An economic analysis of production and marketing of sunflower in Raigarh district of Chhattisgarh

Balram Arya and Jayant Zechariah

Abstract
This study seeks to examine (i) the growth rate in area, production and productivity of Sunflower in Raigarh district and Chhattisgarh State, (ii) costs and returns of Sunflower, (iii) disposal pattern of Sunflower in the study area and (iv) the major constraints in production and marketing of spices and suggest suitable measures to overcome them. The study was conducted in Raigarh district of Chhattisgarh state. Total 120 farmers were considered for the study, which comprised of small (58), medium (42) and large (30). The Primary data were collected from the sample farmers through personal interview method. The data were pertaining for agricultural. The study envisaged that family size of sample farmers was 5.8 members. The average farm size was found to be 2.21 hectares. Overall cropping intensity was observed to be 184 percent. The average cost of cultivation of Sunflower was Rs/ha. 211855.51 and estimated gross return was Rs/ha 47600.00 The cost per quintal production of Sunflower was noticed to be Rs 2800 The average yield of Sunflower was q 17.00 q/ha. The benefit cost ratio of Sunflower was registered to 1:3.01. There were two marketing channels for marketing of spices,viz., Channel-I: Producer – Consumer Channel-II: Producer – Village Merchant /Retailer – Consumer. Channel-III: Producer – Commission Agents/Wholesaler – Retailer – Consumer Among the sample Sunflower growers more than ninety five percent marketable surpluses were observed in Sunflower.

Keywords: cost and returns, profitability of sunflower

Introduction
India is one of the largest producers of oilseeds in the world and occupies an important position in the Indian agricultural economy. It is estimated that nine oilseeds namely groundnut, rapeseed-mustard, soybean, sunflower, safflower, sesamum, niger, castor and linseed, accounted for an area of 23.44 million hectares with the production of 25.14 million tonnes. (B. madhusudhana 2008) India is amongst the largest producer and consumer of vegetable oils in the world. Oilseeds have been the backbone of agricultural economy of India since long. Indian vegetable oil economy is the fourth largest in the world next to USA, China and Brazil. Oilseed crops play the second important role in the Indian agricultural economy next to food grains in terms of area and production. The Indian climate is suitable for the cultivation of oilseed crops; therefore, large varieties of oilseeds are cultivated here. The major oilseeds cultivated in our country are groundnut, rapeseed and mustard, castor seed, sesamum, niger seed, linseed, safflower, sunflower and soybean. However, groundnut, rapeseed/mustard, soybean and sunflower account for a major chunk of the output. At present, more than 27 million hectares of land is under oilseeds cultivation.

Objectives of the Study
To find out cost of production of sunflower and profitability per hectare in different farm size group.

Materials and Methods
Raigarh district was the Sunflower growing district in Raigarh, district alone contributes an, area of (27.224/MH) of Sunflower with the production of 33,500 (MT) (2011-12). District was specialized in the cultivation of Sunflower of commercial scale and it was a Sunflower growing Raigarh district was selected purposively for the study.

For the first stage Raigarh district contains 9 blocks were selected viz namely Raigarh, Sarangarh, Dharmjaygarh, Gharghora, Lailunga, Kharsia, Baramkela, pusour and
Tamar. Among all these blocks, pusour tehsil (716 ha) for sunflower selected due to highest in area and production under Sunflower crop cultivation.

A complete list of all villages was obtained from pusour block office; Therefore; the villages was arranged in ascending order, according to area under Sunflower cultivation. Pusaur block consists of 141 villages. Altogether 7 villages were selected randomly for the present study.

**Results and Discussion**

Table 1: Resource use and Cost of Cultivation of Sunflower crop per hectare in different Size of Farms Group, Number of Respondents = 120

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Particulars of Farm Operations</th>
<th>Size of Farms Groups</th>
<th>Sample Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hired Human Labour Charges</td>
<td>Small (8200.00)</td>
<td>210832.80</td>
</tr>
<tr>
<td>2</td>
<td>Bullock Labour Charges</td>
<td>Medium (3950.00)</td>
<td>8560.00 (4.20)</td>
</tr>
<tr>
<td>3</td>
<td>Machinery Labour Charges</td>
<td>Large (3800.00)</td>
<td>8920.00 (4.51)</td>
</tr>
<tr>
<td>4</td>
<td>Cost of Seedslings</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>5</td>
<td>Cost of Farm Yard Manure</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>6</td>
<td>Cost of chemical Fertilizers</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>7</td>
<td>Cost of Irrigation charges</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>8</td>
<td>Cost of Plant Protection charges</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>9</td>
<td>Miscellaneous charges</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>10</td>
<td>Interest on Working Capital @ 8%</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>11</td>
<td>Depreciation on Fixed Resources</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>12</td>
<td>Land Revenue Paid to Government</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>13</td>
<td>Interest on Fixed Capital @ 10%</td>
<td></td>
<td>8560.00 (4.08)</td>
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<tr>
<td>14</td>
<td>Rental Value of Own Land</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>15</td>
<td>Imputed value of Family Labour charges</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
<tr>
<td>16</td>
<td>Total Cost of Cultivation</td>
<td></td>
<td>8560.00 (4.08)</td>
</tr>
</tbody>
</table>

The Table 1.0 revealed that among different size of farms, total cost incurred by the small size farms was high (Rs.221794.00/ha) as compared to medium and large size farms (Rs.210832.80/ha and Rs.203239.00/ha). Sample average for total cost was Rs.204538.51/ha in different size of farms group.

Machinery labour cost was Rs. 4100/ha in different size of farms group. The cost of seedlings was the highest on small size farms (Rs. 38000/ha) as compare to medium and small size farms (Rs. 26000/ha) respectively. As sunflower would respond well with chemical fertilizer so the cost of farm yard manure used was ranged from Rs. 17000 (small size farms) to Rs. 21000 (medium size farms) and Rs. 21000 (large farms) respectively.

The average yield of sunflower in different size of farms group, the total cost of cultivation incurred by large size farms was highest (Rs.617600/ha) as compare to medium and small size farms (Rs.608000/ha and Rs.608000/ha) respectively. The net returns per hectare obtained by large size farms were high (Rs.436036/ha) as compared to medium and small size farms (Rs.416027/ha and Rs.398226/ha) respectively.

The average yield of sunflower in different size of farms group was Rs.1.938/ha. The yield was highest in case of large size farms 1.98 qt/ha as compared to medium (1.93 qt/ha) and small size farms (1.90 qt/ha) respectively. Average cost of production per qtl was Rs. 1065/ha. Gross Price per quintal was Rs.3200/ha.

Table 2: Costs and Returns in Sunflower crop per hectare in different Size of Farms Group

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Particulars</th>
<th>Size of Farms Group</th>
<th>Sample Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total Cost of cultivation</td>
<td>Small</td>
<td>210832</td>
</tr>
<tr>
<td>2</td>
<td>Yield in Quintal per hectare</td>
<td>Medium</td>
<td>210832</td>
</tr>
<tr>
<td>3</td>
<td>Gross Returns per hectare</td>
<td>Large</td>
<td>210832</td>
</tr>
<tr>
<td>4</td>
<td>Net Returns per hectare</td>
<td></td>
<td>210832</td>
</tr>
<tr>
<td>5</td>
<td>Cost of Production per quintal</td>
<td></td>
<td>210832</td>
</tr>
<tr>
<td>6</td>
<td>Price Per quintal</td>
<td></td>
<td>210832</td>
</tr>
<tr>
<td>7</td>
<td>Input-Output ratio</td>
<td></td>
<td>210832</td>
</tr>
</tbody>
</table>

The number of respondents = 120

Table 2.0 reveals that Costs and Returns in sunflower cultivation in different size of farms group. Among different size of farms groups, the total cost of cultivation incurred by the small farms were high (Rs. 212194/ha) as compared to medium (Rs. 210832/ha) and large farms (Rs. 210832/ha). Sample average for total cost of cultivation was Rs. 210832/ha in different size of farms group. The gross returns obtained per hectare by large size farms were high (Rs. 633600/ha) as compare to medium and small size farms (Rs.617600/ha and Rs.608000/ha) respectively. The net returns per hectare obtained by large size farms were high (Rs.436036/ha) as compared to medium and small size farms (Rs.416027/ha and Rs.398226/ha) respectively.

The average yield of sunflower in different size of farms group was Rs.1.938/ha. The yield was highest in case of large size farms 1.98 qt/ha as compared to medium (1.93 qt/ha) and small size farms (1.90 qt/ha) respectively. Average cost of production per qtl was Rs. 1065/qa. Gross Price per quintal was Rs.3200/qa.


Table 3: Cost Concepts in Sunflower crop per hectare in different Size of Farms Group

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Cost Concepts</th>
<th>Size of Farms Group</th>
<th>Sample Average</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Small</td>
<td>Medium</td>
</tr>
<tr>
<td>1</td>
<td>Cost A1</td>
<td>188774</td>
<td>179152</td>
</tr>
<tr>
<td>2</td>
<td>Cost A2</td>
<td>188774</td>
<td>179152</td>
</tr>
<tr>
<td>3</td>
<td>Cost B</td>
<td>205494</td>
<td>182352</td>
</tr>
<tr>
<td>4</td>
<td>Cost C</td>
<td>221794</td>
<td>210532</td>
</tr>
</tbody>
</table>

Number of Respondents = 120
S M L=58+ 42+ 20 =120
(Value in Rupees)

Table 3.0 reveals that Cost Concepts on different size of farms group per hectare. Cost A1 was highest in small size farms (Rs.180754/ha) followed by medium size farms (Rs.174192/ha) and lowest in large size farms (Rs.169313/ha) respectively. Cost A2 in small, medium and large size of farms groups was Rs.180754/ha, Rs.174192/ha and Rs.169313/ha respectively. Cost B was highest in small size farms (Rs.194474/ha) as compared to medium size farms (Rs.187892/ha) and lowest in large size farms (Rs.182983/ha) respectively. Cost C was highest in small size farms (Rs.209774/ha) and lowest in large size farms (Rs.195583/ha). Sample average for Cost A2, Cost B and Cost C was Rs.176550/ha, Rs.190255/ha and Rs.204538/ha in different size of farms group.

Table 4: Measures of Farm Profitability in Sunflower crop per hectare in different Size of Farms Group Number of Respondents = 120 S M L=58+ 42+ 20 =120 (Value in Rupees)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Particulars</th>
<th>Size of Farms group</th>
<th>Sample Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Small</td>
<td>Medium</td>
</tr>
<tr>
<td>1</td>
<td>Gross Returns</td>
<td>50400</td>
<td>47600</td>
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<tr>
<td>2</td>
<td>Farm Business Income</td>
<td>138374</td>
<td>131552</td>
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<tr>
<td>3</td>
<td>Farm Investment Income</td>
<td>188114</td>
<td>179632</td>
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<tr>
<td>4</td>
<td>Net Returns</td>
<td>171394</td>
<td>162932</td>
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<tr>
<td>5</td>
<td>Family Labour Income</td>
<td>155094</td>
<td>134752</td>
</tr>
</tbody>
</table>

Table 4.0 reveals that Measures of Profitability in Sunflower cultivation in different size of farms group. The gross returns obtained per hectare by large size farms were high (Rs. 633600/ha) as compared to medium and small size farms (Rs.617600/ha and Rs.608000 /ha) respectively. This makes the sample average for gross returns was 615626/ha in different size of farms group. Farm business income in small, medium and large size of farms group was Rs.427246/ha, Rs.443407.20/ha and Rs.464286.00/ha respectively. Sample average for farm business income was 439075.82/ha in different size of farms group. Farm investment income was highest in large size farms (Rs.449706/ha) as compared to medium size farms (Rs.429727/ha) and lowest in small size farms (Rs.411946/ha) respectively. This makes the sample average for Farm investment income was Rs.424462.75/ha in different size of farms group. The net returns per hectare obtained by large size farms were high (Rs.438016/ha) as compared to medium and small size farms (Rs.416027.20/ha and Rs.398226/ha) respectively. Sample average of net returns was 411088.15/ha in different size of farms group. Sample average of Family labour income was Rs. 425371.15/ha in different size of farms group.

References