



Constraints Faced by the Farmers in Adoption of Recommended Cultivation Practices of Maize (*Zea mays*) in the State of Nagaland

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ABSTRACT

Nagaland is an agrarian state and agriculture being the backbone of the state's economy, a vast majority of the population depends on agriculture as a source of livelihood. Two of the most widely practiced methods of cultivation in the state are jhum (shifting cultivation) and terrace cultivation, which contributes to about 86 per cent of the total cultivable land. Few of the major variants of cereals produced in the state are rice, maize and millet. Due to ever increasing population growth and rise in demand of food grains, it has become mandatory to bridge this gap of demand and supply, which can only be fulfilled by putting into practice advanced and improved cultivation methods as well as use of modern technologies, quality inputs and high yielding varieties by the farming community. In order to find out the constraints faced by the farmers while adopting recommended cultivation practices of maize, a study was carried out in six districts of Nagaland taking a sample size of 300 maize farmers. An open-ended questionnaire was used to collect the farmer's constraints through personal interview technique and ranking was done based on the frequency and percentage. Findings of the study revealed that the major constraints faced by the farmers while adopting recommended cultivation practices of maize were non-availability of quality seeds which was followed by high pest and disease incidence, lack of proper financial assistance and subsidies, low market value for crops and lack of result-oriented trainings and demonstrations.

Key Words: Adoption, Constraints, Extension, Farmers, Recommended cultivation practices.

INTRODUCTION

Maize crop also referred to as the Miracle Crop is the third most grown crop worldwide with United States of America being the largest producer and exporter contributing 35.9 per cent of the total world production (Global corn production, 2017-18). Maize crop occupies third position both in area and production next to rice and wheat in India (Anonymous, 2017) and is cultivated in an area of about 9.57 million hectares with a production of 28.72 million tonnes (Directorate of Economics & Statistics, DAC&FW, 2018-19). Globally, India stands at number five in global maize production.

In India, maize crop is grown throughout the year where kharif season being the main season of maize cultivation which covers about 80 per cent of the total maize area. Maize productivity of India stands at 2.5 t/ha which is less than half of the global average of 5.5 t/ha. Current maize production in India stands at 28.72 million tonnes and based on some experts the projected demand of maize crop is expected to be 45 million tonnes by the year 2030. This growing demand can only be met by increasing the area under maize cultivation and adoption of advanced and improved cultivation methods and use of modern technologies, quality inputs and high yielding varieties by the farmers.

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Table 1. Constraints faced by the farmers while adopting recommended cultivation practices of maize

Sr. No.	Constraint	Frequency	Percentage (%)	Rank
1.	Non-availability of quality seeds	293	97.66	I
2.	High pest and disease incidence	289	96.33	II
3.	Lack of proper financial assistance and subsidies	284	94.66	III
4.	Low market value for crops	276	92.00	IV
5.	Lack of result-oriented trainings and demonstrations	275	91.66	V
6.	Lack of marketing facilities and channels	255	85.00	VI
7.	Lack of storage facilities and processing units	250	83.33	VII
8.	Unavailability of required information for new maize technology	245	81.66	VIII
9.	High cost of fertilizers	240	80.00	IX
10.	Lack of proper irrigation and drainage facilities	220	73.33	X
11.	Non-availability of suitable implements for inter-cultural operations	216	72.00	XI
12.	Poor rural roads and lack of proper transportation facilities	210	70.00	XII
13.	Fear of low yield by adoption of new practices	202	67.33	XIII
14.	Lack of proper interaction between farmers and extension service providers	168	56.00	XIV
15.	Poverty related issues	90	30.00	XV

In Nagaland maize is an important crop ranking next to rice and usually grown as a pure crop in some instances and mostly grown as an inter-crop with different crop combinations such as jhum paddy, vegetables, legume crops etc. The total area under maize cultivation in Nagaland is 69010 ha with a production of about 136780 metric tonnes (Directorate of Economics & Statistics, Nagaland Statistical Handbook, 2018). Maize being a versatile crop used for human consumption, feed and fodder for animals as well as raw material for various industries, its demand has been ever increasing due to its versatility.

According to Alexandratos and Bruinsma (2012) the global agricultural production will need an increase of 60 per cent by 2050 to meet the world's consumption demand. In order to meet the challenges of producing sufficient crop to meet the rising demand, it is important that the farmers adopt modern innovations and improved cultivation practices. Modern and improved technologies

play a crucial role in increasing agricultural productivity and improving livelihoods of the farming community (Adenuga *et al.*, 2014). Prior identification of farmers' constraints, needs and preferences is crucial to develop and design more suitable, acceptable and profitable development intervention programs (Walter and Zewdie, 2008). Therefore, a thorough and systematic analysis of the problems and constraints encountered by the farmers should be made so that suitable need-based technologies relevant to the farmers' farming system is developed so that there is high rate of adoption of these technologies by the farmers for increasing crop production. Acceptance and adoption of modern agricultural technologies and improved cultivation practices by the farmers leads to a drastic development of agricultural sector (Ibrahim *et al.*, 2012). Keeping this in view, the present study was carried out to find out the constraints faced by the farmers while adopting recommended cultivation practices of maize in the state of Nagaland.

MATERIALS AND METHODS

The study was conducted in the state of Nagaland. A multistage purposive cum random sampling design was followed for selection of the respondents. Six districts *viz.*, Dimapur, Kohima, Wokha, Mokokchung, Tuensang and Zunheboto were selected purposively for the study keeping in view the area and production of maize in these districts. Two rural development blocks were selected randomly from each district and from each rural development blocks, two villages were selected randomly thus making a total of 24 villages. A total of 300 maize farmers were finally selected as respondents using random sampling technique. The data were collected personally by the researcher through the means of personal interview technique by administering a structured schedule. The constraints faced by the maize farmers were collected through an open-ended questionnaire where ranking was done for each of the constraints based on the frequency and percentage.

RESULTS AND DISCUSSIONS

Table 1 revealed that non-availability of quality seeds (I rank) followed by high pest and disease incidence (II rank), lack of proper financial assistance and subsidies (III rank), low market value for crops (IV rank), lack of result-oriented trainings and demonstrations (V rank) were the major problems expressed by the farmers. The other problems faced by the farmers were lack of marketing facilities and channels (VI rank), lack of storage facilities and processing units (VII rank), unavailability of required information for new maize technology (VIII rank), high cost of fertilizers (IX rank), lack of proper irrigation and drainage facilities (X rank), non-availability of suitable implements for inter-cultural operations (XI rank), poor rural roads and lack of proper transportation facilities (XII rank), fear of low yield by adoption of new practices (XIII rank), lack of proper interaction between farmers and extension service providers (XIV rank) and poverty related issues (XV rank). These findings

are similar to that of the findings of Biswas *et al* (2017), Marbaniang and Pasweth (2017) and Oinam & Sudhakar (2014).

CONCLUSION

The constraints indicated by the farmers while adopting recommended cultivation practices of maize are a major concern which hinders the overall crop production. Government and the concerned departments should take measures on timely availability of quality seeds, farming inputs and fertilizers to the farmers at subsidized rates and also provision for credit and financial assistance should be made available to the farmers. Also, a minimum support price for the crop should be established so that the farmers can meet up their farming expenses and marketing channels should be set up so that the farmers can conveniently market their end products. High pest and disease incidence was also a major constraint indicated by the farmers therefore integrated pest and disease management strategies should be implemented by the concerned departments through awareness, trainings and demonstrations programs. Post-harvest management and value addition strategies should be properly implemented by the government so that post-harvest losses incurred by the farmers are controlled. Also, a strong linkage among farmers and extension agencies should be established by means of setting up active farmer-extension organizations and groups so that active interactions and information delivery system is maintained among them. Poor rural roads and lack of proper transportation facilities was also a constraint encountered by the farmers so concerned organization and departments should collectively work on it so that proper roads and transportation facilities are set up for the welfare of the rural mass. By taking account of all these constraints encountered by the farmers and coming up with a solution to it, adoption of improved cultivation practices and farming technologies by the farmers is bound to increase, thereby gradual improvement and growth in overall crop production and sustainability.

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