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AN ECONOMIC ANALYSIS OF CONTRACT FARMING OF PAPAYA PRODUCTION IN SRIRAMAPURAM VILLAGE OF DINDIGUL DISTRICT OF TAMIL NADU

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Abstract

The present study deals to estimate the profitability of papaya cultivation under contract farming in Dindigul district. Sriramapuram village of Dindigul district where selected for the data collection. It is a comparative study of contract farming and non-contract farming in study area. Total sample of 80 farmers were selected randomly 50 from contract farmers and 30 from non-contract farmers. The total cost of cultivation in papaya on contract farming was Rs.46945 and non-contract farming Rs.41487. The Fixed Cost were determined to contract farming Rs. 20712 and non-contract farming Rs 15052, respectively, representing 82.92 per cent and 17.08 per cent of the total cost of cultivation. In the profitability of papaya were estimated and found to be at input-output ratio and cost benefit ratio 1:3and 1:6, On an overall basis Gross returns (total income) was observed to the contract farming Rs 88148 and non-contract farming Rs 108813, while net returns was found to be contract farming Rs. 205257 and non-contract farming Rs 38985.

Keywords: Gross Return, Net Return, Cost Benefit Ration, Input Output Ration.

INTRODUCTION

Over the last ten years, agriculture in developing countries has received renewed attention. The Indian agri-food system is undergoing rapid transformation and there is growing evidence that contract farming will have an important role in this transformation. In the period of modern generation, the market liberalization, globalization and expanding agribusiness, most of the small scale farmers face more difficulty in fully participating in the market economy. Contract farming has been existence for many years as a means of organizing the commercial agricultural production of both large scale and small scale farmers. Typically, the farmer agrees to provide agreed quantities of a specific agricultural product. These should meet the quality standards of the purchaser and be supplied at the time determined by the purchaser. The Indian agri-food system is undergoing rapid transformation and there is growing evidence that contract farming will have an important role in this transformation. The challenge lies in linking the two ends and ensuring viable business opportunities for both farmers and agri-businesses. The present study is conducted with a view to throw light on the economics of contract farming of papaya in a comparative framework. Objectives: 1. To analyse the cost of cultivation of papaya under contract and non-contract farming. 2. To examine the net returns and cost benefit accrued to contract and non-contract farmers in papaya cultivation.

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REVIEW OF LITRATURE

According to a number of Indian studies, including Dev and Rao (2005), Nagraj et al (2008), Kumar J and P K Kumar (2008), Kumar (2006), and Dileep et al (2002), contract production offers significantly higher gross returns (almost three times as much) than traditional crops like wheat and paddy due to higher yield and guaranteed prices. Despite being labour-intensive and perishable in nature, the crop grown under contract creates more jobs for the economy. The traditional examples include tomato farming in Punjab (Singh 2002; Dileep et al 2002) and gherkin cultivation in India (Dev and Rao 2005; Nagraj et al 2008; Kumar et al 2008). Due to the firm's monopoly power, which is seen in the monoculture of tomatoes and potatoes in India, the trend of increased income under contract farming may not endure for very long. In this case, farmers incur losses while processors benefit significantly from the same crop (Singh 2002). This essay investigates the advantages and drawbacks of contract farming in Andhra Pradesh for the growth of rice seeds and gherkins. The state government's efforts to promote contract farming in the wake of the agrarian crisis, the spread of contract farming across various crops and regions, and the lack of a comprehensive study of it in Andhra Pradesh are just a few of the reasons for undertaking a study of contract farming in the state. As a result, this study will shed light on how contract farming is performing in Andhra Pradesh. There are seven sections in the paper. The sampling strategy used to pick farm homes is described in Section 1 of the article. Section 2 elaborates on the nature of the contractual relationship between the firm and the farmer. The features of contract and non-contract farm households are examined in Section 3. The creation of income and employment through contract farming is examined in Section 4. Contract farming's effects on the environment are examined in Sections 5 and 6's conclusion.

METHODOLOGY

The study is analytical in nature and based on primary data. The primary data were collected from 80 farmers cultivating papaya in Sriramapuram village of Vedasandur block Dindigul district. The village was purposively chosen as contract farming of papaya and non-contract farming papaya cultivation are intensive. The sample includes 50 contract farmers and 30 non-contract farmers. The farmers were selected randomly from the list of contract farmers obtained from field staff of the company and extension workers of department of agriculture, Government of Tamil Nadu.

A pre tested interview schedule was administered among the sample respondents. The details gathered include socio-economic aspects, land ownership, tenure, farm assets, various costs of inputs, revenue from papaya cultivation under both the kinds of farms. The data collected pertain to one agricultural year that is, agriculture year 2018-2019. The data collected are tabulated and tabular analysis is carried out using percentage, average, standard deviation and ratio. The whole of the analysis is carried out under a comparative framework of conditions obtained under contract and non-contract farming of papaya in the study village.

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Purchased Input and Their Costs Details

It is very important to know to what extent the costs differ across various inputs used between the two kinds of cultivation. In order to understand the differences in costs of purchased inputs, the table 5.7 presents a comprehensive picture on costs incurred in contract and non-contract farming. At the outset it may be noted from the table that, contract farming incurs a total cost of purchased inputs per acre of Rs.46946 which is more than the total cost incurred by the non-contract farming of Rs.41488 per acre. This shows that the cost of cultivation of purchased inputs is relatively higher in contract farming as compared to non-contract farming. There are several reasons for the lower cost of purchased inputs among the non-contract farming. The costs of irrigation, pesticides and weeding and intercultural were lower under non-contract farming as only Rs.2987, Rs. 4007 and Rs. 4411 respectively. The corresponding figures for contract farming are much higher as Rs.7351, Rs.6034 and Rs.7822. The cost of field preparation is also a little lower under non-contract farming (Rs.1716) as compared to contract farming (Rs.1726). Similarly, the cost of fertilizer comes to about Rs.8377 under contract farming it is only Rs.5096 under non-contract farming.

Table 1: Details on purchased Inputs and their costs (per acre in rupees)

S. No.	Particulars	Contract Farming	Non-Contract Farming
1	Field Preparation	1726	1716
2	Seed and Sowing		
	Farmers	4578	15498
	Company	4578	0.00
	Total	9156	15498
3	Farm Yard Manure	6480	7773
4	Fertilizers	8377	5096
5	Irrigation	7351	2987
6	Pesticides	6034	4007
7	Weeding and Intercultural	7822	4411
8	Total Cost of Cultivation	46945	41487

Source: Field survey data.

The cost of seedling under non-contract farming is however higher as Rs.15498 as compared to contract farming. The cost of farm yard manure is also higher under non-contract farming (Rs.7773) as compared to contract farming (Rs.6480). The data on cost of purchased inputs show that the total cost of purchased inputs under contract farming is higher by 13 per cent over total cost of purchased inputs under non-contract farming. The cost of purchased inputs such as irrigation, pesticides, weeding and intercultural, fertilizer and field preparation are higher under contract farming. The lower costs are associated with seedling and farm yard manure under contract farming.

Operation Wise Labour Use

One of the contested points in the contract and non-contract farming literature is the magnitude of labour used in the contract and non-contract farming cultivation. An effort has been made to examine the comparative use of labour in two different farms. Table 5.8 presents the data on the utilization of labour under sample farm of contract and non-contract.

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Table: 2 Operation wise Labour uses (per acre in person days)

S.No.	Particulars	Contract Farming	Non-Contract Farming	Total
1	Field Preparation	1.22	1.10	2.32
2	Seed Sowing	9.93	10.02	19.95
3	Farm Yard Manure	1.07	1.21	2.28
4	Fertilizers	8.73	7.74	16.47
5	Irrigation	28.74	20.32	49.06
6	Pesticides	1.67	1.22	2.89
7	Weeding and Intercultural	5.01	8.11	13.12
8	Total Number of person days	56.37	49.72	106.09

Source: Field survey data.

The table shows that there is a difference in the number of labour days employed between the two groups of sample farms. The number of person days employed per acre in the contract farming is more as 56.37 and in non-contract farming it is less as 49.72. The operation wise labour use includes field preparation, seed and sowing, fertilizer, FYM, pesticides application, weeding, irrigation and weeding and intercultural. The number of person days employed per acre for field preparation, fertilizers and pesticides application, irrigation is much higher in contract farming as compared to non-contract farming. The difference in person days employed in other operations such as seeds sowing, application of farm yard manure and weeding and intercultural are although lower under contract farming than non-contract farming, and the difference is not much wider. This suggests that employment of labour days in contract farming is notably higher as compared to non-contract farming.

Fixed Cost

Fixed costs are those which do not vary with the level of output. The fixed costs incurred by the sample farmers are estimated and the results are provided in Table 5.9. It could be observed from the table that fixed costs incurred are higher for contract farmers as compared to non-contract farmers, (i.e.) Rs.20712 per acre under contract farming and only Rs.15052 per acre under non-contract farming. The reason for this is more investment made by contract farmers on drip hoses for irrigation. Another main reason is that the rental value imputed for contract farmers. For non-contract farmers the actual rent paid is higher which is not included in the estimation.

Table: 3 Fixed Cost

S.No.	Particulars	Contract Farming	Non-Contract Farming
1	Rental value of Land	17541	12655
2	Interest on Fixed Capital	2114	1598
3	Deprecation	1057	799
4	Total	20712	15052

Source: Field survey data.

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Estimated Costs

In this section an attempt is made to present the various costs of cultivation under the well-established cost framework in the literature on agricultural cost. The so established cost structure includes cost A1, cost A2, cost B1, cost B2, cost C1 and cost C2.

Table: 4 Cost of Production

S. No.	Particulars	Contract Farming	Non-Contract Farming
1	Value of hired human labour	7517.35	5415.52
2	Value of owned machinery labour	173	698
3	Value of hired machinery charges	979	1492
4	Value of seedling	9155.35*	15497.57
5	Value of pesticides	6033.79	4006.85
6	Value of manure	6479.64	7773.06
7	Value of fertilizer	8377.07	5095.89
8	Depreciation on implements and farm building	1056.96	799.09
9	Irrigation charges	7351.43	2986.76
10	Interest on working capital	2479	2536
11	Cost A1	37507.89	40885.22
12	Cost A2= Cost A1 + rent paid for leased in land	37507.89	41470.22
13	Cost B1= cost A1 + interest on value of owned fixed capital assets	39621.89	42483.39
14	Cost B2= cost B1 + rental value of owned land and rent paid for leased in land	57169.89	60024.69
15	Cost C1= cost B1 + imputed value of family labour	50049.69	52287.04
16	Cost C2= cost B2 + imputed value of family labour	67590.69	69828.34

Source: Field survey data

*The value of seedling comprises of the cost borne on seedlings by the farmers and contracting company under contract farm. Half of the seedlings cost is borne by the farmers and another half by the company initially. Once the plants grow well and farmers start supplying the output, the farmer can reimburse the half of the cost of seedlings that he bore initially. However in this section the costs are estimated including the full cost of seedlings so as to ascertain the real cost of cultivation. However in the following section, analysis is carried out excluding this cost too. The costs are examined for both the groups of contract and non-contract farming, under the cost framework. Table 5.10 shows the data on different types of costs of production of papaya which are under non-contract farming than contract farming. From the table it could be observed that the total cost of production, cost C2 of papaya cultivation under contract farming is Rs.67590.69 whereas the cost C2 of papaya cultivation under non-contract farming is Rs.69828.34. As such cost of cultivation under contract farming is less by 3 per cent. If the value of seedlings that is borne by the company is excluded the total cost of cultivation works out to be only Rs.58435.34. So the actual cost incurred by the contract farmers is much lower by 16 per cent as compared to cost of cultivation of non-contract farmers. In respect of cost of cultivation, the contract farmers are certainly placed in an advantageous position. This is due to the fact that the non-contract farmers have to pay more for the papaya seedlings. The supply price of papaya seedling for the contract farmers is only Rs.10 (although they pay only a part

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initially and reimburse the rest later) but the supply price offered by companies for non-contract farmers is Rs.15 per seedling.

Return on papaya cultivation under contract and non-contract farming

Table 5.11 present details on various estimates of returns on contract and non-contract farming. At the outset it may be noted from the table that the yield from papaya cultivation is of two kinds viz., papaya milk and papaya fruit under contract farming. From non-contract farming papaya fruit is the sole kind of output. It must be mentioned here that the papaya fruit from non-contract farming commands much higher price (nearly 3 folds) as compared to the price of papaya fruit obtain from contract farming. Because papaya under non-contract farming holds the natural content and nutrition values (as milk is not extracted) but papaya from contract farming does not hold such value since milk is extracted from it. This is the reason why, as the table 11 reveals, the gross income is lower (Rs.88148) in respect of contract farming as compared to non-contract farming (Rs.108813). Another reason is that the income from milk is also low. As such the farm business income, owned farm business This is the reason why, as the table 11 reveals, the gross income is lower (Rs.88148) in respect of contract farming as compared to non-contract farming (Rs.108813). Another reason is that the income from milk is also low. As such the farm business income, owned farm business income, family labour income and farm investment income all are lower under contract farming as compared to non-contract farming.

Table: 5 Return on contract and non-contract farmers

S. No.	Various Measures	Contract Farming	Non-Contract Farming
1	Average area under crop (in acres)	3.32	7.30
2	Milk Average yield (per acre) Papaya	377.08 10.83	- 10.50
3	Milk Average price (per tonne) Papaya	130 3613	- 10591
4	Gross Income	88148	108813
5	Farm business income (gross income-cost A1) (Rs/acre)	50640	67928
6	Owned farm business (gross income-cost A2) (Rs/acre)	50640	67343
7	Family labour income (gross income-cost B2) (Rs/acre)	30978	48788
8	Farm investment income (gross income-cost C2) (Rs/acre)	20557	38985

Source: Field survey data.

The company enters into contract mainly to procure papaya milk extracted. Otherwise this company as also other companies procure unmilked papaya at higher rate from farmers in the study village. The average price paid for papaya milk is only Rs.130 per kg. It seems that the contract farmers of papaya are largely at a disadvantageous position in terms of marketing and

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price. The contracting company under study seems to exploit the contract farmers. Because the opportunity cost of papaya cultivation under contract farming is found to be higher by 19 per cent in the study.

Benefit Cost Analysis

Although detailed analyses on cost, yield, price and different kinds of income estimates of the sample farms were made in the previous sections, an attempt is made in this section to examine the sheer cost benefit of papaya cultivation under contract and non-contract farming. The gross income from papaya cultivation of contract farmers is Rs.88148 and the corresponding figure for non-contract farmers is Rs.108813.

Table: 6 Cost Benefit Details (per acre)

S. No.	Particulars	Contract Farming	Non-Contract Farming
1	Productivity		
	Milk (kg)	377.07	-
	Average Price per Kg	130	-
	Papaya (Tonnes)	10.83	10.27
	Average Price per tonnes	3613	10591
2	Gross Income	88148	108813
3	Cost of Cultivation with seedling cost paid company	67591*	69828
4	Net Return	20557	38985
5	Benefit cost ratio	1.3	1.6

Source: Field survey data.

*Total cost of cultivation includes the cost of seedling (9155 per acre) borne jointly but the farmer and company initially and later reimbursed by the farmer. However, effectively the total cost of cultivation should be devoid of seedling cost. The cost of cultivation does not seem to vary significantly between these two types of farmers. However, the net return and benefit cost ratio are higher for non-contract farmers as compared to contract farmers. The benefit cost ratio of papaya cultivation under contract farming is 1.3 as against 1.6 in the case of non-contract farming. But, if seedling cost of papaya under contract farming is excluded (including only farmers' expenses) the net returns and benefit cost of contract farmers improve to Rs.29153 and 1.6, respectively. Even after deducting the seedling cost the benefit cost ratio of contract farmers only equals the benefit cost ratio of non-contract farmers. These data once again show that contract farmers do not accrue any higher benefit or special advantage over non-contract farmers.

CONCLUSION

The study conducted among 50 contract farmers and 30 non-contract farmers cultivating papaya in the sample village, Sriramapuram reveals that most farmers are drawn from middle aged and literates. Most of the contract famers are marginal and small farmers only. Medium and large farmers do not seem to enter into contract farming of papaya. Contract farming seems to generate relatively more employment (days). The total cost of cultivation under contract

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farming is less by 3 per cent. If the value of seedlings that is borne by the company is excluded the actual cost incurred by the contract farmers is much lower by 16 per cent as compared to cost of cultivation of non-contract farmers. In respect of cost of cultivation, the contract farmers are certainly placed in an advantageous position. This is due to the fact that the non-contract farmers have to pay more for the papaya seedlings. However, the gross income is lower (Rs.88148) in respect of contract farming as compared to non-contract farming (Rs.108813). The farm business income, owned farm business income, family labour income and farm investment income all are lower under contract farming as compared to non-contract farming. The company enters into contract mainly to procure papaya milk extract and papaya fruit (unmilked) is priced lowly. The revenue from papaya milk and papaya fruit sold is not enough to cover its opportunity cost. The contracting company under study seems to exploit the contract farmers. Because the opportunity cost of papaya cultivation under contract farming is found to be higher by 19 per cent in the study. The net return and benefit cost ratio are higher for non-contract farmers as compared to contract farmers. The benefit cost ratio of papaya cultivation under contract farming is 1.3 as against 1.6 in the case of non-contract farming. But, if seedling cost of papaya under contract farming is excluded (including only farmers' expenses) the net returns and benefit cost of contract farmers improve to Rs.29153 and 1.6, respectively. Even after deducting the seedling cost the benefit cost ratio of contract farmers only equals the benefit cost ratio of non-contract farmers. As such that contract farmers do not accrue any higher benefit or special advantage over non-contract farmers. In order to address this issue the study has suggested a few measures to be taken at different levels.

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