

# Exploring Marketing Channels and Challenges in Pineapple Farming in the Hilly District of Assam

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## Abstract

Pineapple is one of the major fruit crops in Assam, contributing around 17.44% of total pineapple production in India. However, despite its potential, favourable agro-climatic conditions and high-quality varieties such as Kew and Queen, the marketing system remains highly fragmented. Multiple marketing channels prevail simultaneously in the state and market efficiency is unevenly distributed. It indicates that most channels offer low price realisation to farmers, with only a few efficient channels enabling higher returns. Pineapple cultivation in the state also faced several obstacles and marketing challenges that hinder farmers from earning sustainable profits. The paper studies the existing marketing channels and challenges in pineapple farming in the surveyed areas to improve profitability and sustainability. The study is based on primary sources of data collected through the multistage sampling technique. The total sample size is 100, which is randomly selected from the surveyed villages. The study found that a number of marketing channels prevail in the areas based on their farm size, resource availability, and marketing accessibility, among others. The study also identified a number of challenges that affect the farmers' profitability and sustainability, which need to be addressed.

**Keywords:** Pineapple, Challenges, Marketing Channels, Hill District

## Introduction

Agriculture and allied activities are the backbone of livelihood in the northeast region of India. Because of a large rural portion of population depends on farming, shifting cultivation, and limited industrialization in the region. More than 70% of people in the region

depend on agriculture and its allied activities (such as horticulture, piggery, poultry, fishery, etc.) as their primary occupation. Around 8% of total geographical land is covered by the northeast region in the country (NEC, 2028) where 23 to 24% of the total land area is cultivable land (Regional Economy Report, 2023–24). The rest is largely covered by forests, hills, mountains, rivers, and ecologically sensitive areas. Out of the total cultivable land, horticultural crops cover about 18.6% of the cultivated area in the region, where 40% fruits, 52% vegetables, and the rest are spices (De, 2018). In the case of Assam, horticulture occupies about 15% of the gross cultivated area. In 2020–21 the state produced 6,467.5 thousand MT of horticulture crop from an area of 650.33 thousand hectare with a productivity of 9.94 MT per hectare. However, the production of vegetables was highest among the horticulture crops grown in Assam followed by fruits, spices, and plantation crops and flowers. Out of the total horticulture crops in 2020–21, Assam produced 34.81% of fruits. Varieties of fruits such as banana, pineapple, lime, litchi, jackfruit, oranges, papaya etc., are cultivated by farmers in the state as well as in the northeast region. In Assam, among the available fruits, pineapple is one of the major fruit crops. Among the northeastern states, Assam (315.14 MT in 2020–21), Tripura (144.60 MT in 2020–21), and Meghalaya (138.81 MT in 2020–21) cultivated and produced the major portion of pineapple in the country. This is due to its favourable agro-climatic conditions, good rainfall, varied terrain, and organic-rich soil. Although the region has high potential for pineapple production the farmers often face multiple challenges in marketing their produce, for example, unorganised market channels and weak

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linkages (NERAMAC, 2015), inadequate transportation, connectivity and price fluctuations (Shohe et al., 2025), credit constraints (Jamir & Ezung, 2024), and lack of market information or asymmetric information (Roy & Ghose, 2022) etc. Addressing these challenges is crucial to ensuring better market access, reducing post-harvest losses, and improving the overall income of farmers.

Several studies have examined the marketing constraints in the horticulture sector. For instance, Nahar et al. (2020) highlighted five major challenges in the selection of marketing channels by smallholder pineapple growers in Sarawak, Malaysia, including lack of market information, inefficient transportation, price volatility, market distance, and product perishability. Similarly, Tadesse et al. (2021) identified marketing constraints in Ethiopia, such as poor infrastructure, weak market linkages, and limited access to credit. Aga (2018) and Abera (2018) also emphasised the role of inadequate storage, packaging, transportation, and lack of price control as key factors affecting horticultural marketing. A study on fruit crops such as mango (Sharat & Rathod, 2022) and grapes (Chikkalaki & Krishnamurthy, 2023) further demonstrates how farmers struggle with fluctuating prices, middlemen exploitation, and financial constraints. In the northeastern region of India, Bora (1989) identified the lack of proper marketing systems as a major hindrance to horticultural development, while Mir (2014) reported similar challenges faced by apple farmers in Kashmir.

It is necessary to understand the marketing channels and challenges faced by pineapple farmers, which can be of help in taking measures by planners or policymakers to improve the economic condition of pineapple cultivation. The present study is particularly significant because it highlights the specific constraints experienced by pineapple growers in Karbi Anglong district. By analysing the existing marketing structure and its inefficiencies, the paper aims to provide insights into how farmers can gain better market access, negotiate fair prices, and reduce post-harvest losses. Further, this study will also help policymakers and other stakeholders to develop targeted strategies to enhance the marketing infrastructure, improve farmer training, and introduce policies that support sustainable pineapple farming. By addressing these issues, the study aims to contribute to the larger goal of improving the agricultural marketing

system, increasing farmers' income, and fostering a more resilient pineapple farming sector in the study area.

## Objectives

The objectives of the present study are to examine the marketing channels and to analyse the challenges faced by the farmers in accessing the markets, supply etc., in the study areas. Furthermore, it seeks to explore the key constraints such as price fluctuations, lack of storage and transportation facilities, limited market information, and inadequate institutional support that hinder farmers from obtaining fair prices for their produce.

## Methodology

The study is explorative in nature. The study is conducted in Nilip development block of Karbi Anglong District, Assam. The study is based on primary sources of data. The field survey was conducted in 2024 (January–July). It was collected with the help of a well-structured questionnaire. The multistage sampling technique was used during the collection of data. In the first stage, Karbi Anglong district was purposively selected for the study because it is the second-largest pineapple producing district in Assam. The district has contributed around 15% of pineapple to the total pineapple production of the state in 2016–17 (Horticulture report, 2018). In the second stage, a subdivision viz., Bokajan, was selected where majority of farmers cultivate pineapple as one of the fruit crops along with other crops in the areas. In the third stage, a development block from the subdivision was selected viz., Nilip block, where pineapple is the one of the important fruit crops cultivated. In the fourth stage, 10 villages from the development block were selected purposively. This is because pineapple cultivation is the prime fruit crop among the farmers in these villages as well as the main source of income.

Finally, 10 farmer households from each village (i.e., total 100 households) were selected through simple random sampling. It may be noted that the size of population in the selected village is less than 300 (Census, 2011).

To examine the market efficiency of pineapple the Sheperd index was used. The formula is given below.

$$ME = (V/I) - 1$$

Where,

ME = Index of Marketing Efficiency

V = Value of goods sold

I = Total Marketing Cost

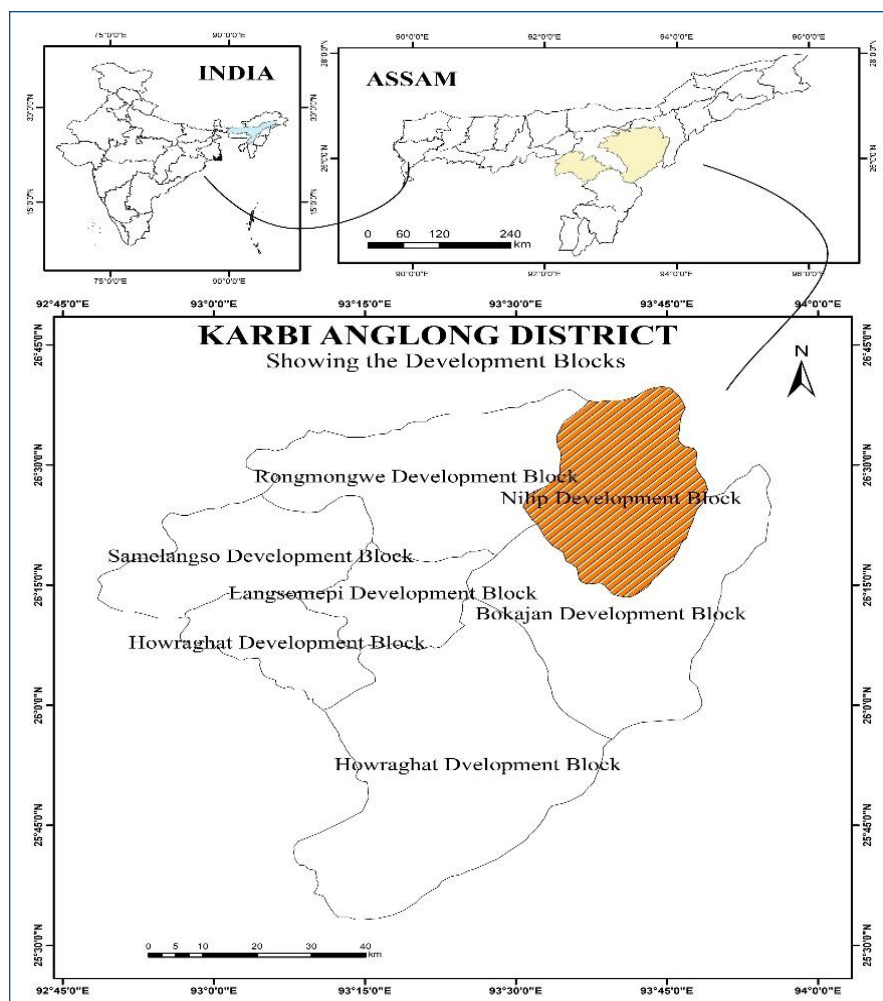
At the same time, different statistical tools and techniques such as average, percentage etc., are also used to analyse the tables.

### About the Karbi Anglong district

Karbi Anglong is governed under the Sixth Schedule of the Indian Constitution, with the Karbi Anglong Autonomous Council (KAAC). The district was bifurcated into Karbi Anglong and West Karbi Anglong in 2016. However, both are still administered by KAAC. The details of the geographical location are shown in Map 1. Karbi Anglong, Assam's largest district, spans

10,434 sq km and is predominantly rural, with 88.19% of its 956,313 residents living in villages (Census, 2011). Scheduled Tribes constitute 56.33% of the population, with the Karbi community being the majority. The district's overall literacy rate stands at 69.25%, with male literacy at 76.14% and female literacy at 62%. The district is characterised by hilly terrain, rich biodiversity, and a primarily agrarian economy. Agriculture, horticulture, and forest-based activities form the backbone of livelihoods, with crops like rice, ginger, turmeric, fruits, and vegetables being widely cultivated.

At present, the district consists of two sub-divisions viz., Diphu and Bokajan, and seven development blocks viz., Bokajan, Howraghat, Langsomepi, Lumbajong, Nilip, Rongmongwe, and Samelangso. The district headquarters is in Diphu. Our study areas belong to the Nilip development block of Bokajan sub-division.



**Map 1:** Location Map of Karbi Anglong District of Assam

## Results and Discussion

### Socio-Economics Profile of the Surveyed Farmers

The socio-economic profile of pineapple farmers in the surveyed areas shows key insights into their demographic, educational, occupational, and financial status. The average age of household heads in surveyed areas is 46.45 years, which indicates most farmers are middle-aged with considerable farming experience. Households typically have five members, with two dependents on average. Education levels show that 79.2% of household heads are literate, with an average schooling of 7.04 years, reflecting a moderate level of education.

Remaining 20.80% are illiterate. Gender composition is nearly balanced, with 51.92% male and 48.08% female members, highlighting the active role of both genders in farming. Housing conditions of the household indicate economic challenges; around 66% of households reside in kutcha houses, while only 23% have pucca houses, reflecting a slow transition towards permanent housing. The average landholding size is 2.11 hectare but only 0.57 hectare are used for pineapple farming, suggesting diversification in cultivation. Around 71% of household heads are found to be engaged in farming, while 29% are engaged in other activities such as government jobs, private jobs, business, daily labour, etc. It reflects the livelihood diversification in the region. The details are given in Table 1.

**Table 1: Socio-Economic Profile**

<i>Particulars</i>		
Average age of the head of household (years)		46.45
Age of the farmer (%)	20–40 years	40.00
	41–60 years	48.00
	61 years and above	12.00
Average year of schooling of household head		7.04
Education level of the household head (%)	Literate	79.20
	Illiterate	20.80
Average family members in the household (numbers)		5
Average number of workers in the household		3
Average dependent members in the household (numbers)		2
Gender composition in the household (%)	Male	51.92
	Female	48.08
Type of house	Kutcha (in %)	66.00
	Semi-pucca (in %)	11.00
	Pucca (in %)	23.00
Average size of land holdings in the household (hectare)		2.11
Land holding by the households	Less than 2 hectare (in %)	60.00
	2–6 hectare	38.00
	6 hectare and above	2.00
Average size of pineapple land in the household (hectare)		0.57
Primary occupation of the household head (%)	Farmer	71.00
	Business	12.00
	Others	17.00

Source: Field survey.

## Marketing Agents in the Surveyed Areas

Marketing channels plays an important role in the cost and benefit of pineapple production. There are different types of functionaries in the pineapple value chain in the surveyed region. Terminology used in this study related to the marketing channels are as follows:

- *Contractor*: Sometimes the pineapple farmers sell their produce to the contractors. These contractors mainly offer the price of the produce during the time of flowering and fix the price of the pineapple farm without thinking about the yield from the farms. During the harvest season, the contractor collects the pineapples and sells in the markets. During harvesting, the contractor bears all cost such as labour, packaging, and transportation etc. These contractors are either from the locality or from the neighbouring areas.
- *Local Traders or Commission Agents*: These mainly act as helpers or assistants between the farmers and local traders/wholesalers within the sub-divisions and neighbouring districts, for example, Golghat, Nagaon, and Jorhat. The agents mostly collect the pineapple from the individual farmers and sell in the nearest market i.e., Labanghat market. The agents do not store the pineapple at any point of the process flow. Sometimes, the farmers directly sell the produce to local traders or local haats.
- *Wholesalers*: The wholesalers for pineapple are generally from the nearest areas or villages or sub-division level. The wholesalers of distant markets or outside the Deithor areas contact the local agents or procure from the market i.e., Labanghat market. After this, the wholesaler sells to retailers in different places such as the nearest town and urban or semi-urban areas like the towns of Goghat, Jorhat, Bokakhat, and Dergaon.
- *Retailers*: They purchase the pineapple from wholesalers or local agents and sell it to final consumers.

## Marketing Channels in the Surveyed Villages

There were four different marketing channels of pineapple identified in the surveyed areas. These were retailer, wholesaler, agent or middle man, and contractor.

The selection of marketing channel by the farmers is dependent on scale of production, arrangement of transportation, ability, and accessibility to market information by the farmers. The identified marketing channels are as follows:

- *Channel I*: Farmers to retailer/customer (in local market as well as distant market).
- *Channel II*: Farmers to local agents to wholesaler (on road sides or semi-urban market) to retailers (distant market or town or cities) to consumers.
- *Channel III*: Farmers to contractors (local areas or neighbouring areas) to wholesalers (on road sides or distant markets) to retailers to consumers.
- *Channel IV*: Farmers to wholesalers (local areas or neighbouring areas) to retailers (on road sides or distant markets) to consumers.

**Table 2: Farmers Selling Pineapple Through Different Marketing Channels in the Surveyed Areas**

Channel	Percentage
Channel I	3.7
Channel II	70.6
Channel III	2.5
Channel IV	23.2

Source: Field survey.

Table 2 clearly shows the selling of pineapple through the different market channels by the farmers in the surveyed villages. It is found that around 3.7% of farmers sell their produce thorough channel I in the surveyed villages. In channel I, farmers sell their produces at the nearest market viz., Deithor weekly market (around 10 km from the surveyed villages) and Kanaighat weekly market (around 22 km from the surveyed villages). Among the identified market channels, the farmers were mostly found to sell their produce directly to local agents because they cannot travel daily to the market or nearest local haat to sell their produce and arrange transportation at affordable prices and also be able to sell their produce in bulk. Around 70.6% of farmers sell their produce thorough channel II. The local agents sell the produce either to retailers (locals or outsiders from nearest town or semi-urban market areas) or wholesalers (at Labanghat road side market) and finally deliver the produce to consumers.

Sometimes the pineapple farmers sell their produce directly to the contractors. They do it when money is needed for emergencies. Generally, the farmers do not prefer to sell the produce to contractors. Only 2.5% of farmers sell their produce through channel III. In channel III, risk of the farmers is very low and contractor offers advance money for their produce based on the growth of plant or flowers of pineapples. The contractor bears all the risk of the produce. During the harvesting season, the contractor collects the produce from the respective farmers and sells to the markets. On the other hand, around 23.2% of farmers sell their produce through channel IV. In this channel, the farmer has to arrange the auto or tempo to sell their produce in the market. The farmers sell their produce to the wholesaler at Labanghat market.

None of the farmers in the surveyed areas were observed to be directly selling to distant markets like semi-urban or urban markets directly due to high cost of transportation,

perishability of produce, lack of communication gap, and high risk of losses in transit. Moreover, they mentioned that due to weak market linkages with wholesaler in the distant markets, as well as lack of knowledge on market and price information at distant location, the farmers' foresight lacks bargaining power in such markets.

### Efficiency of the Marketing Channels in the Surveyed Areas

In case of marketing channels, the efficiency is concerned with the movement of goods from farmers to consumers at the lowest possible cost consistent with the provision of services desired by the consumer. The efficiency of various channels in the study area has been computed using Shepherd's marketing index formula. Table 3 shows the value of market efficiency index of the channels.

**Table 3: Market Efficiency Index of the Marketing Channels**

	<i>Channel I</i>	<i>Channel II</i>	<i>Channel III</i>	<i>Channel IV</i>	<i>Overall</i>
Market Efficiency Index	1.9	12.86	1.46	5.89	7.23

Source: Calculated by author.

The overall market efficiency index (MEI) of 7.23 indicates the moderate level of efficiency in the marketing system as a whole. However, it is observed that MEI is not evenly distributed across the different identified marketing channels. The large variation in MEI across channels suggests significant structural and operational differences, resulting in unequal performance within the marketing system. The value of MEI is found to be 1.9 for channel I, 12.86 for channel II, 1.46 for channel III, and 5.89 for channel IV. Thus, the highest marketing efficiency is observed for channel II followed by channel IV, channel I, and channel III. It is interesting to observe that among the surveyed villages, the most popular market channel is II, followed by channel IV. It indicates that the pineapple farmers or producers prefer to sell the produces through the agents in the areas. This may be due to the lack of market access, high transportation cost, lack of marketing information, and lack of storage facility, etc. To enhance overall market performance in the areas, it is important to improve deficiencies such as infrastructure, reduce intermediary costs, and strengthen producer market linkages in the less efficient channels.

### Challenges of Pineapple Farmers in the Surveyed Villages

The pineapple farmers are influenced by various challenges that affect their profitability and sustainability such as input availability, infrastructure, financial access, marketing, and communication barriers. The responses of surveyed farmers are discussed with the help of Likert scale. The details are given in Table 4.

### Non-Availability of Plant Materials

The availability of plant materials is a significant factor for every farmer. The non-availability of plant material led to stagnation in productivity and reduced economic returns, adversely affecting the livelihoods of the farmers whose prime occupation is farming. However, in the study areas, it is found that the issue of non-availability of planting materials for pineapple farmers is moderately recognised, with a mean score of 3.02 on a Likert scale and a standard deviation (SD) of 0.841. While a majority of respondents (60) remained neutral, suggesting limited awareness or indifference, a notable proportion (24)

agreed that it is a challenge. The small number of extreme responses (*strongly agree* or *strongly disagree*) indicates that the issue is neither universally acknowledged nor entirely dismissed. The details are given in Table 4.

### Non-Availability of Fertilisers

Fertilisers play a crucial role in fruit farming in hilly areas by enriching nutrient-deficient soils and boosting crop productivity. In hilly terrains, where soil erosion and leaching are common due to steep slopes and heavy rainfall, fertilisers help replenish essential nutrients such as nitrogen, phosphorus, and potassium. They enhance fruit quality, size, and yield, making farming more profitable. However, it is observed that in the surveyed villages pineapple farming was totally organic. They had not used any fertiliser during the overall pineapple farming. However, a notable portion of surveyed farmers strongly agreed (18) or agreed (9) that fertiliser non-availability is a challenge in their farming while a significant number of respondents (56) remained neutral, may be due to limited awareness or ambivalence. The rest of the farmers strongly disagreed (14) and disagreed (3) in case of non-availability of fertilisers near the villages.

### Lack of Irrigation Facilities

The surveyed areas exhibit a significant deficiency in irrigation facilities, posing a major challenge to the pineapple farmers. Majority farmers depend exclusively on unpredictable rainfall, leading to frequent crop failures and reduced yields. Existing irrigation infrastructure is often outdated and poorly maintained. This lack of reliable irrigation limits the types of crops that can be grown and hinders the potential for agricultural expansion and economic growth in the region. Combining 'agree' and 'strongly agree', a total of 43% of respondents believe lack of irrigation facilities is a problem. This indicates a broad consensus among the surveyed population that irrigation is a key challenge. The mean score is 3.4 for 'lack of irrigation facilities', which is very high. It reflects that the average response leans more towards agreement. At the same time, SD is 1.421 for lack of irrigation facility, which indicates that there is a wider spread of opinions on this issue compared with the others. While a significant portion agrees with the problem, there is also a considerable number who may disagree or are neutral.

This could suggest disparities in access to existing irrigation, with some farmers potentially better served than others.

### Lack of Labour

Labour is a prime factor of production. Around 45% of respondents strongly disagree that there is a lack of labour, and another 12% disagree. This combined 57% suggests that a majority of farmers surveyed do not perceive labour shortage as a major issue. This is the highest percentage of disagreement across all the issues listed in Table 4. However, a large portion i.e., 22% of respondents strongly agree and 3% agree that there is a lack of labour in the surveyed areas. The mean score of 2.45 for "lack of labor" is the lowest among all the listed issues. This reinforces the interpretation that, on average, respondents lean more towards disagreeing that there is a labour shortage. The SD of 1.598 is the highest among all the issues. The high SD, along with the high disagreement and agreement percentages, indicates that there are strongly opposing views about the availability of labour.

### Lack of Technical Know-How

Technical know-how is crucial for the farmers to thrive in today's agricultural landscape. It empowers them to adopt modern farming techniques, optimise resource utilisation, and improve overall productivity. With technical knowledge, farmers can make informed decisions about land preparation, planting material selection, nutrient management, pest and disease control, and irrigation practices, etc. In the surveyed areas, it is found that a lack of technical know-how is a significant challenge. A substantial 51% of respondents strongly agree that a lack of technical know-how is a big problem, and another 37% agree. This combined 88% agreement is the highest across all the issues presented in the table, demonstrating a strong consensus on this issue. Only 5% of respondents strongly disagree and 4% disagree with the statement. And, 3% of respondents were neutral on the issue, indicating that most people have a clear opinion about the presence or absence of technical know-how. The mean score is 4.25 and SD is 1.048 for lack of technical know-how. It reflects that on average; respondents lean heavily towards agreeing that this is a major problem.

### High Cost of Planting Material

The high cost of planting material in farming is a major challenge that affects agricultural productivity and profitability. In the surveyed areas, the high cost of planting material is a significant concern for the pineapple farmers. Around 14% of respondents strongly agree and 17% agree that the high cost of planting material is a problem. This combined 31% agreement indicates that a substantial portion of the population perceives this as a challenge. The rest of the surveyed farmers are either neutral or disagree. The mean score of 3.18 for 'high cost of planting materials' falls in the mid-range compared with other issues. This reflects the mixed opinions, with a considerable portion agreeing, a large neutral group, and some disagreeing. The SD of 1.077 is relatively low. This indicates that while there are varying opinions, they are not as widely dispersed as some other issues, like the lack of labour.

### Non-Availability of Credit

Credit facilities are crucial for farmers as they provide the necessary financial support to invest in agricultural inputs, machinery, and technology. Access to credit enables farmers to improve productivity, adopt modern farming techniques, and mitigate risks associated with unpredictable weather and market fluctuations. In addition, credit helps small-scale farmers expand their operations, diversify crops, and enhance profitability. Without adequate financing, many farmers struggle with cash flow constraints, leading to lower yields and economic hardship. Table 4 shows that the non-availability of credit is a significant concern for a considerable portion of the surveyed pineapple farmers, although it is not the most pressing issue they face. The responses from the surveyed farmers on the non-availability of credit are quite mixed. Around 3% strongly agree, 36% agree, 23% are neutral, 9% disagree, and 29% strongly disagree with the statement. This distribution suggests that access to credit varies significantly among the respondents. The mean score of 2.75 for 'non-availability of credit' is relatively low compared with other issues such as lack of technical know-how. This indicates that while credit access is a concern, it is not perceived as critically as some other challenges. The SD is 1.298, which indicates that some are facing significant difficulties while others have less trouble securing credit.

### High Cost of Borrowing

Cost of borrowing is an important factor for the farmers. It connects with the production of the farmers. If cost of borrowing is high then farmers are discouraged to do or enhance the production level. In the surveyed areas, it is observed that the high cost of borrowing is a significant concern for a considerable portion of the surveyed pineapple farmers. A notable 18% of respondents strongly agree and 42% agree that the high cost of borrowing is a problem. This combined 60% agreement suggests that a majority of those surveyed perceive this as a challenge. However, 27% of respondents are neutral on this issue, suggesting that they may not be actively seeking loans or have not experienced the high cost of borrowing directly or size of land is marginal, etc. The mean score is 3.54, reflecting the strong agreement with the issue and SD is 1.15, indicating some variation in opinions but a general consensus that borrowing costs are high for the farmers.

### Various Diseases in Pineapple

Diseases in pineapple products are an important issue for the surveyed farmers although not as major a problem as some other challenges. Around 12% of respondents strongly agree and 40% agree that various diseases in pineapple are a problem. This combined 52% agreement indicates that a considerable portion of the population perceives this as a challenge. However, 26% of respondents are neutral on this issue, suggesting that they may not have experienced significant disease outbreaks or have effective management strategies in place. The mean score is 3.31 and reflects the moderate agreement with this issue and SD is 1.161, which indicates that diseases are an important issue.

### Absence of Regular Market

Study found that the absence of a regular market is a critical and overwhelming concern for the surveyed pineapple farmers. This is arguably the most significant issue they face. Around 78% of respondents strongly agree that the absence of a regular market is a problem, and another 20% agree. This combined 98% agreement is the highest across all the issues presented in Table 4, demonstrating a near-universal consensus on this issue. However, only 1% of respondents are neutral, and virtually no one disagrees. This minimal disagreement further emphasises the widespread recognition of the lack of a

regular market. The mean score of 4.74 for 'absence of regular market' is the highest among all the listed issues, and indicates that on average respondents lean extremely heavily towards agreeing that this is a major problem. However, the SD (0.579) as expected is the lowest among all the issues. This indicates an exceptionally high degree of consensus among respondents about the absence of a regular market, as the opinions are clustered very closely around the extremely high mean score.

### **Fluctuating Price of Pineapples**

The fluctuating price of pineapple is a significant challenge for farmers, impacting their income and stability. In the surveyed villages, fluctuating pineapple prices are a significant concern for the pineapple farmers. Around 50% of respondents strongly agree and 25% agree that fluctuating pineapple prices are a problem. This combined 75% agreement highlights the widespread impact of price volatility on the farmers. However, very few farmers i.e., 20% are unaffected by price fluctuations and 5% are neutral on this issue. The mean score is 3.86, and indicates that surveyed farmers are in strong agreement with this issue. The SD is 1.518, and reflects that the impact of price fluctuations varies among farmers. It may be due to factors such as farm size, market access, or production practices.

### **Problems in Grading Facility**

Pineapple farmers often face challenges due to the lack of proper grading facilities, which affects the quality and market value of their produce. In the surveyed areas, problems with grading facilities are a significant concern for the surveyed pineapple farmers. Around 58% of respondents strongly agree and 26% agree that problems in grading facilities are an issue. This combined 84% agreement underscores the widespread dissatisfaction with the existing grading infrastructure. Only 5% farmers found the grading facilities satisfactory. The mean score is 4.33, and indicates the strong agreement on the issue and the SD is 0.995, which reflects a high degree of consensus among the respondents regarding the problems with grading facilities.

### **Lack of Storage Facility**

The lack of adequate storage facilities poses a significant challenge for pineapple farmers, leading to substantial

post-harvest losses and reduced profitability. Pineapples are highly perishable fruits that require proper storage conditions to maintain their freshness and quality. It is observed that majority farmers i.e., 84% accept that the lack of storage facility was a significant challenge. However, very few farmers i.e., 6% disagreed or strongly disagreed with the statement and 10% were neutral. The mean score is 4.52, which indicates a high level of agreement on this issue. The SD is 1, and reflects strong consensus about the lack of storage being a problem.

### **Delay of Payment by Agents or Wholesalers**

Generally, delay of payment by agents or wholesalers poses a significant challenge for farmers, impacting their financial stability and overall productivity. In the study areas, a large number of farmers find delayed payments to be a problem. Around 86% pineapple farmers faced the challenges of late payment by the agents or wholesalers. However, 4% farmers disagree and none strongly disagree. This further emphasises that delayed payments are a common issue. Only 10% farmers were neutral, which reflects that they have not experienced significant delays, have alternative income sources, or are unsure about the impact of payment delays. The mean score is 4.12 and SD is 0.891. It indicates a relatively strong consensus among the farmers regarding the issue of delayed payments.

### **Problems of Weight Measurement**

It is often observed that farmers often face significant challenges in accurately measuring the weight of their produce due to lack of access to a precise weighing equipment. In the surveyed villages, a considerable number of farmers experience problems with weight measurement. Around 40% farmers agreed and 27% strongly agreed that lack of weight management is a significant issue for them. Only 11% farmers disagreed with the statement, and 1% strongly disagreed with this issue. However, 21% farmers were neutral on this issue. It indicates that they have not faced significant problems with weight measurement, were unsure about its accuracy, or have found ways to mitigate the issue. The mean score is 3.71 and SD is 1.2, which reflects that some farmers might face more significant problems with weight measurement than others. It is not as severe as some other issues.

### Non-Availability of Market Information

It is known that about the importance or connection of a regular market for the farmers. Similarly, availability of market information is also a significant factor for the farmers. It is observed that 91% farmers strongly agree that the lack of market information is a problem. Only 1 farmer disagrees and none strongly disagree with this issue. However, 5% farmers chose a neutral response in the surveyed areas. The mean score is 4.84 and SD is very low i.e., 0.545. This issue has the highest agreement level among all the problems listed in the table, which indicates that this is a significant problem for the surveyed farmers.

### Communication Problems with Others

Farmers often face significant communication challenges in the market, which hinder their ability to get fair prices and sell their produce effectively. In the surveyed areas, a significant number of farmers disagree or strongly disagree with this statement. Around 31% farmers strongly disagreed and 15% disagreed, which indicates that a substantial portion of farmers do not perceive communication as a major obstacle. There is a moderate level of concern about communication problems i.e.,

around 33%. Only 21% farmers were neutral. This could indicate they have infrequent interactions with outsiders, use intermediaries, or are unsure about the impact of communication challenges. The mean score is 2.64, which reflects the higher levels of disagreement and the SD is 1.36.

### Unable to Sell in Bulk

Farmers often face challenges in selling their produce in bulk due to several market constraints. However, in the surveyed areas around 11% farmers strongly disagreed. It represents that they do not face difficulty selling their produce in bulk. This could indicate they have established markets or sell to larger buyers. However, 5% farmers disagreed and found it a problem to sell in bulk in the market. On the other hand, 7% farmers agreed and 39% farmers strongly agreed with this issue. They faced challenges to sell in bulk in the market or limitations in accessing larger markets or buyers. Around 38% surveyed farmers were neutral on this problem. It may be due to selling a mix of bulk and smaller quantities, or they might not prioritise bulk sales. The mean score is 3.58 and SD is 1.342. It reflects that some farmers have issues with selling their produce in bulk and some have no issues.

**Table 4: Challenges Faced by Pineapple Farmers in the Study Areas**

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Non-Availability of Plant Materials	9	6	60	24	1	3.02	0.841
Non-availability of fertilisers	14	3	56	9	18	3.14	1.181
Lack of irrigation facilities	17	3	37	9	34	3.4	1.421
Lack of labour	45	12	18	3	22	2.45	1.598
Lack of technical know-how	5	4	3	37	51	4.25	1.048
High Cost of Planting Materials	9	9	51	17	14	3.18	1.077
Non-availability of credit	29	9	23	36	3	2.75	1.298
High cost of borrowing	11	2	27	42	18	3.54	1.15
Various diseases in pineapple	11	11	26	40	12	3.31	1.161
Absence of regular market	1	0	1	20	78	4.74	0.579
Fluctuating price of pineapples	19	1	5	25	50	3.86	1.518
Problems in grading facility	4	1	11	26	58	4.33	0.995
Lack of storage facility	3	3	10	7	77	4.52	1
Delay of payment by agents or wholesalers	4	0	10	52	34	4.12	0.891
Problems of weight measurement	11	1	21	40	27	3.71	1.2
Non-availability of market information	0	1	5	3	91	4.84	0.545
Communication problems with outsiders	31	15	21	25	8	2.64	1.36
Unable to sell in bulk	11	5	38	7	39	3.58	1.342

Source: Calculated by author.

## Conclusion

The study showed the low level of schooling and kutcha housing lead to economic vulnerability, while small land allocations for pineapple farming indicate the challenges related to market access, profitability from farming, and so on. It is found that four marketing channels are operating in the surveyed areas. Farmers used different channels based on their farm size, resource availability, market accessibility, and so on. Among the identified channels, Channel II, i.e., Farmers to Local Agents to Wholesaler (on the road sides or semi-urban market) to Retailers (distant market or town or cities) to Consumers emerged as the most efficient and preferred option, with the majority of farmers selling their produce to local agents due to convenience, bulk selling opportunities, and reduced transportation costs. The limited access to direct markets, high transportation costs, and lack of market information further constrain farmers' ability to secure fair prices. On the other hand, a number of challenges are faced by pineapple farmers in the surveyed areas, particularly in marketing and post-harvest management. The most critical constraints include the absence of a regular market, lack of market information, inadequate grading facilities, and insufficient storage infrastructure, which directly impact farmers' ability to sell their produce efficiently. In addition, financial constraints such as fluctuating prices, high cost of borrowing, and issues in weight measurement further reduce profitability. Technical challenges such as lack of irrigation facilities and non-availability of fertilisers pose moderate difficulties, while the lack of technical know-how highlights the need for better training and extension services. These findings suggest that improved marketing channels, co-operative farming, financial support, and modern agricultural interventions are expected to enhance the productivity and economic well-being of pineapple farmers in the region.

## References

- Abera, B. (2018). Challenges of mango fruit marketing: A case of selected Kebeles in Assosa district, Benishangul Gumuz region, Western Ethiopia. *Singaporean Journal of Business Economics and Management Studies*, 6(8), 57–64. doi:<https://doi.org/10.12816/0048620>
- Aga, M. (2018). Constraints, challenges and opportunities of horticultural crops marketing in Ambo town, Ethiopia. *International Journal of Innovative Research and Development*, 7(5), 29–35. doi:<https://doi.org/10.24940/ijird/2018/v7/i5/APR18030>
- Bora, A. K. (1989). *Horticulture and development in North Eastern region: Problems and prospects*. Shillong: North Eastern Council.
- Chikkalaki, A., & Krishnamurthy, B. (2023). Constraints and suggestions of fruit crop growers of Vijayapura district, India. *International Journal of Environment and Climate Change*, 13(12), 1159–1165. doi:<https://doi.org/10.9734/ijecc/2023/v13i123780>
- De, L. C. (2018). Organic production of horticultural crops in North East region of India. *International Journal of Horticulture*, 8(16), 184–196. doi:<https://doi.org/10.5376/ijh.2018.08.0016>
- Jamir, I. T., & Ezung, T. Z. (2024). Challenges and opportunities in pineapple and cabbage cultivation in Nagaland: A Garrett ranking analysis. *Asian Journal of Agricultural Extension, Economics & Sociology*, 42(12), 193–202. Retrieved from doi:<https://doi.org/10.9734/ajaees/2024/v42i122646>
- Krishna Kanta Handiqui State Open University. (2023). *Regional economy of North East India (2023–24 Report)*. Retrieved from <https://kkhsou.ac.in/eservices/aqar/2023-24/cpanel/UploadedFiles/2024-25/58/2.4.4.pdf>
- Ministry of Agriculture and Farmers Welfare, Department of Agriculture, Cooperation & Farmers Welfare, Horticulture Statistics Division, Government of India. *Horticulture Statistics at a Glance 2018*. New Delhi.
- Ministry of Food Processing Industries, Government of India. (2015). Study Report on to set up the food processing industries in the State of Assam, Mizoram & Tripura. NERAMAC (Guwahati). Retrieved from <https://www.mofpi.gov.in/sites/default/files/other-study-neramac-final>.
- Mir, S. M. (2014). Problems of apple industry in J&K with special reference to Sopore town. *International Journal in Management and Social Science*, 2(3), 33–46.
- Ministry of Home Affairs, Government of India, Office of the Registrar General & Census Commissioner, India. (2011). *Census of India 2011: Provisional Population Totals*. New Delhi. Retrieved from <https://censusindia.gov.in>
- North Eastern Council. (2008). *North Eastern Region Vision 2020*. Government of India. Retrieved from

- [https://necouncil.gov.in/sites/default/files/about-us/Vision\\_2020.pdf](https://necouncil.gov.in/sites/default/files/about-us/Vision_2020.pdf)
- Roy, P., & Ghose, S. (2022). Perceived marketing system effectiveness by pineapple Growers in Tripura. *Indian Journal of Extension Education*, 58(9), 24–28. Retrieved from doi:<https://doi.org/10.48165/IJEE.2022.58305>
- Shohe, A. T., Hazarika, C., Borah, A., Chiphang, S., & Singh, S. P. (2025). Economics and constraints analysis of pineapple cultivation in Assam. *Agricultural Science Digest*. doi:<https://doi.org/10.18805/ag.D-6221>
- Tadesse, B., Tilahun, Y., Bekele, T., & Mekonen, G. (2021). Assessment of challenges of crop production and marketing in Bench-Sheko, Kaffa, Sheka, and West-Omo zones of Southwest Ethiopia. *Heliyon*, 7. Retrieved from doi:<https://doi.org/10.1016/j.heliyon.2021.e07319>
- Nahar, A., Saili, A. R., Hamzah, N. M., Abdul Fatah, F., Yusop, Z., & Kamarul Zaman, N. B. (2020). Challenges in marketing channel selection by smallholder pineapple growers in Samarahan, Sarawak, Malaysia. *Food Research*, 77–85. Retrieved from doi:[https://doi.org/10.26656/fr.2017.4\(S5\).020](https://doi.org/10.26656/fr.2017.4(S5).020)
- Sharat, M. P., & Rathod, S. (2022). A study on marketing challenges faced by mango farmers in the Gadag district. *GBS Impact: Journal of Multi-Disciplinary Research*, 8(1), 51–62. Retrieved from doi:<https://doi.org/10.58419/gbs.v8i1.812206>