

## An Exploration of Perceived Situational Factors Responsible for the Variability in Coconut Production in the Coastal Belt of Kerala

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**ABSTRACT:** Kerala is unique in its agriculture which is characterized by minuscule holding, homestead farming, and dominance of perennial crops. The present study was conducted to explore the situational factors perceived by the farmers for the variability in coconut production. The study was conducted in two coastal blocks namely Thalikulam and Chavakkad in the Thrissur district of Kerala. A total of 120 farmers were selected by using proportionate random sampling method. The study concluded that farmers perceived, the severity of pests and disease (68.33 %) as the major factor squashing the productivity of palms followed by the paucity of labourers and high labour charges (59.16 %). The coconut sector of Kerala is facing unnumbered hassles and suggestive steps like effective implementation of coconut rejuvenation programmes, ensuring distribution of quality planting materials, integrated disease and pest management, etc are to be taken to reinstate the eminence of the coconut sector of Kerala.

**Keyword:** Situational factors; coconut; production variability; coastal belt.

### INTRODUCTION

Coconut (*Cocos nucifera*) plays a remarkable role in the agrarian economy of Kerala. Everything from culture to cuisine is entangled with coconut. The name Kerala is supposed to be originated from the Malayalam word 'Kera' which means coconut tree and 'Alam' means land and altogether represents the 'land of coconut trees'. Coconut has been the primary source of livelihood for decades. Considering the multifaceted nature of the crop and the innumerable uses of its products, the coconut palm is being praised as KALPAVRIKSHA (Tree of Heaven). Coconut is a source of food, beverage, medicine, natural fibre, fuel, wood, and raw materials for units producing a variety of goods.

In India, more than 90 per cent of the total coconut production is from four major coconut growing southern states i.e., Kerala, Tamil Nadu, Karnataka, and Andhra Pradesh. Coconut was always considered as a symbol of rural prosperity and for many years the state ranked first in area and production years ago. The area under coconut has been shrinking and palm gardens are being subjected to fragmentation into housing plots and

for construction. Kerala is gradually losing its supremacy in coconut cultivation. Kerala's, monopoly and unique dominance with regard to the area of cultivation and production of coconut have been declining even in the early phase of the 21<sup>st</sup> century. (Kappil *et al.*, 2021). The declining trend in the graph of area and production shows that farmers refuse to continue the cultivation due to several reasons. Coconut growers are suffering a crisis as they find it strenuous to manage the palm on a remunerative basis. Local labour shortages and increased regional competition had a strong impact on Kerala's coconut production, market, and processing, which varied from region to region (Sportel and Veron 2016).

Of the numerous maladies that confront coconut productivity, coconut root (wilt) disease, stem bleeding, mahali etc are utmost concern. Diseases like stem bleeding and Thanjavur wilt were more prevalent in areas experiencing high temperature and low rainfall whereas, the incidence of bud rot disease was significantly higher in hilly regions where low temperature and high humidity prevailed which causes yield reduction (Chandran *et al.*, 2017). Though various technologies have been developed by coconut research

institute there exists that wider between the recommended practices and actual level of adoption (Jaganathan *et al.*, 2017). Weather aberrations like the unannounced monsoon, high temperature, etc are also playing a significant role in the reduction of yield. The climate change will affect coconut plantation through higher temperatures, elevated CO<sub>2</sub> concentration, precipitation changes, increased weeds, pests, and disease pressure. The threat of climate change is found to be more in coastal areas and hilly tract of India where plantation crop like coconut is the predominant crop (Hebbar *et al.*, 2016).

The high fluctuation price of coconut ranked first among the major constraints faced by the various stakeholders in coconut production and marketing. In addition to that daily price fluctuation resulting from an unstable market was the other problem faced by the farmers regarding coconut marketing (Kalidas *et al.*, 2020). The coconut sector in the state is being confronted by countless challenges and curbs. In this context, it is a prerequisite to probe situational factors that are perceived by farmers as the plausible reason for the variability in coconut production. The present study was undertaken with the objective of exploring and probing out the perceived situational factors responsible for the variability in coconut production in the coastal belt of Kerala.

## MATERIALS AND METHODS

The study was conducted in Thrissur District of Kerala, situated in the central part of that state, covering an area of about 3032.00 sq. km and it constitutes 7.8 percent of the total area of the state. Thrissur district lies between 10°10' and 10°46' North latitude and 75°57' and 76° 54' east longitudes. Of the 16 blocks, two coastal blocks namely Thalikulam and Chavakkad were purposively selected for the study based on the area under coconut production. Seven villages were selected from the two blocks and a total of 120 respondents were selected by using proportionate random sampling method.

In the present study Ex-post-facto research design was used. Semi-structured interview schedule was employed for data collection. The situational factors as perceived by the farmers were finalized by using open-ended questions. Factors, as perceived by all the farmers were probed and a separate list was framed. Farmers were left free to add as many items as possible. The responses were recorded and assigned scores 1 and 2 for No and Yes respectively. The analysis was done with the help of percentage analysis and finally ranking was given.

## RESULTS AND DISCUSSION

**Factors responsible for coconut production variability as perceived by the farmers.** Farmers perceived several factors for production variability and all those were probed and the most relevant items were used for the study.

*The severity of pests and diseases.* The results delineated in Table 1 shows that about 68.33 per cent of the farmers of the study area perceived the severity of Akshaya *et al.*, *Biological Forum – An International Journal* 14(2): 1072-1075(2022)

pests and diseases as the major factor accountable for the production variability. Farmers opined that considerable yield loss due to pest and disease attacks was more incessant on their plantation. Farmers often fail to differentiate the symptoms of pest and diseases attack. Incidence of diseases like Root wilt, Tanjore wilt, stem bleeding and pests like rhinoceros beetle, coreid bug, coconut black headed caterpillar etc are more common in the coastal belt of Kerala.

Similarly study of Kokkadan *et al.*, (2014) reported that *O. arenosella*, which feeds on the leaves by scraping the chlorophyll matter, causes the leaf to dry up and the entire palm to seem scorched.

*The paucity of laborers and high labour charges.* From Table 1, it can be inferred that worsening scarcity of laborers and high labour costs (59.16%) were reported as the next umpteen challenges faced by coconut growers of the area. This led to untimely harvests of coconut, irregularity in the base opening, application of fertilizers, etc. The hesitation of the young generation to take up this job due to social stigma can be attributed to the ground cause of the labour scarcity.

These findings are in with the Anithakumari (2013) stated that about Seventy - eight per cent of respondents recorded scarcity of labour. Social taboos linked with reputation, more drudgery compared to other jobs, poor earnings compared to workers in service industries, shift in role and relevance of farming as a livelihood alternative, and so on were cited as reasons for labour scarcity among farmers.

*Frequent price fluctuations.* The result depicted in Table 1 indicates that 56.66 per cent of the farmers reported Frequent price fluctuations as the major problem in their area. In the price behaviour of coconut, seasonal variations, and recurrent and irregular variations are common. A steady fall in price and periodic price crash compels the farmers to shift to other crops which require a minimum investment and ensure better returns in a short duration.

Similarly, Preeti *et al.* (2019) claimed that one of the most distressing features of the coconut economy of Kerala during the past two decades was the frequent price fluctuations of coconut and its products.

*Unstable markets and Poor marketing information.* From Table 1, it can be concluded that nearly 49.16 per cent of the coconut growers demarcated unstable markets and poor marketing information as the vital factor. The most distressing hallmark of the coconut economy is the lack of persistent markets. The sale of the coconut immediately after harvest becomes troublesome for the growers. Farmers are supposed to sell the produce to the buyers for the minimum price offered due to poor marketing information.

*Higher cost of crop protection chemicals and other inputs.* Forty-four per cent of farmers (Table 1) in the study area perceived the higher cost of crop protection chemicals and inputs as the prime factor for variability in coconut production. Coconut plantations when turned into the hub of endemic diseases and pests it became necessary to use the appropriate pesticides for timely control. The higher cost limits the farmers from

purchasing the protection chemicals and timely control remains unsolved.

*No premium price for graded produce and Delay in price settlement.* From Table 1, it could be observed that among the various factors no premium price for graded produce and delay in price settlement (39.16 %) were portrayed as one of the major factors contributing to the production variation by the farmers. The bulk amount of produce in the single harvest is the peculiarity of palm. Farmers do not receive payment in time and this in turn is reflected in the management of the plantation. Farmers gradually give less care and reduce the frequency of fertilizer application, harvesting, etc.

*Non-adoption of the scientific method of cultivation.* About 35.83 per cent of the farmers (Table 1) perceived non-adoption of the scientific method of cultivation as the other major factor for coconut growers. Coconut yields heavily when properly cared for and managed. Though farmers know the package of practices, many of them are not interested to adopt most of the technologies which were mainly due to a hike in the cost of various farm inputs and a reduction in output price.

Similarly, Chandran and Joseph (2015) pointed out that while the majority of farmers irrigated at intervals as recommended in the package of practises, the volume of water they applied did not match the standards i.e. symbolic adoption occurs including re invention.

*Limited financial assistance.* From table 1, it could be concluded that 34.16 per cent of the farmers reported limited financial assistance as one of the factors squeezing the productivity of the palms. Coconut farmers are doomed as the cost of cultivation is being increased day by day and they received only limited financial assistance in the form of subsidies. Though coconut was claimed as a commercial crop that requires least investment hike in labour charges, the higher cost of inputs made cultivation tough. This necessitates a situation to support farmers financially for increasing production and thereby productivity.

*Change in the season cycle.* The threat of climate change has long ill effects on coconut since it is a

perennial crop. About 32.50 per cent of the farmers (Table 1) mapped out that change in the seasonal cycle has led to decreased productivity in their plantation. Weather extremes like an unannounced flood, prolonged drought, and saltwater intrusion have aggravated the situations that lead to decreased productivity of palms.

Comparably, Hebbar *et al.*, (2013) mentioned that because coconut is a perennial crop, unlike other seasonal crops, the effects of climate change will have long-term detrimental ramifications.

*The dominance of unproductive and senile palms*

The prevalence of a high population of senile and old palms was perceived as major problem by 28.33 per cent (Table 1) of farming population in the coastal area. Farmers are not interested to do replanting due to the increasing cost of cultivation. Coconut farming is found to be no more source of income due to the low productivity of senile palms.

These results are similar to the findings of Thamban *et al.*, (2016) reported that coconut production is kerala facing several challenges including predominance of senile and unproductive palms, predominance of small and marginal holdings etc

The factors responsible for variability in coconut production as perceived by the farmers were systematically analysed, ranked and presented in the Table 1.

From Table 1, it is found that Severity of pests and disease (68.33 %) secured the first rank among the factors and could be concluded that pests and disease attack were the major factor crushing the productivity of palms. Paucity of laborers and high labour charges (59.16 %) ranked as second followed by frequent price fluctuations (56.66 %), unstable markets and poor marketing information (49.16 %), higher cost of crop protection chemicals and inputs(44.16 %), no premium price for graded produce and delay in price settlement (39.16 %), non - adoption of scientific method of cultivation (35.83 %), limited financial assistance (34.16 %), change in the season cycle (32.50 %) and more number of senile palms (28.33 %).

**Table 1: Ranking of the factors perceived by the coconut growers for production variability.**

| Sr. No. | Factors   | Number | Per cent | Rank |
|---------|---|--------|----------|------|
| 1.      | Severity of pests and diseases                                    | 82     | 68.33    | I    |
| 2.      | Paucity of labourers and high labour charges                      | 71     | 59.16    | II   |
| 3.      | Frequent price fluctuations                                       | 68     | 56.66    | III  |
| 4.      | Unstable markets and Poor marketing information                   | 59     | 49.16    | IV   |
| 5.      | Higher cost of crop protection chemicals and inputs               | 53     | 44.16    | V    |
| 6.      | No premium price for graded produce and Delay in price settlement | 47     | 39.16    | VI   |
| 7.      | Non adoption of scientific method of cultivation                  | 43     | 35.83    | VII  |
| 8.      | Limited financial assistance                                      | 41     | 34.16    | VIII |
| 9.      | Change in the season cycle  | 39     | 32.50    | IX   |
| 10.     | The dominance of unproductive and senile palms                    | 34     | 28.33    | X    |

## CONCLUSION

The study revealed that the majority of the farmers perceived the severity of pests and disease attacks, labour scarcity and high labour charges, and frequent price crash as the vital factors responsible for production variability. All these factors have led to shrinkage of the area under coconut. Coconut growers opined that maintenance of palms has turned into an arduous venture. The coconut sector of Kerala is facing unnumbered hassles hence it is suggested that steps like the effective implementation of coconut rejuvenation programmes, ensuring distribution of quality planting materials, integrated disease and pest management, procurement of coconut by Krishi Bhavan, promotion of value addition and export, etc are needed to be taken to reinstate the eminence of the coconut sector of Kerala. The findings of this research can help policymakers, such as governments and agencies, plan and implement strategies to increase the area and production of coconuts, and thereby productivity.

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