



# Constraints of Farmers in Adoption of Improved “Kachai Lemon” Cultivation Practices in Ukhrul District of Manipur, India

D Koshuo Enah <sup>a++\*</sup> and Dipak Kumar Bose <sup>a#</sup>

<sup>a</sup> Department of Agriculture Extension Education, SHUATS, Uttar Pradesh, India.

## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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## ABSTRACT

The present study was carried out in Ukhrul district of Manipur during the year 2024 to find out the constraints faced by the farmers in the adoption of recommended cultivation practices of Kachai lemon. Kachai village under LM Block was selected purposively as it is the only place where Kachai lemon is mainly grown. A total of 120 respondents were randomly selected from Kachai village. The primary data was collected using a pre-structured interview schedule. The collected data from the respondents were scored, tabulated and analyzed to calculate frequency and percentage to interpret findings and draw conclusions. The finding inferred that 89.16 % of the respondents faced

<sup>++</sup> PG Scholar;

<sup>#</sup> Associate Professor;

<sup>\*</sup>Corresponding author: E-mail: [koshuoenah@gmail.com](mailto:koshuoenah@gmail.com);

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the constraints lack of proper market, 80% of the respondents had the problem of scarcity of water and 75.83 % had less knowledge about plant protection measures. The respondents also suggested that providing of proper marketing facilities from the concerned department and building of a water conservation tank in the village and more training on rainwater harvesting and plant protection might help overcome the problems faced by the villagers.

*Keywords: Kachai village; Kachai lemon; constraints; improved cultivation practices; Manipur.*

## 1. INTRODUCTION

Nature's opulence reigns supreme in Manipur. The rich banquet of flavours that adorn the land of jewels bears a gem of unparalleled tartness Kachai Champra, a lemon with the highest vitamin C content in India. This citrusy marvel grows exclusively in Kachai village, ensconced within the mountainous contours of Ukhrul district of the state. The allure of the Kachai lemon, a vital part of the village's economy and identity, lies not only in its succulence but also in its exceptional nutritional value. With a staggering staggering content of antioxidant ascorbic acid or vitamin C ranging between 45mg and 51mg for each 100 ml of juice, this lemon stands head and shoulders above its counterparts grown elsewhere in India that record not more than 25-35mg/100ml. The secret behind the unmatched quality of the Kachai lemon lies in the village's distinctive topography and climatic conditions [1-4]. Enveloped in dense fog during the early hours of dawn, the village receives a bountiful supply of moisture, nurturing the lemon trees that thrive in its acidic soil. As the morning mist dissipates, the village basks in moderately hot and humid weather, providing the perfect environment for the citrus fruits to flourish [5-7].

Kachai lemon is the pride of Manipur as it has been accorded with prestigious Geographical Indication (GI) No.466. The cultivation of lemon at Kachai village can be traced back to 1944, when one S. Paisho first planted the seed [8-11]. Thereafter, lemon was grown as a fruit in the home backyard, with limited knowledge on modern farming, pest management system, nutritional and market value. In the late 90's, production declined due to excessive intercropping, a decrease in the quality of soil health, age-related and lack of irrigation. In January 6, 2005, the 1<sup>st</sup> Kachai Lemon festival was celebrated; thereon the festival is celebrated every year marking the revival and transformation of Kachai lemon cultivation from traditional to modern scientific methods [12-14].

### 1.1 Objectives

To trace out the constrain faced by the respondents in the adoption of improved Kachai lemon production practices and seek their suggestions to overcome it.

### 1.2 Justification of the Study

The study will help farmers to understand the importance of improve lemon cultivation practices and the adoption of new and improve technologies that will help them increase their yield and production also helping them to overcome their problems of climate change. But the success of these alternative is limited since they are cost intensive. The study will enable to investigate the constrain faced by the farmer in utilization of recommended safe plant protection measures and find solution to the existing problems.

## 2. METHODOLOGY

The study was conducted in Ukhrul district of Manipur. Descriptive research design was be followed for the present study. Multi stages sampling was be followed for the present study for the selection of samples required. Manipur has 16 districts and out of which Ukhrul district is selected purposively for the study because of maximum area under Kachai lemon growers. There are 4 blocks in Ukhrul district of Manipur, out of which Lungchong Meiphai block was selected purposively based on maximum area of Kachai lemon growers. Kachai village of Ukhrul district was selected purposively as maximum net sown area is highest. A total of 120 respondents were selected randomly for the present study from Kachai village. A pre-tested structured interview schedule directed towards the objectives of the study was developed for data collection. Survey method of data collection with the help of a pre-structured interview schedule was used. The collected data from the respondents were scored, tabulated and analyzed to calculate frequency and percentage.

**Table 1. Constraints faced by the respondents in adoption of improved “Kachai Lemon” cultivation practices**

| Sl. No | Statements   | Frequency | Percentage | Rank |
|--------|--|-----------|------------|------|
| 1.     | Lack of proper market  | 107       | 89.16      | I    |
| 2.     | Lack of irrigation water                                     | 96        | 80.00      | II   |
| 3.     | Lack of knowledge about plant protection measures            | 91        | 75.83      | III  |
| 4.     | Inadequate resources or machinery                            | 69        | 57.50      | IV   |
| 5.     | Lack of good transportation/road                             | 68        | 56.66      | V    |
| 6.     | Lack of storage facilities                                   | 63        | 52.50      | VI   |
| 7.     | Lack of funding by the government                            | 47        | 39.16      | VII  |
| 8.     | Lack of technical guidance                                   | 37        | 30.83      | VIII |
| 9.     | Lack of agricultural knowledge                               | 32        | 26.67      | IX   |
| 10.    | High cost of plant protection equipment's (example: sprayer) | 14        | 11.67      | X    |
| 11.    | Lack of knowledge about crop insurance                       | 6         | 5.00       | XI   |

## 2.1 Study Area

The study was conducted in Ukhrul district of Manipur. Kachai village was selected purposively as maximum net sown area. The village is connected to the district headquarters by an inter-village road and is approximately 46 Kilometre from Ukhrul district Headquarter. With the co-ordinates of 25°14'29" N, 94°16'22" E.

5. More attention of the government and concerned departments and organizations on the Lemon festival celebrated in the village every year.
6. Proper roads connecting towards the capital, neighbouring villages and farms.
7. Building of a cold storage in the village for storing the fruit to prevent loss after harvesting.

## 3. RESULTS AND DISCUSSION

The source shows that lack of proper market 89.16% (Ranked I), lack of irrigation water 80% (Ranked II), lack of knowledge about plant protection measures 75.83% (Ranked III), inadequate resources or machinery 57.50% (Ranked IV), lack of good transportation/road 56.66% (Ranked V), lack of storage facilities 52.50% (Ranked VI), lack of funding by the government 39.16% (Ranked VII), lack of technical guidance 30.83% (Ranked VIII), lack of agricultural knowledge 26.67 % (Ranked IX), high cost of plant protection equipment's (example : sprayer) 11.67% (Ranked X), lack of knowledge about crop insurance 5.00% (Ranked XI).

### Suggestions given by the respondents for better improved “Kachai Lemon” production:

1. Proper marketing facilities to be provided by the concern departments.
2. Better government support such as subsidies and loan to be provided for a better production.
3. Construction of water conservation tank in the village and more training on rain water harvesting.
4. More training and knowledge on plant protection.

## 4. CONCLUSION

It is concluded that the major constrains faced by the respondents are finding proper market, lack of irrigation water, lack of knowledge about plant protection measures, inadequate resources or machinery and lack of good transportation /road. Some other problems commonly faced by the respondents are lack of storage facilities in the village, lack of funding by the government, lacks technical guidance, lacks agriculture knowledge, high cost of plant protection equipment's and lack of knowledge about crop insurance. Some of the respondents also suggested that providing of proper market facilities from the concern department, better government support, building a water conservation tank, more training on knowledge on plant protection, more attention of the government on the lemon festival, proper roads connecting the village to the capital and building a cold storage in the village for storing the fruits to prevent loss after harvesting will help to overcome the constrains listed above.

### DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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