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Constraints Faced by the Pineapple Crop Growers at Various Levels of Farms in Selected Districts of Nagaland and Manipur States

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A B S T R A C T

In India, agriculture is important occupation of which 52.00 per cent of the people depend for their livelihood. Although agriculture dominates the primary sector however it has not reached its potential level, since most of the farmers use traditional technology, slow adoption of modern and proven technologies which impaired productivity and results in lower standard living of the framers in the region. The proposed study comprises both primary and secondary data have been collected. The primary relevant information of the proposed study has been collected by adopting personal interview method from the selected farm households in the study area for agricultural year 2016 to 2018. The present study identified the major production and marketing constraints faced by the horticultural growers in the different location of the Nagaland and Manipur both the states across the categories.

Introduction

Village-Community System of farming exists in different parts of the world becomes an indispensable part if the concept of sustainability arises. Different Taboos or culture and practices have been maintain in certain agricultural heritage site of the world and this heritage becomes the basis for their social, economic life since time immoral *(Small Holders farming Mechanism).*

Back to our nation, India's agricultural scenario was also facing the problems of population growth, post Independence political dilemma across the union of India and the great Famine during the two decades had led to the rise of Green Revolution in the 60s. With these, agricultural modernization emerged and the India's food grains production figure became almost the doubled. Agriculture infrastructural development had given priorities during the India's Five Years Plan and resulted in a positive impact on the production scenario of the nation till she witnessed an irregular and sharp declined in the production and productivity level of some major food crops. Eminent Scientists, Experts, Policy makers & Planners and different Stakeholders reveals that the country un-sustainability like scenario in the entire agricultural system may be attributed by

many factors such as injudicious use of synthetic inorganic inputs in the production processes, deterioration of natural resources and society-triggered climate change phenomena.

It is also estimated that the India's population will reach 1.2 billion by 2030. Again with the advancement of Health Sciences, Indian consumers are realizing on the healthy food for the future perspectives. The present Government of India also emphasizes on the Doubling of Farm Income through various technologies intervention on sustainable approach by 2022. Bringing or balancing the entire scenario on the sustainable basis requires integrated and cumulative efforts of different Stakeholders from Top to Bottom or Bottom to Top approach through indebt study and understanding of the present existing systems and their nature of resource management patterns.

Again focusing on the North Eastern India, the total agricultural scenario is quite peculiar and can be differentiated from the agricultural system of Northern, Central and Southern India's agricultural practices or patterns. The entire region comprises of seven hilly states vizely Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura.

Materials and Methods

The present study has been carried out in Manipur and Nagaland both state in consultation with the organizations and the line-departments working in the field of Organic farming at the first and secondly the feasibility of the researcher. A multi-stage-random sampling technique has been used for the selection of sample units. Both purposive and cluster sampling method have been used for the selection districts, blocks and surveyed of the sample sizes.

In the first stage of sampling, selection of district has been carried out. Dimapur and Kohima districts from Nagaland and Senapati and Thoubal districts from Manipur were selected purposively for the study because of its popularity and production of major horticultural crops in the District.

In the second stage of sampling, block having highest acreage and production of major horticultural crops under the selected district have been selected with the help of District Agriculture Department and other reputed institutes. Kohima and Medziphema from Nagaland and Thoubal & Mao-Maram blocks from Manipur were purposively selected to get the desire information on the above objectives.

In the third stage of sampling plan, a list of villages under the selected block was prepared with the help of Block Development Officer / District Agriculture Department and ICAR institutes. From the villages available in this concerned district, villages which have popularity and production of major horticultural crops were randomly selected for further selection of respondent farmers by using simple random sampling without replacement. Accordingly, Medziphema and Jakhama from Nagaland and Phikomai; Kalinamei and Waithou Chiru were selected for the study.

In the fourth stage of sampling plan, with the help of the selected villages, authority (Headman) and KVKs institutes, the farmers who cultivate pineapple and potato were analysed and from these villages, 300 farmers (150 respondent farmers from Manipur and 150 respondent farmers from Nagaland) were selected for each crop (i.e 75 farmers/ crop) for the data collection of the above crops. From the prepared farmers list, by adopting stratified random sampling, proportional allocation and cluster sampling techniques,

the respondent farmers were drawn for collection of information using pre-tested schedule.

The categorizations of household farmers into marginal, small and medium group were done on the basis of their operational land holdings as follows:

Marginal : Less than ha
Small : 1.01 to 2 ha
Medium : 2.01 & above.

A complete list of farmers along with their holding size was prepared from each of the selected villages with the help of village headman / Chairman / pradhan of the respective villages. While preparing the list due consideration was given to those farmers who have devoted at least twenty percent of their net sown area to the particular selected vegetables for inclusion in the final list of the selected household. In the third stage farmers was selected randomly each from a selected village to get optimum sample size. Finally, the farmer respondents were classified into different categories or marginal, small and medium size groups.

To determine the optimum sample size two step approaches was be used, first a preliminary sample size was selected using simple random sampling without replacement (SRSWOR) to estimate the population parameter values, which in turn was used to determine the final sample size. Secondly, the preliminary sample was augmented by drawing additional units from the population so that the size of the augmented sample is same as the required sample size (Ravindra and Nauran 1975).

Let n1 be the size of preliminary sample selected using simple random sampling without replacement (SRSWOR) then sample mean square.

$$S_1^2 = \frac{n_1}{n_1 - 1} \sum i = 1 (y_i - y_1)^2$$

Table 9. n_1

Where, $y = \frac{}{N_1} - \sum_{i=1}$ is the preliminary sample mean.

Sample size required for estimating population mean with permissible error B is given by;

$$n = \frac{N S_1^2}{ND + S_1^2}$$

Where, $D = \frac{B^2}{4}$ and N= size of the population i.e., total number of vegetable Growing farmers.

Results and Discussion

The major production constraints faced by the horticultural growers in the different location of the state across the categories were recommended that documentation of the activities encouraged during the adoption of farm activities and further to increase the farm efficiency. There are many major constraints depends upon the location and crops selected during the years, however the major horticultural growers during study period time for the production related issues are of six (6) are types as major sub-constraints viz; seed related**,** labour related, irrigation related, manure and fertilizer related and plant protection measures related and other related constraints / issues.

Table 1 reveals the constraints faced by the respondent farmers in the production of the selected crops have been calculated and ranked using Garette ranking technique or

conventional technique. Possible solutions of the problems will be identified to enhance productivity of the crops by the respondent farmers. The major constraints faced during the production of the major horticultural crop growers in the Nagaland state, it was seed related issues with highest for low reliability with 67.00 per cent growers and it was found to be lowest with 39.00 per cent for price are high. Even for the labour related issues maximum was found with 56.00 per cent on skilled labour are not available in time and it was found to be minimum with 44.00 per cent for high wage rates. For irrigation related issues it was found to be maximum with 53.00 per cent for the irrigation facility not reliable and minimum 45.00 per cent it was for the irrigation facility not available. While for the manure and fertilizer related issues it was found to be maximum for the inorganic fertilizers are not suitable with 70.00 per cent and it was found to be minimum with 41.00 per cent with high transportation costs. Whereas the plant protection measures related issues was found to be maximum with 63.00 per cent, are facing due to lack of knowledge about chemicals and it was found to be minimum with 39.00 per cent were in the opinion it was due to the high prices. Further other related constraints faced was the growers was found to be maximum of pest and disease related issues with 72.00 per cent and it was minimum is due to the weeds related problems with 31.00 per cent, respectively. The similar study and recommendation has been suggested by the Sharma *et al.*, (2000); Jamir and Sharma (2012); Sharma (2014); Vengoto and Sharma (2018); Yadav and Sharma (2019) for achieving the desired objectives and augments in the support of the farmer's production efficiency in the region.

Table 2 reveals that the major constraints faced during the production of the major horticultural crop growers in the Manipur state, it was seed related issues, it was found to be highest for low reliability with 61.00 per cent growers and it was found to be lowest with 38.00 per cent for price are high. Even for the labour related issues maximum was found with 53.00 per cent on skilled labour are not available in time and it was found to be minimum with 42.00 per cent for high wage rates. For irrigation related issues it was found to be maximum with 54.00 per cent for the irrigation facility not reliable and minimum 46.00 per cent it was for the irrigation facility not available. While for the manure and fertilizer related issues it was found to be maximum for the inorganic fertilizers are not suitable with 66.00 per cent and it was found to be minimum with 41.00 per cent with high transportation costs. Whereas the plant protection measures related issues was found to be maximum with 75.00 per cent, are facing due to lack of knowledge about chemicals and it was found to be minimum with 24.00 per cent were in the opinion it was due to the high prices. Further other related constraints faced was the growers was found to be maximum of pest and disease related issues with 72.00 per cent and it was minimum is due to the weeds related problems with 47.00 per cent, respectively. The similar study and recommendation has been suggested by the Sharma and Singh (2001); Sharma (2011); Kent and Sharma (2014); Choudhary *et al.*, (2017); Sharma *et al*, (2018); Kulshrestha *et al.*, (2020) for achieving the desired objectives and augments in the support of the farmer's production efficiency in the region.

The major marketing constraints faced by the horticultural growers in the different location of the state across the categories were recommended that documentation of the activities encouraged during the adoption of farm activities and further to increase the farm efficiency. There are many major constraints depends upon the location, types of markets

and crops deals / selected during the agricultural year, however the major horticultural growers faced during study period time for the marketing related issues are of seven (7) types as major sub-constraints viz; grading related, packaging related, transportation related, weighting related, marketing information related and other related constraints / issues.

Table.1 Production problems faced by the pineapple growers in Nagaland (n=150)

Sl. No	Problem/ Constraints	Total Score	Average Score	Garrett ranking
1	**Seed related**			
a.	Low reliability	925	67.00	I
b.	Quality of the seed not good	2775	47.00	II
c.	Not Available in time	2825	46.00	III
d.	Price are high	**3475**	39.00	IV
2.	**Labour related**			
a.	Skilled labour not available in time	1833.33	56.00	I
b.	Unskilled labour not available in time	2633.33	48.00	II
c.	High wage rates	3033.33	44.00	III
3.	**Irrigation related**			
a.	Irrigation facility not reliable	2166.67	53.00	I
b.	Perennial sources are not available	2366.67	51.00	II
c.	Irrigation facility not available	2966.67	45.00	III
4.	**Manures & Fertilizers related**			
a	Inorganic fertilizers are not suitable	740.00	70.00	I
b	Desired brand not available	2220.00	52.00	II
c	Not available at proper time	3060.00	44.00	III
d	High prices of organic sources	3160.00	43.00	IV
e	High transportation costs	3320.00	41.00	V
5.	**PPCs related**			
a	Lack of knowledge about chemicals	1200.00	63.00	I
b	Desired brand not available	2040.00	54.00	II
c	Don’t know proper method of spraying	2380.00	51.00	III
d	Don’t know proper dose, time of application	3400.00	40.00	IV
e	High price	3480.00	39.00	V
6.	**Other related constraints**			
a	Pests & Diseases	625.00	72.00	I
b	Animals	2525.00	49.00	II
c	Anti social & ethnic problems	2750.00	47.00	III
d	Weeds	4100.00	31.00	IV

Table.2 Production problems faced by the pineapple growers in manipur (n=150)

Sl. No	Problem/ Constraints	Total Score	Average Score	Garrett ranking
1	**Seed related**			
a.	Low reliability	1400	61.00	I
b.	Quality of the seed not good	2450	50.00	II
c.	Not Available in time	2525	49.00	III
d.	Price are high	3625	38.00	IV
2.	**Labour related**			
a.	Unskilled labour not available in time	2100.00	53.00	I
b.	Skilled labour not available in time	2166.67	52.00	II
c.	High wage rates	3233.33	42.00	III
3.	**Irrigation related**			
a	Irrigation facility not reliable	2066.67	54.00	I
b	Perennial sources are not available	2600.00	49.00	II
c	Irrigation facility not available	2833.33	46.00	III
4.	**Manures & Fertilizers related**			
a	Desired brand not available	1040.00	66.00	I
b	Not available at proper time	2280.00	52.00	II
c	Inorganic fertilizers are not suitable	2820.00	46.00	III
d	High transportation costs	3040.00	44.00	IV
e	High prices of organic sources	3320.00	41.00	V
5.	**PPCs related**			
a	Desired brand not available	500.00	75.00	I
b	Lack of knowledge about chemicals	1500.00	60.00	II
c	Don’t know proper method of spraying	2500.00	50.00	III
d	Don’t know proper dose, time of application	3500.00	39.00	IV
e	High price	4500.00	24.00	V
6.	**Other related problems**			
a	Pests & Diseases	625.00	72.00	I
b	Anti social & ethnic problems	2120.00	53.00	II
c	Animals	2620.00	48.00	III
d	Weeds	2760.00	47.00	IV

Table.3 Marketing constraints faced by the pineapple growers in Nagaland (n=150)

Sl. No	Problem / Constraints	Total Score	Average Score	Garrett ranking
1	**Grading related**			
a	Hand grading leads to quality deterioration	625.00	73.00	I
b	Grading standards not specific	3050.00	45.00	II
c	Mechanical grading facilities not available	3100.00	44.00	III
d	Grading by hand is costly	3225.00	42.00	IV
2.	**Packaging related**			
a	Packing materials not available in time	1900.00	56.00	I
b	Pack of quality packing materials	2600.00	49.00	II
c	Lack of knowledge regarding packaging and packing materials	2725.00	48.00	III
d	Costly packing materials	2775.00	47.00	IV
3.	**Transportation related**			
a	Lack of all weather/ metallic roads	780.00	70.00	I
b	Unauthorized and illegal taxes	1500.00	60.00	II
c	Lack of linking roads	3280.00	42.00	III
d	Quick and timely transportation facilities not available	3420.00	41.00	IV
e	High transportation charges	3520.00	40.00	V
4.	**Weighing related**			
a	Weighing not done accurately	2400.00	51.00	I
b	Use of improper scales	2600.00	49.00	II
5.	**Price related**			
a	Low prices	2200.00	53.00	I
b	No support prices	2433.33	51.00	II
c	Glut in peak marketing season	2866.67	46.00	III
6.	**Market informations related**			
a	No reliable sources of distant market informations	2400.00	51.00	I
b	Lack of timely availability of market news	2600.00	49.00	II
7.	**Other related constraints / issues**			
a	Frequent ban & social boycott	625.00	73.00	I
b	Lack ofcooperations among the producers	2700.00	48.00	II
c	Lack of govt. policies	3000.00	45.00	III
d	Non availability of market shed	3675.00	37.00	IV

Table.4 Marketing constraints face by the pineapple growers in Manipur (n=150)

Sl. No	Problem/ Constraints	Total Score	Average Score	Garrett ranking
1.	**Grading related**			
a	Hand grading leads to quality deterioration	925.00	68.00	I
b	Grading standards not specific	2550.00	49.00	II
c	Grading by hand is costly	3250.00	43.00	III
d	Mechanical grading facilities not available	3275.00	42.00	IV
2.	**Packaging related**			
a	Packing materials not available in time	1800.00	57.00	I
b	Costly packing materials	2550.00	50.00	II
c	Lack of quality packing materials	2725.00	48.00	III
d	Lack of knowledge regarding packaging and packing materials	2925.00	46.00	IV
3.	**Transportation related**			
a	Lack of linking roads	1420.00	61.00	I
b	Quick and timely transportation facilities not available	1840.00	57.00	II
c	Lack of all weather/ metallic roads	2280.00	52.00	III
d	High transportation charges	3400.00	41.00	IV
e	Unauthorized and illegal taxes	3560.00	39.00	V
4.	**Weighing related**			
a	Weighing not done accurately	2050.00	54.00	I
b	Use of improper scales	2950.00	46.00	II
5.	**Price related**			
a	Low prices	2000.00	55.00	I
b	No support prices	2700.00	48.00	II
c	Glut in peak marketing season	2800.00	47.00	III
6.	**Market informations related**			
a	Lack of timely availability of market news	2000.00	55.00	I
b	No reliable sources of distant market informations	3000.00	45.00	II
7.	**Other related Problems**			
a	Frequent ban & social boycott	2050.00	54.00	I
b	Non availability of market shed	2300.00	52.00	II
c	Lack of cooperations among the producers	2450.00	51.00	III
d	Lack of govt. policies	3200.00	43.00	IV

Fig.1 Schematic representation of sampling plan- i

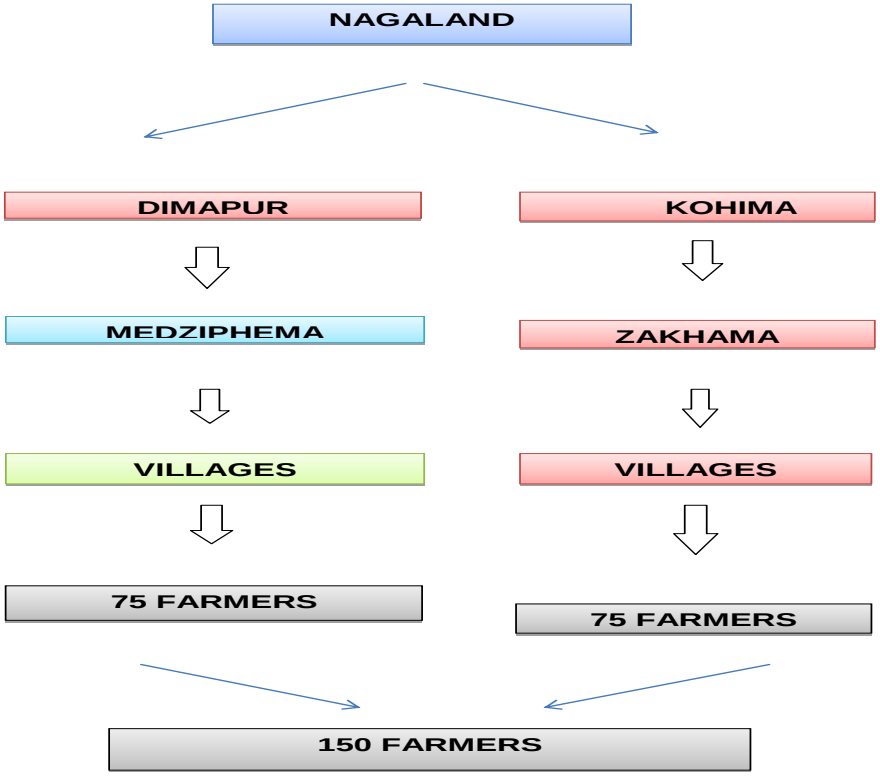

Fig.2 Schematic representation of sampling plan- ii

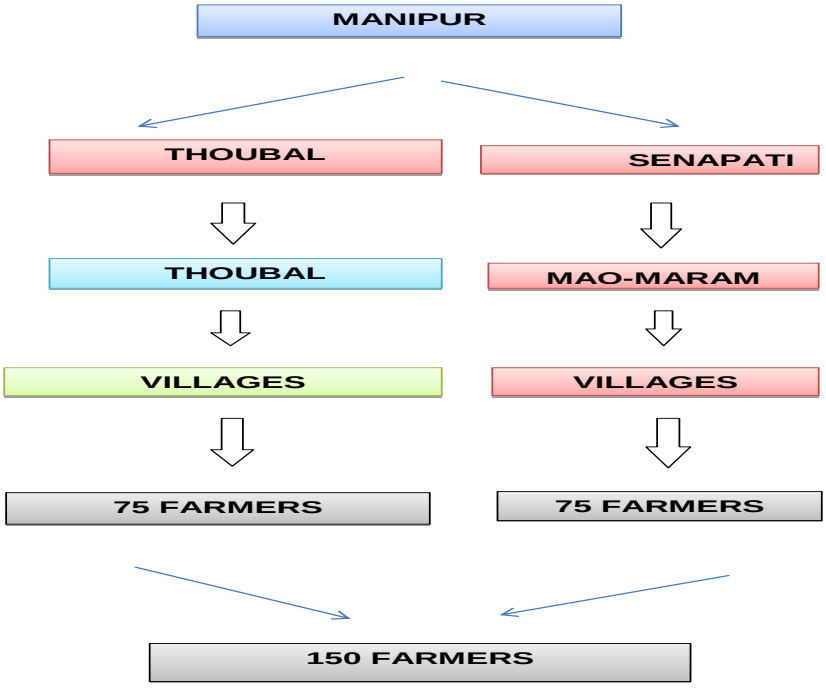

Table 3 reveals that the major constraints faced during the marketing of the major horticultural crop growers in the Nagaland state, it was grading related issues with highest for hand grading leads to quality deterioration with 73.00 per cent of the growers and it was found to be lowest with 42.00 per cent for grading by hand is costly. Also for the packaging related issue maximum was found with 56.00 per cent on packing materials not available in time and it was found to be minimum with 47.00 per cent for costly packing materials. For the transportation related issues the maximum with 70.00 per cent was due to the lack of all weather / metallic roads and it was found to be minimum with 40.00 per cent high transportation charges. Further for the weighting related issue, it was found to be maximum for weighing not done accurately with 51 per cent and it was found to be minimum with 49.00 per cent for the use of improper scales. The sixth constraints faced by the growers is the marketing information related issues, it was found to be maximum with 51.00 per cent for no reliable sources of distant market informations and it was found to be minimum with 49.00 per cent due to the lack of timely availability of market news. Further the other related constraints / issues faced by the growers was found maximum with 73.00 per cent for frequent ban and social boycott and it was found to be minimum with 37.00 per cent for non availability of market shed, respectively. The similar study and recommendation has been suggested by the Sharma (2005); Sharma (2013); Sharma (2014) Das and Sharma (2018); Imlibenla and Sharma (2019) for achieving the desired objectives and augments in the support of the farmer's marketing efficiency to enhance the farm income in the region.

Table 4 reveals that the major constraints faced during the marketing of the major horticultural crop growers in the Manipur state, it was grading related issues with highest for hand grading leads to quality deterioration with 68.00 per cent of the growers and it was found to be lowest with 42.00 per cent for grading by hand is costly. Also for the packaging related issue maximum was found with 57.00 per cent on packing materials not available in time and it was found to be minimum with 46.00 per cent for costly packing materials. For the transportation related issues the maximum with 61.00 per cent was due to the lack of all weather / metallic roads and it was found to be minimum with 39.00 per cent high transportation charges. Further for the weighting related issue, it was found to be maximum for weighing not done accurately with 55 per cent and it was found to be minimum with 47.00 per cent for the use of improper scales. The sixth constraints faced by the growers is the marketing information related issues, it was found to be maximum with 55.00 per cent for no reliable sources of distant market informations and it was found to be minimum with 45.00 per cent due to the lack of timely availability of market news. Further the other related constraints / issues faced by the growers was found maximum with 54.00 per cent for frequent ban and social boycott and it was found to be minimum with 43.00 per cent for non availability of market shed, respectively. The similar study and recommendation has been suggested by the Sharma *et al.,* (2012); Sharma *et al*, (2016); Singh *et al.,* (2018); Dinesh and Sharma (2019) for achieving the desired objectives and augments in the support of the farmer's marketing efficiency to enhance the farm income in the region.

In conclusion the present study highlights or identified the major production and marketing constraints faced by the horticultural growers in the different location of the Nagaland and Manipur both the states across the categories.

So the directorate of horticulture, policy makers, extension workers, researchers, non-government organization and other marketing functionaries involved actively will be getting the feedback to improve their strategy to improve the production as well as marketing efficiency for betterment of future fair prices etc; both the buyers and sellers in general, so the present study activities encouraged during the adoption of farm activities constraints and further to increase the farm efficiency in the days to come.

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