

## TAMIL NADU CONTRACT FARMING: A CASE OF RICE SEED AND GHERKIN CULTIVATION

A. Durgadevi<sup>1</sup> and DR. M. Rajeswari<sup>2</sup>

<sup>1</sup>Research scholar, Department of Economics, Annamalai University

<sup>2</sup>Assistant Professor, Department of Economics, Annamalai University

Corresponding Email: [devidurga535@gmail.com](mailto:devidurga535@gmail.com), [saran\\_raji@yahoo.co.in](mailto:saran_raji@yahoo.co.in)

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### ABSTRACT

In this essay, the performance of contract farming in Tamil Nadu is discussed. It compares non-contract farming with contract farming for gherkins and rice seed. It demonstrates how the traits of farm households with contracts and those without contracts differ. The main challenges contract farmers encounter is determined to be late payments, credit issues, water shortages, and the inability to achieve quality standards. The concerned contracting firm typically shifts output to other farms and to other regions whenever productivity declines.

**Keywords :** *Contract Farming, Gherkin Cultivation, environment, cultivation*

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### Introduction

To lessen the risks faced by both the farmer and the enterprise, contract farming has become a viable institutional innovation in Indian agriculture over the past ten years. Promoting contract farming is justified by the anticipated rise in agricultural productivity, employment, and farmer income. In terms of the degree of power linkages between the crop grower and user, contract farming is a middle form of industrial organization that falls between the spot market and vertical integration (Wilson, J 1986). In spot markets, producers and processors get together at a specific time to discuss pricing and delivery. Vertical integration, which places the crop's growers and consumers within the same company, represents the other extreme. As a result, agricultural production, processing, and marketing are all perfectly linked. Farmers and consumers of the crop may be separate parties in a contract farming arrangement. Farmers are required to supply their produce to agro-enterprises in accordance with the terms outlined in a written or verbal agreement under this system of organizing agricultural production. According to the definition given in the strictest sense, it refers to "an alternative market, which establishes an agreement (formal or informal) between grower(s) and firm(s) (exporters, processors, retail outlets, or shippers, for example) to produce and to supply an agricultural commodity under forward contract." <sup>1</sup> pre-agreed price, quality, quantity or acreage (maximum and minimum), and time are the essential components of the contract (Singh 2002; Eaton and Shepherd 2001). According to a review of the literature, contract farming has had a mixed record of success and failure in many developing nations (Little and Watts 1994; Opondo 2000; Morvaridi 1995; Baumann 2000; Key and Rusten 1999; Glover and Kusterer 1990; Goldsmith 1985; Glover 1984; Simmons et al 2005; Porter and Howard 1997). (Glover and Kusterer 1990; Key and Rusten 1999; Goldsmith 1985; Glover 1984) Observing that contracting helps the farmer to improve her/his situation by providing stable incomes and creating employment for the rural poor, proponents of contract farming analyze it by looking at the income and employment it generates. Opponents, however, examine it by taking into account the environment, the welfare of farmers, and the power structure at play (Opondo 2000; Morvaridi 1995; Little and Watts 1994). They contend that even though a contracting company decides on production and land management, it does not consider the long-term effects on the environment and the land.

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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 Tamil Nadu 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 Tamil Nadu 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 Tamil Nadu. 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.

### Selection of Sample Households

In the Tamil Nadu districts of Dindugul, a survey of farm households with rice seed, non-rice seed, and gherkin and non-gherkin crops was carried out in 2008. 295 farm homes participated in the study, of which 159 had a contract with the survey company and 136 did not. 86 of the 159 contract farm households produced rice seed, while 73 produced gherkins. The homes with Global Green were chosen for the gherkin crop, whereas the homes with Pioneer Seeds (HR-3), UPL, and Pro-Gro were chosen for the rice crop.

Because contracting schemes for both crops have been in operation for the past ten years and because they have the potential for export, gherkin and rice seed were chosen for the study. Because contract farming was only practiced by 15 to 20 farm households per village, we chose eight villages across two districts. The sampling strategy was split into two stages. Eight villages from two districts were purposely chosen for the first stage based on the region where contract farming was practiced (four villages for each crop). The stratified random sampling technique was used in the second stage. The poll identified contract and non-contract farm households after choosing the villages. In the periphery, households that did not operate contract farms and whose cropping patterns matched those of contract farms were chosen. The sample for non-contract farms was chosen using a proportionate representation of the various size groups. 15 to 20 contract and non-contract farms from each hamlet were surveyed. A carefully constructed questionnaire used to gather data on the socioeconomic traits of farm households and production techniques (usage of chemicals and water) was used.

### Nature of Contract Agreement

An investigation into how the contract was carried out has uncovered significant differences between the initial contract and the one that was actually carried out. This is demonstrated in the delivery of technical services, the allocation of inputs, and credit. According to Simmons et al. (2005), Singh (2002), Eaton and Shepherd (2001), and other researchers, contract design differs among production regimes because each one employs a particular arrangement style. Our investigation revealed that the implementation of the contract varied between the two crops, rice seed and gherkins. (Swain, b et al, 2011).

## Comparisons between Contract and Non-Contract Farmers

Although growing contract crops requires a larger investment, contract farming is typically practiced by wealthier and more modern farmers. According to Little (1994), contract farming often involves more affluent farmers who have substantial amounts of money and non-farm investment. Additionally, contract farmers tend to come from wealthier sections of the rural population, according to the majority of surveys. The variations in traits between farm households with contracts and those without contracts are shown in Table 3. In the region where rice is grown, contract farm households have larger average families than non-contract ones, but there are no such differences in the region where gherkins are grown. Although there is considerable variation in the education of the farmer, there is no age difference between contract and non-contract farmers in the region that produces rice seed. In the region where gherkins are grown, contract farm households typically own 7.42 acres of land, compared to non-contract farm households who only own 4.93 acres. In the areas where rice seed is grown, contract farm households typically own 5.54 acres of land, compared to non-contract farm households, who typically own 4.13 acres. In the case of irrigated land, there is also a significant discrepancy between farm households with contracts and those without contracts. These findings confirm those of Singh (2002) and Kumar (2006), who found that contract farmers have larger average landholdings than non-contract farmers. The level of investment between contract and non-contract farm households differs significantly. Despite the fact that there is no distinction between contract and non-contract farms when it comes to obtaining credit (formal or informal), there is one when it comes to obtaining formal credit. The findings regarding technology adoption imply that there may be some variation in the sources of technology used by contract and non-contract farmers in the region that produces rice seed, but no such variation is seen in the region that produces gherkins. In comparison to non-contract farmers, contract farmers generally have better access to markets, knowledge, and production strategies.

## Incomes, Employment and Contract Farming

### 1. Income

The amount of money made from a contract crop and how it is distributed can be used to gauge the farmer's happiness with contracts. The gross farm income of contract and non-contract farmers, excluding income from livestock. It is obvious that the mean difference between contract and non-contract farmers' annual gross revenue and per-acre gross income is large at the 1% level. In the region that produces rice seed and the region that produces gherkins, contract farmers earn an average on-farm gross income that is around 106% more than that of non-contract farmers. Additionally, contract farmers make more money per acre than non-contract farmers do (Chang, C et al, 2006). In the region that produces gherkins, non-contract farmers have higher non-farm income than contract farmers, whereas the opposite is true in the region that produces rice seed. Contract farmers earn 93.65% more overall than non-contract farmers in the region that produces rice seed and 64.78% more in the region that produces gherkins.

Non-contract farmers do not typically grow the crops grown under contract farming (Miyata, S et al. 2009) Therefore, it is important to evaluate the gross income per acre from non-contract crops that are frequently farmed by both contract and non-contract farmers. Table 5 lists the per-acre gross revenues from various crops grown by contract and noncontract farmers. It demonstrates that the gross value of the rice seed (\$36,399) is higher than the gherkin (\$30,829).

Surprisingly, non-contract farmers are receiving more money per acre from non-contract crops other than cotton, which has supplied the most income (Rs 25,740) to the region that produces rice seed. At the 1%, 5%, and 10% levels, the mean differences in rice, maize, and cotton income between contract and non-contract farmers are statistically significant. Cotton made up the largest portion of the region's income, followed by rice and maize. Only maize offers noncontract farmers the opportunity to increase their revenue. According to the findings, non-contract farmers are more advantageous than contract farmers for various non-contract crops.

## 2. Employment

The amount of labour needed for both contract and non-contract crops per acre. According to the findings, contract crops require more labor to cultivate than non-contract crops. It is asserted that businesses often encourage the growth of high-value commodities (fruits and vegetables), which demand more labour to standardize production and cannot be done so using mechanical means. The findings demonstrate that contract crops have greater labour concentrations than non-contract crops, with 95.37-man days per acre for rice seed, 171.55 man days for gherkins, and 28.45 man days and 25.85 man days respectively for rice and maize. Additionally, it should be noted that gherkin cultivation requires more labour than rice seed. Dev and Rao (2005) found that 100% of farmers believed that gherkin had the ability to increase employment in this aspect. Because gherkin is a crop with a short growing season and a high labour requirement, pay rates have increased as a result. The majority of farmers claimed that the wage rate rises by 40% to 50% during the gherkin-growing season. Contrary to what is commonly believed, gherkins do not require as much hired labour as non-contract crops like rice. In the case of rice seed, large farmers hired more labour, followed by medium-sized and small farms. Therefore, it may be claimed that small farmers are better suited to raising contract crops since they employ a larger proportion of their own family members and can readily keep an eye on them throughout the production process (Eaton and Shepherd 2001). In the case of gherkin, there is no such disparity in the demand for hired labour between farmer groups. Additionally, it was shown that rice seed cultivation employed 86.56% more women than gherkin cultivation did (47%). This is true since planting and weeding are tasks that women perform during the cultivation of rice seeds.

### Environmental Implications of Contract Farming

Contract farming affects the environment in different ways like over-exploitation of groundwater, excess use of fertiliser and pesticides leading to health hazard and monocropping leading to decline of soil quality (Opondo 2000). In the following sub-section, we have analysed hypothetical argument on the impact of contract farming on groundwater and land quality in the study region.

#### 1. Water Use Pattern

Water is the most important agricultural input. However, water waste and overuse pose concerns about sustainability. Rainfall and groundwater are the primary water sources in the studied areas. Although the region has a few small dams, they are insufficient to supply home, agricultural, and industrial demands. As a result, groundwater reserves become the primary supply of water for farmers. According to Reddy and Kumari (2008), unregulated groundwater extraction has resulted in a 2.97 m drop in water level in this region in four years. Farmers planting contract crops in both research zones are shown to be more reliant on groundwater for irrigation. Furthermore, the Global Green Company (which deals with gherkin) only enables farmers to cultivate the crop provided they have access to bore irrigation. Contract crops such as gherkin and rice seed require more irrigation than non-contract crops such as maize and rice. It is observed that gherkin needs 9 to 10 times of irrigation within two months, whereas maize needs only three to four times of irrigation. Thus, excess use of groundwater for the contract crop has depleted the water level drastically

#### 2. Use and Abuse of Agrochemicals

Since 2000, the use of agrochemicals (fertilisers, pesticides, herbicides, and fungicides) in India has expanded dramatically. This is evident in states such as Punjab, Tamil Nadu, and Karnataka, where agriculture has been rapidly commercialised. The usage of agrochemicals has two types of impacts. For starters, it boosts agricultural output. Second, it has a negative impact on human health and the environment in a variety of ways.<sup>10</sup> Indeed, there is compelling evidence that increased fertiliser and pesticide use has degraded land quality and increased health hazards. Firms generally push high-value crops that require additional chemicals. It was discovered that the corporation suggested

the use of pesticides that were not ecologically friendly in order to protect the crop (gherkin) from insects. Furthermore, major food importing countries<sup>11</sup> specify the use of specific pesticides for crops, which influence whether or not food imports can enter their food chains. It is so stated that the majority of new pesticides used in crop cultivation precede a wide variety of pests rather than a specific target organism and damage the ecosystem's natural in-built protection. Pesticide use differs significantly between contract and non-contract crops. Pesticide must be sprayed seven to eight times during the growing season for gherkin and four to five times for rice seed. Furthermore, pesticides such as Chloropicrin, Confidor, Zinc, AP Loud, and Antrocol are applied on rice seed. Non-contract crops, on the other hand, are grown with little or no pesticide. The company recommends using pesticide one day before plucking the gherkin (contract crop) to protect it from insects. Farmers do not use gloves when working. This is harmful to people's health. In this context, Gandhi and Patel (1997) contend that where farmers are unaware of the detrimental impacts of pesticide use on the environment, the economy suffers more.

## Conclusions

To summarise, contract farming has had both beneficial and negative consequences in Tamil Nadu. In most cases, corporations begin the contract; therefore the farmer's participation in contract farming is determined by the firm's requirements rather than the farmer's choice. It has been noticed that in the majority of situations, corporations got into contracts with farmers who had larger landholdings and superior irrigation facilities. Contract farming is also being practised by farm households with a large family size, better education, younger farmers, and larger agricultural investment. An attempt has been made to determine whether contract farming has increased income and employment. The total income earned by contract farmers is found to be higher than, almost double, that of the non-contract ones, except in the case of livestock income. Contract crops also require more labour than non-contract crops, about twice as much. Furthermore, women are employed at a higher rate per acre in rice seed farming than in gherkin agriculture. When productivity declines, the corporation tries to change the production relationship to other farmers and even to other places, according to the environmental component of contract farming. Furthermore, agrochemicals are used in excess for contract crops compared to noncontract crops. As a result, it raises the issue of sustainability. Because of the firm's monopolistic behaviour, the contract is unlikely to be renewed. The majority of farmers experienced crop rejection by the corporation. It has been observed that the corporation is hesitant to acquire the contracted output due to variances in crop quality. In addition, the corporation attempts to re-grade the harvest without alerting farmers, lowering the expected income. Contract farmers' key obstacles are reported to be delayed payment, a lack of financing, a paucity of water, and trouble satisfying quality requirements. The main barrier for non-contract farmers is a lack of credit and a paucity of water.

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