# The Pharma Innovation

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# Analysis of cost of cultivation of ginger in Aizawl district, Mizoram, India

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### Abstract
Ginger is an important crop for farmers across the state of Mizoram. This paper presents different cost and profit incurred on producing ginger. Multi-stage random sampling was used to select the respondents. The primary data were collected for Agricultural year 2021-22 through well designed and pretested schedule of 100 farmers. The standard methods and cost concepts are were used in calculating the cost of cultivation and farm profits. The study reveals that ginger cultivation has B-C ratio of 1.7. It is also observed that the cost of hiring labour was the highest among the various cost in ginger cultivation accounting for 35.23% of the total cost followed by seed cost which accounted 29.83% of total cost.

**Keywords:** Benefit-cost, ginger, production, costs, profit

## 1. Introduction
Ginger is well-known as spice and flavoring agent for food. Different goods that are in great demand in developed nations, such as ginger oil, ginger oleoresin, ginger candy, ginger powder, etc., can be prepared for export. Ginger is grown practically in all of North east states although Assam, Meghalaya, Mizoram, Arunachal Pradesh, and Sikkim are the top producers (NHB 2022). As jhum cultivation still prevails in Mizoram, organic ginger is grown without much tilling, i.e., just scraping the soil to make holes and planting rhizomes in it. In Mizoram, majority of the farmers still practice old and traditional methods of farming in which irrigation facilities, fertilize application and mechanization of farming are absent. The farmer usually used outdated tools such as hoe, sickle etc.

In Mizoram, there is a good scope to improve the yield per unit area and the overall production of ginger due to the favourable climate condition for ginger growth. Ginger has its own distinctive qualities like pungency, less crude fibre, and a high level of gingerol that received a GI tag. Not many studies related to ginger are carried out in the area although the interest among farmers for ginger cultivation grows as climate, soil and other ecological factors favour quality production of ginger. So as to improve the production and marketing of ginger in the state, the present study is conducted to identify various problems associated with the crops and suggest solutions for improving Ginger cultivation. The present study is an attempt to examine the cost of cultivation of Ginger in Aizawl district, Mizoram.

## 2. Materials and Methods
### 2.1 Study area
Aizawl district is one of the eleven districts of Mizoram, India. Aizawl is located between latitude 21°58' & 24°35' North and longitude 92°15' & 93°29' East. It has an area of 3576.31 sq.km with a total population 404,054. According to 2011 census the human population of Aizawl district are 404,054 out of which 201,072 is male and female is 202982. The district has 14 assembly constituencies and consists of five blocks. The city is located north of the Tropic of Cancer in the northern part of Mizoram and is situated on a ridge of 1132 metres (3715 ft) above sea level, with the Tlawng river valley to its west and the Tuirial river valley to its east.

### 2.2 Survey Design and Data Collection
Aizawl district has 5 R.D Blocks namely Tlangnuam, Aibawk, Darlawn, Phullen, Thingsulthliah. Darlawn block is selected for the study. 5 villages i.e. Darlawn, E-Phaileng, Hmunnghak, Pehlawn and Sawleng village from Darlawn block were selected. The primary data were collected for Agricultural year 2021-22 through well designed and pretested

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schedule of 100 farmers. Ginger growers were categorized into marginal (below 1 ha), small (1-2 ha) and medium (2-4 ha). Ginger growers were selected randomly using proportional allocation from each village. The 100 ginger producers who represented the overall sample for the study included 30 marginal, 46 small, and 24 medium growers.

## 2.3 Techniques of data analysis
The standard methods and cost concepts defined by Commission for Agricultural Costs and prices (CACP) were used in calculating the cost of cultivation and to derive the measures of efficiency i.e., farm business income, family labour income, net income and farm investment income. The cost concepts viz., Cost $A_1$, Cost $A_2$, Cost $B_1$, Cost $B_2$, Cost $C_1$, Cost $C_2$ and Cost $C_3$ were used in the present study and they are derived as follows.

## Cost $A_1$: It includes
1. Value of seeds
2. Value of hired human labour
3. Value of owned machinery
4. Value of hired machinery
5. Value of manures and organic fertilizers
6. Depreciation on farm implements and machineries
7. Interest on working capital
8. Land revenue

## Cost $A_2$
Cost $A_1$+Rent paid for leased-in land. In the present study Cost $A_1$ and $A_2$ were one and the same since all the selected farmers did not pay for cultivating the land.

## Cost $B_1$
Cost $A_1$+ interest on value of owned fixed capital (excluding land)

## Cost $B_2$
Cost $B_1$ + rental value of owned land + rent paid for leased in land

## Cost $C_1$
Cost$B_1$ + Imputed value of family labour

## Cost $C_2$
Cost $B_2$ + Imputed value of family labour

## Cost $C_3$
Cost $C_2$ + 10 percent of Cost $C_2$ on account of managerial function performed by farmer

## 2.3.1 Farm efficiency measures
1. Farm business income = Gross income – Cost $A_2$
2. Family labour income = Gross income – Cost $B_2$
3. Net income = Gross income – Cost $C_2$
4. Farm investment income = (Gross income–Cost $C_3$) + (Cost $B_2$-Cost$A_2$)
5. Benefit Cost ratio = Gross return/Total cost

## 2.3.2 Break even analysis
A break-even analysis can be defined as a chart which shows neither profit nor loss at various levels of activity, the level at which neither profit nor loss is shown being called the break-even point. A firm is said to be at break-even point when its costs are equal to revenue i.e., when the contribution margin is exactly equal to the fixed costs. The break-even analysis is the methodology used to calculate that level of output at which the firm neither makes profit nor suffers loss. The appropriate formula to estimate the break-even output is.

$$\text{Break even output} = \frac{\text{Total fixed costs}}{\text{Selling price per unit of output} - \text{Variable costs per unit}}$$

## 3. Results and Discussion
The profitability of any enterprise depends upon costs and returns. Crop production costs do not have huge impact on farmers of the study area as a whole though they are detrimental factor in the determination of profit and loss in farming. Several factors, including farmers' ignorance, poverty, lack of other options, and the fact that shifting cultivation is still followed in the study area is responsible for this. So the farmer keeps growing crops without maintaining any sort of financial record of their expenses. This made it difficult in estimating the costs involved in cultivation of crops. However, the study has only collected relevant cost components for the state in order to get a true estimate of the cost of cultivation in the state, bearing in mind the unique features of agricultural practises in Mizoram.

## 3.1 Cost input wise cultivation
In Mizoram, due to low population density, getting land for cultivation is not a problem because each village has community land that can be cultivated free of cost. Expenditure on variable cost is higher than fixed cost. The information on various items of cost of cultivation of ginger for different size of groups of holdings was worked out using standard cost concept and presented in Table 1.
At overall level per hectare total cost of cultivation for Ginger was worked out to ₹ 320545.01. The contribution of Cost 'A' ₹ 228915.36 accounted for 71.41 percent to total cost. The contribution of Cost 'B' ₹ 91629.65 to total cost was 28.59 percent. It was observed from the table that among different size of farms, total cost of cultivation incurred by the medium size farms were high (₹336816.02/ha) as compared to small and marginal size farms (₹ 321724.53/ha and ₹ 302411.68/ha) respectively.
The labour cost was the highest item of cost with major shares occupying 35.23 percent from the total cost because most of the operations like harvesting, sowing and weeding were human labour intensive operations. It is followed by seed cost which also has major share in the variable costs, occupying 29.83 percent. The distribution pattern of operational cost under various inputs shows that human labour costs was highest in medium size farms (₹ 118310.5/ha), compared to small size farms (₹ 112157.5/ha) and lowest in marginal size farms (₹ 109035.5/ha). Medium farmers are utilizing more of hired labour (31.03 percent) than small and marginal farm (30.06 percent and 25.66 percent). Marginal framers are employing more family labour (10.40 percent) than small and marginal farmers (4.80 percent and 4.10 percent). This implies that ginger grower depends on both hired human labour as well as family human labour.
The requirement of labour was high in ginger which cannot be meet by family human labour alone, hence dependence on hired labour was much. Cost of seed was highest in medium size group (₹ 98550/ha) followed by small group (₹ 97650/ha) and marginal farmers (₹ 89595/ha). As ginger respond well with fertilizer, the farmers are utilising organic manures. The cost of farm yard manure was highest for medium size group

followed by small and marginal farmers. The overall expenditure on miscellaneous for marginal, small and medium size farm groups was ₹ 1432.69/ha. The overall land revenue paid to government was ₹ 511.14/ha. The cost of rental value of own land was ₹ 90517.28/ha in different size of farms group, to which it was highest for medium size group (₹ 97802/ha) followed by small size (₹ 90284.47/ha) and

marginal size (₹ 83463.67/ha) respectively.

Overall per farm cost of cultivation was also presented in the table. The variable costs accounted were 71.27 percent (₹ 125289.42) and total fixed cost was 28.73 percent (₹ 50501.49) to the total costs per farm. The total costs incurred per farm were ₹ 175790.91.

**Table 1:** Cost of input wise ginger cultivation

| S. No | Particulars | ₹/ha | | | | ₹/farm |
|---|---|---|---|---|---|---|
| | | Marginal | Small | Medium | Overall | Overall |
| 1. | | | | | | |
| a) | Human labour | 109035.5 (36.06) | 112157.5 (34.86) | 118310.5 (35.13) | 112927.5 (35.23) | 59279 (33.72) |
| b) | Hired labour | 77598.5 (25.66) | 96701.5 (30.06) | 104513.5 (31.03) | 94906 (29.61) | 52199 (29.69) |
| c) | Imputed family labour | 31437 (10.40) | 15456 (4.80) | 13797 (4.10) | 18021.5 (5.62) | 7080 (4.03) |
| d) | Hired machinery | 502.16 (0.17) | 359.53 (0.11) | 205.6 (0.06) | 319.42 (0.10) | 444 (0.25) |
| e) | Owned machinery | 1805 (0.60) | 2506.69 (0.78) | 2745.63 (0.82) | 2474.02 (0.77) | 3425 (1.95) |
| f) | Cost of seed (rhizome) | 89595 (29.63) | 97650 (30.35) | 98550 (29.26) | 95625 (29.83) | 52605 (29.92) |
| g) | Cost of organic insecticide | 143.6 (0.05) | 151.29 (0.05) | 202.46 (0.06) | 166.2 (0.05) | 91.42 (0.05) |
| h) | Cost of organic manures | 11316 (3.74) | 11578 (3.60) | 11666 (3.46) | 11482 (3.58) | 6316 (3.59) |
| i) | Miscellaneous cost | 1221.34 (0.40) | 1398.34 (0.43) | 1508.25 (0.45) | 1432.69 (0.45) | 672.34 (0.38) |
| j) | Interest on working capital | 4272.37 (1.41) | 4516.03 (1.40) | 4663.77 (1.38) | 4488.54 (1.40) | 2456.66 (1.40) |
| | Total variable cost A | 217890.97 (72.05) | 230317.38 (71.59) | 237852.21 (70.62) | 228915.36 (71.41) | 125289.42 (71.27) |
| 2. | | | | | | |
| a) | Rental value of land | 83463.67 (27.60) | 90284.47 (28.06) | 97802 (29.04) | 90517.28 (28.24) | 49948.8 (28.41) |
| b) | Interest on fixed capital | 156.31 (0.05) | 183.98 (0.06) | 193.37 (0.06) | 177.93 (0.06) | 99.25 (0.06) |
| c) | Depreciation | 395.33 (0.13) | 427.83 (0.13) | 449.58 (0.13) | 423.3 (0.13) | 173.31 (0.10) |
| d) | Land revenue | 505.4 (0.17) | 510.87 (0.16) | 518.86 (0.15) | 511.14 (0.16) | 280.13 (0.16) |
| | Total fixed cost B | 84520.71 (27.95) | 91407.15 (28.41) | 98963.81 (29.38) | 91629.65 (28.59) | 50501.49 (28.73) |
| 3 | Total cost (A+B) | 302411.68 (100.00) | 321724.53 (100.00) | 336816.02 (100.00) | 320545.01 (100.00) | 175790.91 (100.00) |

**Note:** Figure in parenthesis indicates percentage to the total cost

## 3.2 Costs analysis

Different cost concepts were worked out to get the various returns from the ginger cultivation which is explained in Table 2. From the table, we can see that the overall per hectare Cost-$A_1$, Cost-$A_2$, Cost-$B_1$, Cost-$B_2$, Cost $C_1$, Cost$C_2$ and Cost-$C_3$ were ₹ 211828.3, ₹ 211828.3, ₹ 212006.23, ₹ 302523.51, ₹ 230027.73, ₹ 320545.01, and ₹ 352599.51 per

ha, respectively on the sampled farms.

Cost $A_1$ and $A_2$ were one and same as all the selected farmers are not paying for cultivating the land. The overall per farm cost-$A_1$, Cost-$A_2$, Cost-$B_1$, Cost-$B_2$, Cost $C_1$, Cost$C_2$ and Cost-$C_3$ were ₹ 118662.86, ₹ 118662.86, ₹ 118762.11, ₹ 168710.91, ₹ 125842.11, ₹ 175790.91 and ₹ 193370 respectively.

**Table 2:** Different cost concepts

| S. No | Cost concepts | ₹/ha | | | | ₹/farm |
|---|---|---|---|---|---|---|
| | | Marginal | Small | Medium | Overall | Overall |
| 1 | Cost $A_1$ | 187354.7 | 215800.08 | 225023.65 | 211828.3 | 118662.86 |
| 2 | Cost $A_2$ | 187354.7 | 215800.08 | 225023.65 | 211828.3 | 118662.86 |
| 3 | Cost $B_1$ | 187511.01 | 215984.06 | 225217.02 | 212006.23 | 118762.11 |
| 4 | Cost $B_2$ | 270974.68 | 306268.53 | 323019.02 | 302523.51 | 168710.91 |
| 5 | Cost $C_1$ | 218948.01 | 231440.06 | 239014.02 | 230027.73 | 125842.11 |
| 6 | Cost $C_2$ | 302411.68 | 321724.53 | 336816.02 | 320545.01 | 175790.91 |
| 7 | Cost $C_3$ | 332652.85 | 353896.98 | 370497.62 | 352599.51 | 193370 |

## 3.3 Income over different cost of ginger

The income over cost $A_1$, $A_2$, $B_1$, $B_2$, $C_1$, $C_2$ and $C_3$ of different size of farms per hectare and per farm are presented. The overall income over different cost i.e., income over cost $A_1$, $A_2$, $B_1$, $B_2$, $C_1$, $C_2$ and $C_3$ are ₹ 334342.23per ha, ₹ 334342.23/ha, ₹ 334164.30/ha, ₹ 243647.02/ha, ₹ 316142.8/ha, ₹ 225625.52/ha and ₹ 193571.02/ ha respectively. Per farm income from cost $A_1$, $A_2$, $B_1$, $B_2$, $C_1$, $C_2$ and $C_3$ were ₹ 182710.69, ₹ 182710.69, ₹ 182611.44, ₹ 132662.64. ₹ 175531.44, ₹ 125582.64 and ₹ 108003.55 respectively. It is presented in table 3.

**Table 3:** Income over different cost of ginger

| S. No | Particulars | ₹/ha | | | | ₹/farm |
| --- | --- | --- | --- | --- | --- | --- |
| | | Marginal | Small | Medium | Overall | Overall |
| 1 | Cost A1 | 316459.7 | 328971.97 | 364901.5 | 334342.23 | 182710.69 |
| 2 | Cost A2 | 316459.7 | 328971.97 | 364901.5 | 334342.23 | 182710.69 |
| 3 | Cost B1 | 316303.39 | 328787.99 | 364708.13 | 334164.3 | 182611.44 |
| 4 | Cost B2 | 232839.72 | 238503.52 | 266906.13 | 243647.02 | 132662.64 |
| 5 | Cost C1 | 284866.39 | 313331.99 | 350911.13 | 316142.8 | 175531.44 |
| 6 | Cost C2 | 201402.72 | 223047.52 | 253109.13 | 225625.52 | 125582.64 |
| 7 | Cost C3 | 171161.55 | 190875.07 | 219427.53 | 193571.02 | 108003.55 |

## 3.4 Output and returns from ginger production

Per hectare gross return was found to be ₹ 546170.53/ha. The net returns obtained at overall level were ₹ 225625.52/ha. The net income exhibited a positive relationship with the farm size. The per hectare gross returns of Ginger in marginal, small and medium size group was ₹ 503814.4, ₹ 544772.05 and ₹ 589925.15. Net income obtained from marginal, mall and medium size groups were ₹ 253109.13, ₹ 223047.52 and ₹ 201402.72, respectively. The overall gross return per farm was ₹ 301373.55 and the net returns per farm were ₹ 125582.64 respectively as shown in table 4.

**Table 4:** Output and returns from ginger cultivation

| S. No | Particulars | Per hectare | | | | Per farm |
| --- | --- | --- | --- | --- | --- | --- |
| | | Marginal | Small | Medium | Overall | Overall |
| 1 | Total production (q) | 178.56 | 190.7 | 197.12 | 189.25 | 104.09 |
| 2 | Gross returns (₹) | 503814.4 | 544772.05 | 589925.15 | 546170.53 | 301373.55 |
| 3 | Cost of cultivation (₹) | 302411.68 | 321724.53 | 336816.02 | 320545.01 | 175790.91 |
| 4 | Net returns (₹) | 201402.72 | 223047.52 | 253109.13 | 225625.52 | 125582.64 |

## 3.5 Cost of production

The cost of production was inversely related with the farm size. Cost per quintal of cultivating ginger decreased from ₹ 1693.61 on marginal farms to ₹ 1687.07 on small farms and ₹ 1708.69 on medium farms. In marginal farms, small farms, and medium farms, a quintal of ginger produced a net income of ₹ 1127.93, ₹ 1169.63, and ₹ 1284.04 respectively. The overall per quintal cost of cultivating ginger was ₹ 1693.76. Overall, a quintal of ginger had a net profit of ₹ 1192.21.The particulars on costs and returns per quintal of ginger are presented in Table 5.

**Table 5:** Cost and return per quintal of ginger production (₹/Quintal)

| S. No | Particulars | Per hectare | | | | Per farm |
| --- | --- | --- | --- | --- | --- | --- |
| | | Marginal | Small | Medium | Overall | Over all |
| 1 | Costs | | | | | |
| | (a) Variable costs | 1220.27 | 1207.75 | 1206.64 | 1209.59 | 1203.66 |
| | (b) Fixed costs | 473.35 | 479.32 | 502.05 | 484.17 | 485.17 |
| | Total costs | 1693.61 | 1687.07 | 1708.69 | 1693.76 | 1688.84 |
| 2 | Returns | | | | | |
| | (a) Gross returns | 2821.54 | 2856.7 | 2992.72 | 2885.97 | 2895.32 |
| | (b) Net returns | 1127.93 | 1169.63 | 1284.04 | 1192.21 | 1206.48 |

## 3.6 Measures of farm income

Measures of farm income are presented in Table 6. The overall per hectare gross income was ₹ 546170.53. Gross income exhibited direct relationship with the farm size and it was in the order of ₹ 503814.4, ₹ 544772.05 and ₹ 589925.15 per hectare on marginal, small and medium farm respectively. The gross income was more in medium farms due to higher productivity attained by this category of farms.

Net income which represents the surplus of income over total cost overall was ₹ 225625.52. It was ₹ 201402.72, ₹ 223047.52 and ₹ 253109.13 on marginal, small and medium size farm. The trend of net income revealed that large farmers were more efficient than small and marginal farmers in the utilization of resources in the cultivation of ginger.

Farm business income is a measure which indicates return to owned resources like land, capital and labour. The overall farm business income was ₹ 334342.23. On this front also, medium farmers were superior to small farmers and marginal farmers in tapping maximum productivity out of these resources. It was ₹ 316459.7, ₹ 328971.97 and ₹ 364901.5 for marginal, small and medium farmers.

Family labour income is another measure of farm efficiency representing the returns from farmers own labour and family labour. The overall family labour income was ₹ 243647.02. Large farmers derived more family labour income amounting to ₹ 266906.13 compared to ₹ 238503.52 for small farmers

and ₹ 232839.72 for marginal farmers.

The overall farm investment was found to be ₹ 284266.23. It was ₹ 254781.53 on marginal farms, ₹ 281343.52 on small farms and ₹ 317422.9 on medium farms.

The overall income of ginger production per farm was ₹ 301373.55, net income ₹ 125582.64, farm business income ₹ 182710.69, family labour income ₹ 132662.64, farm investment income ₹ 158051.6 and benefit-cost ratio was 1.71.

The benefit-cost ratio indicates the return from each rupee investment in ginger cultivation. The B: C ratio is highest for medium farmers and it was 1.75. For small farmers and marginal farmers it was 1.69 and 1.67 respectively. At overall level B: C was 1.7.

**Table 6:** Measures of farm income

| S. No | Particulars | ₹/hectare | | | | ₹/farm |
|---|---|---|---|---|---|---|
| | | Marginal | Small | Medium | Overall | Overall |
| 1 | Gross income | 503814.4 | 544772.05 | 589925.15 | 546170.53 | 301373.55 |
| 2 | Net income | 201402.72 | 223047.52 | 253109.13 | 225625.52 | 125582.64 |
| 3 | Farm business income | 316459.7 | 328971.97 | 364901.5 | 334342.23 | 182710.69 |
| 4 | Family labour income | 232839.72 | 238503.52 | 266906.13 | 243647.02 | 132662.64 |
| 5 | Farm investment income | 254781.53 | 281343.52 | 317422.9 | 284266.23 | 158051.6 |
| 6 | BCR | 1.67 | 1.69 | 1.75 | 1.7 | 1.71 |

## 3.7 Break even analysis

A break-even analysis determines the functional relationship of revenue and costs to output. It is used to calculate that level of output at which the firm neither makes profit nor suffers loss. Break-even analysis of ginger cultivation according to size groups are presented in Table 7.

The overall break even out-put was 34.93 quintals per hectare respectively. For marginal, small and medium farm it was 32.35, 34.82 and 37.68 quintals per hectare respectively. Per farm break-even output was 19.21 quintals. It is apparent that the average yields obtained by small and large farms exceeded the minimum output to be produced. The overall margin of safety stood at 154.32 quintals. It was 146.21, 155.88 and 159.44 quintals for marginal, small and medium farms. This margin of safety confirmed the ability of farmers to cope up with the eventualities in ginger cultivation.

**Table 7:** Break even analysis

| S. No | Particulars | Per hectare | | | | Per farm |
|---|---|---|---|---|---|---|
| | | Marginal | Small | Medium | Overall | Overall |
| 1 | Total Fixed Costs (₹) | 84520.71 | 91407.15 | 98963.81 | 91629.65 | 50501.49 |
| 2 | Variable cost (₹/Quintal) | 1220.27 | 1207.75 | 1206.64 | 1209.59 | 1203.66 |
| 3 | Price (₹/Quintal) | 3833 | 3833 | 3833 | 3833 | 3833 |
| 4 | Break-even output (Quintals) | 32.35 | 34.82 | 37.68 | 34.93 | 19.21 |
| 5 | Average output (Quintals) | 178.56 | 190.7 | 197.12 | 189.25 | 104.09 |
| 6 | Margin of safety (quintals) | 146.21 | 155.88 | 159.44 | 154.32 | 84.88 |
| 7 | Percentage BEO to average output | 18.12 | 18.26 | 19.12 | 18.46 | 18.45 |

## 4. Conclusion

Human labour, seed rhizomes, manures and rental value of land were the major items of cost on all the size groups and it accounted for more than 90 percent of the total cost. Ginger is a labour intensive crop. Therefore, it requires more manpower compared to other crops. The share of total cost for hiring labour was major items of cost on all the ginger farmers. Among the three sampled farmers, medium farmers are utilising the most hired labour while marginal farmers are utilising the least hired human labour as most of the family members are engaged in farm work. This is a result of their less cultivated area and lack of funds for hiring labour. Farmers in the study area continued to use out dated tools and equipment.

The absence of irrigation system, less usage of fertilizer and the predominance of shifting cultivation and other factors would have a negative impact on the profitability of ginger farming. The government should assist farmers by strengthening the support given to them by giving more subsidies in loans especially to marginal farmers so they can expand their operations and enhance their output. The government should provide quality seed to the farmers or give them purchase subsidy. Organising training and awareness programme to educate the farmers about the package and practice of organic ginger cultivation and providing information about available loan that is for the farmers is

needed so that they can farm more efficiently.

Medium sized farms were highly efficient as indicated by the high values of net returns from ginger cultivation compared to small and marginal farmers. The net profit per quintal increases as the amount of ginger planted and the size of the farm increases. By providing financing and assisting them with ginger cultivation expertise, the government should take the required steps to help ginger farmers especially marginal farmers to engage in large-scale farming.

Farmers in the study are still using the traditional method of farming using out dated tools and implements. The absence of a proper irrigation system, lack of fertilizer, and prevalence of shifting cultivation has a negative impact on the profitability of ginger cultivation. Despite these issues, farmers who have no other options may be able to make a good earning. Farmers in the study area will certainly earn a higher net return and contribute to the state's welfare if the competent authority pays attention to them.

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