



Research Article

VEGETABLE PRODUCTION: A SURVEY BASED STUDY IN MAMIT DISTRICT

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Abstract: Mamit district of Mizoram is rich in genetic diversity of horticultural crops. But this region is lacking in vegetable production. So, an attempt was made to study the ground reality to improve the vegetable production. Vegetables in the district are grown mainly in-home gardens to meet the household requirement partially. A bulk share of vegetable comes from neighboring states and at the same time the communication of the district is not easy. So, one can easily feel the heat of vegetable prices in the market as compared to the other states. Importantly this less vegetable production can be attributed to the non-availability of appropriate technology, inputs and institutional support at farmers' field. Apart from this water scarcity is another bottleneck for their agricultural development. But the farmer can foresee that the district has got enough potentiality for becoming self dependent in vegetable production based on some good reasons.

Keywords: Vegetable production, kitchen gardening, Mamit District, Mizoram vegetables price, constraint in vegetable cultivation

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Introduction

Mamit district of Mizoram was established in 1998 with an area of 3025.75 sq. km. Its total population is 86364 nos. (2011) and the population density of the district is 29 nos. per sq. km. The altitude of the district ranges from 40 to 1485 m above mean sea level. The district lies between 23°15' - 24°15' N latitude and 92°15' - 92°40' E longitude. Its climate is sub-tropical and humid type with an average rainfall 298.24 cm [1]. The average temperature and humidity of the district varies from 5.3°C to 35°C and 56.8 % (March) to 88.1% (September), respectively. In general, the soil fertility status of the district is high and mainly alluvial, sandy loam and laterite soil are found in the district. The district is rich in genetic diversity of horticultural crops. But the region has quite low productivity in vegetable crops as compared to the national average productivity [2]. The district has an area of 15127.15 ha under horticultural crop production. Presently, it is producing only 72573.95MT of horticultural crops with a productivity of only 4.79 MT ha⁻¹ (2013-14). The district mainly grows fruit crops (46 %) and vegetable crops are grown 26% area (4000.50 ha) with a very low productivity of 5.55 MT ha⁻¹. As a result, the district is insufficient in vegetable production and the demand is met by importing it from neighbouring states like Assam and Tripura. Considering the deficiency in vegetable production a survey-based study was conducted to study the different reasons for low vegetable production in the district.

Materials and methods

Mamit district is divided into 3 Blocks (Reiek, West Phaileng and Zawlnuam) covering 123 villages. From each block two villages were selected randomly and from each village 12 nos. of farmers were interviewed randomly with the help of a structured questionnaire. A total of 72 nos. of farmers were interviewed. Individual discussion and indirect observation was also carried out for better understanding of their vegetable production scenario.

Results and discussion

Vegetable production can become a major source of income along with providing nutritional security especially for small and marginal farmers.

The vegetable crops, apart from higher productivity and high value produce, provide more food per unit time and area can improve the economic condition of the growers as compared to cereal crops in this region. During the study it was found that the district grows different types of vegetables. But in most cases, they are found to be grown in their kitchen or home gardens. Home gardens are common in Mizoram and it is an assemblage of plants which may include trees, vegetables, bamboos and herbaceous plants [3]. Commercial vegetable production is not common in this district. The price study of the vegetables in the market reflects the supply and demand scenario of vegetables in the region. The average prices of the common available vegetables are listed in the table 1. The prices of the vegetables vary according to availability and season. It was found that the district commonly grows cabbage, cauliflower, broccoli, knolkhol, carrot, radish, French bean, Cucurbits, Spinach and local mustard, Chayote, okra, tomato etc. as *rabi* or winter crop. But all the farmers are not growing all the vegetables at the same time. About 88.89 % of the farmers feel that cabbage is the best suited for their kitchen garden. Whereas broccoli (77.78 %), knolkhol (61.11%), tomato (38.89 %), cauliflower (38.89 %) are also found suitable by many farmers [Fig-1]. Henceforth, it is the task of the government and the people concerned for agriculture development to increase the productivity of these vegetables which farmer thinks in different level of suitability for making them more suitable. Creating marketing linkages with parties from outside the district is also suggested for augmenting the vegetable growing scenario. In this study, it is seen that planting time plays an important role for good productivity of crops. The time of planting crops has become buzz word in the prevailing climate change scenario where every established production parameter has started changing. But in case of Mamit district, the planting of winter crops is still the best in the month of October to November. Most (88.89%) of the farmers finds that the planting time of winter crops should be towards the end of October, but few farmers (11.11%) also finds it in the beginning of November. Majority (61.11%) of the farmers of Mamit region are not interested in chemical inputs for their vegetable crops. They want to increase their production on organic base.

Table-1 Average market prices vegetables in the district during 2015-16

SN	Vegetables	Price (Rs./Kg)
1	Cabbage	40
2	Cauliflower	45
3	Brinjal	25
4	Tomato	50
5	French bean	50
6	Cowpea	40
7	Chayote(<i>Sechium edule</i>)	25
8	Pumpkin	30
9	Bitter gourd	50
10	Okra	50
11	Chillies	50
12	Ginger	25

A handful of farmers (38.89%) are interested in chemical inputs too. So, research and extension organisations efforts need to be directed towards the use of sustainable mixture of both organic and inorganic sources of nutrient inputs in profitable way in this hill region. Availability of critical inputs in right time always has great influence on crop production. Availability sufficient supporting inputs within farmer's easy reach has great influence in adoption of technology. Vermicompost, cow dung, urea, di-ammonium phosphate, murate of potash, lime is some of the inputs which farmers of Mamit region feel very important for their kitchen gardens. It was found that the demand for vermicompost (94.45%) and cow dung (77.78%) were very high among the farmers in comparison to other inputs [Fig-2]. So, it was felt that proper supporting infrastructure is crucial to provide proper impetus to the agricultural sector. Farmers felt that the vegetable production technology could be well adopted in their fields to make their family self-sufficient. The farmers believed that the Mamit district which was quite insufficient in vegetable production (4001.50 MT ha⁻¹, 2013-14) has endowed with sufficient resources to become self-sufficient in vegetable production. So, well directed effort was the need of the hour to make the district self-sufficient in vegetable production. The farmers of the district perceived different problems in vegetable production. The levels of their responses are listed below.

Table-2 Level of response to their perceived problems

SN	Perceived problems	Response levels (%)
1	Proper water supply facility	93.05
2	Supply of quality seed	79.16
3	Need of manures in right time	76.63
4	Training need in pest and disease management	45.83
5	Training need in vegetable crop management	43.05
6	Right time of sowing vegetable crops	26.38

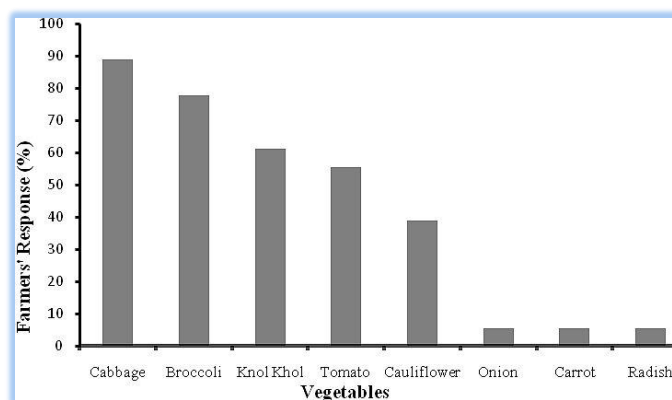


Fig-1 Farmers' response for different rabi crops suited for Mamit district

of rain every year but still the region faces scarcity of water during winter season [4]. Most (93.05%) of the farmers felt that proper water supply facility is needed to be developed for their vegetable farm. Again, farmers of this region are not getting quality seeds (79.16%) and enough manures and fertilizers (76.63%). Supply of quality seed is very essential in this difficult hilly region and at the same time there must be abundant supply of fertilizers and organic manures. Farmers feel that they are needed to be empowered with proper vegetable production management technology.

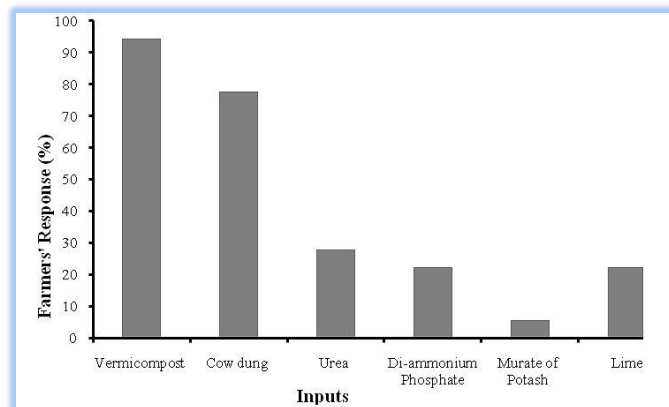


Fig-2 Felt demand for inputs by the farmers for rabi crops

Some (45.83%) of them felt that they were lacking knowledge in insect pest management of vegetables while some other (43.05%) felt that they were lacking in vegetable production know how. Over the years, the tribal farming communities have been using many indigenous technologies to fulfill their vegetable requirements by utilizing the available resources from jhum (shifting cultivation) lands. They were depending entirely on locally available input resources and knowledge base for maintaining the productivity [5]. However, proper balancing of seed inputs from other places along with maintaining local cultivars and landraces is equivalently important to cancel out chances of crop failures.

Conclusion

Commendable progress has been made on the research front and a number of technologies have been developed for hill region. But implementation and adoption of appropriate technology in the farmers' field is the need of the hour to increase the productivity and to meet the demand of vegetables of this region. Numerous trials at farmers' field level are still needed to be undertaken so as to ascertain the site specific performances of introduced crops. Hill farmers are always subjected to many unaccounted difficult situations where they need to compromise with the available facilities. Despite having very good potentiality, vegetables production in Mamit district is still low and dependent on vegetables from other district/ state. The problems or shortcomings for vegetable production in the district are varied. It is always difficult to conclude problems within a short period of time which may have long term effect. But overall a list of problems can be drawn on the basis of certain immediate experience and exposure. So, the important problems for vegetable production are :

- Lack of enthusiasm and awareness of the people towards agriculture and growing own food
- Scarcity of water for vegetable production in the district
- Proper implementation and monitoring of government schemes in vegetable production
- Sufficient supply of inputs like seed, fertilizers, FYM in right time
- Lack of proper knowledge for growing crops on scientific lines
- Availability of proper marketing infrastructure, post-harvest management facilities

Application of Research: The primary goal of the finding is to highlight and portray the vegetable growing scenario of Mamit district so that future scientific activities and developmental task can draw a concrete landmark on as to how to take up new actions.

Though the region falls under high rainfall zone and receives more than 2000 mm

Insufficient statistics and data of the district has often misled many scientific and developmental works in the past. New strategies can also be framed and adopted from these present findings too.

Abbreviations

sq. km. – Square kilometre, nos. - Numbers, MT ha⁻¹- Metric ton per hectare, °C- degrees Celsius, % - per cent, Sl. No. – Serial number

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Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

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