Indian Journal of Extension Education
Vol. 48, No. 3 & 4, 2012 (104-106)

A Study on Awareness and Adoption of Large Cardamom Production Technology Among Tribal Farmers of North Sikkim

B.A.Gudade[1], T. N. Deka[2], P. Chhetri[3], N.K. Bhattarai[4], A.K. Vijayan[5] and U. Gupta[6]

ABSTRACT

Large cardamom (*Amomum subulatum* Roxb.) is one of the main cash crop grown in Sikkim. It is the lifeline of the people since it constitutes major share of the economy of the state. A large chunk of agrarian community depends on its cultivation. The present study was conducted during 2011-12 at Dzongu areas of North Sikkim. A list of the large cardamom growing villages was prepared and 5 villages were selected randomly. A village wise list of the large cardamom tribal farmers of the selected 5 village was prepared and 25 farmers from each village were randomly selected. Thus, the total sample consisted of 125 tribal farmers spread over five selected villages. For the purpose of present study, eleven recommended production technology package of practices about large cardamom production technology viz., improved varieties, planting material, sucker treatment, field preparation, planting time, method of planting, recommended dose of manuring, irrigation management, method of weed control, plant protection(bioagents) and improved curing system were selected. Majority of the respondents were found in medium awareness and high adoption category in practices like method of field preparation and planting method.

Key words: Adoption, awareness, large cardamom technology, tribal farmers

INTRODUCTION

Large cardamom (*Amomum subulatum* Roxb.), a member of the family, Zingiberaceae under the order Scitaminae is one of the main cash crops cultivated in the sub-Himalayan state of Sikkim and Darjeeling district of West Bengal. It is also cultivated in some other north eastern Hill states like Arunachal Pradesh, Nagaland, Mizoram, Manipur, Meghalaya, Assam and parts of Uttarakhand. Nepal and Bhutan are the other two Himalayan countries where large cardamom is cultivated. Sikkim is the largest producer of large cardamom and constitutes for lion share of Indian and world market. The large cardamom plant is a perennial herb with subterranean rhizomes with leafy shoots (Gudade *et al*. 2013, Singh, 1984, Gupta, 1983, Subba, 1984). Sikkim being an organic state, only eco-friendly and non chemical measures are to be adopted. Bio-agents are now being used for managing various viral and fungal diseases of large cardamom replacing the use of chemical fungicides (Vijayan *et al.*, 2013). Sikkim is a tiny state of north-eastern India and stretches between 27^0 04' to 28^0 07' 48" N latitude and 88^0 00' 58" to 88^0 55' 25" E longitude on the southern slope of the Eastern Himalayas with a total geographical area of 7096 km^2. Dzongu area of North Sikkim, triangular-shaped landscape covers an area of 15,846 ha located between 27^0 28' to 27^0 38' N latitude and 88^0 23' to 88^0 38' E longitude with an altitude range of 700 to 6000 mamsl. Dzongu area is divided into upper Dzongu and lower Dzongu comprises of 11 villages with an approximate population of nine thousand (Kumar *et al.,* 2013). The North Sikkim district was selected purposively due to maximum tribal farmers' population (85%) lives (Chhetri, 2013). North district of Sikkim is one of the large cardamom growing areas. To achieve the higher level of production and productivity, the inadequate level of knowledge of the recommended technology as well as non-adoption may be a big hindrance, which also hampers the production potential of the large cardamom crop. The gap always appears between the recommended technologies and their use in farmer's fields. Besides this, agro-economic, socio-psychological characteristics of the farmers play a major role in their knowledge and adoption for increasing production in tribal area in north Sikkim. Keeping this in view, the present investigation was planned to explore the level of awareness and also determine the extent of adoption of large cardamom production technology. The study was carried out to study the level of awareness of tribal farmers about improved large cardamom technology and to study the extent of adoption of improved large cardamom technology by the tribal farmers.

METHODOLOGY

The study was conducted purposively in Tingbong, Nung, Passingdang, Lingdong and Lingkoo villages of Dzongu areas of North Sikkim under NAIP, Component III during 2011-12. This district has maximum area and production of large cardamom. The North Sikkim district

Indian Cardamom Research Institute, Regional Station, Spices Board, Tadong, Gangtok-737102, Sikkim, India

was selected purposively due to maximum tribal farmers' population (85%). A list of the large cardamom growing villages was prepared and 5 villages were selected randomly. A village wise list of the large cardamom growing tribal farmers of the selected 5 village was prepared and 25 farmers of each village were randomly selected. Thus, the total sample consisted of 125 tribal farmers spread over five selected village. The primary data were collected with help of interview schedule, which was prepared on the basis of objectives of the study. The secondary data were obtained from published journals.

RESULTS AND DISCUSSION

Awareness of tribal farmers about large cardamom production technology (Table 1) revealed that out of the total of 125 large cardamom growers, 19.20 per cent had low awareness 36.00 per cent had medium awareness about field preparation practices and 44.80 per cent had high awareness. About planting time, 16.80 per cent had low awareness, 36.00 per cent respondents had medium awareness and 50.40 per cent had high awareness. Regarding the improved varieties, 29.60 per cent had low awareness, 52.00 per cent respondents had medium awareness and 18.40 per cent had high awareness. About planting material, 32.80 per cent had low awareness, 52.80 per cent respondents had medium awareness and 14.40 per cent had high awareness. In case of sucker treatment, 24.80 per cent had low awareness, 69.60 per cent respondents had medium awareness and 5.60 per cent had high awareness. Regarding method of planting, 23.20 per cent had low awareness, 36.00 per cent respondent had medium awareness and 40.80 per cent had high awareness. About the recommended dose of manuring, 29.60 per cent had low awareness, 59.20 per cent respondents had medium awareness and 11.20 per cent had high awareness. In case of irrigation management 28.80 per cent respondents had low awareness, 56.00 per cent respondents had medium awareness and 18.40 per cent had high awareness. Regarding the method of weed control, 19.20 per cent had low awareness, 57.60 per cent respondents had medium awareness and 23.20 per cent had high awareness. In case of plant protection (bioagents), 36.80 per cent respondents had low awareness, 48.00 per cent had medium awareness and 16.00 per cent had high awareness. Regarding the method of improved curing system, 33.60 per cent had low awareness, 51.00 per cent respondents had medium awareness and 15.20 per cent had high awareness.

Table 1: Level of awareness of the respondents about large cardamom production technology

n=125

Practices followed by farmers	Tribal farmers level of awareness		
	Low	Medium	High
Field preparation	24 (19.20)	45 (36.00)	56 (44.80)
Planting time	21 (16.80)	45 (36.00)	63 (50.40)
Improved varieties	37 (29.60)	65 (52.00)	23 (18.40)
Planting materials	41 (32.80)	66 (52.80)	18 (14.40)
Sucker treatment	31 (24.80)	87 (69.60)	07 (5.60)
Method of panting	29 (23.20)	45 (36.00)	51 (40.80)
Recommended dose of manuring	37 (29.60)	74 (59.20)	14 (11.20)
Irrigation management	36 (28.80)	70 (56.00)	23 (18.40)
Method of weed control	24 (19.20)	72 (57.60)	29 (23.20)
Plant protections (bioagents)	46 (36.80)	60 (48.00)	20 (16.00)
Improve curing system	42 (33.60)	64 (51.20)	19 (15.20)

N-B. Figure in parenthesies indicate percentage

Table 2: Extent of adoption of the respondents about large cardamom production technology

n=125

Practices followed by farmers	Tribal farmers level of adoption		
	Low	Medium	High
Field preparation	28 (22.40)	44 (35.20)	53 (42.40)
Planting time	22 (17.60)	41 (32.80)	62 (49.60)
Improved varieties	50 (40.00)	57 (45.60)	18 (14.40)
Planting materials	46 (36.80)	60 (48.00)	19 (15.20)
Sucker treatment	33 (26.40)	81 (64.80)	11 (8.80)
Method of panting	31 (24.80)	50 (40.00)	44 (35.20)
Recommended dose of manuring	44 (35.20)	65 (52.00)	17 (13.60)
Irrigation management	39 (31.2	68 (54.40)	18 (14.40)
Method of weed control	22 (17.60)	75 (60.00)	28 (22.4)
Plant protections (bioagents)	52 (41.60)	54 (43.20)	19 (15.20)
Improve curing system	39 (31.20)	68 (54.40)	20 (60.00)

N-B. Figure in parenthesies indicate percentage

Adoption of improved large cardamom production technology by the tribal farmers presented in Table 2 showed that out of the total of 125 large cardamom growers, 22.40 per cent had low adoption, 35.20 per cent had medium adoption and 42.40 per cent had high adoption. About planting time, 17.60 per cent had low adoption, 32.80 per cent respondents had medium adoption and 49.60 per cent had high adoption. Regarding the improved varieties, 40.00 per cent had low adoption, 45.60 per cent respondents had medium adoption and 14.40 per cent had high adoption. About planting material, 36.80 per cent had low adoption, 48.00 per cent respondent had medium adoption and 15.20 per cent had high adoption. In case of sucker treatment, 26.40 per cent respondents had low adoption, 64.80 per cent had medium adoption and 8.80 per cent had high adoption. Regarding the method of planting, 24.80 per cent had low adoption, 40.00 per cent respondents had medium adoption and 35.20 per cent had high adoption. About the recommended dose of manuring, 35.20 per cent had low adoption, 52.00 per cent respondents had medium adoption and 13.60 per cent had high adoption. In case of irrigation management, 31.20 per cent respondents had low adoption, 54.40 per cent had medium adoption and 14.40 per cent had high adoption. Regarding the method of weed control, 17.60 per cent had low adoption, 60.00 per cent respondents had medium adoption and 22.40 per cent had high adoption. In case of plant protection (bioagents), 41.60 per cent respondent had low adoption, 43.20 per cent respondents had medium adoption and 15.20 per cent had high adoption. Regarding the method of improved curing system, 31.20 per cent respondents had low adoption, 54.40 per cent had medium adoption and 60.00 per cent had high adoption.

CONCLUSION

Regarding the level of awareness of the tribal farmers about recommended large cardamom production technology in Dzongu areas of North Sikkim, a majority of respondent who were found in medium awareness category, like improved varieties (52.00%), planting materials (52.80%), sucker treatment (69.60%), recommended dose of manuring (59.20%), irrigation management (56.00%), method of weed control (57.60%), plant protection measures (48.00%) improved curing system (51.20%). Two respondents found in high awareness category, like planting time (50.40%).

Regarding the adoption of tribal farmers about recommended large cardamom production technology in Dzongu areas of north Sikkim, a majority of respondent who were found in medium adoption category, like improved varieties (45.60%), planting materials (48.00%), sucker treatments (64.80%), method of planting (40.00%), recommended dose of manuring (52.00%), irrigation management 54.40 per cent, method of weed control (60.00%), plant protection measures (43.20%), improved curing system (54.40%). Two respondents found in high adoption category, like field preparation 42.40 per cent.

ACKNOWLEDGMENT

The authors are thankful to the Indian Council of Agricultural Research (ICAR), New Delhi for funds under National Agricultural Innovation Project (NAIP), Component III: Livelihood improvement of rural poor through sustainable farming system in north east india for undertaking this research.

REFERENCES

Gupta P. N. 1983. Export potential of large cardamom, Cardamom 15(1): 3-9.

Singh G. B. 1984. Large cardamom, Cardamom 10(3): 3-13.

Subba J. R. 1984. Agriculture in hills of Sikkim, *Sikkim Science Society*, Gangtok: 198-207.

Chhetri, Durga Prasad. 2013. Preserving cultural identity through tribal self governance: The case study of lepcha and lachungpa tribes of Sikkim Himalaya, India, *American Journal of Research in Humanities, Arts & Social Sciences*: 22-28.

Gudade B. A., Chhetri P., Gupta U. and. Deka T. N 2013. Establishment of large cardamom (Amomum subulatum Roxb.) sucker nursery at Sikkim, *Popular Kheti* 1(3) pp 13.

Kumar, Ashok R. K. Avasthe, Gopal Shukla and Y. Pradhan (2013). Ethno botanical edible plants biodiversity of Lepcha tribes, *Indian Forester* 138(9): 798-0803.

Vijayan A. K., Gudade B. A., Chhetri P., Gupta U. And Deka T. N. (2013) Bio-control of fungal diseases in large cardamom using Pseudomonas fluorescens, *Popular Kheti* 1(3): 10-13.