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An analysis of constraints in the adoption of recommended practices in pineapple cultivation in Manipur state (India)

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Abstract

A study was conducted to identify the constraints experienced by pineapple growers in adopting recommended practices in pineapple cultivation in Manipur state, using a random sample of 300 respondents and an ex-post facto research design. The study is categorized into five groups, namely 'Personal Constraints', 'Socio-Economic Constraints', 'Technological Constraints', 'Market Constraints' and 'Institutional Constraints'. A total of 21 statements were prepared across these five dimensions, and the survey was conducted among pineapple growers. The findings revealed that low extension contact, lack of credit facilities, lack of group approach, lack of suitable technologies, lack of cold storage facilities and processing units, price fluctuation, insufficient training programmes and demonstrations, non-availability of crop insurance, shortage of extension staff, weak extension system and lack of subsidy for inputs etc. were some of the major constraints perceived by the respondents in the adoption of recommended practices in pineapple cultivation in Manipur.

Keywords: Problems, pineapple, Manipur and Garrett ranking technique

Introduction

Pineapple originated in Brazil and gradually spread to other regions of the world. Global Pineapple Production in 2023 estimates that 28.65 million metric tons of pineapples are expected to be produced worldwide. Due to its superior flavor and taste, pineapple is known as the queen of tropical fruits and is one of the most significant commercial fruit crops in the world. An annual increase in pineapple demand is observed. With a productivity of 15.3 t/ha, India currently produces 1.53 million tons of pineapple (GOA 2013). In India, the states that grow pineapples the most are West Bengal, Assam, Bihar, Nagaland, Meghalaya, Manipur, Tripura, Arunachal Pradesh, Goa, and Kerala on a large scale, and Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, Orissa, and Uttar Pradesh on a smaller scale (Anonymous). Many Indigenous people with a diversity of cultural, political, social, and economic values live in the northeastern states of India. The area is known as a biodiversity hotspot for numerous crops due to its abundance of flora and fauna. Due to its abundance of Indigenous socio-economic agricultural aspects, the North-Eastern region has enormous potential for expansion and development in agriculture and related sectors. According to Pongener and Sharma (2018)^[11], the majority of agricultural land is designated as "Organic by Default," and several states are even regarded as having minimal or no inorganic user populations. About 49 per cent of all pineapples grown in India are produced in the country's northeastern area.

Because of its healthy soil and climate, Manipur is also one of the states that produce the most pineapples. Pineapple cultivation is year-round in Manipur due to the region's broad agro-climatic conditions. The summer and winter seasons have sunshine, with an average temperature between 20 and 36 °C. Processing is appropriate because the "Kew" variety is larger and juicier. However, due to its smaller size and very sweet flavor, the "Queen" is suitable for use at tables. About 2,450 hectares of land are under pineapple cultivation in Manipur, with the production of 52,825 tonnes of pineapple fruits. The average yield is 21.56 tonnes/ha as against 40-50 tonnes yield potential (Anonymous, 2023)^[18]. The pineapple farmers are experiencing a lot of constraints in the production and marketing of pineapple. In this study, an attempt is made to analyse the constraints experienced by the pineapple farmers in the adoption of recommended cultivation practices and marketing.

Methodology

The present study was carried out in the three districts of Manipur State. Among the 16 Districts, three districts, namely "Imphal East", "Thoubal" and "Kangpokpi" were selected purposively as they had the maximum number of pineapple growers. A sample size of 300 respondents was selected from fourteen selected villages from these three districts by using the proportionate random sampling method. An ex-post facto research design was adopted in

this study. The respondents were asked to mention the constraints, and the expressed constraint data were coded, tabulated, and analysed using frequency, percentage, and Garrett Ranking method.

Results and Discussion

The major constraints experienced during the study period are categorized into five groups, namely 'Personal Constraints', 'Socio-Economic Constraints', 'Technological Constraints', 'Market Constraints' and 'Institutional Constraints'. A total of 21 statements were prepared from the five groups and the survey was conducted among the farmers. The respondents were asked to indicate the constraints experienced by them in the adoption of recommended technologies.

Overall constraints experienced by the recommended pineapple growers

Table 1: Overall constraints experienced by the recommended pineapple growers (n=300)

Sl. No	Overall Constraints	Percentage	Rank
1	Market constraints	85.13	I
2	Institutional constraints	83.32	II
3	Socio-economic constraints	49.83	III
4	Personal constraints	49.33	IV
5	Technological constraints	47.74	V
Mean percentage		63.07	

Table 1 shows the percentage of overall constraints experienced by the recommended pineapple growers. A total of 21 statements were analysed from those groups to determine the overall constraints in five categories. Around 63.07 per cent of the pineapple growers had experienced the constraints. Table 1 stated that 'Market constraints' (85.13 per cent) were the primary constraint for the pineapple growers, followed by 'Institutional constraints' (83.32 per cent), 'Socio-economic constraints' (49.83 per cent), 'Personal constraints' (49.33 per cent) and 'Technological constraints' (47.74 per cent), as reported by the pineapple growers.

Table 2: Personal constraints experienced by the pineapple growers (n=300)

A.	Personal Constraints			
Sl. No	Statements	Frequency	Percentage	Rank
1.	Low extension contact	175	58.33	I
2.	Land tenure system	121	40.33	II
Mean percentage			49.33	

It can be observed from Table 2 that the personal constraints of the pineapple growers were analysed with two

statements. The overall personal constraint was 49.33 percent. Among them, the majority (58.33 per cent) of the pineapple growers reported 'low extension contact' as the primary constraint in this category. The reason might be due to less focus from the state horticulture department and a lack of information for farmers. This finding is in accordance with the findings of Kamal *et al.* (2020) ^[19]. However, the other personal constraint was the 'land tenure system' (40.33 per cent), as reported by the pineapple growers in this category. This finding derives support from earlier findings of Richard *et al.* (2022) ^[20].

Table 3: Socio-economic constraints experienced by the pineapple growers (n=300)

B.	Socio-economic constraints			
Sl. No	Statements	Frequency	Percentage	Rank
1.	Lack of credit facilities	235	78.33	I
2.	Lack of group approach	203	67.66	II
3.	High cost of inputs	151	50.33	III
4.	High cost of labour wages	150	50.00	IV
5.	Labour scarcity	120	40.00	V
6.	No social relations with neighboring farmers	38	12.66	VI
Mean percentage			49.83	

Five statements have been used to analyse the socio-economic constraints faced by the pineapple growers. From Table 3, it was noted that the overall socio-economic constraint faced by pineapple growers is 49.83 per cent. The most prevalent socio-economic constraint identified by the pineapple producers was "lack of credit facilities," as reported by 78.33 per cent of the respondents. The fact that the farmers had no financial support from government agencies or other organisations might be the cause of this. The findings correlate with the studies done by Roy and Bandyopadhyay in (2019) ^[13]. "Lack of group approach" was identified as the next constraint by 67.66 per cent of respondents; the reason might be a lack of cooperation among the community. The result accorded with the outcomes of Kumar *et al* (2020) ^[9] in their research. "High cost of inputs" (50.33 per cent), "High cost of labour wages" (50.00 per cent), "Labour scarcity (40.00 per cent), and "No social relations with neighboring farmers" (12.66 per cent) were the other socioeconomic constraints. Most of the respondents expressed that nowadays the agricultural labourers are demanding higher wages irrespective of the nature of work and are not available in the needed season. In addition, sometimes due to the shortage of inputs, the traders sell their inputs at high cost. Hence, it leads to a high cost of production. The finding is in accordance with the findings of Termaric and Sudhakar (2014) ^[15].

Table 4: Technological constraints experienced by the pineapple growers (n=300)

C.	Technological constraints			
Sl. No	Statements	Frequency	Percentage	Rank
1.	Lack of suitable technology	260	86.66	I
2.	Lack of knowledge in technology	195	65.00	II
3.	Lack of technical help from change agents	93	31.00	III
4.	Lack of quality planting materials	25	08.33	IV
Mean percentage			47.74	

In Table 4, it was observed. Four statements were used to investigate the technological constraints that pineapple growers experienced. The overall technological constraint among pineapple growers was 47.74 per cent. 'Lack of suitable technology' was the first major constraint, as expressed by 86.66 per cent of the respondents. The reason may be poor agricultural extension support to farmers. When extension services are performing below expectations, farmers, including pineapple growers, find it difficult to make reasonable progress in their production activities. The results were consistent with those of a research study done by Iwuchukwu *et al.* (2017) [8]. Following that, 'lack of knowledge in technology' (65.00 per cent) was the second technological constraint as expressed by the respondents. The lack of confidence, weak extension contact, insufficient agricultural programming in print and radio media, farm and house visits, lack of

technological expertise, and poor understanding of suggested practices may be reasons for this. This result is in line with the study of Venkatram and Mani (2006) [17]. 'Lack of technical help from change agents' (31.00 per cent) was the third technological constraint expressed by the respondents. The probable reasons might be a lack of knowledge. The results were consistent with those of a research done by Amod *et al.* (2016) [21]. And Th. Motilal and Amond (2020) [22]. 'Lack of quality planting materials' is the fourth technology constraint mentioned by the respondents 08.33 per cent. Good quality is a must for getting high yields; the farmers could not get high yields because they used the suckers of their own field year after year. They need good quality suckers, but they could not get them. This finding is in line with the findings of Misra (2001) [10].

Table 5: Market constraints experienced by the pineapple growers (n=300)

D.	Market constraints			
Sl. No	Statements	Frequency	Percentage	Rank
1.	Lack of cold storage facilities	300	100.00	I
2.	Lack of processing units	292	97.33	II
3.	Price fluctuation	278	92.66	III
4.	High involvement of middlemen intervention	220	73.33	IV
5.	Lack of transport facilities	187	62.33	V
	Mean percentage		85.13	

Table 5 shows the five dimension statements that the pineapple farmers used to describe the market constraints they experienced. The overall market constraint for pineapple farmers was 85.13 per cent. All respondents stated that the first and most important problem with marketing was "lack of cold storage facilities." Cold storage facilities are required when they are generated in excess. However, there are no cold storage facilities available to store the pineapples. This restriction leads to increased waste and low net returns. The results are consistent with the research conducted by Sakthiganesh and Dineshkumar (2022) [14]. The second market constraint, mentioned by 97.33 per cent of the respondents, was "lack of processing units." Ignorance might be the cause of this limitation because there are no training programmes, and the high cost of inputs makes them unaffordable. The results are

consistent with those of a research done by Amod *et al.* (2016) [21]. The third constraint that 92.66 per cent of the respondents mentioned was "price fluctuation. "Pineapple prices fluctuate daily due to seasonal demand. The farmers were unable to receive satisfactory returns as a result of the price fluctuations. The finding derives support from the findings of Sakthiganesh and Dineshkumar (2022) [14]. 'High involvement of middlemen intervention' (73.33 per cent) was the fourth constraint faced by the pineapple growers. This finding is in line with the findings of Bidyapati and Jha (2020) [4] and Amod *et al.* (2016) [21]. The other market constraint reported was 'Lack of transport facility' (62.33 per cent). High transportation charges and the unavailability of quick and timely transportation possibilities might be the reasons for this constraint. This finding is consistent with the findings of Th. Motilal and Amond (2020) [22].

Table 6: Institutional constraints experienced by the pineapple growers (n=300)

E.	Institutional constraints			
Sl. No	Statements	Frequency	Percentage	Rank
1.	Non- availability of crop insurance	300	100.0	I
2.	Insufficient training programmes and demonstrations	275	91.66	II
3.	Lack of subsidy for inputs	250	83.33	III
4.	Shortage of extension staff	175	58.33	IV
	Mean percentage		83.32	

Table 6 depicts that the 'institutional constraints' faced by the pineapple growers are reviewed using five different statements. The overall institutional constraint faced by pineapple growers in this category is about 83.32 per cent. All the respondents expressed that 'Non-availability of crop insurance' was the first and most important institutional constraint and the second institution constraints 91.66 per cent: 'insufficient training programme and demonstrations'.

The reason might be they did not know the actual potential and utility of the recommended practices due to lack of training programmes. The farmers need adequate training on some of the aspects, viz., nursery management, weedicide application, fertilizer application, and pest and disease management. This finding is consistent with previous findings of Termaric and Sudhakar (2014) [15]. Following that, 'Lack of subsidy for inputs' (83.33 per cent) and

'Shortage of extension staff' (58.33 per cent) were the institutional constraints which were expressed by the respondents. The government needs to take the lead in offering farmers in the area crop insurance, extension agents, and personnel. More agricultural programming should be broadcast on radio and television by media owners, who should also make sure that the programmes are broadcast at times that are convenient for farmers. The study findings were consistent with those of Irom *et al.*, (2022)^[23].

Conclusion

From the study, it may be concluded that some of the primary challenges to the adoption of recommended practices in pineapples cultivation in Manipur State, as perceived by the respondents, were low extension contact, lack of credit facilities, lack of group approach, lack of appropriate technologies, lack of cold storage facilities and processing units, price fluctuation, lack of crop insurance, lack of extension staff, weak extension system, lack of input subsidies, etc. The Directorate of Horticulture, policy makers, extension agents, researchers, non-governmental organisations, and other interested parties can work together to develop effective strategies and provide the necessary inputs, more awareness programmes, and training in these areas that will increase the productivity, marketing, and production of pineapples in the state. This would help to improve the socioeconomic status of pineapple growers in Manipur State.

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