

## **Economics of Ginger Cultivation in the Hill Region of West Bengal**

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### **ABSTRACT**

Ginger is an important spice crop grown extensively in the hill region of West Bengal. But due to infestation of soft – rot disease, which may damage the crop severely, the farmers of this region are apprehensive of growing this crop. So, the area and production of this crop during the past few years remains more or less stable. The result of this survey work showed that this crop could provide a net return of Rs. 22245.05 per acre and it has a benefit – cost ratio of 2.21, which is much higher than traditionally grown alternative annual crops or crop combinations grown under same land situation.

**Key words :** Benefit – cost ratio, Gross return, By – product.

In Kalimpong sub-division of Darjeeling District of West Bengal, ginger, an important spice crop, is cultivated commercially by farmers. The agro – climatic condition of this region also favours the production of ginger in up land situation. In West Bengal, the crop covers about 9.4 thousand hectares of land of which Darjeeling District accounts for 21.28 percent and its share in the total production of the state was recorded to be 30.69 percent during the period 2002-03. Despite of having enormous potentiality for increasing in area and production of this crop in this region, this crop has failed to make any significant progress in this regard during the past few years. Under such circumstances, economics of ginger cultivation of this region was studied to examine the present position of this crop in the crop profile of this hilly region

### **MATERIALS AND METHODS**

Five villages from Kalimpong subdivision of Darjeeling district were selected for the study considering locational advantage and also for convenience of survey work. From each of these five villages, 20 ginger growers were randomly selected following Simple Random Sampling without Replacement technique. Collection of necessary information regarding costs and return for ginger cultivation as well as for other alternative crops or crop combinations were made through specially designed pretested schedule through personal interview during 2004-2005.

For estimation of cost of cultivation, the concept of prime cost including imputed value of family labour has been taken into consideration. The cost on account of depreciation and interest on working capital have not been included while estimating cost of cultivation for ginger and other alternative crops because of their meager magnitude and arbitrariness in their estimation. While calculating gross return, both the value of main product and by – product have been taken into account for all crops. In case of ginger, the value of mother rhizome (planting material) removed by farmers generally after 3-4 months of planting has been considered as by – product.

### **RESULTS AND DISCUSSION**

Keeping the objectives of the present study in view, the sampled farmers have been classified into groups on the basis of the size of holdings. The distribution of sampled farmers in each size group along with input – wise cost break-up has been showed in table – 1. It showed that total cost of production per acre has increased with the increase in operational holding size. The study revealed that all cost component have decreased with the increase in operational holding size except seed cost which was actually increased with the increase in operational size due to use of higher dose of planting material which was reflected in the quantity of mother rhizome removal. The total cost of production per acre was found to be Rs. 18238.97 when all size groups were taken together. The input – wise

break up of cost components presented in Table-1 showed that cost of planting material alone accounted for about 70 per cent of the total cost of production per acre followed by human labour (13.8%) and farm yard manure (11.53%). Except seed cost, all other cost components as a percentage of total cost were found to be higher for smaller size group of holding may be due to the fact that all those inputs were mostly supplied by the farm families for which no cash involvement were required. Gross return per acre, considering both the value of both main product and by-product, presented in table - 2 showed a decreasing trend with the increase in operational holding size. It was found to be Rs. 40480.02 per acre when all sampled farmers were taken together. It was found to be highest for the small size group of holding may be due to better managements practices for the smaller size of holding and higher dependency on family labour. Net return per acre and benefit cost ratio were worked out to be Rs. 22245.05 and 2.21 respectively (presented in Table - 3), when all size groups were taken together.

Comparing the net return per acre obtained and benefit – cost ratio recorded for ginger cultivation with that of alternative annual crops or crop combination as presented table-4, it was observed that cultivation of ginger was a high paying enterprise except rice–gladiolus crop combination under uniform land situation and also within the same time period as required by ginger provided proper management practices followed to restrict the disease infestation to a minimum level.

On the basis of the foregoing discussion it may be rationally concluded that cultivation of ginger was a highly remunerative under rainfed condition. Under irrigated condition, the crop also provided higher net return per acre than most of the crop or crop combinations, which would have taken in place of ginger except rice–gladiolus sequence, which yielded more revenue than ginger. Hence, ginger cultivation decision can be reasonably placed on higher rank of profitability ladder in the existing crop profile of those highly regions

**Table 1 Cost of cultivation per acre for ginger crop for different size groups of farmers classified according to the size of their total operational holdings.**

Operational holding size group (acre)	No of farmers	Avg. area operational holding (acres)	Total area under ginger (acre)	Seed cost (Rs./acre)	Cost of F.Y.M. (Rs./acre)	Cost of Bullock labour (Rs/acre)	Cost of human Labour (Rs/acre)	Total cost (Rs/acre)
≥ 1.0	47	0.78	11.28	11575.92 (65.18)	2512.62 (14.15)	962.25 (5.42)	2708.34 (15.25)	17759.13 (100.00)
1.01 – 2.0	33	1.63	10.89	12584.75 (69.52)	2078.24 (11.48)	853.60 (4.72)	2584.75 (14.28)	18101.34 (100.00)
2.02-3.00	14	2.21	5.46	15132.24 (75.76)	1610.29 (8.63)	747.58 (4.00)	2163.12 (11.6)	18653.23 (100.00)
Above 3.01	6	3.92	3.12	15215.50 (77.12)	1565.82 (7.94)	715.95 (3.63)	2231.90 (11.31)	19739.17 (100.00)
Total / Avg.	100	1.45	30.75	12756.38 (69.94)	2102.50 (11.53)	860.66 (4.72)	2519.42 (13.81)	18238.97 (100.00)

\*Figures within parenthesis indicate percentage

**Table 2 : Gross return per acre of ginger crop for different size groups of farmers**

Operational holding size Group (acre)	No. of farmers	Total acre under ginger (Acre)	Main Product		By – Product		Gross Return (Rs/acre)
			Quantity (Quintal/acre)	Value (Rs/Acre)	Quantity (q/acre)	Value (Rs/acre)	
≥ 1.0	47	11.28	33.4	38210.30	3.9	5174.30	43384.60
1.01 – 2.0	33	10.89	30.5	34875.40	4.1	5382.4	40257.80
2.02-3.0	14	5.46	25.2	31420.80	4.4	5639.10	37059.90
Above 3.01	6	3.12	24.7	30815.30	4.6	5963.8	36779.10
Total / Avg.	100	30.75	30.03	35073.39	4.13	5410.63	40484.02

**Table 3 : Net return and B-C ratio of ginger for different size groups of sample farmers**

Operational holding size Group (acre)	No. of farmers	Total acre under ginger (Acre)	Gross return (Rs/acre)	Gross Cost (Rs/acre)	Net Return (Rs/acre)	B-C ratio
≥ 1.0	47	11.28	43384.60	17759.13	25625.47	2.44
1.01 – 2.0	33	10.89	40257.80	18101.34	22156.46	2.22
2.01-3.0	14	5.46	37059.90	18653.23	18406.67	1.99
Above 3.01	6	3.12	36779.10	19729.17	17049.93	1.86
Total / Av.	100	30.75	40484.02	18238.97	222450.5	2.21

**Table 4 : Cost and return per acre obtained from various alternative crops / crop combination.**

Sl. No.	Crop Sequence	Gross Cost (Rs/acre)	Gross Return (Rs/acre)	Net Return (Rs/acre)	B-C ratio
1.	Maize – Rice	439.29	7199.35	5800.06	1.64
2.	Maize – Soybean	2133.39	1941.35	-192.04	0.91
3.	Maize – Blackgram	2081.02	1832.06	-188.96	0.91
4.	Maize – Mosem	1952.6	2046.35	93.69	1.05
5.	Dollay	6575.95	10166.67	4490.72	1.79
6.	Gladiolus – Rice	44556.72	83025.49	38468.77	1.86
7.	Ginger	18238.97	40484.02	22245.05	2.21