



## Varietal Performance of Chilli Variety Barnali

P Bijaya Devi<sup>1\*</sup>, R K Imotomba<sup>2</sup>, Sakhen Sorokhaibam<sup>3</sup> and Kh. Maipak Singh<sup>4</sup>

Krishi Vigyan Kendra, Bishnupur District, Utlou, P.O. Nambol -795134 (Manipur)

### ABSTRACT

Chilli is an important high value spice crop, its varietal evaluation is an important area for the welfare and livelihood security of farmers. Most of the farmers of Bishnupur district of Manipur are growing wide varieties and cultivars of chilli but so far the research finding on chilli variety Barnali were lacking. To know the yield potential of chilli variety Barnali and its economic impact, the evaluation on green fruit yield performance of chilli var. Barnali and local cultivar *Meitei morok* was conducted at Leimaram village. The adopted package of practices was seed rate @1kg/ha, spacing 60x45cm, FYM 15t/ha, NPK 120:50:50 kg/ha. There was wide variation between two genotypes in green fruit yield and economic return. The result on yield and economic return indicated that chilli variety Barnali was found superior to local cultivar. The chilli variety Barnali could obtain the yield of 24.65t/ha and the local cultivar *Meitei morok* obtained 16.25t/ha with a net income of Rs 8,67,317/- and BC ratio 7.43 : 1 compared to *Meitei morok* with a net income of Rs 5,33,317/- with BC ratio 4.57:1. The percent increased in yield over local cultivar *Meitei morok* was 51.7 per cent. The technology gap, extension gap and technology index were 8.9t/ha, 8.4t/ha and 26.4 per cent, respectively. It was concluded that cultivation of chilli variety Barnali could help to improve the economy of the farmers.

**Key Words:** Barnali, Chilli, Green fruit yield, Technology and Economics.

### INTRODUCTION

Chilli (*Capsicum annum* L.) belongs to the family Solanaceae and considered a very important high value spice crop of India. It is a self-pollinated crop which bears a pod like fruit and has a predominant position among the spices grown all over India. In India, chilli is considered as an essential ingredient of diet for rich and poor families. Its fruits are used for its pungency spicy taste in diet and also a valuable foreign exchange earner (Patel *et al*, 2001). The *Capsicum* spp. are naturally grown in North Eastern states of India. Bishnupur is one of the four districts in the central (Imphal) valley of Manipur. It has an area of 496 sq.km. with 42,366 ha. of cultivable land. An area of 9,129 ha. is under horticultural crops. Rainfall being high in the state, the soil of the district is acidic, pH ranging from 4.5 to 5.5. The texture of the soil is mostly clay loam. The district has a great potential for production of horticultural crops. It occupies first position in terms of production of vegetables in Manipur. Vegetable

growing could help to increase the income of the farmers. Thus, the study was conducted to find out green fruit yield/ha, economic returns of the chilli variety Barnali and local cv. *Meitei morok*.

### MATERIALS AND METHOD

A study on green fruit yield performance and economic return of Chilli var. Barnali and local cultivar *Meitei morok* was conducted at farmer's field of Leimaram village, Bishnupur district, Manipur located at an elevation of 835 m with latitude 24° 43' 18" and longitude 93° 46' 18". The soil of the experimental field was clayey loam with pH-5.5, high in organic matter (1.67%), medium in available nitrogen (320 kg/ha), phosphorus (25 kg/ha) and potassium (240 kg/ha). The details of the technology were: seed rate @1kg/ha, spacing 60x45cm, FYM 15t/ha, NPK 120:50:50 kg/ha. Seedlings were raised on nursery bed of 1 m in width with 15 cm height from the ground level and length of convenient to the selected area. The bed

Corresponding Author's Email: bijayakvkbpr@gmail.com

was prepared in the east and west direction. The soil of the nursery beds were loam soil, rich in organic matter and well drained. All the clods, stones and weeds from the nursery bed were removed and proper leveling was done. FYM @ 4kg /m<sup>2</sup> was applied to the nursery bed. Line sowing was done in the nursery bed. Lines are marked parallel to the width at the distance of 12cm from line to line. The seeds are sown on the marked lines on well prepared raised nursery beds and covered immediately after sowing with fine sieved FYM. Then the nursery beds were covered by gunny bags for better and quick germination. The nursery bed was given light irrigation with the help of rosecane after covering till seed get germinated. When the seeds started germination, removed the mulch carefully to avoid any damage to the emerging plumules. The mulch was removed in the evening hours to avoid harmful effect of the bright sunlight on the new emerging seedlings.

Watering was done once in a day with the help of Rosecane. The watering was continued till the seedlings got ready to transplant. Hardening of seedlings was done by holding watering to the plants for 5d before transplanting to withstand better against unfavorable weather condition like hot day and high temperature. The seedlings were ready to transplant at 35d after sowing. Thirty five (35) 3-d old seedlings were transplanted in the experimental field. FYM were applied during final land preparation. Nitrogen, phosphorus and

potassium were applied in the form of urea, SSP and MOP. Half dose of urea and full dose of SSP and MOP were applied as basal application and the remaining 1/4th of the urea was applied at 40d after transplanting and another 1/4th at 55d after transplanting. The harvesting of green fruit of chillivar .Barnali was started from 68 DAT and local cultivar was started at 83 DAT. Picking of green fruits of chilli was done at weekly interval and continued till last week of December. The yield data of the consecutive two years were recorded and converted as average yield per hectare for both the assessed variety Barnali and local check *Meitei morok* and converted into average yield /ha. The Percentage increase yield, and extension tools viz.,technology gap, extension gap and technology index were calculated by using the method ( Samui *et al*,2000).The potential yield of the chilli variety Barnali was taken as 33.5 t/ ha.

## RESULTS AND DISCUSSION

The study revealed that the average yield of Chilli variety Barnali could be increased by 51.7 per cent. The yield of chilli variety Barnali increased over the yield obtained under local cultivar which was of non descriptive cultivar with low yield potential and lack of disease resistance. The finding was in conformity with Singh (2017 ) that the performance of the technology demonstrated was found to be better than the farmer's practice under same environment. The average technology gap of 8.9 t/ha and extension gap of 8.4 t/ha which



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**Table 1. Yield gap and yield index analysis of the chilli var Barnali**

Variable	Average yield (t/ha)	Increase (%) over farmer's practice	Technology gap (t/ha)	Extension gap (t/ha)	Technology Index (%)
Meitei morok	16.25	-	-	-	-
Barnali	24.65	51.7	8.9	8.4	26.4

**Table 2. Yield and Economic impact of chilli var. Barnali and local cv. *Meitei morok***

Variable	Average yield (t/ha)	Cost of cultivation (Rs)	Gross Return (Rs)	Net Return (Rs)	B:C Ratio
Barnali	24.65	1,16,683	9,84,000	8,67,317	7.43:1
Local cv. Meitei Morok	16.25	1,16,683	6,50,000	5,33,317	4.57: 1

# While calculating cost of cultivation, all the inputs and expenditures were included.

may be due to dissimilarity in the character of the varieties and also indicated the need to educate the farmers through various extension activities like training programmes, introduction and assessment of new varieties or technologies etc. This finding was conformity with the report given by Singh *et al* (2019) that more and more use of latest production with high yielding varieties will subsequently change the alarming trend of galloping extension gap. The technology index was found 26.4 per cent which showed the efficacy of good achievement of technical interventions. These findings were in similarity with the findings of Singh *et al* (2019) that the technology index of 20.65 per cent showed the efficacy of good performance of technical interventions. The average green fruit yield of 24.65 t/ha was found with Chilli var Barnali and the local cultivar *Meitei morok* was found with 16.25 t/ha ( Table 2). This finding was in conformity with the report that chilli was significantly different from one cultivar to another in number of fruit (Obidiebube *et al*( 2012). The difference in yield of genotypes were attributed to the genetic make-up and large varietal variations in yields as reported by Rajput *et al* (1991). The study revealed that the fruit

type of chilli variety Barnali was slender to long with thick skin which has long shelf life thereby the commercial customers were more preferred due to its good keeping quality and taste which was very hot. This result was similar with the findings that in case of chilli fruits, length showed market value because normally medium to long fruits are preferred by customers (Chowdhury *et al*, 2015), while extra large fruit is undesirable because it is usually associated with lower productivity, irregular fruit shape and poor quality. The chilli var Barnali could obtain a net return of Rs.8,67,317/- with benefit cost ratio 7.43:1 where as the local cultivar could obtain only Rs.5,33,317/- as net income with benefit cost ratio 4.57:1. The wide variation in net return and benefit cost ratio was due to high difference in yield.

### CONCLUSION

The chilli variety Barnali was found to be superior to local cultivar *Meitei morok* and seemed as a high yielding variety. The chilli variety Barnali could be considered as a promising and suitable variety for Bishnupur district of Manipur which will help in the economy upliftment of the farmers.

Thus, the chilli variety Barnali could be selected for front line demonstration at farmers' field for getting higher returns.

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