

# The Statistical Analysis of Households Survey of Horticulture crops in Tamenglong District of Manipur State.

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**Abstract-** The North Eastern Region has tremendous scope for expansion of horticulture industries that are environment and eco-friendly. The dietary intakes of food around the world are shifting toward diets from secondary goods to primary goods which are free from chemicals and popular diets are green leafy vegetables usually serve in many dining table teeming with fruits and vegetables in many households, rather than readymade and substitute diets that are usually obtained from secondary sectors. The modern people are aware and concern of their health status and wellbeing. Besides, sustainable development issues are becoming common agenda around the globe. The paper is a humble attempt to explain land use pattern for horticulture crops, to examine potentiality, viability, growth and expansion of horticulture industries in order to bring in an additional income to farmers as well as generation of employment opportunities to marginal farmers and rural peoples who are largely under disguise unemployment and have little knowledge of global climate change and about sustainable development. The paper also tries to explain the role of horticulture to improve their level of living, raise income and promote environment awareness among the rural hub; the statistical tests were carried out to see the possibility to explain research objectives. Further, it tries to examine horticulture income in comparisons to non-horticulture income and also how can it be expand with government and related organization to come forward and help the farmers in boosting the horticultural production. The paper present the survey of 180 households carried out from purposive selected 8 villages from the district. It also seeks to provide reasonable suggestion and a strategy to reduce poverty of rural India at large.

**Index Terms-** Horticulture; Environment; Eco-friendly; Diet; Chemical; Disguised unemployment; Sustainable Development; Hub

## I. INTRODUCTION

The North Eastern Region of India has tremendous scope for expansion of horticulture industries that are environment and eco-friendly. The topography and geographical features of the region have shown suitability for various horticulture crops such as fruits, vegetables, flowers, tuber, rhizomatous and spices etc.<sup>[1]</sup> The dietary pattern of food around the world are shifting toward diets that are chemical free and rich in nutrients and vitamins Viz., fruits and vegetables rather than readymade and substitute diets that are usually obtained from industries and

factories. Fruits and vegetables have been earning 20-30 times more foreign exchange per unit area than cereals due to higher yields and higher price available in the international market.<sup>[2]</sup> The modern people are very much aware of their health status and wellbeing. Besides, sustainable development issue are becoming common agenda for all nations. The paper is a humble attempt to see land use pattern for horticulture crops, to examine potentiality, viability and growth of horticulture industries so as to bring in an additional income to farmers and generation of employment opportunities to marginal farmers and rural peoples who are largely under disguise unemployment with marginal productivity nearly zero and have little knowledge of global climate change and about sustainable development. The paper also tries to explain the role of horticulture to improve their level of living, raise income and promote environment awareness among the rural hubs. The studies try to make a strategy to reduce poverty in the rural areas, focuses on malnutrition of pregnant women and children in the study area. The research found that many people are keeping kitchen garden at their backyard or home stead land for self consumption only. However some farmers have started production of fruits and vegetables for commercial purposes. The study reveals that land were available in plenty and people have started earning enough income from farm privately own and manage by meagre saving of the households. The statistical tests were executed in the paper to see the logical reason for making horticulture a strategy for making an income for the rural poor and research objectives were also examine with the data gather through field survey that were done from September 2012 to November 2013.

## II. HORTICULTURE AS THE BEST OPTION FOR LIVELIHOOD OF RURAL PEOPLE

The need for horticulture research and development (R & D) are greater than ever in the developing world. Nearly 3 billion people are living on less than 2USD or less per day. Unemployment and poverty are rampant throughout much of the world and conditions are worsening in Sub-Saharan Africa. Horticultural crops as high value crops have got an important role to play in revitalizing rural economies. Horticultural crops production provides jobs more than twice the number of jobs compare to cereal crops production per hectare of production. The shifting of cereal production toward high value horticultural crops is increasing employment opportunities in developing countries. Women have the most to benefit from the rising importance of horticulture. Women in general play a much more

significant role in horticulture crop production as compare to cereal production. Besides creating jobs on the farm, the horticulture sector generates off-farm employment especially for woman. This is the case for export and value added processing industries. Which are importance sectors of economies in Latin America and Africa? In Mexico, for e.g. 80-90% of persons engaged in operations are women and even higher percentages of women workers are involved in fresh produce field operations, evidence from production industries in Africa reflect similar tendencies. Since horticultural production is labour intensive, landless labourers also benefit from the new employment opportunities created by horticultural crops production. These jobs usually provide more income than jobs obtained in most other sectors. To sum up, a strong horticulture sector can become an engine for economic growth in developing countries. [3]

In fact, the people who mostly live in rural India have no other option to be engaged in industry and tertiary sector. Since these people are living with large tract of land and quite many forests are being burnt down every year for the purpose of Jhumming. So horticulture will remain the best option for them to improve their economic wellbeing. To examine this fact 10 villages were survey and the finding reveals that people are interested toward horticultural occupation rather than the traditional jhumming being practice largely since time immemorial.

### III. METHODOLOGY

(i) Objectives:

1. To see the land holding areas of horticultural crops in the study areas and to see the scope for expansion of crops under horticulture.
2. To compare the income of horticulture and non-horticulture income benefitting the farmers.

(ii) Tools for Data Analysis:

The Primary data were collected using structured questionnaire at the household level. The surveys were done by purposive random selection of 8 villages two each from every subdivision, since there are four subdivisions in the entire districts. The sample sizes of households were 180 only. To fulfil the objectives of the study, the gathered primary data were tested using t-test with the help of mean and Standard Deviation (S.D.).

### IV. STATISTICAL ANALYSIS USING GROUP STATISTICS AND INDEPENDENCE SAMPLES TEST

The research objectives are tested using group statistic and independent sample test as described as follows:

*Objective-(IV.I): In terms of the average land holding areas under Horticulture and Non-Horticulture crops*

*H<sub>0</sub>: There is no significant difference between average land holding areas under Horticulture and Non-Horticulture crops.*

### Group Statistics

Type of Land	N	Mean(land holding areas in acres)	Std. Deviation
Land Holding of Horticulture Crops(In acres)	180	4.7356	1.72036
Land Holding Non-Horticulture Crops(In acres)	180	0.9083	0.62863

### Independence Samples Test

Land holding of horticulture and non-horticulture crops( In acres) {Equal variances assumed}	t-test for Equality of Means			
	T	Df	Sig. (2-tailed)	P-value
	28.034**	358	0.000	P<0.01

\*Significant at 0.05 probability level.

\*\*Significant at 0.01 probability level.

Since P<0.01, the difference between average land holding areas under Horticulture Crops and that of Non-Horticulture Crops is highly significant. In other words, the average land holding area occupied by Horticulture crops is significantly larger than the areas occupied by Non-Horticulture crops. Therefore, it is revealed that the land under horticulture crops had been showing more preferences by the farmers rather than the non-horticultural crops in the survey areas.

*Objective-(IV.II) In terms of annual revenues from horticulture and non-horticulture products*

*H<sub>0</sub>: There is no significant difference between average annual revenues from horticulture and non-horticulture crops*

### Group Statistics

Type of Revenue	N	Mean (In ₹ )	Std. Deviation
Annual revenue from horticulture products(In ₹ )	180	52348.8889	27244.35155
Annual revenue from non-horticulture products(In ₹ )	180	28275.0000	15297.99664

### Independent Samples Test

Annual revenues from horticulture and non-horticulture products(In ₹ ) {Equal variances are assumed}	t-test for Equality of Means			
	T	Df	Sig. (2-tailed)	p-value
	10.337**	358	0.0000	P<0.01

\*Significant at 0.05 probability level.

\*\*Significant at 0.01 probability level.

Since  $p < 0.01$ , the difference between average annual revenues from horticulture crops and that of non-horticulture crops is highly significant. In other words that the average annual revenue contributed by horticulture crops is significantly larger than the revenue contributed by non-horticulture crops to the farmers. This indicates the preference for the horticulture products.

Objective (III.III): In terms of total incomes from horticulture and non-horticulture crops.

#### Group Statistics

Type of Income	N	Mean (In ₹ )	Std. Deviation
Total income from horticulture products(In ₹ )	180	43,255.1667	23919.33286
Total Income from non-horticulture products(In ₹ )	180	16,850.4556	10313.61907

#### Independent Samples Test

Total incomes from horticulture products and non-horticulture products(In ₹ ) {Equal Variances assumed}	t-test for Equality of means			
	T	Df	Sig. (2-tailed)	p-value
	13.600	358	0.0000	P<0.01

\*Significant at 0.05 probability Level.

\*\*Significant at 0.01 probability level.

Since  $p < 0.01$ , the difference between average total incomes from horticulture crops and that of non-horticulture crops is highly significant. In other words that the average total income contributed by horticulture crops is significantly larger than that of non horticulture products.

#### V. DISCUSSION AND ANALYSIS

The Table 1.1 & 1.2 shows that the *mean annual revenue* derived from *horticulture* activities of 180 survey households are ₹ 2, 37,673.3333 and *Standard Deviation* is ₹ 1, 68,477.41410 respectively. Whereas that of *Non-horticulture* mean annual revenue is ₹ 28275.0000 and *Standard Deviation* are ₹ 15,297.99664 respectively. From the table it is reveal that horticulture income is 8-9 times highly rewarding and pay-off occupation than that of Non-horticulture occupation as regards to survey data of 180 households.

#### VI. LAND HOLDING AREAS OF SURVEY HOUSEHOLDS UNDER HORTICULTURE CROPS

The table 1.3 depicts the survey households land holding areas under horticulture crops. As we have seen from the table that out of 180 households 71 households have 0.50 acres of land under horticulture, 69 households with 1.50 acres, 24 with 2.00 acres, 4 household with 4.00 acres and 12 households with Zero

Land holding or not having any horticulture farm or garden. This clearly indicated the people have not been cultivating optimally despite the huge availability of land. Therefore government and other related agency have to drastically see that they come to the help of farmer for booming the horticulture industries of the study areas under consideration.<sup>[4]</sup>

#### VII. CONCLUSION

The Tamenglong District is popular for its poverty, backwardness and remotest amongst nine districts in the state of Manipur but has better chance of developing growth in the economy by mass involvement of farmers in strengthening horticultural activities. Gangmumei Kabui pointed out that Tamenglong is the Abode of Bamboo and the gateway of Manipur to the western world.<sup>[5]</sup> These activities would become the lifeline and economic based of the people in the villages. If potentialities of land, favourability of horticulture crops are taken into consideration; farmers' income will be increases thereby enhance employment, employment generation will be at their own village periphery and proper dietary and health of the people will drastically improve, pattern and high standard of life can be experienced in villages. This is possible as the world has become globalized village, markets are integrated, trade are liberalized etc. Most interesting Look East Policy and Trans Asian Railway Line is to be finished by 2015-2020, opening up of International Highway I and II would possibly push up this horticulture industry.[5] So, horticultural crops cultivation in the district can make a rapid leap in development front in near future particularly with respect to Tamenglong district in Manipur State.

To sum up, the entire North East India can be a home to all types of Horticulture crops and can really be successfully operated for development of the entire regions once the potentiality of horticulture are optimally utilised.

#### REFERENCES

- [1] Birthal P.S., Jha A.K., and Singh D.K., Agriculture Diversification in North Eastern Region of India: Implication for Growth and Equity, Indian Journal of Agriculture Economics, Vol.6, July to September (2006), pp.75-80
- [2] Christiansen, L., and Todo Y., Poverty Reduction during the Rural-Urban Transformation-the Role of the Missing Middle, the World Bank Group, Washington, 2008.
- [3] Kamei Gangmumei, The History of the Zeliangrong Nagas, Spectrum Publications, Delhi, 2004.
- [4] Kamei Philip, The Survey on the Role of Horticulture in Tamenglong District, September to December (2012), Tamenglong District of Manipur State.
- [5] Von Braun, J., Swaminathan M.S., and Rose Grant M., Agriculture, Food Security, Nutrition and the Millennium Development Goals, Essay reprinted from IFPRI'S 2003-04, Annual Reports (2004), Washington D.C., International Food Policy Research Institute.

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**APPENDIX:**

**Table 1.1**  
**Annual Revenue from Horticulture**

N	180
Mean(In ₹ )	2,37,673.3333
Std. Deviation	1,68,477.41410

Source: Author Survey Data

**Table 1.2**  
**Annual Revenue from Non-Horticulture**

N	180
Mean(In ₹ )	28,275.0000
Std. Deviation	15,297.99664

**Table 1.3**  
**Annual Revenue Distribution from Horticulture w.r.t. Land Areas under Horticulture Crops**

Annual revenue from horticulture (In ₹ )	Land areas under horticulture crops					
	.00	.50	1.50	2.00	4.00	Total
24,000.00	0	1	0	0	0	1
30,000.00	0	0	1	0	0	1
36,000.00	0	1	1	0	0	2
48,000.00	0	0	1	0	0	1
60,000.00	0	2	0	0	0	2
62,400.00	0	1	0	0	0	1
64,800.00	0	1	0	0	0	1
72,000.00	0	2	1	0	0	3
78,000.00	0	2	0	0	0	2
84,000.00	1	6	1	0	0	8
90,000.00	0	1	0	0	0	1
96,000.00	0	3	2	0	1	6
1,02,000.00	0	0	1	0	0	1
1,08,000.00	0	0	1	0	0	1
1,20,000.00	1	2	3	1	0	7
1,44,000.00	0	4	0	1	0	5
1,56,000.00	0	0	0	0	0	1
1,80,000.00	1	10	10	6	0	27
1,92,000.00	1	1	2	1	1	6
2,04,000.00	0	2	2	0	0	4
2,16,000.00	0	7	11	5	0	23
2,40,000.00	3	11	18	6	0	38
3,00,000.00	2	3	7	3	0	15
3,24,000.00	0	0	1	0	0	2
3,60,000.00	0	1	2	0	0	3
4,20,000.00	0	2	3	0	0	5
4,80,000.00	0	2	0	1	0	3
6,00,000.00	1	1	1	0	0	3
7,20,000.00	0	1	0	0	0	1

8,40,000.00	2	2	0	0	0	4
9,60,000.00	0	1	0	0	1	1
1,20,000.00	0	1	0	0	1	1
Total	12	71	69	24	4	180

Source: Authors' calculation