

Chapter 1 - Introduction

1.1 Background

1.1.1 Global transformation

Growing urban populations, expanding per capita incomes, changing lifestyles, maturing agribusiness markets and emerging mass media and communication systems have altered the food consumption, production and distribution patterns across the world (Stringer, Sang & Croppenstedt, 2009). With changing times, supermarket revolution has spread across the globe and is rapidly expanding in emerging economies of China, India, Malaysia and Indonesia (Kearney, A. T., 2012; Reardon, Timmer, & Minten, 2010). As per the 2012 Global Retail Development Index, China ranked third, while India ranked fifth in terms of retail investments (Kearney, A. T. , 2012). In India, organised retail¹ or the so called modern food retail has been estimated to have grown 49.9% annually from 2001 to 2010 (Reardon et al., 2010). The emergence of super markets have brought a shift away from traditional wholesale system towards the use of centralized distribution centres', specialized/dedicated wholesalers operating on their preferred set of farmers who maintain private standards for quality and food safety (Wang, Dong, Rozelle, Huang, & Reardon, 2009). Moreover, there has been penetration of modern logistic firms in India which are providing services such as assortment and packaging of produce along with the direct delivery to food chains (Reardon & Minten, 2011). Some of the examples of the dedicated wholesalers providing supply chain support to the retail chains and fast food outlets are McCain (I), Radhakrishna Foodland, Adani Agri Fresh Ltd. and Trikanya Agriculture (Singh S. , 2007).

Reardon and Minten (2011) observes that supply chains are shortening in India, as the role of village brokers are reducing and as mandi (public wholesale markets) wholesalers buy directly from farmers. Also, cold stores have expanded rapidly in case of non-staple crops like potato and have taken on wholesale functions and provide credit to farmers.

¹ Organised retailing includes corporate backed hypermarkets and retail chains and also private owned large retail business (Corporate Catalyst India, 2012).

1.1.2. Transformation in Indian Agriculture

Many studies viz. Gulati, Minot, Delgado, and Bora (2005), Reardon and Minten (2011), and Government of India [GoI] (2012b) have mentioned about the transformation of Indian agriculture. There has been a structural change in the composition of agriculture leading to diversification into horticulture, livestock, and fisheries. In the period 2001 to 2011, all the major cereals except maize, displayed a negative growth in the area, while there has been a significant increase in the area of pulses and cash crops like soyabean, cotton, and sugarcane. The share of horticulture, livestock, fisheries in total output from the agriculture and allied sectors has increased from 39% in Triennium Ending (T.E.) 1990-91 to 50% in T.E. 2009-10 (at 2004-05 prices) (GoI, 2012b). According to Gulati, Joshi, and Landes (2008, p. 2), changing dietary patterns accelerated by higher economic growth, rising income levels, urbanization and gradual increase of female employment have led to consumption of high-value commodities² and processed food items in India. Thus, the spread of supermarkets and rising demand for high-value commodities has given an opportunity for farmers to diversify into activities having the higher income.

Although, India is the world's second largest producer of food next to China, still only two percent of its total agriculture and food produce is processed (MOFPI, n.d.). According to Gulati et al. (2008), some of the major constraints in enhancing our agricultural exports are the lack of public and private investment in infrastructure, logistics, information and technology, which have resulted in inefficient and uncompetitive markets. Gulati et al. (2008, p. 14) argue that *'it is important to step beyond farming and conceive agriculture as a complete agri-food system that incorporates farming, logistics, wholesaling, warehousing, processing and retailing.'* Thus, structural inclusiveness requires collaboration between all the parties operating in and around agri-markets (Woodhill, Guijt, Wegner, & Sopov, 2012, p. 3).

The growth in agro-processing has a big potential to trigger development in other sectors of the economy through the multiplier effect. It can create jobs away from farms and processing units in sectors such as transportation, distribution, retailing, etc. Apart from forward linkages such as processing and marketing, agro-industries help to create

² High-value agricultural goods are generally defined as agricultural goods with a high economic value per kilogram, per hectare, or per calorie. They include fruits, vegetables, meat, eggs, milk, and fish. Other crops that are also considered high-value commodities are spices, flowers, medicinal plants, many industrial crops, and even crops that yield illegal drugs (Gulati et al, 2005).

backward linkages by supplying credit, input, and other services to primary producers (Asokan and Singh, 2003). It is, therefore, essential that post-harvest losses are minimised, and value-addition is increased by strengthening the farm-firm linkages.

With Indian agri-food system undergoing rapid transformation, an important concern in Indian agriculture is that while “front end” activities – including wholesaling, processing, logistics, and retailing – are rapidly expanding and consolidating, the “back end” activities of production agriculture have been continuously fragmented (Gulati et al. 2008). It has been reported that the large agro-processing units often faced the problems of severe underutilization of capacity due to the inadequate and unsuitable supply of raw materials (Pandey, Marwaha, Kumar, & Singh, 2009; Srivastava & Seetaraman, 1989). Srivastava and Seetaraman noted that one of the major reasons for the sickness of Maharashtra sugar factories during late 1980's was the lack of availability of sugarcane. The uncertainty in supply was the major reason for private processing units to forge backward with the farmers for ensuring supplies. Some of the prominent examples of such kind of backward integration found in academic literature are: (a) dairy and sugar co-operatives in Gujarat and Maharashtra respectively during the 1950's; (b) Wimcopolar programme during 1970's, where the company imported the poplar clones and raised the nurseries to introduce poplar cultivation in India; (c) PepsiCo had developed seeds for tomatoes, basmati rice, chilies, groundnut, chip-grade potatoes, citrus cultivation in India for contract farming (Deshpande, 2005; PepsiCo, n.d.); (c) Jain Irrigation Systems (I) Pvt. Ltd. (JISL) developed seeds for white onion contract farming (Jains, n.d.-b). Similarly, there would be much more examples across India. This process of forging backwards for procuring farm produce is termed as “vertical coordination.” Vertical coordination is the general term that includes all the ways of harmonizing the vertical stages of production and marketing (Mighell & Jones, 1963). This coordination occurs along the “vertical” chain of functions: production, grading, packaging, transport, processing, storage, and distribution.

Contract farming is one of the ways of improving the farm-firm linkages and help address existing market imperfections (Gulati et al., 2008). Through contract farming, the farmer gets the required assistance in the form of quality inputs, extension services and the assured market for their output, while the company gets the assured supply of raw materials. Such inter-linked input and output markets contracts can generate efficiency gains which can be shared between farmers and firm (Barrett, et al., 2012)

1.2 Contract farming

1.2.1 Definition of Contract Farming

Following the definitions³, Narayanan (2011, p. 12) defines contract farming related to Indian context *'as an agreement, oral or written, between farmer or farmer groups and processing and/or marketing firms, commercial or otherwise, for the production and supply of agricultural products under pre-specified conditions, frequently at predetermined prices. The arrangement could also involve the purchaser providing a degree of production support through, for example, the supply of inputs and the provision of technical advice. The basis of such arrangements is thus a commitment on the part of the farmer to provide a specific commodity in quantities and at quality standards determined by the purchaser and a commitment on the part of the company to support the farmer's production and to purchase the commodity'*. This definition excludes sharecropping, where annual tenants are provided with inputs to produce a crop on the farm-owners' land.

1.2.2 History of Contract Farming

The agricultural produce under contract may be a field or horticultural crop, livestock or animal produce. Usually, the buyer in contract farming will be a processor, exporter, marketing firm, input or service provider (Naidu, 2012). Contract farming has existed for agricultural products for a long time. Producing and selling on a contractual basis is a common phenomenon in agriculture around the world (Bijman, 2008). Contract farming as a system of growing certain crops has been prevalent in India since the second half of the nineteenth century. It all started when the East India Company introduced the cultivation of indigo, poppy and the plantation crops of tea, coffee, rubber, tobacco, etc. (Deshpande, 2005; Dev & Rao, 2005). Similarly, contracts were used for sugar production in Taiwan by the Japanese colonial state in the period after 1895 (Ka, 1991). Contract farming as the mode for procurement for perishable commodities and livestock products became more widespread in the middle of 20th century in countries across Northern, Central America, Africa (Roy, 1963; Watts, 1994). By the end of the twentieth century, contract farming became an integral part of the food

³ Narayanan (2011) draw on definitions proposed by Dorward (2001), Eaton and Shepherd (2001, p. 2), Glover and Kusterer (1990), Mighell and Jones (1963), Roy (1963), and Simmons, Winters, and Patrick (2005).

and fibre industry across the world (Bijman, 2008; Rehber, 1998). At the start of the twenty-first century in the USA, contracts governed 36 % of the value of agricultural production compared to 12 % in 1969 (MacDonald, et al., 2004).

Table 1.1: Chronology of Contract Farming in India

Period	Events
1860's	• Plantations for tea & coffee in North-east and the South; indigo & poppy cultivation in plains
1930's	• ITC starts Virginia tobacco contract farming in Andhra Pradesh
1948-50	• Sugar co-operatives emerged in Maharashtra and milk co-operatives in Gujarat incorporating many elements of contract farming
1950's	• Emergence of seed business based on contracts
1980s	• Poplar introduced through contract farming in Northern India • Tomato contract farming introduced in Andhra Pradesh and Karnataka • ITC stops contract farming operations due to Government legislation in 1984
1990's	• Tomato contract farming started in Punjab by PepsiCo • Chillies, groundnut, basmati paddy and potato contract farming started in Punjab • Gherkin and poultry contract farming introduced in Southern India • Palm fruit contract introduced in Andhra Pradesh and other states • Poplar contract farming stopped in 1995
2000 onwards	• Marico introduced safflower contract farming in 2001 • Variant of contract farming introduced for various crops and poultry in many parts of India • Contract farming accepted in new Policy Framework. • The emergence of specialized contract farming firms (Pepsi Co, Siddhivinayak) which carry out contract farming to provide the raw materials to other companies.

Source: Adapted from (Deshpande, Contract farming as means of value added agriculture, 2005); (Dev & Rao, 2005); (Singh & Asokan, 2005)

The history and major events about contract farming in India are presented in Table 1.1. In India, contract farming got prominence after the entry of PepsiCo in India in early 1990's and starting of its tomato contract farming scheme in 1997 with over 400 farmers in Punjab (Deshpande, 2005). Since then, contract farming has been the area of interest. One of the primary reason for the rise in contract farming in India has been the growing food processing sector. As per the reports of Annual Survey of Industries (cited in GoI, 2012a), total output from food products and beverages units has risen from Rs. 204.3 billion in 2004-05 to Rs. 405.4 billion in 2008-09, i.e., it grew at CAGR of 14.7%. Similarly, GDP of registered manufacturing units from food products and beverages sector food has recorded an average annual growth of 15% for the period 2004-05 to 2009-10 (at 2004-05 prices). Most often the processors of agricultural commodities require a qualitatively homogenous raw material for the longer season for the high utilisation of its installed capacity of infrastructure. Due to seasonality, perishability and variability of agriculture produce, processors look to integrate backwards for procuring of the raw material. One of the ways of assuring the supply of raw materials at the required time, quality and price are for the firm to enter into an arrangement with the

farmers (Singh & Asokan, 2005). Thus, vertical coordination in the form of contract farming plays an important role for firms to meet their raw material requirement.

1.3 Statement of Problem

There is growing evidence that contract farming arrangements (CFAs) are expanding across the country (Planning Commission, 2011c). GoI's policy documents⁴ emphasize the need to encourage contract farming as it shall boost crop diversification by providing assured and remunerative market opportunities for farmers. Agriculture, being the State subject, GoI is incentivizing States to amend their APMC (Agricultural Produce Market Committee) Act by making provisions for direct marketing and contract farming. It had also drafted the Model contract farming agreement (2003) and circulated the same among the States (GoI, 2010). At one hand, the policymakers are mulling the benefits while on the other hand there are certain sections of the society that are opposed to the notion of contract farming⁵. Although, most of the States have amended their respective APMC Act to facilitate direct procurement of agricultural commodities by companies from the farmer's fields (Planning Commission, 2011c), however Government in West Bengal and few other states are sceptical about contract farming (BS Reporters, 2012; ET Bureau, 2012; Ghosh, 2013). According to the report of the working group on agricultural marketing infrastructure for the XIIth Five Year Plan (2012-17), contract farming has not benefitted small producers in a meaningful way, as information asymmetry, weak bargaining power and legal ambiguities create insurmountable hurdles to producer-buyer relationships. One of the reasons cited for this is the lack of clarity among farmers on the regulatory framework for contract farming. However, they admit that it shall benefit small producers in the long run (Planning Commission, 2011c). Some opponents of the contract farming remark that the relationship itself is between two unequal parties and there is imbalance of power leading to exploitation of farmers (Clapp, 1994; Minot, 2007; Singh S., 2002)

⁴ viz. Xth and XIth Five Year Plan (Planning Commission, 2002, 2008), National Policy for Farmers (GoI, 2007), Mid-term Appraisal for XIth Five Year Plan (Planning Commission, 2011b), Approach paper to XIIth Five Year Plan (Planning Commission, 2011a). The list is incomplete.

⁵ Some of farmer groups across India have opposed contract farming, as they find it to be exploitative towards farmers. For e.g. Rythu Swarajya Vedika, an umbrella organization of agriculturists and activists has opposed the Andhra Pradesh (AP) Government move to introduce contract farming in the State (TOI, 2012). According to Vidarbha Janadolan Samiti in Maharashtra, contract farming model has not been working well at least for farmers. As many times companies have failed to pick up the whole produce and have been unresponsive towards monsoon failures in setting prices (Raja, 2011).

Thus there seems to be controversy surrounding the functioning of contract farming about exploitation of farmers and inclusiveness aspects, in addition, from the gains associated with it. However, as Mighell & Jones (1963, p.78) point out that contract production (or any form of vertical coordination) is a method of carrying on production; it is a kind of institutional machinery for getting things done. One cannot say that machine is good or bad. A machine may yield good or bad result depending on how and where it is used. Similar is the case with the institution like contract farming and hence it cannot be concluded whether contracting is good or bad; the important thing is how the firms practice it. Clapp (1994) points out that *'the contract is a representation of a relationship rather than the relationship itself, and the divergence between the two may prove crucial in determining the development of contract farming as an institution.'*

Narayanan (2011) observes that economists engaged in micro studies have rarely focused on how the relationship between contract farmer and contracted firm functions, while the question of sustainability of these systems is marginally addressed. This thesis is a modest attempt towards understanding the contract farming as an institutional form of procurement for agro-processing/marketing firms.

1.4 Research Questions

Thesis attempts to address following research questions:

- a) How does contract farming function and what is the nature of relationships among farmer and firm?
- b) Do only socio-economically well-off farmers participate in contracting? i.e., are there any differences in the socio-economic profile of contract farmers (CF) and non-contract farmers (NCF)?
- c) What is the profile of farmers who were earlier adopters and followers in contracting?
- d) What are the factors influencing farmers' decision to participate or not participate in contracting?
- e) What are the economics of crop cultivation in contract farming vis-à-vis non-contract farming?

- f) What are the benefits and problems faced by the contract farmers in contract farming?

1.5 Context and scope of the thesis

For the better understanding of the process of contract farming two horticulture crops viz. chip-grade potatoes and white onion have been chosen for the study. The two case studies pertaining to crops 'chip-grade potato' and 'white onion' are chosen because it's been a decade (since 2002) since the contract farming of both the crops started in Maharashtra. Moreover, contract farming is going on a large scale as there was around 2000 CF for both the crops in the reference season. How these two crops were selected for the thesis has been explained in Section 4.3. Although both white onion and chip-grade potatoes (CGP) are vegetable horticulture crops used for processing, both have diverse market structure. The volume of spot markets for white onion is large, while that of chip-grade potatoes is thin. Also, the mode of the governance structure of contract farming in both the crops is different. In the case of CGP, companies like PepsiCo follow a contract farming scheme having an intermediary, while JISL follows a direct contract farming scheme, where its employees have direct dealing with the farmer. Maharashtra is one of the few states in India, where potato processing variety grows in Kharif season. Now there is a tough competition among potato chips firms to procure CGP from these regions to meet their raw materials requirement. Also, farmers churning in and out of contracting was observed as there were variations in the increase or decrease to the tune of 20-25% from year to year of number of farmers in contract farming (Table 4.1).

The thesis on CGP and white onion contract farming in Maharashtra shall improve the understanding of functioning of contract farming about different governance and market structure in India. The case study of CGP and white onion contract farming is built with the primary and secondary data. Primary data comprises of in-depth interviews of contracting firm's management and field staff, commission agents in APMCs, banking officials, Government officials, hundekari (traders in case of CGP) and input companies involved in the contract farming. Also, structured schedules were used for farmers' survey. The survey for onion crop was carried out in the year 2012, with the reference season of Rabi, 2011-12. CGP survey was carried out in early 2013 with the reference season of Kharif, 2012-13.

1.6 Objectives of the thesis

Based on the research questions (Section 1.4), objectives of the thesis is to study the following:

- a) To study the functioning and inclusiveness aspects of CGP and white onion contract farming in selected districts of Maharashtra.
- b) Motivation and determinants of farmers' participation and non-participation of contract farming
- c) To examine the economics of contract crop cultivation vis-à-vis non-contract (without contract) cultivation in relation to CGP and white onion in Maharashtra.
- d) Benefits and problems faced by contract farmers of selected crops.
- e) Suggest policies required for effective functioning of contract farming

1.7 Significance of the thesis

Most studies on the contract farming in India examine the economics of the contract farming system in specific crops, compared with that of the non-contract situation for a particular season or year. However, empirical evidence on the true cost and benefits of contract farming is scarce and anecdotal due to lack of data (BIRTHAL, JHA, TIONGCO, & NARROD, 2008, p.2; RAMASWAMI, BIRTHAL, & JOSHI, 2006). Similarly, Barrett et al. (2012, p. 6) points that the empirical literature on different dimensions of participation in contract farming is limited in scope partly due to the relative paucity of high-quality survey data. This thesis is a humble attempt to contribute to the contract farming literature.

Although, Maharashtra is among the leading states regarding fruits and vegetable production and a progressive farming community [Government of Maharashtra (GoM, 2010)], it is also among a leading State for farmers' suicides. There also exist certain constraints and regional disparities in the State regarding agricultural development (Kalamkar, 2011b). Contract farming can play an important role in uplifting farmers' economic conditions. Amidst, controversies surrounding contract farming, from the policy maker and industry's perspective, a thesis about economics and inclusiveness aspects on contract farming with a case study of Maharashtra is timely. Given the

diversity of geographical and regional characteristics, the thesis would build on the literature of contract farming. The thesis also aims to provide suggestions on contract farming regulations that shall facilitate in strengthening the institution of contract farming and protect the rights of both farmers and firm.

Overall, the thesis would be useful for the (a) practitioners (firms and farmers); (b) policymakers; (c) Academics and students of agribusiness and rural development.

1.8 Limitations of the thesis

Given the heterogeneity of crop characteristics and contract-farming relations, it is not possible to have a general theory of contract farming. Rather, the emphasis should be on understanding this phenomenon in relation to local conditions (Little, 1994). This study is a modest attempt to understand the phenomena of contract farming and is confined to two important horticulture crops viz. white onion and CGP in Maharashtra. More such studies are needed on other crops to have a better understanding of contract farming. Hence, results of the thesis have to be inferred with caution. Due to time and cost constraints, the study adopts the cross-sectional research design. However, a longitudinal study would have been better to the understanding of the contract farming scheme. Further, the findings of the study would be based on the responses of the respondents and hence the objectivity is limited to the honesty and memory power of the respondents. However, I do believe that data collected is reliable, because wherever possible, data on the cost of cultivation were cross verified as per the key informants, traders, and company records. I shall like to end this section by a quote from Panse and Rao (n.d.), *'It is possible to detect complete falsity of the information. It may happen that farmers may slightly exaggerate or underestimate information about costs and returns. It is not always possible to detect bias of this kind, but it is claimed that such inaccuracies are cancelled out by the averaging group of farmers'*.

1.9 Chapter Outline

This thesis is organized into nine chapters including this introductory chapter. The second chapter explains the concept of contract farming through the lens of transaction cost economics approach. The third chapter presents the literature review in light of the research questions mentioned in section 1.4. In the fourth chapter, the research design and methodology adopted to fulfil the objectives of the thesis (see section 1.6) has been

presented. Fifth chapter provides a background information on State of Maharashtra and selected districts of study. The crop profile along with the history and functioning of JISL's onion and PepsiCo (I) CGP CFAs is presented in this chapter. Chapters six and seven deals with inclusiveness aspects of contract farming schemes. In chapter six, the socio-economic profile of farmers and determinants of farmers participation in contract farming using descriptive statistics and logit regression is discussed. While in chapter seven, various aspects of contracting from farmers' perspective have been discussed with special emphasis on the profile of early adopter of CFAs and the motivation of farmers' participation or non-participation in CFAs. Benefits, problems, and overall experience of CF of both the crops have also been discussed. Comparative analyses of the cost of cultivation and marketing, yields and profitability of CF and NCF using the data collected through the primary survey of sample households is presented in chapter eight. Chapter nine concludes with a summary of the major findings of the thesis. Based on field survey, suggestions for contracting firms and State Government for the effective functioning is also stated. Future areas of research in the subject of contract farming is also discussed.