Economic Analysis of Production and Marketing of Cotton Under Contract and Non-contract Farming: A Case Study in Tamil Nadu

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Agriculture is continued to be the prime mover of the Tamil Nadu State economy supporting 60 percent of the population and contributing 13 percent of state economy in 2005-06. Besides providing employment opportunities to rural population, it supplies raw materials to agro-based industries. Cotton is an important input for the textile industry. In Tamil Nadu, total production of cotton is usually lower than its requirement. This crop is extensively being cultivated in the districts of Virudhunagar, Salem, Madurai and Coimbatore and these districts combined together accounted for 43 percent of the total area under cotton in the state as of 2005-06. The study revealed that the percentage share of transaction cost in total cost for non-contract farmers was Rs.1545 which accounted 14.45 percent. The productivity of cotton for contract farmers was 32.23 percent more than that of the non-contract farmers. The net revenue realization by contract producers was 51 percent higher than that of the non-contract farmers.

Key words: Contract farming, Transaction costs, Multipartite contract system, Tamil Nadu.

Sukhpal Singh (2000) observed that contract farming resulted in effective technology transfer to farmers and provided new and better farming skills and better soil management practices. Ajit Kumar (2001) revealed that in contract farming there was a problem of high costs of transport, delays on payment, vulnerability of crop failure and deduction in price for poor quality.

Contract farming is a system for the production and supply of agricultural produce under forward contracts. The essence of such contracts being a commitment to provide an agricultural commodity of a type, at a time and a price, and in the quantity required by known buyer. It involves four things like pre-agreed price, quality, quantity or acreage (maximum/minimum) and time. For individual farmers, it is not contract per se but the relationship it represents which is crucial in determining the development of contract farming as an institution.

For getting quality cotton, the spinning mills need to select the regions as per its specific requirements, recommend suitable hybrid/variety to the growers, ensure proper supply of inputs and technical guidance about crop production and management and fix the minimum procurement price. Such an intensive involvement of the mill with the farmer would facilitate propagation of integrated crop
management practices much. Contract farming system can be viewed as a partnership between agri business and farmers and is effective in coordinating the production and marketing aspects. When contract farming is efficiently organized and managed, it reduces the risks and uncertainty for both the farmers and sponsors as compared to buying and selling in the open market. Contract farming is an emerging trend in cotton, which has proved successful in a short span. The major objectives of the present study are: (i) to identify the existing system of contract farming for cotton; (ii) to examine the awareness and participation of farmers in contract farming and reasons for participation; and (iii) to compare the cost and returns and the effect of transaction cost on farm profitability of cotton farming under contract and non-contract systems.

Materials and Methods

The data required for the present study were collected using a well-structured and pre-tested interview schedule. Salem district was purposively selected because of farmers having contract under Super Spinning Mills Ltd (SSM), Coimbatore. The cotton farming activities of SSM were concentrated in Eddapadi taluk of Salem district. A random sample of 30 contract and 30 non-contract farmers were selected from two villages viz., Poriyur and Arriyam palayam. Primary field surveys of contract and non-contract farmers of cotton were conducted to gather information on their production and transaction costs. Detailed information were collected about the socio-economic characteristics of the sample farmers, production portfolio, item-wise cost of production, yield levels, labour use and cost of marketing for various activities for both contract and non-contract farmers.

Analysis

Garrett’s Ranking

Garrett’s Ranking is applied to rank a set of items or factors as perceived by the sample respondents based on certain criteria. The order of merit assigned by the respondents was transmited into scores using the formula given by Garrett and Woodworth (1981).

\[
\text{Percent position} = 100\left(\frac{R_{ij} - 0.5}{N_j}\right)
\]

Where,

- \(R_{ij}\): the rank of the \(i^{th}\) item by \(j^{th}\) individual and
- \(N_j\): the number of items ranked by the \(j^{th}\) individual.

By referring the Garrett table, the percent position estimated was converted into score. Then for each factor, the scores of various respondents were added and the mean score was calculated. The factors with the highest mean score was considered to be the most important factor.

Transaction Cost

Transaction costs are the costs incurred by trading partners associated with the exchange of goods and services. These include costs involved in collection of market information, negotiations, monitoring and enforcement of business transaction (Jaffee et al., 1995). In a perfectly competitive situation, institutions with the lowest production and transaction costs for a given activity will have an edge over others and dominate the market (Williamson, 1979). De Janvry et al (1991) have suggested that the difference between selling and buying prices could serve as an approximation of the transaction costs. Some researchers have classified transaction costs into tangible (transportation costs, communication costs, legal costs, etc.) and intangible (uncertainty, moral hazards, etc.) and have used proxies for these in the analysis of choice of markets (Hobbs, 1997).

This study has attempted to quantify transaction costs incurred by both the contract and non-contract producers. Thus costs of travel, transport and storage costs, loss in quantity, market fee, commission charges, gunny bag costs, loading & unloading charges and personnel time have been included. Benefits to the producers were estimated in terms of changes in the production and transaction costs due to institutional arrangements.

Results and Discussion

Multiparticle System of Contract Farming in Cotton

The Department of Agriculture has organized a cotton stake holders’ meet to promote contract farming involving officials from Tamil Nadu Agricultural University and Central Institute for Cotton Research, mills, cotton farmers, credit institutions, insurance agencies, marketing sector and input suppliers. The Commissionerate of Agriculture has formulated a multipartite contract farming model for enhancing cotton production in the state and approached various agencies viz., mills, Cotton Corporation of India, insurance agencies, and banking institutions for participation in the programme.

In the present study, the mills act as the chief coordinator of the programme and provide extension services as well as training to the farmers. The State Bank of India provided the credit facilities to farmers
Table 2. Comparative Study of Cost and Returns of Cotton (MCU-5/Surabi) under Contract and Non-Contract Farms (Rs/ha)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>CF</th>
<th>NCF</th>
<th>% Difference to CF over NCF</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparatory Cultivation</td>
<td>5203.75</td>
<td>4762.50</td>
<td>9.27</td>
<td>1.50</td>
</tr>
<tr>
<td>Seeds &amp; Sowing</td>
<td>480.00</td>
<td>921.68</td>
<td>-50.09</td>
<td>-9.41**</td>
</tr>
<tr>
<td>Manures</td>
<td>3927.50</td>
<td>391.68</td>
<td>64.22</td>
<td>2.17*</td>
</tr>
<tr>
<td>Fertilizers</td>
<td>3686.88</td>
<td>2626.68</td>
<td>40.36</td>
<td>2.87**</td>
</tr>
<tr>
<td>InterCultural Operations</td>
<td>4411.25</td>
<td>3910.00</td>
<td>11.67</td>
<td>1.05</td>
</tr>
<tr>
<td>Plant Protection</td>
<td>6405.63</td>
<td>4246.68</td>
<td>50.83</td>
<td>5.31**</td>
</tr>
<tr>
<td>Picking Costs</td>
<td>5469.00</td>
<td>4041.68</td>
<td>24.63</td>
<td>3.19**</td>
</tr>
<tr>
<td>PostHarvest Operations</td>
<td>-</td>
<td>3863.40</td>
<td>-100</td>
<td>-12.64**</td>
</tr>
<tr>
<td>Total Cost</td>
<td>29519.00</td>
<td>26764.23</td>
<td>10.29</td>
<td>2.15*</td>
</tr>
</tbody>
</table>

** and * indicate significance at 5 and 10 % level respectively.

under the supervision of Super Spinning Mills, Coimbatore. The available credit facility was Rs.17,500 per hectare and a maximum of Rs.50,000 per farmer. Syngenta Pesticide Company supplied the chemicals to the farmers based on the incidence of pest and disease and received the amount for the chemicals from the bank. In this way, the farmers, mills, financial institutions and pesticide company were working under multipartite contract.

Awareness about Contract Farming

The system of contracting was introduced by the spinning mills at the village level. The company representative has been the source of information on contract farming system during the introduction of the crop.

Reasons for Participation

There are many advantages to the farmers by participating in contract farming like quality of inputs viz., seeds and pesticides, availability of loans with low interest rate, extension services offered by the agency to manage the pest and diseases and higher net return than the non-contract farmers. The farmers agreed to rank the reasons for participation in contract farming. The Garrett ranking technique was used to order these reasons.

It could be inferred from the Table 1 that among the reasons listed, the highest score (63) was recorded for availability of loan facility to farmers to carry out the intercultural operations followed by the availability of extension services. The results of the table also ranked the other reasons like availability of inputs in time, higher yield and better returns with Garrett scores of 53.02, 52.55, and 45.73 respectively.

Cost and Returns of Cotton in Contract and Non-Contract Farms

The comparative study of costs and returns of sample farms between Contract Farmers (CF) and Non-Contract Farmers (NCF) were analyzed and presented in Table 2. The difference in costs and returns and percentage of increase or decrease of CF over the NCF was also computed individually to realize the efficiency of contract farming.

It could be seen from the Table 2 that there was 51 percent additional net return to the contract farmers than the non-contract farmers. Contract farmers spent 64.22, 50.83, 40.36 and 24.63 percent more on manures, plant protection chemicals, fertilizers and picking respectively that that of non-contract farmers.

Table 3. Transaction Costs of Non-contract Farmers

<table>
<thead>
<tr>
<th>Particulars</th>
<th>CF</th>
<th>NCF</th>
<th>% Difference to CF over NCF</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport Cost</td>
<td>174.67</td>
<td>11.30</td>
<td>-100</td>
<td>-9.24</td>
</tr>
<tr>
<td>Commission Charges</td>
<td>368.86</td>
<td>23.87</td>
<td>10.29</td>
<td>2.15*</td>
</tr>
<tr>
<td>Loading &amp; Unloading</td>
<td>96.07</td>
<td>6.35</td>
<td>10.29</td>
<td>2.15*</td>
</tr>
<tr>
<td>Gunny Bag Cost</td>
<td>165.33</td>
<td>10.70</td>
<td>10.29</td>
<td>2.15*</td>
</tr>
<tr>
<td>Quantity Loss (Kg)</td>
<td>21.53</td>
<td>-</td>
<td>-100</td>
<td>-12.64**</td>
</tr>
<tr>
<td>Value of Quantity Loss @ Rs 25.81 per Kg</td>
<td>565.10</td>
<td>36.57</td>
<td>10.29</td>
<td>2.15*</td>
</tr>
<tr>
<td>No of Days to Spend</td>
<td>5.47</td>
<td>-</td>
<td>-100</td>
<td>-12.64**</td>
</tr>
<tr>
<td>Expenses to number of days spent</td>
<td>173.33</td>
<td>11.22</td>
<td>10.29</td>
<td>2.15*</td>
</tr>
<tr>
<td>Total Cost</td>
<td>1545.36</td>
<td>100.00</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Transaction Costs of Non-contract Farmers

The advantage of contract farming over non-contract farming was mainly due to savings in production and marketing costs and to verify this observation, production and transaction costs of cotton were estimated for contract and non-contract farmers.

It was obvious that the contract farmers were taking advantage of new institutional arrangements that reduced the transaction costs. These cost are transport cost for selling the produce, Commission charges in the co-operative marketing societies, loading and unloading charges in the market yard and gunny bag cost which is not given back to producers (only Rs 7/ bag is returned to farmer whatever be the cost of the gunny bags and average cost per bag is Rs 15 to 20). In addition, the quantity loss during the transport and drying in the sunlight during auction time and number of days to spend for selling and receiving the payment.

Conclusion

The study examined the institutional mechanism adopted by different firms to integrate the effect of producers’ transaction costs and farm profitability. The percentage share of transaction cost in total cost for non-contract farmers was 14.45 percent. The difference in net revenue realization by contract producers was Rs.3753, which accounted for 51 percent higher than that of the non-contract farmers. According to farmers’ response, the availability of credit, extension services, procurement at farmer’s level and quality of input availability were the main reasons to participate in the contract system. The overall opinion of the multipartite contract farming
system will be good and can continue to increase the production to meet the domestic and international demand.

References


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