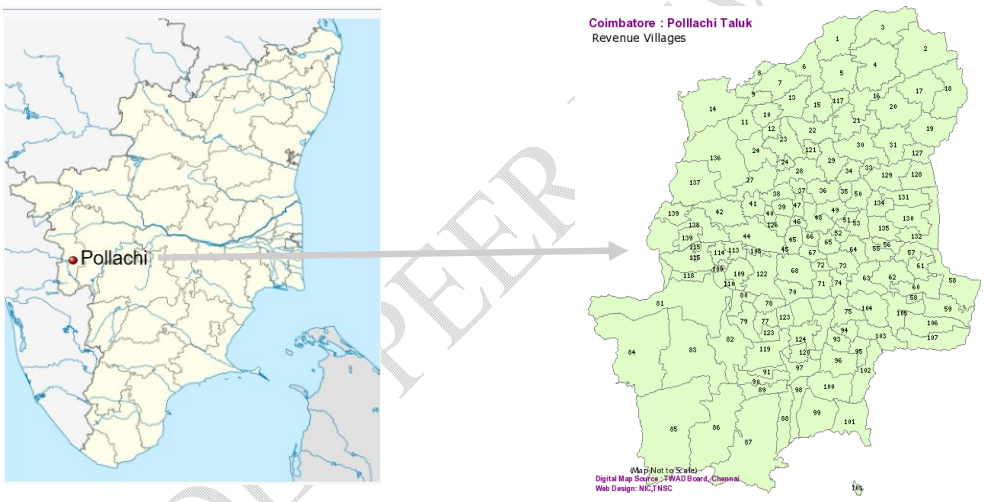


Fig. 4. Location of the survey area and its villages

Results and Discussion

(i) Predominant Cropping Systems

The predominant cropping systems followed by farmers inTamil Nadu ~~farmers~~ are Groundnut – maize / sorghum, Groundnut – cowpea / horsegram, Groundnut – vegetables and groundnut intercropping ~~of groundnut~~ in coconut gardens. Groundnut Monoculture ~~of groundnut~~ increases soil nutrient ~~the~~ depletion ~~of soil nutrients~~ and reduces soil quality. Groundnut cultivation more sensitive to the ~~Peanut crop is more susceptible to the~~ continuous monoculture system (Li *et al*., 2021), while its cultivation in~~under~~ a long-term intercropping system is not recommended due to

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some disadvantages ~~because of some drawbacks~~ including soil nutrient ~~the~~ depletion ~~of soil nutrients~~ and poor soil quality, especially in arid areas ~~dryland areas~~ (Li *et al*., 2021). Intercropping legumes with maize has great ~~a significant~~ potential to improve ~~enhance~~ agriculture sustainability through crop diversification (Stern, 1993; Maitra *et al*., 2021).The l~~L~~arge differences in morphology and growth patterns between maize and legumes allow efficient use ~~habits between maize and legume crops offers effective utilization~~ of available resources, including sunlight and soil nutrients (Maitra *et al*., 2021), and ultimately increase ~~more crop~~ dry-matter production and grain yield. Intercropping legumes with maize has also been proposed as an approach to minimis~~z~~e C emissions (Raji and Dörsch, 2019; Maitra *et al*., 2021). Rotational cropping with legumes ~~pulses~~ reduces the accumulation ~~buildup~~ of crop residues in the soil due to faster mineralization than in the ~~compared to~~ groundnut – maize system. In the early years of coconut gardens (<3 years),coconut is grown as an ~~it is cultivated as an~~ intercrop in some ~~of the~~ gardens because ~~as~~ it receives sufficient solar radiation before the ~~development of~~ crown region develops. The c~~C~~arbon-nitrogen ratio of maize stalks ~~stalks~~ is wider and therefore ,~~hence~~ to achieve ~~get~~ the desirable C:N ratio of 24:1, it is imperative to include ~~that~~ groundnut in the crop ~~is included in crop~~ rotation with cereals.

(ii) Season

Groundnut are~~is~~ sown during the kharif and rabi seasons, but 80 % of the crop is only produced during the ~~from~~ kharif season~~only~~. In the Pollachi taluk, sowing takes place ~~is done~~ during chithirai pattam (April), Aadi pattam (June) and Karthigai pattam (Oct). However, sowing during chithirai pattam is more advantageous than sowing during the other ~~beneficial than other~~ seasons.

(iii) Seeds and sowing

About 60 % of the groundnut farmers ~~growers~~ adopt variety TMV 7 ~~variety~~, 20 % of the farmers use varieties TMV 13, VRI 6 and VRI2 ~~varieties~~, 10 % of the farmers adopt varieties distributed by vendors from other states ~~by the sellers~~ and 10 % of the farmers use CO2 variety called ~~as~~ 'Local Pattani'. ~~S Sowing of s~~eeds sowing is carried out behind the ~~done behind the country~~ plough by 90 % of the farmers and only 10 % of the farmers use hand shoved for the sowing operation.

(iv) Weeding

Aroundbout 90 % of the farmers said they weeded their fields by hand at reported that hand weeding is done in their fields on 20 and 45 DAS. Hand weeding on 45th day is preceded by an application of gypsum application. If the pods are to be stored for sowing in the following season.The application of gypsum during the next season, gypsum application is avoided as it can increase may enhance the content of oil content of the grains.in the kernels. Aroundbout 20 % of the farmers carry out manual do hand weeding once every on 30 DAS and 10 % of the groundnut growers use adopt pre-emergence herbicides, particularly specially when the crop is irrigated.cultivated under irrigated condition. To achieve higher productivity in kharif groundnut,cultivation it is imperative to ensure proper appropriate nutrient management, regular weed control and timely plant protection is imperative. Among the various Of the various factors of production factors, weedingcontrol is an essential operation that would otherwise pave the way for which otherwise would pave way for drowning effect ofin yields and net profitsreturns in kharif groundnut cultivation (Sudhalakshmi *et al.*, 2024).

(v) Nutrient Management

Groundnut is an energy rich crop but grown under energy-scarce starved conditions (Sudhalakshmi *et al.*, 2021). Eighty percent of the farmers surveyed spread farmyardfarmers apply farmyard manure and other organic fertilisers on their manures for their fields and twenty percent of them do not spread organic fertilisers.Almost all farmers use one or more chemical fertilisers on their crops apply organic manures. Almost all the farmers include either one or more chemical fertilizers for their cultivation. Aroundbout 60 % of the farmers reported applying that they apply 50 kg each of SSP and MOP per acre and 40 % do apply complex fertilizers (17:17:17) per acre. Aroundbout 80 % of theapplied farmers apply 75 % of the recommended 200kg gypsum rate dose of gypsum of 200 kg ha-1 and 20 % of the farmers appliedy 25 % of the recommended ratedose. No farmers used trace elements or organic fertilisers on their crops applied micronutrients and bio fertilizers for the crop.

(vi) Plant Protection

Groundnut is the major predominant leguminous oilseed legume grown in India, crop of India which has proved turned out to be a susceptible sensitive victim ofto

climate change episodes such as increasing levels of ~~like rising~~ CO_2 ~~levels~~, erratic rainfall ~~pattern~~, high temperature and water ~~moisture~~ stress leaving deleterious traces ~~imprints~~ in physiology, disease resistance, fertility and productivity (Sudhalakshmi *et al*., 2022). Whenever the crop is affected by a pest or disease,~~hit by a pest or a disease,~~ all the farmers follow plant protection strategies in consultation with ~~the~~ scientists at the ~~of Coconut Research Station~~, Aliyarangar Coconut Research Station or ~~the~~ officials of the State Agriculture Department ~~of Agriculture~~. Groundnut crop in~~of~~ Pollachi taluk is affected by diseases such as ~~like~~ leaf spot and rust and by pests such as ~~like~~ leaf miner and thrips.

(V) Harvesting

All the farmers harvest their produce by hand when ripe. ~~execute manual harvesting of their produce at maturity.~~ No farmer mechanizes the harvest.Goundnut yields are between ~~practices mechanization for harvesting. Yield of groundnut ranges from~~ 1350 to 1525 kg ha^{-1}.

Constraints faced

Birds, in particular the threat of peacocks and problems with wild boar,lack of labour,the ~~especially peacock menace and wild boar problems, labor shortage,~~ high~~er~~ cost of cultivation and low~~ess~~ yields were the constrants mentioned ~~returns were the constraints pronounced~~ by the respondents of the survey.

Conclusion

Results of the survey undertaken in groundnut growers fields of Pollachi taluk is presented in **Fig. 5.**

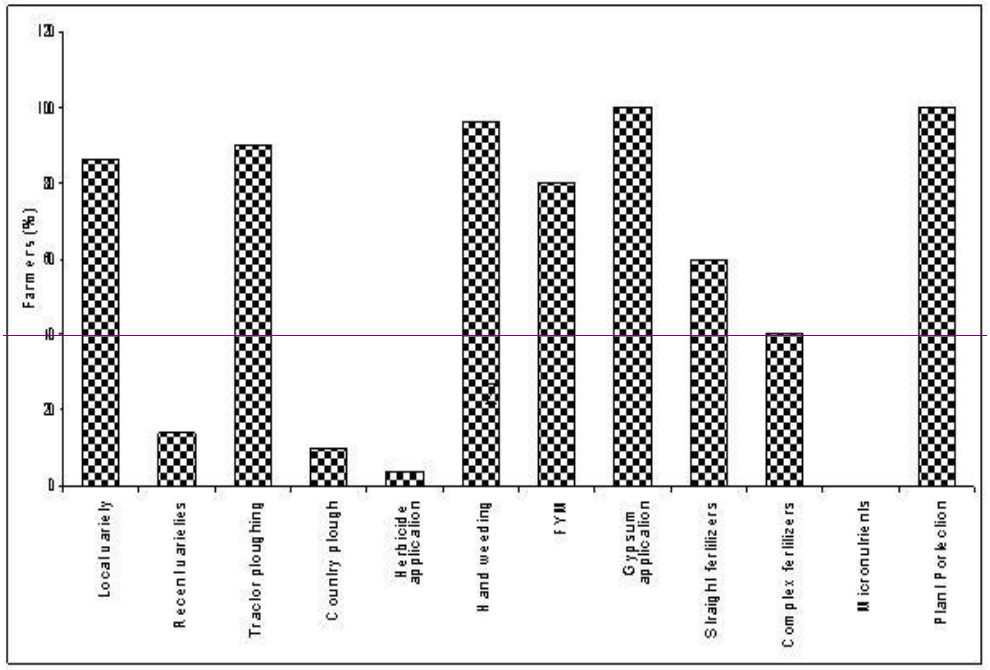

Fig. 5. Results of survey of groundnut gardens of Pollachi taluk

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