Comparison of Partial Factor Productivity of Cut Foliage of Contract and Non Contract Farming Systems in Kurunegala District

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ABSTRACT

After liberalization of the Sri Lankan agriculture most commercial farmers were integrated into new products like cut flower and cut foliage. At present cut foliage production is mainly geared as one of the private sector led contract-farming projects in Sri Lanka. Anyhow the effectiveness of the cut foliage sector can be reflected through the concept of Partial Factor Productivity, in both farming systems.

So the study was carried out in Kurunegala district to check whether the Partial Factor Productivity values were significantly different in two farming systems. Analysis was done using pooled–t-test. Constraints and suggestions were also listed according to the weight of their sevearity and importance to the industry, respectively.

According to the results the land and capital productivity were significantly different in both farming systems while labour productivity was same. But always the highest mean values were obtained by the contract farmers. The major problems of the contract farmers were the loss of independency and delay in payments where non-contract farmers were disappointed with the risk in finding out constant demand for their product and unbearable high initial investment in the production process. Both contract and non-contract farmers faced the problems of rejection of the product and maintenance of the quality of the product. Irrespective of the problems they faced, almost all the farmers in both farming system suggested that the government intervention of the sector as the most essential, urgent and important remedial measure.

Key Words: Cut Foliage, Partial Factor Productivity, Contract and Non Contract Farming

1. INTRODUCTION

During last two decades, although economic fundamentals were sound the growth rates in the agriculture sector faltered very badly and expectations of all participants in the production, marketing and integration process were unrealized. To overcome this, one of the identified solutions was the commercialization of the agriculture through private sector intervention (Gunawardana and Somarathna, 2000).

In the market oriented process the private sector is considered as the "engine of growth". Therefore, the priority was given to encourage private sector to attract new technology and investments into agriculture, as well as to improve the level of productivity of the sector.

For this purpose the private sector has encouraged to build contractual arrangements to attract new technology and investments to reduce production, marketing and price risk involved in the process.

So the contract farming is not a new phenomenon in the development process of Sri Lanka. According to the definition the contract farming is that the contractual arrangements between farmers and other firms, whether oral or written, specifying one or more conditions of production and /or marketing of agricultural products (Ray, 1972). The farming system, which does not consist any oral or written arrangement, is considered as the non-contract farming.

Floriculture in Sri Lanka started as an industry in 1970 (Dhanasekara, 1998). It was reported that involvement in the sector is very low at that time, as it was new and unfamiliar. But after liberalization of Sri Lankan agriculture, most commercial farmers were integrated into new products like cut flower and cut foliage.

Total land area under Floriculture is around 500 ha at present and the majority of the lands are in Kurunegala, Kandy and Gampaha districts. There are 10 ha under Carnations 3 ha under Roses, 2 ha under Anthuriums, 3 ha under Orchids and 442ha under foliage plants (Dhanasekara, 1998). These figures clearly show that the Floriculture trend so far in Sri Lanka has been in the favour of foliage plants.

In 2000 Sri Lanka has exported Rs 625 million worth of floricultural products to Holland, Denmark, Japan, Korea, France, Australia and Germany where major contribution is from cut flower and cut foliage sector (Anon, 2000). Other than this the sector provides 3000 employment opportunities for men and women in semi urban and rural sectors (Somarathna and Ratnayake, 2004)

Sri Lanka was ranked the 9th place in the European cut flower and cut foliage export market in the early stage (1980's), but dropped to 39th place in the same market today. The loosing market place in the European market was attributed to expansion of floriculture industry in some other countries like Central America, Africa, and East Asia and lack of consideration from the government.

Though the state sector has not given the prominence for these sectors in the agricultural development process, various projects with foreign collaboration were established by the private sector. Cut foliage production is mainly geared as one of the private sector led contract-farming projects in Sri Lanka.

The level of partial factor productivity reflects the effectiveness of the cut foliage sector. Analyzing conventional land productivity (number of units/1000 m^2) alone is not sufficient in making decisions and strategies on development of the cut foliage sector. So this is a primary attempt to analyze partial factor productivity in both contract and non-contract farming systems to arrive better solutions for the development of this sector.

2. METHODOLOGY

2.1 *Theoretical Framework*

The Partial Factor Productivity was calculated using following formulae.

2.1.1 Land Productivity

$$\frac{\text{Yield (No. Of cuttings)}}{\text{Land Area (1000m}^2\text{)}} \quad (1)$$

2.1.2 Labour Productivity

$$\frac{\text{Gross Income (Rs)}}{\text{Man Days (Rs)}} \quad (2)$$

$$\frac{\text{Net Profit (Rs)}}{\text{Man Days (Rs)}} \quad (3)$$

$$\frac{\text{Yield (No. Of cuttings)}}{\text{Man Days (Rs)}} \quad (4)$$

2.1.3 Capital Produtivity

$$\frac{\text{Gross Income (Rs) x 100}}{\text{Investment (Rs)}} \quad (5)$$

$$\frac{\text{Net Profit (Rs) x 100}}{\text{Investment (Rs)}} \quad (6)$$

$$\frac{\text{Yield (No of cuttings) x 100}}{\text{Investment (Rs)}} \quad (7)$$

2.2 *Sample Selection*

Kurunegala district was purposively selected for the survey since it has a large potential for cut foliage production due to its favourable climate, close proximity to export companies, availability of land, labour and raw material. Out of four identified foliage companies two were selected who were willing to give the names of their farmers. From the given list of thirty, twenty-four farmers were selected using stratified sampling. Stratification was based on the crops they cultivated. The list of non-contract farmers was taken from the Ministry of North Western Province. Out of forty-four farmers, twenty-four were selected using stratified random sampling based on the same criteria as mentioned above. Crops considered were Sandriana, Cane palm and Livestonia (Table 1).

Table 1. The size and distribution of the sample population.

Cultivated Crops	No. of Contract Farmers	No of Non Contract Farmers
Sandriana	8	8
Cane Palm	8	8
Livestonia	8	8

2.3 *Data Collection*

Data were collected using pre-tested questionnaire from December 2004 to July 2005. The questionnaire was mainly designed to collect general, technical and price information of the farm. Further, the questionnaire was arranged to gather, services they were provided, problems encountered with them and their suggestions for the development of the sector. Each farmer was interviewed individually.

2.4 *Analysis*

The current functioning of the cut-foliage industry was analyzed descriptively. Problems were listed according to the severity of them to the farmers. And their suggestions were listed out according to the importance to the industry. The pooled-t-test was carried out to find out whether the Partial Factor Productivity of two farming systems is significantly different from each other.

3. RESULTS AND DISCUSSION

3.1. *Comparison of Partial Factor Productivity*

3.1.1 Land Productivity

The average land productivity for contract and non contract farmers were 79022.92 and 48396.67, respectively. Those two land productivity figures were significantly differ according to the pooled-t-test. The possible reasons for this could be that the contract farmers are provided with high technology and correct agronomic practices like spacing, levels of fertilizer and time of application. Other than that the contract farmers carried out their cultivation under the supervision of contract companies.

3.1.2 Labour productivity

As in the results of the pooled-t-test the labour productivity was not significantly different in the two farming systems. But higher mean values (15.97, 14.18, 5.22) were obtained by contract farmers with compared to the mean values (11.16, 9.62, 3.32) of non contract farmers according to 1, 2, 3 formulae respectively (Table 2). Both farming systems use family labour for production. Hired labour was only used when they carried out special practices like fertilizing, land preparation and sometimes for harvesting. Therefore this similarity in the usage of labour for the production might be the reason for same productivity levels resulted in the analysis.

Table 2. Labour productivity values for each farming system

	Labour Productivity	Contract Farming	Non Contract Farming
1	Gross Income (Rs) / Man Days (Rs)	15.97	11.16
2	Net Profit (Rs) / Man Days (Rs)	14.18	9.62
3	Yield (No of Cuttings) / Man Days (Rs)	5.22	3.32

3.1.3 Capital productivity

According to the results of the pooled-t-test the capital productivity of two farming systems was significantly different from each other. The highest mean values for the productivity were obtained by the contract farmers (328.26, 448.2, 146.8) with compared to the mean values of non-contract farmers (300.05, 255.96, 88.15), for all three formulae (1, 2, 3) respectively (Table 3). It is clear that this is mainly because of the monetary facilities provided by the contract companies. Therefore, contract farmers do not have to borrow money for high interest rates from the outsiders. Further they are provided with guidance for proper spending of the capital. Due to all these supportive factors contract farmers are able to get the maximum benefit out of their capital investments.

Comparing with all these partial factor productivities, always contract farmers achieved higher values than the non contract farmers. This reveals that the farmers were able to increase their productivities with the support of contract companies. This may result due to the high quality planting materials, correct agronomic and management practices and high technology used by the contract farmers that are provided by the contract companies.

Table 3. Capital productivity values for each farming system

	Capital productivity	Contract Farming	Non Contract Farming
1	Gross Income (Rs) ×100 / Investment (Rs)	328.26	300.05
2	Net Profit (Rs) ×100 / Investment (Rs)	448.2	255.96
3	Yield (No of cuttings) × 100 / Investment(Rs)	146.8	88.15

3.2. Analysis of constraints and remedies in cut foliage industry.

The farmers in both farming system faced many common difficulties since they all are involved in the same industry (Table 4). Majority of the farmers experienced the problem of rejection of the product and difficulty in maintenance of the quality. Other than that they were disappointed with the lack of information on trade and market. Due to this they were unable to arrive at correct decisions to minimize their losses.

3.2.1 Major constraints in the contract farming

It was interesting to note that over 85% farmers reported that the loss of independency and delay in payments were the major constraints.Many farmers prefer carrying out their cultivation on their own way rather than depending on the advice given by the contract companies.They do believe in their experience and knowledge. Also many of them do not like their cultivations to be used as experimental units, though some companies use some cultivars to test various technologies of them. Anyhow it does not mean that they are reluctant to go for new technologies. What it indicates is their dislike towards the companies (Table 5). So the contract companies still have not been able to build up trustworthiness about themselves among the farmers. Though the farmers gain profit most of them are not satisfied with the company decisions.

Table 4.Common constraints of cut foliage industry

	Constraints	Contract Farmers %	Non Contract Farmers %
1	Rejection of the product.	90	80
2	Maintain the quality.	85	80
3	Lack of information on trade.	75	60
4	Lack of Research and Development.	70	61
5	Difficulties in obtaining formal credit facilities from banks.	65	50
6	No clear mechanism to integrate the results of Research and Development on new technologies to the farming community.	55	45
7	No insurance schemes for cut-foliage cultivation were established either by state or by private insurance companies.	40	40

Note: One farmer gave more than one options.

Table 5.Analysis of constraints in contract farming

	Constraints	%
1	Loss of independency	90
2	Delay in payments	85
3	Inability to influence the process of determination of farm gate prices	55
4	Loss of chance to enjoy high prices occur in the market	50

3.2.2Major constraints in the non-contract farming

The problems faced by non-contract farmers were considered, and majority of them had a difficulty of finding out constant demand for their products (Table 6). Other important constraints which were pointed out by the farmers were the high initial investment and difficulties in getting credits from the banks at right time. With comparison to contract farmers non contract farmers were unable to confront this problem since they are not provided with supportive money schemes.

Table 6.Analysis of constraints in non contract farming.

	Constraints	%
1	Finding out constant demand for the production	90
2	High initial investment	85
3	Difficulties in getting credit facilities for cultivation at right time	80
4	Long lag period	75
5	Transportation costs	60

3.2.3Remedies suggested by the farmers.

Suggestions are listed out according to their relative importance to the industry, irrespective of the farming systems (Table 7). All the farmers suggested that the government intervention for the industry was essential in many aspects. Other than that majority of farmers insisted that the market promotion programs, training programms and extension services should be carried out efficiently by the relative institute. They also identify the need of establishing farmer companies and importance of the youth involvement in the sector. They further suggested that the risk in the production process can be minimized through the insurance schemes and also the sales and profits can be maximized through proper marketing programs aimed at niche market.

Table 7.Remmadies stated by the farmers.

	Remedies
1	State banks should identify cut foliage sector as one of the booming industry in agriculture sector and should introduce flexible credit facilities.
2	Applying measures to increase productivity through technological advancement.
3	State should play a proper and sound role to avoid market and policy failures as a facilitator to encourage farmers in the sector while trying to maintain continuous demand for them.
4	State should intervene for the industrial repercussions and farmers should be provided with subsidy schemes.
5	Government should promote Research and Development programms and the findings of them should introduce to the farmers through the proper mechanism.
6	Government should initiate market promotion and extension programs through Export Development Board and provide necessary information on prices, market demanded verities, standards, and management systems.
7	Introducing insurance schemes for the cultivation either by state sector or private insurance companies.
8	State should conduct training programs to provide basic agricultural knowledge to the farmers.
9	Farmer companies should be established to encourage bulk and quality input buying through contractual arrangements with state sector organization and maintain timely distribution.
10	Establishment of niche market within the country, through marketing programs, since consumption of floricultural products is associated with the high standard of living.
11	Motivate rural youth (male and female) to join with the sector by enhancing their human resource capabilities.

4. CONCLUSIONS

The results of this study reveal that the land and capital productivity of contract farmers were significantly different from that of non-contract farmers whereas the labour productivity did not show a significant difference among them. The high mean values were always obtained by the contract farmers even for the labour productivity. The results indicate that major problems faced by the contract farmers were the loss of independency and the delay in payments. The majority of non-contract farmers were disappointed with the difficulties in finding out the markets for their product, high initial investment and lack of supportive money schemes or loans provided by the government. According to the results both the farmers in the sector faced the common problems of rejection of the product and maintenance the quality of the product.

Irrespective of the problems they faced the most important and immediate requirement of both farmers were the intervention of the government in any aspect to increase the efficiency of the sector. Other than that they suggested the market promotion programs, training programs and extension services should be expanded for the development of the industry. They also identified the need of establishing farmer companies and importance of youth involvement in the sector. Other innovative ideas of farmers were the introduction of the insurance schemes to minimize the risk involved in the production and establishment of niche market within the country to maximize the sales.

5. LIMITATIONS

A complete list of cut foliage farmers in any part of district was not available. Some of the contract companies were not willing to give the names of their farmers.

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