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An analysis of constraints encountered by groundnut growers in Cuddalore district

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Abstract
Post-harvest losses remain a significant challenge for groundnut farmers in Cuddalore District, Tamil Nadu, adversely impacting both income and crop quality. This study systematically investigates the socio-economic factors influencing the knowledge and adoption of post- harvest technology practices among groundnut growers. A total of 120 groundnut farmers were selected through a multistage random sampling technique to ensure representative and unbiased data collection. Data were collected using a structured, pre-tested interview schedule focusing on socio-economic profiles, awareness and adoption of post-harvest technologies, and perceived constraints. Analytical methods included descriptive statistics and percentage analysis. The findings reveal a moderate level of knowledge and adoption of post-harvest practices, with major constraints identified as: high machinery costs (86.67 per cent), inadequate technical training (79.17 per cent), insufficient drying and storage infrastructure (70.83 per cent), labour shortages (65.00 per cent), and lack of access to mechanized post- harvest equipment (58.33 per cent). These barriers significantly hinder technological advancement among small and marginal groundnut growers. The study recommends targeted policy interventions such as subsidized machinery programs, strengthened extension services, and farmer awareness campaigns to promote the adoption of improved post-harvest technologies, thereby enhancing productivity, reducing losses, improving quality, and ensuring sustainable farmer livelihoods.

Keywords: Groundnut, post-harvest technology, adoption barriers, socio-economic factors, Tamil Nadu

Introduction

Groundnut **(*Arachis hypogaea* L.),** a vital oilseed crop, plays a pivotal role in India's agricultural economy and rural livelihoods by contributing significantly to both edible oil production and nutritional security. India ranks as the second-largest groundnut producer globally, yet the sector faces persistent challenges, particularly substantial post-harvest losses that range from 10.00 percent to 25.00 percent. These losses critically affect farmers' income, reduce product quality, and impair market competitiveness. In Cuddalore District of Tamil Nadu, groundnut cultivation is widespread; however, traditional post-harvest practices such as sun drying, manual threshing, and rudimentary storage are predominantly employed. These conventional methods result in considerable deterioration of groundnut quality, increased risk of aflatoxin contamination, and significant economic losses due to poor infrastructure and limited technological intervention. Addressing post-harvest constraints is imperative for improving groundnut yield value, enhancing product quality, increasing marketability, and securing farmers' welfare. This study is designed to systematically analyze the socio-economic characteristics of groundnut growers, assess their knowledge and adoption levels of post- harvest technologies, and critically identify the major constraints they face in the adoption process. The rationale for this research lies in providing robust, data driven insights to inform policymakers and extension workers. The aim is to design and implement targeted policy measures, capacity-building programs, and sustainable extension strategies that effectively promote the adoption of post-harvest technologies among groundnut farmers, thereby enhancing agricultural sustainability and improving farmer livelihoods in the region.

Objectives

To identify and analyze the major constraints faced by groundnut growers in adopting post-harvest technology practices.

Methodology

The present study was conducted in Cuddalore District, Tamil Nadu, which is a major groundnut-growing area, to identify the constraints faced by farmers in adopting post-harvest technologies. A purposive sampling technique was employed to select villages with significant groundnut cultivation, and 120 groundnut growers were randomly chosen as respondents. Primary data were collected through structured interviews using a pre-tested questionnaire covering socio-economic characteristics, adoption of post-harvest practices, and constraints faced. Secondary data were sourced from government reports, research articles, and previous studies on groundnut production and post-harvest management. The collected data were analyzed using percentage analysis to determine the extent of adoption and ranking techniques to prioritize constraints, while tables and figures were used for clear presentation. The study focused on economic, technical, infrastructural, labour, and accessibility factors influencing the adoption of post-harvest technologies, providing insights to suggest policy measures, extension interventions, and capacity-building strategies to enhance adoption and reduce post-harvest losses.

Results and Discussion

The adoption of post-harvest technology practices among groundnut growers is significantly influenced by several economic, technical, and infrastructural constraints. These barriers limit the effective utilization of improved technologies, reduce efficiency, and increase post-harvest losses. The study identified the most significant challenges faced by farmers, including high machinery costs, inadequate training, insufficient drying and storage facilities, labour shortages, and limited availability of essential machines. The constraints are described in detail below.

1. High Cost of Post-Harvest Machines

The most prominent constraint reported by 86.67 percent of respondents was the high cost of post-harvest agricultural machines. Small and marginal farmers often lack the financial resources to invest in mechanized solutions such as threshers and dryers, which are essential for efficient processing and reducing post-harvest losses. This economic limitation restricts farmers from adopting improved technologies that could enhance productivity and quality.

2. Lack of Training on Machine Usage

About 79.17 percent of respondents indicated inadequate training on the use of post-harvest machines. This reflects a critical knowledge gap, as farmers are unable to utilize the available technologies effectively, resulting in suboptimal operations and decreased efficiency. Extension programs and practical skill development are needed to bridge this gap.

3. Inadequate Drying and Storage Facilities

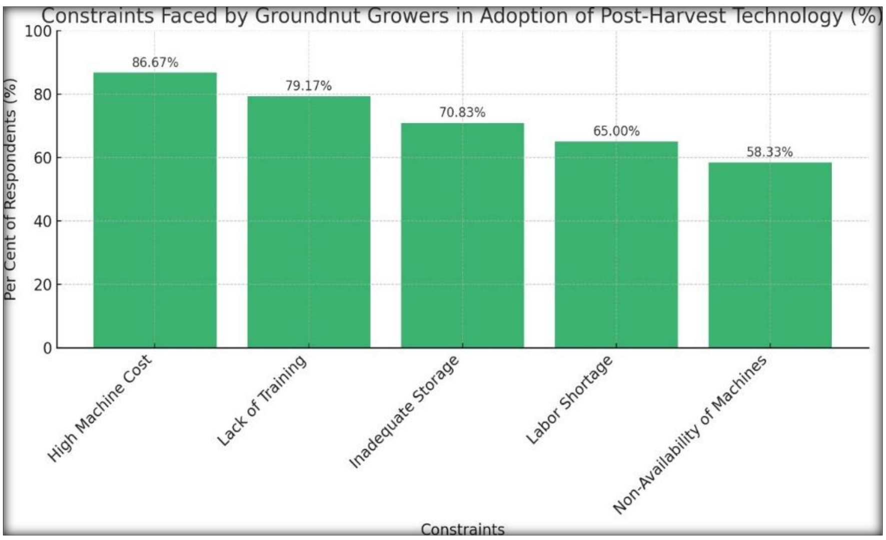
Approximately 70.83 percent of farmers reported insufficient and unsafe drying and storage facilities, leading to increased post-harvest losses, deterioration of produce quality, and reduced marketability. The absence of proper infrastructure prevents the maintenance of groundnut quality, which negatively impacts farmers' income and product value.

4. Labour Shortages

Labour shortages during peak post-harvest seasons were experienced by 65.00 percent of respondents. This constraint delays critical post-harvest operations such as drying, threshing, and storage, forcing farmers to rely heavily on manual labour, which is costly and inefficient. Mechanization support can help reduce dependence on human labour and improve timely processing.

5. Non-Availability of Essential Machinery

Finally, 58.33 percent of farmers reported that essential machinery such as threshers and dryers are not easily available in their locality. Limited access to modern equipment restricts the timely adoption of improved post-harvest practices and reduces overall efficiency in groundnut processing.



These findings indicate that financial limitations, lack of technical knowledge, inadequate infrastructure, labour shortages, and restricted access to machinery collectively hinder the adoption of improved post-harvest technologies. Addressing these constraints through financial support, capacity-building programs, infrastructure development, and accessible mechanization services is essential to reduce post-harvest losses, maintain produce quality, and enhance the economic well-being of groundnut farmers.

Conclusion

The study on post-harvest technology adoption among groundnut growers in Cuddalore District revealed several significant constraints that limit the effective use of improved practices. The major challenges identified were the high cost of machines (86.67 percent), lack of training on machine usage (79.17 percent), inadequate drying and storage facilities (70.83 percent), labour shortages during post-harvest periods (65.00 percent), and the non-availability of essential machines in local areas (58.33 percent). These findings indicate that financial limitations, insufficient technical knowledge, inadequate infrastructure, and labour-related issues collectively hinder adoption. To address these barriers, it is essential to provide training and capacity-building programs, ensure financial support and access to mechanized equipment, improve drying and storage facilities, promote market linkages and value addition, and implement supportive policies. Strengthening research on cost-effective technologies and fostering collaboration among farmers, extension agencies, research institutions, and policymakers can reduce post-harvest losses, improve produce quality, and enhance the economic well-being of groundnut growers.

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