***Original Research Article***

**A study on determining marketing problems of agricultural commodities faced by farmers of Longleng district of Nagaland, India**

**ABSTRACT**

Production and productivity of agricultural commodities are increasing in Nagaland, India. Farmers were facing the marketing of produced commodities rather than increasing production. Therefore, a study was conducted in the state to determine different types of marketing problems faced by the farmers. Among the districts, Longleng district was selected randomly. The Ex-post Facto research design was followed to collect data from 150 randomly selected farmers from the district by face-to-face contact method. The study used the Garret ranking method to rank different marketing problems in the Longleng district of Nagaland. The study revealed that most (68. 67%) farmers were 26-41 years old. About one-third of farmers had an educational level up to high school. Above half of the respondents were female farmers, lived in nuclear families, and had annual incomes ranging from ₹ 24,312. 00 to ₹ 52,648. 00. The study found that the lack of an organised market became one of the serious problems in the district that ranked Ist, followed by a 'lack of awareness of market information'. 'Lack of storage facilities' was the third major market problem. The study suggested that a properly and systematically organised market and conducting different awareness cum training programmes, establishing market linkages with different digital market portals may enhance the knowledge of marketing information. Developing storage facilities like small warehouses and small cold storage near the marketplace might be a suitable solution to solve the main market problems, which will enhance farmers' income and improve the standard of living among farmers in Longleng district.

*Key words: Agricultural market, Farmers' marketing problem, Garrat ranking, agricultural commodities*

1. **INTRODUCTION**

Agriculture is still a major livelihood activity in India. When farmers get a remunerative price in the market then, their income will be increased, and thereby, production and productivity of crops will also be increased (Kulikova & Molokova, 2023). It is important to have good production and marketing plans to make India's agriculture sector more sustainable (Roy, 2022). Agricultural marketing starts with crop planning and not harvesting. Agricultural marketing targets to ensure that consumers can achieve agricultural products, improve competitiveness and increase farmers' income in the entrepreneurship mindset (Kalleya et al., 2023). According to Kabre (2020), agricultural marketing involves activities from production to retailing, including production planning, cropping, harvesting, warehousing, grading, transportation, and distribution. It is a proficient way for farmers to sell their products at a profitable price (Kiruthiga et al., 2015). Agricultural marketing analyses the functions, problems, and necessary reforms in agricultural marketing. Progress in the farmers' situations and their agriculture depends on the details of agricultural marketing arrangements (Dhar, 1993). The survey of 2018-2019 (June-July) reported that the monthly income of agricultural households in India was ₹10,218 (NSSO, 2020). Indian agricultural sector has changed from a subsistence-based industry to market-driven. The transformation of India's agricultural sector involved market reforms by shifting from subsistence-based practices to a more market-driven approach (Saxena et al., 2023). Economic Survey, (2022-23) reported that growth in agriculture had occurred in a few years and also involves most of the population, which contributed a significant 18.8% to the country's Gross Value Added (GVA) in 2021–2022, with growth rates of 3.6% in 2020–2021 and 3.9% in 2021–2022 (Ramaswamy, 2022). Agricultural marketing plays a vital role not only in encouraging production and consumption but also in quickening the economic development. It is one of the utmost essential multipliers of agricultural development. The shift to modern agriculture has resulted in increased production, creating a surplus that requires effective marketing strategies to avoid waste and ensure profitability (Abitjanovna, 2020). Agricultural enterprises must develop marketing strategies that align with market demands, utilising traditional and digital tools to enhance customer relationships and business efficiency (Ganush & Grigoryeva, 2022; Mushtai, 2024;). The transition requires businesses to adapt their production and sales strategies to meet changing consumer preferences and market conditions (Ganush & Grigoryeva, 2022). Modern marketing approaches can improve agricultural production and sales' economic efficiency, helping reduce costs and increase financial returns (Vlasenko, 2023). Shifting from traditional to modern agriculture, marketing appears to be the biggest task due to the production surpluses created by the shift. An advanced and proficient agricultural marketing system helps grow agro-based industries and stimulates the overall development process of the economy. An effective marketing system confirms higher levels of farmers' income, reducing the intermediaries by limiting the cost of marketing services for farm products (Bahorka & Abramovych, 2023; Pingali et al.,2019; Sulthana & Rajitha, 2023). An effective marketing system confirms higher levels of farmers' income, reducing the intermediaries by limiting the cost of marketing services for farm products (Bahorka & Abramovych, 2023; Pingali et al., 2019; Sulthana & Rajitha, 2023).

Farmers benefit from personalised information regarding market dynamics, which aids in making strategic sales decisions in volatile markets (Tripathi et al., 2022). A well-designed marketing system reduces losses from inefficiencies and ensures higher income for farmers by minimising the role of intermediaries (Sharma et al., 2020). Digital technologies are used to enhance openness, advance procedures, and create a direct communication channel between buyers and farmers (Grynevych and Mirzoiev, 2024; Jayasubramanian, 2024).

Nagaland is a state in India, covering a total area of 16,579 square kilometres and about 70-80% peoples living in the state rely on agriculture. Total cropped area was reported at 319.000 ha thousands in 2022 (CEICdata.com, 2024).

Mostly traditional shifting cultivation is practicing by most of the farmers which is common in hilly states of NE region of India. However, organic farming slowly came into exist. It shows an integration of modern farming technology with traditional one (Jagannath et al., 2023). Government also launched different programmes to improving farming practices to improve farmers’ income (Khongsai, 2023).

Though the shifting of farming practices is observing but problem of market problems remain exist in the state. Addressing these issues will be crucial for sustaining the growth of the state's agricultural market. The state is a hilly and remote state of India and is affected by extremism, which hinders development. It is a tribal state that has officially recognised 16 tribes, and their languages are different. In the Longleng district of Nagaland, farmers face many problems in selling their agricultural commodities in a market. If marketing problems are systematically identified, proper marketing strategies can be made for them. Rural people are greatly connected with cultivation for their livelihood, but they are not reaching more economic benefits from farming. Therefore, the present study was conducted with the following objectives: (i) highlight the socio-economic conditions of the farmers of Longleng district and (ii) address the problems faced by the farmers of Longleng district about agricultural marketing.

1. **METHODOLOGY**

Nagaland state has 20 districts. The district Longleng was selected randomly as agricultural situation is similar to all districts.The hilly trrain was the common features in Nagaland. All the districts are mostly following traditional practices which led to agriculture organic by default. Because of hilly terrain, they cultivated mostly jhum cultivation.

The selected district has three development blocks: Logleng, Tamlu and Sakshi. The Sakshi block, which has 40 traditional villages, was selected randomly. Density of population of the Nagaland was very less due to hilly terrain. A total of 25 per cent of villages, which was roughly equal to 10 nos.of villages were randomly selected from the block. The selected villages were Hukpang, Lingtak, Pongching, Mongtingkang, pongo, Yangching, Auching, Orangkong, Yaongyimchen, Tangha. From each village, 15 farmers were selected randomly to make the total sample size was 150 nos. All the households of the selected villages involved in farming activities. Thus the total sample size was 150 nos.The sampling plan was followed in such a flexible manner due to hilly terrain, remoteness, poor road connectivity and time and resources constraints A structured schedule was prepared, and data was collected through face-to-face interviews. The Ex-post-facto research design was used for the research study. Descriptive statistics were used for analyses of socio-economic variables. Garret's ranking technique was applied to rank the problems that are faced by the farmers in marketing their produce of schedule following various literatures. The primary advantage of this technique over simple frequency distribution is that the limits are set based on how significant they are to the respondents (Ao and Jamir, 2020). In this ranking method the same number of respondents on two or more constraints may have been given different rank (Jain et al., 2020). The respondents ranked different problems and outcomes based on their impact, thereby converting into score value and rank with the help of the following formula:

 100(Rij. -0. 5)

Per cent position =\_\_\_\_\_\_\_\_\_\_

 Nj

Where,
Rij = Rank given for the ith variable by jth respondents

Nj = Number of variables ranked by jth respondents

With the help of Garrett's Table, the per cent position estimated is converted into scores by referring to the table given by Garret and Woodworth (1969). The scores of each individual were added and then total value of scores and mean values of score was calculated for each factor. The factors which having highest mean value were the most important factor. For Garrett ranking method, 14 factors were selected and ranked was given. After that Pareto Chart analysis was done toe determine the major influencing problems among the 14 problems. The analysis is though not precise but it gave a clear picture about the situation to solved the problem.

**RESULTS AND DISCUSSION**

**3.1 Socio-economic characteristics**

Table 1 indicates that most of the respondents (80.00%) were in active age group with a range of below 41 years. From the data presented in the Table 1 also asserted that about 60.67 per cent respondents had an educational level between ‘up to high school’ to ‘up to HS’. Data shows in the table found that female respondents (54.67%) were more than male (45.33%). In case of marital status, it was reported that 54.67 per cent respondents were married.

Table 1 further shows that 63.33 per cent of respondents lived in nuclear family. The table shows that about three-fourth of the respondents had the family members between the range of 4-6 members and 22.67 per cent families had six and above family members. Table 1 reveals that more than 80.00 per cent respondents were small and marginal farmers. Moreover, it was quite evident from the Table that more than fifty per cent respondents preferred agriculture as their source of income, whereas one-fourth of the respondents selected livestock as their income source. Lastly, it was observed from Table 1 that most of the respondents (82.67%) were under the income category Rs 24312.00-Rs 52648.00.

**Table 1. Distribution of respondents according to the socio-personal characteristics**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **Category**  | **Frequency** | **Percentage** |
| Age | Below 26 yrs | 17 | 11.33 |
| Between 26-41Yrs | 103 | 68.67 |
| Above 41Yrs | 30 | 20.00 |
| Education qualification | No education | 17 | 11. 33 |
| Up to Primary | 33 | 22. 00 |
| Up to high School | 55 | 36. 67 |
| Up to HS | 36 | 24. 00 |
| Degree & above | 9 | 6. 00 |
| Gender | Male | 68 | 45. 33 |
| Female | 82 | 54. 67 |
| Marital status | Married | 82 | 54. 67 |
| Unmarried | 68 | 45. 33 |
| Type of family | Nuclear | 95 | 63. 33 |
| Joint | 55 | 36. 67 |
| Family member | Low (below 3) | 5 | 3. 33 |
| Med (4 to 6) | 111 | 74 |
| High (6 & above) | 34 | 22. 67 |
| Operational land | Marginal (less than 1ha) | 76 | 50. 67 |
| Small (1-2 ha) | 52 | 34. 67 |
| Semi Med (2-4 ha) | 22 | 14. 67 |
| Source of Income | Agriculture | 78 | 52. 00 |
| Livestock | 40 | 26. 67 |
| Business | 20 | 13. 33 |
| Others | 12 |  8. 00 |
| Annual Income  | Low (Below Rs 24311) | 10 |  6. 67 |
| Med (Rs 24312-Rs 52648) | 124 | 82. 67 |
| High (Above Rs 52649) | 16 | 10. 66 |

**3.2 Percentage positions and their corresponding Garret Table values**

The per cent position value was calculated using the formula, *i. e*. 100 (Rij-0. 5/ Nj). The per cent position value is required to evaluate Garrett's value to rank the actual causes of the problem.

**Table 2. Estimation of Garrett value for each per cent position value**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rank** | **100 (Rij-0. 5)/Nj\*** | **Calculated Value** | **Garret value** |
| 1 | 100 (1-0. 5)/14 | 3. 57 | 85 |
| 2 | 100 (2-0. 5)/14 | 10. 71 | 75 |
| 3 | 100 (3-0. 5)/14 | 17. 86 | 70 |
| 4 | 100 (4-0. 5)/14 | 25. 00 | 63 |
| 5 | 100 (5-0. 5)/14 | 32. 14 | 59 |
| 6 | 100 (6-0. 5)/14 | 39. 29 | 56 |
| 7 | 100 (7-0. 5)/14 | 46. 43 | 52 |
| 8 | 100 (8-0. 5)/14 | 53. 57 | 49 |
| 9 | 100 (9-0. 5)/14 | 60. 71 | 45 |
| 10 | 100 (10-0. 5)/14 | 67. 86 | 41 |
| 11 | 100 (11-0. 5)/14 | 75. 00 | 37 |
| 12 | 100 (12-0. 5)/14 | 82. 14 | 32 |
| 13 | 100 (13-0. 5)/14 | 89. 29 | 25 |
| 14 | 100 (14-0. 5)/14 | 96. 43 | 16 |

Source: Primary survey

\*Nj= Total rank given by 150 respondents=14 and Rij= Respective rank

Table 2reveals that ‘per cent position value of sample size’. Garrett value is estimated for each per cent position value by referring Garrett Conversion table. Here, the 3.57 per cent value, the Garrett value will be nearest integer of Garret Ranking Conversion table i. e. 85 and so on.

**3.3 Estimation of total score given by respondents**

The total score of each factor rank was estimated by multiplying Garrett value with the given value. Therefore, the total score was calculated as the average score given by the total respondents under different factors. Table 3 shows the calculation procedure of the total score of the sample respondents. The total score was calculated by multiplying the Garret value by the respective rank given by the respondents for each factor of the sample. The table shows that 85 was the Garret value and the number of respondents given rank 1 was 1700. The entire estimation process ran in the same manner, given their respective positions by the number of respondents.

**Table 3. Estimation of total score by multiplying Garrett Value with the respective rank Garrett value**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Factors** | **1\*85** | **2\*75** | **3\*70** | **4\*63** | **5\*59** | **6\*56** | **7\*52** | **8\*49** | **9\*45** | **10\*41** | **11\*37** | **12\*32** | **13\*25** | **14\*16** | **Total** |
| **F1** | 1700 | 0 | 0 | 2394 | 1770 | 616 | 0 | 2499 | 0 | 0 | 0 | 0 | 0 | 272 | 9251 |
| **F2** | 1700 | 1500 | 0 | 0 | 708 | 616 | 988 | 0 | 0 | 287 | 407 | 1632 | 250 | 0 | 8088 |
| **F3** | 1020 | 0 | 5740 | 1323 | 0 | 1008 | 0 | 343 | 0 | 0 | 0 | 320 | 0 | 0 | 9754 |
| **F4** | 0 | 900 | 1470 | 1197 | 118 | 392 | 0 | 0 | 2700 | 0 | 370 | 0 | 0 | 0 | 7147 |
| **F5** | 0 | 0 | 490 | 819 | 472 | 560 | 1664 | 980 | 0 | 2501 | 0 | 0 | 0 | 0 | 7486 |
| **F6** | 6800 | 2100 | 840 | 756 | 0 | 1176 | 0 | 0 | 450 | 0 | 0 | 0 | 0 | 0 | 12122 |
| **F7** | 19 | 6000 | 630 | 0 | 0 | 672 | 8 | 1127 | 0 | 0 | 0 | 0 | 0 | 0 | 8456 |
| **F8** | 0 | 0 | 0 | 1008 | 0 | 0 | 1768 | 392 | 855 | 0 | 444 | 352 | 1275 | 0 | 6094 |
| **F9** | 0 | 0 | 630 | 3213 | 1062 | 560 | 0 | 441 | 945 | 410 | 407 | 0 | 300 | 0 | 7968 |
| **F10** | 0 | 0 | 0 | 0 | 590 | 2856 | 364 | 0 | 495 | 1148 | 1184 | 384 | 0 | 0 | 7021 |
| **F11** | 0 | 0 | 0 | 630 | 0 | 0 | 0 | 539 | 315 | 1353 | 2183 | 0 | 0 | 496 | 5516 |
| **F12** | 0 | 0 | 700 | 0 | 3009 | 0 | 0 | 0 | 540 | 0 | 259 | 896 | 800 | 176 | 6380 |
| **F13** | 0 | 750 | 0 | 0 | 0 | 0 | 0 | 588 | 0 | 0 | 0 | 1248 | 700 | 992 | 4278 |
| **F14** | 850 | 0 | 0 | 0 | 0 | 0 | 2652 | 490 | 495 | 492 | 333 | 0 | 450 | 480 | 6242 |

**3.4 Estimation of average score**

Table 4 describes that by dividing the total score with the total respondents of the sample, the average score was calculated. The table shows that rank Ist reflected the highest percentage average score, and the lowest percentage average score directed the last rank of the total estimated factors rank. Table 4 shows that first ranked was secured by the problem,' lack of organised market' followed by the problem' ‘lack of awareness of market information' as ranked IInd. Das(2024), reported that lack of organised market and awareness on market information lead to a low producer's share due to numerous middlemen in the supply chain in India. He also mentioned that a lack of market information system is a major issues to farmers.Table 4 shows that the problems which was identified by farmers i. e.' lack of storage facility' and 'small quantity of produce' were ranked IIIrd and IVth. In India, the lack of proper storage facilities forces farmers to sell their produce immediately after harvest, leading to post-harvest losses of up to 35-40 per cent (Singh et al., 2023). According to Patel et al, (2022) lack of proper storage facilities forced farmers to sell their horticultural produce immediately after harvest, often at lower prices. They also reported that small quantities of produce can lead to inefficiencies in marketing, as farmers may not have enough volume to attract better market opportunities. Singh et al. (2023) found that absence of storage infrastructure is a critical issue in rural areas of Bihar.

The survey found that respondents gave Vth ranked to 'exploitation of prices by intermediaries' as marketing problem and VIth ranked to 'lack of irrigation facilities' in the surveyed area. Gohain and Singh (2018) stated that farmers often face manipulation of prices practices by intermediaries of market, leading to lower prices of farmers’ products. They also said that such practices adopted by middlemen in Punjab are a major problem for basmati paddy farmers. Charyulu et al.,(2018) mentioned that the reliance on local traders is prevalent, with many farmers lacking access to information about market prices, further perpetuating their exploitation. According to Singh (2012), insufficient irrigation infrastructure significantly hampers agricultural productivity. They mentioned that farmers in regions like Uttar Pradesh reported high costs and irregular irrigation supply as major constraints. The reliance on local traders was prevalent, with many farmers lacking access to market price information, further perpetuating their exploitation (Charyulu et al. , 2018).

Table 4 further reveals that 'high cost of transportation'(Ranked VIIth), 'lack of good quality subsidised seeds/saplings'(Ranked VIIIth), 'carrying problems of less products' (Ranked IXth) and 'price fluctuation'(Ranked Xth), were also marketing problems for farmers. High transportation cost was a marketing problem for farmers, as it increases the expenditure. Daundkar et al. (2017) reported that almost three-fourth of potato farmers in Pune mention ‘high transportation charges’ as an important marketing problem. In Maiduguri, Nigeria, transportation costs positively affect price variation in maize (Gaya et al., 2022). If the seed or saplings are not good, it will not give good productivity and production, which results low income and high expenditure. Lack of access to quality seeds could lead to lower yields and reduced market competitiveness (Singh, 2012). If productions will less particularly for small and marginal farmers, then those producers will face carrying problems of commodities to market. If they will form group, try to carry the products in one single vehicle or using common vehicle by forming a cooperative for the purpose. In case of price fluctuations of commodities in market, farmers may be intimated through market information service on daily basis from different market.

In the present survey, respondents ranked XIth, XIIth and XIIIth to problems like 'problem of pest and diseases', 'lack of training and technical knowledge' and 'lack of insurance and minimum support price'.

Lastly, 'lack of cooperative society' was ranked XIVth by the respondents. Sahoo et al., (2020) reported that cooperatives facilitate the supply of critical inputs like seeds and fertilisers to farmers, enhancing production capabilities. Cooperatives facilitated better market access for farmers, allowing them to sell produce at fair prices (Sathisha & Katti, 2023). They also mentioned that cooperative banks are vital for providing credit, especially to small and marginal farmers.

**Table 4. Estimation of average score of the total respondents**

|  |  |  |  |
| --- | --- | --- | --- |
| **Factors** | **Total** | **Average score** | **Rank** |
| Lack of storage facilities | 9251 | 61. 67 | III |
| Exploitation of price by intermediate agencies | 8088 | 53. 92 | V |
| Lack of awareness of market information | 9754 | 65. 03 | II |
| Lack of good quality seeds/ saplings | 7147 | 47. 65 | VIII |
| High cost of transportation | 7486 | 49. 91 | VII |
| Lack of organised market | 12122 | 80. 81 | I |
| Small quantity of produce | 8456 | 56. 37 | IV |
| Lack of training and technical knowledge | 6094 | 40. 63 | XII |
| Lack of irrigation facility | 7968 | 53. 12 | VI |
| Carrying problems of less products | 7021 | 46. 81 | IX |
| Lack of insurance and minimum support price | 5516 | 36. 77 | XIII |
| Price fluctuation | 6380 | 42. 53 | X |
| Lack of Cooperative Society | 4278 | 28. 52 | XIV |
| Problem of pest and diseases | 6242 | 41. 61 | XI |

3.4 Pareto chart analysis of problem

The market problem ranked by farmers were further analyse with Pareto Chart .Fig 1 shows Pareto chart results of 14 market problems. It was found that there were four market related problems which contribute 70 per cent problems.The rest 11 problems contribute about 30 per cent problems of market.

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The four major four problems were :Lack of good quality seeds/ saplings ,Lack of storage facilities, Exploitation of price by intermediate agencies and High cost of transportation.Though the results did not matched with Pareto principle or 80/20 ratio but the results can be utislised for solving majority of problems. Because four problems contributed substantially to the large problem of market, so intervention of these problems will solve a major part of the market problems. Intervention with less problems will also reduce recources. If proper intervention will made on these four problems about 70 per cent of the problems will be minimised. However, other problems should not be ignored.

1. **CONCLUSION**

The marketing problem of Longleng district of Nagaland can be solved with the help of the collaboration of farmers and government efforts. Implementing a market information service unit will help farmers acquire present information on prices, market trends and consumer preferences. A well-developed and well-structured organised market is very important within the district so that farmers can directly reach consumers to sell their agricultural produce. Processing grading and branding facilities should be established to boost agricultural product marketing. Nagaland government should start the market intelligence unit following the example of AAU-AMIU of Assam Agricultural University, Assam, a neighbourhood state of Nagaland. Developing digital marketing will help farmers overcome intermediaries' problems to some extent. Different social media tools should be used to promote agricultural products. Awareness of market information and storage of agricultural products must be increased through proper demonstration and training programme. Awareness regarding different marketing channels and mobile apps must be created through capacity- building programmes. A well-developed small storage facility should be arranged in the organised market so that farmers can keep and sell their produce.It will reduce the transportation cost of products to market repeatedly. Developing an all-weather road connecting all major places/markets of the district will help the farmers to get a better market.

**DISCLAIMER** (**ARTIFICIAL INTELLIGENCE)**

Authors 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 this manuscript.

**COMPETING INTERESTS**

Authors have declared that no competing interests exist

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