Original Research Article

Coconut Growers: Challenges faced and solutions proposed

Abstract

Aim: To analyse the challenges faced by the coconut growers and suggestion to overcome.

Research Design: Ex-post facto research design

Sample: Coconut growers of Coimbatore district, Simple random sampling

Methodology: A structured interview schedule was developed to collect the data from 200 respondents.An Ex-post facto research was employed and Simple random sampling technique was used to select the 200 coconut growers.

Results: Ninety-eight percent of respondents voiced concerns about their insufficient understanding of various plant protection aspects, including chemicals, spray frequency, symptoms, and application methods.Ninety-two and a half percent of respondents are worried about the toxicity of plan protection to both cattle and humans. Additionally, the lack of nearby repair facilities (89%) and the belief that traditional methods are more effective (87%) add to the difficulties encountered by farmers.Ensuring Fair Market Prices for Produce" ranked highest (88%), showing that farmers prioritize stable prices to secure their income and reduce risks. "Technical Guidance on Coconut Farming" (76%) and "Timely Availability of Quality Inputs at Subsidized Rates" (75%) were also important, indicating the need for ongoing support and reliable inputs from the government.

Key words: Coconut growers, Challenges, Plant protection,Market price,Suggestions

Introduction

This study intends to analyse the production aspects of coconut cultivation in Coimbatore district of Tamil Nadu state. During the medieval ages, the coconut was known as “Nuxidica”, the Indian nut. During the same period, it was also referred as Nargil tree, “the tree of life”. Western literature mentioned the Malayalam name “Tenga” for the coconut palm which is related to Tamil ‘Tennai’ and believed to have been introduced from SriLanka. Its significance exceeds botanical classification, as the coconut holds cultural, economic and nutritional importance in India. India stands as the world's largest producer boasting nearly 31% share of global coconut production (Coconut Development Board 2021)

Coconut production plays a crucial role in India's agricultural sector, with the country producing approximately **14.02 million metric tons** in 2022-23, showing a steady rise compared to previous years. The southern states, particularly Kerala, Tamil Nadu, and Karnataka, are the major contributors, with Kerala alone producing around **4.5 million tons** annually. The total area dedicated to coconut cultivation across India is about **2.15 million hectares**, with Kerala accounting for 870,000 hectares, followed by Tamil Nadu at 450,000 hectares and Karnataka at 500,000 hectares. In 2022, India’s coconut-related export earnings, which include products like virgin coconut oil, desiccated coconut, and activated carbon,

amounted to nearly **₹ 2,500 crore** (roughly **$300 million USD**). The primary export destinations include the USA, Europe, and the Middle East, with the rising demand for value-added coconut products boosting India's global presence in the market.The crop yields a variety of products, including copra, coconut oil, and coconut water, which are important for both domestic consumption and export. Coconuts are nutritionally rich, providing essential fats, fibre, and minerals. They also hold cultural importance, being prominently featured in religious ceremonies and festivals.

Environmentally, coconut palms are beneficial for preventing soil erosion and thrive in coastal regions, serving as a natural defense against saltwater intrusion. Thus, coconut cultivation is a key component of India's agricultural landscape and economic security, with its uses extending across food and industrial sectors. Coconuts serve as primary raw materials for numerous industrial products, including value-added items used in daily life.

In Tamil Nadu, coconut is a crucial crop, and addressing pest and disease management is essential to maintaining high yields and ensuring farmer livelihoods. This study presents a detailed survey of the primary pests and diseases impacting coconut cultivation in western zone of Tamil nadu, a major coconut-growing district in Tamil Nadu, which contributes significantly to the state's overall coconut production. The study also aims to identify various information sources utilized by coconut farmers to enhance their agricultural knowledge and practices.

Statement of the Problem

In Tamil Nadu, the decline in coconut yield stems from several factors, including the use of outdated farming practices and limited awareness of modern techniques. Pests like rhinoceros beetles and red palm weevils, along with poor soil management, exacerbate the problem. Climate change, with erratic rainfall and droughts, adds to water stress, especially where advanced irrigation methods are lacking. Many coconut trees are also ageing, leading to lower productivity, while limited access to high-yielding hybrids and inadequate agricultural extension services further widen the knowledge gap and hinder yield improvements. Comprehensive understanding about the challenges and suggestion to overcome guides policy, fosters research, and improves the livelihoods of coconut growers, ultimately reinforcing the long-term stability of the sector.

1. To analyse the challenges faced by the coconut growers and suggestion to overcome.

Methodology

An Ex-post facto research was employed for this study since the aim is to describe and analyze the challenges faced by the coconut growers. Having no control over the independent variables stands as the main characteristic of Ex-post facto and it reports what has happened without any manipulation.Coimbatore in Tamil Nadu is an important hub for coconut production. Its favorable climate and well-drained soils make it ideal for

growing coconuts. Farmers rely on efficient irrigation from rivers and use modern techniques like drip irrigation to boost yields. Coconut farming supports many livelihoods and contributes to the local economy through products like coconut oil, coir, and other value-added items. The district is also known for adopting advanced farming practices to improve quality and sustainability. Coimbatore's coconut products are in demand both domestically and internationally, making it a key player in the coconut industry. From the eleven blocks of the district three blocks of the district were chosen purposively and they were Pollachi South and Pollachi North blocks. From each blocks three villages were selected purposively. The blocks and villages selection were made based on the prominence of coconut cultivation. Simple random sampling technique was used to select the farmer respondents. Due to time and resource constraints, from each villages 10 per cent of the farmers were selected and in total 200coconut growers were selected.Data were collected from 200coconut growers from Coimbatore district of Tamil nadu using a structured interview schedule.

Findings and Discussion

CHALLENGES FACED BY THE COCONUT GROWERS

The survey highlights several critical challenges that impede the adoption of plant protection measures (PPM) among farmers. The first major challenge is the exorbitant cost of equipment, affecting 98.5% of respondents. This suggests that many farmers find the initial investment in tools like sprayers or other machinery too expensive, limiting their ability to protect their crops effectively. High equipment costs can act as a barrier, particularly for small-scale farmers, who may not have the financial resources to invest in the necessary machinery. The second challenge involves a lack of knowledge about PPM. With 98% of respondents expressing concerns, it's clear that there are significant gaps in understanding aspects such as chemical types, spray frequency, symptoms of diseases or pests, and proper application techniques. This knowledge gap could result in improper or ineffective use of PPM, reducing the effectiveness of crop protection and potentially harming yields.

The third challenge revolves around the high cost of chemicals, as noted by 97.5% of respondents. This indicates that even when farmers are willing to invest in PPM, the ongoing expense of purchasing chemicals is burdensome, making it hard to sustain regular usage. This, coupled with the already high equipment costs, strains farmers' budgets. Additionally, 96.5% of respondents mention the increased costs of both chemicals and equipment, further compounding financial difficulties. Rising prices intensify the economic burden on farmers, making it increasingly difficult to adopt and maintain effective PPM practices. Overall, the survey underscores that financial constraints and knowledge gaps are key barriers that need to be addressed to improve the adoption of plant protection measures among farmers. The results of these are in line with the study conducted by Anu (2017), in her study "An Analysis of Constraints Encountered by Coconut Growers in Coconut Cultivation of Kanyakumari District"

The survey reveals several additional challenges that hinder the adoption and effective use of plant protection measures (PPM). 93% of respondents are troubled by the complex names of chemicals, which can create confusion and hinder proper usage. When farmers cannot easily identify or understand the products they are using, they may apply the chemicals incorrectly, potentially reducing their effectiveness or causing harm to crops.

Concerns about the toxicity of PPM to both cattle and humans affect 92.5% of respondents, highlighting serious safety issues. Farmers may be reluctant to use PPM if they fear it could harm their livestock, which is often a key source of livelihood, or pose health risks to themselves and their families.

The absence of nearby repair facilities for PPM equipment is another significant challenge for 89% of respondents. Without easy access to repair services, broken equipment can lead to delays in treatment, causing crop damage or losses, and forcing farmers to spend more money on repairs or replacements. A notable 87% of respondents believe that traditional methods are more effective than modern PPM. This perception could stem from cultural familiarity with traditional practices, skepticism about new technologies, or poor results with PPM due to improper use or inadequate knowledge. Moreover, 84% report crop damage as a result of PPM use. This suggests that incorrect application, possibly due to lack of training or faulty equipment, can actually harm crops rather than protect them, leading to financial losses and discouraging further use of PPM. 83% of respondents struggle with the unavailability of equipment in their local areas, making it difficult to access the tools they need for proper application of PPM. Even when farmers are willing to adopt PPM, this lack of access becomes a practical barrier.

Lastly, although only 22.5% of respondents are affected by the issue of spray equipment being unavailable, it still indicates that some farmers face challenges in acquiring the basic tools necessary for PPM use. While less prevalent, this issue can disproportionately impact small or remote farming communities. Overall, these challenges—ranging from knowledge gaps and safety concerns to equipment access—contribute to the difficulties farmers face in effectively adopting plant protection measures.

S.NO	Item	Number	Per cent	Rank
1	High cost of equipment	197	98.50	I
2	Lack of knowledge regarding plant protection measures	196	98.00	II
3	High cost of chemicals	195	97.50	III
4	Increased cost of chemicals and equipment	193	96.50	IV
5	Complicated name of chemicals	186	93.00	V
6	Poisons to cattle and human beings	185	92.50	VI
7	Lack of repairing facility at nearby places	178	89.00	VII
8	Traditional system seems to be better	174	87.00	VIII
9	Damaged to the crop due to plant protection measures	168	84.00	IX

10	Non-availability of plant protection equipments nearby places	166	83.00	X
11	Spray equipments not available	45	22.50	XI

Table 1. Distribution of respondents according to the challenges (n=200)

*Multiple responses

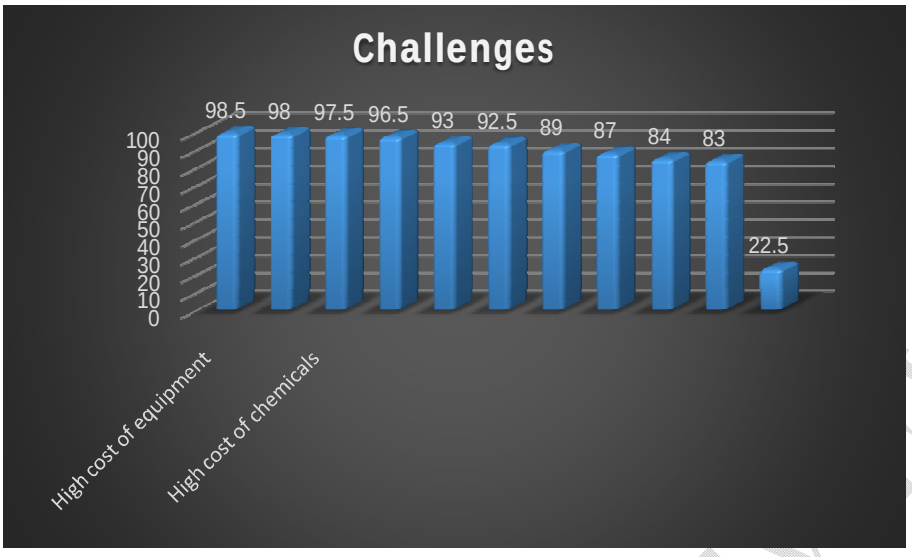

Fig 1:Representing the Challenges Experienced by the Coconut Growers

These findings collectively point to a range of financial, educational, and logistical challenges in plant protection. Tackling these challenges by improving access to affordable equipment, expanding education on plant protection methods, and strengthening local support services could enhance both the adoption and effectiveness of plant protection strategies. The results of these are in line with the study conducted by Priyanka*et al.*(2018) in her study, Adoption behavior and constraints in adoption of organic farming practices of coffee plantation in Dindigul district of Tamil Nadu..

SUGGESTIONS TO OVERCOME THE CHALLENGESOF COCONUT GROWERS

The Suggestions shared by the respondents to the constraints reported are, addressing the high costs of equipment and chemicals, governments and cooperatives should provide subsidies, bulk purchasing options, and low-interest loans. Training programs, simplified labeling, and mobile apps can help increase farmers' knowledge of plant protection measures. Using bio-pesticides and offering safety training can minimize risks to humans and livestock. Establishing local repair centers or mobile services will make it easier to maintain equipment. Demonstrations of modern methods alongside traditional ones can encourage adoption, and better access to plant protection tools through local stores or community equipment banks can ensure availability.

Apart from the suggestions to the constraints reported in the study, other suggestions collected from the respondents are analyzed based on percentage share of respondents supporting each statement. This data is then used to rank the strategies, providing insights into which measures are considered most critical by stakeholders.

1. **Ensuring Fair Market Prices for Produce** ranked the highest (88%), indicating that farmers reflect guaranteed pricing a top priority. This reflects the high dependency on stable market prices to secure income and mitigate the risks associated with price fluctuations.This results are in similarity with Rashmi (2018) and Gulshan (2022).

2. **Education on Pest and Disease Management (81%)** and **Promoting Labor-saving Innovations (79%)** emerged as the second and third most critical interventions, respectively. This suggests that farmers are pursuing knowledge and technology adoption to optimize productivity and reduce labor costs.
3. **Technical Guidance on Coconut Farming (76%)** and **Timely Availability of Quality Inputs at Subsidized Rates (75%)** were also rated highly. Farmers need constant advisory services and reliable input supply to implement best practices, underlining the significance of government support in these areas.
4. **Providing Adequate Information on Input Availability and Prices (71%)** was ranked sixth, representing that real-time access to information is essential for informed decision-making in farming.
5. **Regular Demonstrations and Training (69%)** was rated seventh, showing a need for continuous learning opportunities to help farmers keep pace with budding agricultural practices.
6. **Provision of Irrigation Facilities (65%)** was placed in the eighth rank. Given the water-intensive nature of coconut farming, having assured irrigation is crucial, predominantly in regions facing erratic rainfall patterns.
7. **Timely and Interest-free Credit Support (63%)** ranked ninth, reflecting the need for affordable financial options to manage both planned investments and unanticipated expenses.
8. **Linkages to Processing and Storage Facilities (59%)** came tenth, highlighting that access to value addition and proper storage is essential to reduce post-harvest losses and improve profitability.
9. **Provision of Comprehensive Market Information (55%)** ranked eleventh, underscoring the necessity for transparency in market operations.
10. **Longer Repayment Period for Credit (52%)** was considered moderately important. This suggests that while credit flexibility is necessary, other factors are perceived as more urgent by farmers.
11. **Ensuring Timely Cash Payments (49%)** ranked lower, implying that liquidity concerns are secondary compared to issues like input availability and technical guidance.
12. **Developing Market Infrastructure (46%)** ranked the lowest. This indicates that while infrastructure is essential, the immediate focus for farmers lies in accessing reliable inputs and technical support.

Table 2. Distribution of respondents according to their suggestions (n=200)

Sl. No.	Statements	Number	Per cent	Rank
1.	Ensuring fair market prices for produce.	175	88	I
2.	Educating farmers and providing affordable, easy-to-use pest and disease management technologies.	162	81	II
3.	Promoting labor-saving innovations like mulching techniques and coconut harvesting machinery.	158	79	III
4.	Offering timely technical guidance for effective coconut farming practices.	152	76	IV
5.	Guaranteeing the timely availability of quality inputs at subsidized rates.	150	75	V
6.	Supplying adequate and timely information on input availability, prices,	142	71	VI

	and market trends.			
7.	Regularly organizing demonstration and training programs for skill enhancement.	138	69	VII
8.	Establishing adequate irrigation facilities.	130	65	VIII
9.	Offering timely and interest-free credit support.	125	63	IX
10.	Building connections with processing industries and ensuring adequate storage facilities.	118	59	X
11.	Providing comprehensive market information.	110	55	XI
12.	Extending credit with longer repayment terms.	103	52	XII
13.	Ensuring timely and sufficient cash payments.	98	49	XIII
14.	Developing suitable market infrastructure such as transportation facilities.	91	46	XIV

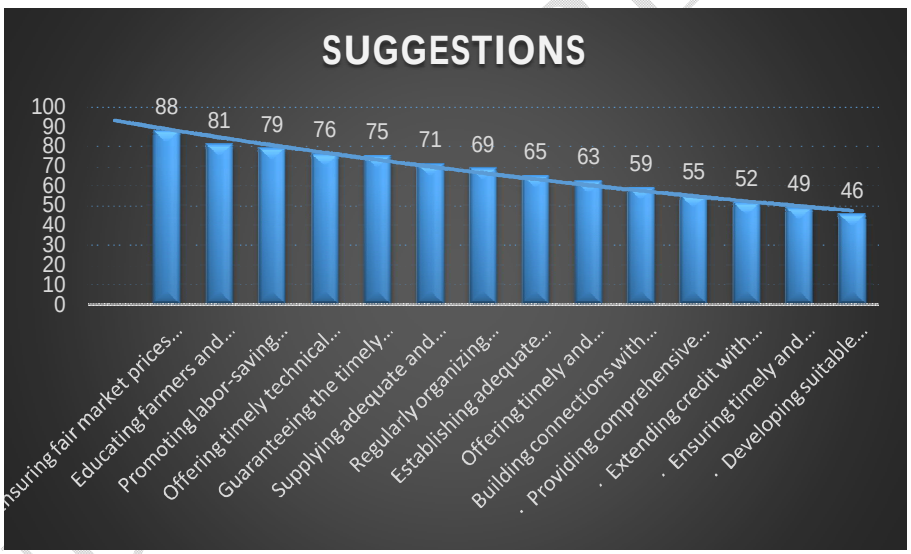

Fig 2: Representing the Distribution of respondents according to their suggestions

The analysis shows that coconut farmers prioritize measures that directly influence their income and productivity, aligning with Thippisamy's (2007) findings. Market price assurance, technical education, and timely access to inputs are considered crucial for sustaining farming operations. While supportive credit policies and access to market infrastructure are also important, they are viewed as secondary concerns.

CONCLUSION

To maximize the effectiveness of interventions for coconut farmers, it is recommended to strengthen market support through mechanisms like guaranteed pricing, contract farming, or Minimum Support Price (MSP) schemes to minimize income risks; expand training programs on affordable technologies and labor-saving methods; establish a robust system for timely and subsidized delivery of high-quality inputs; introduce flexible, low-interest credit schemes to support investments in technologies and irrigation; and build linkages between farmers and processors while providing storage facilities for value addition. Implementing these strategies effectively can significantly enhance the profitability and sustainability of coconut farming.

FUTURE SCOPE OF THE STUDY

The study may be taken up with the coconut growers spread over the various climatic zones to have the comparative data and in depth analysis.

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Details of the AI usage are given below:

1. Chat GPT

2.

3.

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