

An Economic Analysis of Production of Organic Tea Planting Materials in Coochbehar District of West Bengal

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ABSTRACT

Tea is one of the important plantation crops of India as well as West Bengal, contributes considerably in national economy and earns foreign exchange. During 2014-15, total production of tea in India was 1233.14 m kg, out of which only 100 m kg were organic tea. Mainly due to importers demand of organic tea, there is urgent need to enhance organic production of tea crop. Indiscriminate use of inorganic agricultural inputs-fertilizers, weedicides, pesticide and fungicides and lesser use of organic matters deplete soil health, residues remain beyond MRL in processed tea, ultimately reduction in export. Tea Board provides 55% subsidy for organic tea production. For organic cultivation of tea, the planting materials should also be organically produced in nursery, which is very scanty for perennial crops in general and plantation crops in particular. With this background, the present investigation was carried out at instructional farm of the department of Plantation Crops and Processing, UBKV, Pundibari, located at 26°19'86" N Latitude and 89°23'53" E Longitude at an elevation of 43 m msl with the objective to evaluate the economics of organically production of planting materials of tea. The experiment was conducted from 2013 to 2015 and laid out in completely randomized block design. For evaluation of economics of organic planting material of tea in our experiment, 4,000 plantable plants were produced, which incurred a total cost of Rs 23,317 the cost of production was Rs 5.83 per plant. So, considering the market price of Rs. 15.00 per planting material, an income of Rs 60,000.00 which could fetch a profit of Rs.36,683.00 within 9-12 months; benefit: cost ratio calculated to be 2.57.

Keywords: Tea, Planting materials, Nursery, Cost, Returns

INTRODUCTION

Tea is one of the important plantation crops of West Bengal, particularly North Bengal known all over the world for its best quality. Most of the tea gardens follow conventional cultivation

practices using various chemical inputs. For establishment of organic tea plantation, the planting materials also have to be produced following organic methods.

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Tea nurseries generally use chemical inputs especially fertilizers and plant protection chemicals for production of planting materials which affect the physical and chemical properties of soil, leaves residues and disturb ecosystem. A minimum of three years is needed for an established conventional garden to be converted to organic, which has to be certified by a certifying agency. The problems for established tea gardens that wish to go organic are two fold, *i.e* yield drop up to an extent of 44 per cent and over 65 per cent increase in cost of production as compared to the conventional cultivation (Goswami, 2015; FAO, 2014). In India, the cultivation of organic tea started during 1986 and gradually spread to the tea areas of West Bengal, Assam and South India (Prayukth, 2005). Therefore, inputs chosen for better planting material production also play key role to guarantee the desired crop performance and economic returns to the farmers. For producing planting materials of tea using nutrients in elemental forms and organic inputs like farm yard manure, vermicompost, biofertilizers and biopesticides. Mainly due to importers demand of organic tea, there is urgent need to enhance organic production of tea crop. Indiscriminate use of inorganic agricultural inputs-fertilizers, weedicides, pesticide and fungicides and lesser use of organic matters deplete soil health, residues remain beyond MRL in processed tea, ultimately reduction in export. Tea Board provides 55% subsidy for organic tea production. For organic cultivation of tea, the planting materials should also be organically produced in nursery, which is very scanty for perennial crops in general and plantation crops in particular. With this background, the present investigation was carried out at instructional farm of the department of Plantation Crops

and Processing, UBKV, Pundibari, Though, there are a few gardens cultivating tea organically but there are few reports on cultivation practices and more particularly production of planting materials. Keeping this in view the present investigation was conducted with the following objective

MATERIALS AND METHODS

Costs of inputs incurred will be recoded to ascertain the cost of production of seedlings/cuttings *vis-a-vis* the sale price will be calculated. The benefit: cost ratio will be calculated after computation of data and considering the local market value of different production inputs and the produce during the year 2015.

$$\text{Benefit cost ratio} = \frac{\text{Present worth of gross returns}}{\text{Present worth of costs}}$$

RESULTS

The profit analysis of any new technology is directly linked to its acceptance among the farming community. In the present investigation, economics of organically production of planting materials of tea has proved it has ample scope from economic point of view. The total number of planting materials produced were 4000 no's, which incurred a total cost of Rs. 23,317. The cost of production per plantable plant was calculated *i.e.*, Rs. 5.83. Considering the market price Rs. 15.00 was finalized as sale price per plantable plant. Total income obtained was calculated to be Rs. 60,000, which fetches a profit of Rs. 36,683 with in 10-15 months. The benefit cost ratio obtained was 2.57. The findings are in line of observations reported by Devi et al., (2003), Khan and Chattopadhyay (2009), Kondapa et al., (2009) and Vimera et al., (2012) also.

Table 1:

Sl. No.	Particulars		Quantity	Rate (in Rs.)	Expenditure (in Rs.)
1.	PLANTING MATERIALS	Seeds			
		TS-462	6.00 kg	600.00	3,600.00
		TS-463	2.00 kg	600.00	1,200.00
		TS-491	3.00 kg	900.00	4,500.00
		TS-506	2.00 kg		
		Cuttings			
		TV 26	1000 Nos.		1,000.00
		TV 23	200 Nos.		200.00
		Tin Ali	200 Nos.	1.00	200.00
		TV 9	200 Nos.		200.00
2.	INPUTS	Polythene sleeves	16 kg	120.00	1920.00
		Vermicompost	50 kg	5.00	250.00
		FYM	30 kg		50.00
		Rock phosphate	1.00 kg	15.00	15.00
		Bamboo	20	80.00	1600.00
		Biofertilizers			
		<i>Azoto</i> *	4.500 kg	100.00	450.00
		<i>Azospiri</i> *			
		PSB*			
VAM					
<i>Tricho</i> *					
3.	LABOUR	i) Various works for preparation of soil and FYM for filling Sleeves	20 man days	186.00	3720.00
		ii) Intercultural operations- weeding, watering	12		2232.00
		iii) Erection of nursery structure:	10		1860.00
4.	PLANT PROTECTION	Multineem	300 ml	40 Rs/100 ml	120.00
5.	Misc.	Sprayer, Nylon rope			200.00
TOTAL					23,317.00

DISCUSSION

Adoption of any new technology by the farmers will be depended on cost effectiveness of the technology. In the present investigation, a total of 4000 plantable plants were produced in 480 days incurring a total cost including various organic manures, biofertilizers etc. of Rs. 23,317.00. Considering an average selling price of Rs. 15.00 per plantable plant, a benefit cost ratio of 2.57 could be obtained. Baishaya et al. (2012) reported that integrated application of inorganic and organic fertilizers

and seed treatment with biofertilizers like *Azotobacter* and PSB together improved tuber yield of potato, and gave higher return as compared to those of the crop treated with either *Azotobacter* or PSB during all the three years. The net return percent invested did not vary appreciably among the biofertilizer treatments. Application of poultry manure and biofertilizers, *Azotobacter chroococcum* saved 25 per cent nitrogen in cabbage with cost benefit ratio of 1:4.30, Devi et al., (2003). Bioinoculation of *Azotobacter* and PSB showed immense promise to substitute the

requirement of nitrogen and phosphorus supplied through chemical fertilizers. The proposition has great scope from economic point of view in cabbage (Devi et al., 2003), chilli (Khan and Chattopadhyay, 2009; Kondapa et al., 2009). In king chilli, Vimera et al., (2012) computed highest net return with the combined application of 50% NPK with 50% FYM and biofertilizers. Bioinoculation of *Azotobacter* and PSB showed encouraging results particularly for substitution of phosphorous in the nursery. This finding has considerable scope from economic point of view.

Overall it can be concluded that establishing organic tea nursery and production of organic planting materials of tea is remunerative business and as this aspect is environment health concern, have ample scope in future generations for commercial success.

From the total number of plantlets produced and costs estimated, benefit cost ratio of 2.57 was incurred, which is considered to be economically viable option for commercial success in nursery as an enterpenureship. Establishing organic tea nursery for production of organic planting materials of tea could be a remunerative business.

REFERENCES

- Baishaya, L. K., Ghosh, D. C., Gupta, V. K., Dubey, S. K., Das, A., & Patel, D. P. (2012). Productivity and soil health of potato (*Solanum tuberosum* L.) Field as Influenced by Organic Manures, Inorganic Fertilizers and Biofertilizers under High Altitudes of Eastern Himalayas. *Journal of Agricultural Science*, 4(5), 223-234.
- Devi, H. J., Maity, T. K., & Paria, N. C. (2003). Effect of Different Sources of Nitrogen on Yield and Economics of Cabbage. *Envir and Ecol.*, 21(4), 878-88.
- FAO, (2014). Working group on organic Tea. Intersessional meeting of the intergovernmental group on tea, Rome: May, 5-6.
- Goswami, R. (2015). Big push for organic tea in India. The Telegraph Calcutta times news paper 4th June; Report of the working group on organic tea, 2nd intersessional meeting on 6th may, 2014.
- Prayukth, K. V. (2005). *Coomunications Coordinator at the Indo Norwegian Environment Program, in Bangalore.*
- Khan, S., & Chattopadhyay, N. (2009). Effect of inorganic and biofertilizer in chilli. *Journal of Crop and Weed*, 5(1), 191-196.
- Kondapa, D., Radder, B. M., Patil, P. L., Hebsur, N. S., & Alagundagi, S. C. (2009). Effect of integrated nutrient amangement on growth, yield and economics of chilli (Cv. Byadgidabbi) in a vertisol. *Karnataka Journal of Agricultural sciences.*, 22(2), 438-440.
- Ramasamy, P., Ghate, S. D., Shinde, P. S., & Sekar, I. (2014). Study the effect of INM on seedling growth and quality parameters of *Bixa orellana* L. seedlings at different stages. *Journal of Non-Timber Forest Products*, 21(3), 157-162.
- Vimera, K., Kanaujia, S. P., Singh, V. B., & Singh, P. K. (2012). Effect of integrated nutrient management on growth and yield of king chilli under foothill condition of Nagaland. *Journal of Indian Society of Soil Science*, 60, 45-49.
- Zeng XianShu., Lu HongFang., Campbell, D. E., & Ren Hai. (2013). Integrated energy and economic evaluation of tea production chains in Anxi, China. *Ecological Engineering*, 60, 354-362.