CONTRACT FARMING IN INDIA: MODELS AND IMPACTS

Pavneet Kaur
Research Scholar, Centre for Economic Studies, Central University of Punjab
Naresh Singla
Professor, Centre for Economic Studies, Central University of Punjab

Voice of Research
Volume 5, Issue 1
June 2016
ISSN 2277-7733

Abstract

The emerging institutional arrangements such as CF are promoted on the plea that these share production and marketing risks of the producers and in a way these are seen as a tool to diversify the Indian agriculture and making the farmers' viable. However, a reality check on the CF arrangements with the farmers points a gloomy picture. The present models are not completely integrating the small and marginal farmers in the system. Most of the studies show that the companies prefer to work with mainly medium and large farmers in contracts.

Keywords: *Farming, Contract Farming, Models*

Agricultural marketing in India is complex phenomenon and its nature and structure is continuously evolving over a period of time. With the advent of liberalization, pattern of agricultural development has shifted from a traditional to a market-oriented structure resulting in the emergence of new markets for the producers. But, the traditional production and marketing process of fruits and vegetables (F&Vs) in India is still characterized by low crop productivity, limited irrigation facilities, numerous intermediaries, lack of transparency in pricing, lack of infrastructure for grading/ sorting, non-existent cold chain, poor linkages in marketing channel, mismatch between demand and supply leading to high price fluctuations and post-harvest losses along the entire supply chain of fresh produce (Mittal, 2007; Grover *et al.*, 2012; Singla, 2012). F&Vs are susceptible to both production (pest attack and climatic adversities) and price risks and the lack of risk-mitigating measures such as crop insurance or assured markets further compound these risks. The lack of assured prices for F&Vs crops in contrast to support prices for paddy and wheat, also acts a major deterrent for the farmers to shift from traditional cereal crops to high value crops (Gulati *et al.*, 2008).

In this context, alternative institutional arrangements such as contract farming can play a vital role to minimize transaction costs in light of increasing uncertainty, asset specificity and market failures associated with high value crops (Da Silva, 2005). In order to function these arrangements, Government of India has formulated the model APMC Act, 2003 that proposes to remove the restrictions on direct marketing by farmers, development of market infrastructure for other agencies and set up a framework for contract farming (World Bank, 2008). By 2014, 18 states have amended their act and paved the way for the entry of corporate players. Thus, it is argued that structure and pattern of agricultural marketing would be different in the presence of corporate players practicing contract farming. Such arrangements parallel to the traditional marketing channels will not only increase bargaining power of the producers, but these may also help to provide the fresh F&Vs at reasonable prices to the consumers. In this context, the study has made an attempt to first understand the theory of contract farming in India along with its impact on farmers in terms of building linkages with the farmers, providing technical know-how and raising income.

Theory of Contract Farming

Contract farming (CF) refers to situation in which a farmer grows an agricultural product for a vertically integrated corporation under a forward contract. Contracts are generally signed at planting time along with specifying the quantity and price of the produce. Contracts often include the provision of seed, fertilizer and technical assistance, credit and a guaranteed price at harvest along with these firms always retain the right to reject substandard produce (Glover, 1994). Basically, CF involves four things a) pre-agreed price; b) quality; c) quantity (in the forms of minimum and maximum acreage) and d) time of delivery (Singh, 2002). The CF emerges due to the existence of one of the following conditions: high value specialty crops with profitable 'niche' market; the need for consistent and reliable supplies on the part of the buyer; a system of input and output market that cannot be met through open market purchases and a labour intensive commodity that small holders can produce efficiently (Dhillon and Singh, 2006). CF is the economic institution wherein a processing firm and a grower enter into a contract in which the firm delegates the production of agricultural commodities to the grower (Bellemare, 2012). It can be described as a halfway between independent farm production and corporate farming (Singh, 2005).

Contracting firms are mostly large processors, exporters or supermarket chains; rarely small-scale traders or even wholesalers execute pre-planting contracts with farmers. To start contracting, firms have to create a network of trained field agents, who recruit farmers, provide advice, monitor compliance and organize collection of the harvest. Due to large fixed cost associated with contracting, only large firms have a bigger incentive to ensure a steady supply of raw materials, availability of credit and greater capacity to absorb the risk associated with offering a fixed price (Minot and Ronchi, 2014). Mainly, contracting firms are involved in two types of operations- firstly, they act as marketing channel between the farmers and any other national and international level firm. Secondly, it can be involved in the processing of farm produce (Dhillon and Singh, 2006). In contract arrangements, there is an organized connection between the product and factor markets as the contracts require definite quality of product and for it there is requirement of specific inputs (Singh, 2002).

In many developing countries, CF is playing an increasingly important role and there has been long debate on its impacts in these countries. Critics of CF believe that firms use contracts to transfer production risk to farmers. For others, CF is a way for small farmers to involve into growing domestic and foreign markets for processed foods (Narayanan, 2013). The Government of India's national policy on agriculture has also assigned a key role to the private sector through promotion of CF. Contracting is perceived as the risk distribution measure between the farmer and the buyer, where farmer takes on the risk associated with agricultural production and buyer taking on the risk of marketing and distribution (Rangi and Sidhu, 2007; Singh, 2007). So, there is considerable interdependence between the two parties and the transfer of risk is not always equitable. Thus, basic purpose of adoption of such a policy is to provide a proper linkage between the farm and the market by giving farmer an assured price and procuring the farm produce on the one hand and insuring timely and adequate input supply to the agro-based and food industry on the other. Need for such a policy has its beginning in the demand and supply disequilibrium that agriculture faces, where farmers have to dump their produce for the want of buyers on the one hand and agro-based industries face difficulties in procuring quality inputs on the other (Dhillon and Singh, 2006).

In short, CF basically involves the following provisions- parties involved, specific quality and quantity of produce, timing of delivery, responsibilities of both parties regarding production and marketing practices, price fixation formula, contract duration, conciliation procedure and assignment of contract. The requirement of contractual relationship depends upon the nature of crops as grains are not perishable, so it generally does not require contractual arrangement for its prompt harvesting and processing. But on the other side, some products like F&Vs, flowers, organic products, tea, coffee and spices generally require contractual relationship because of their perishability and bulkiness. It is also a way to help small family farms and farm labourers who require capital and managerial assistance because they often lack the necessary production and marketing information regarding new crops and varieties. So CF is one of such mechanism that deals with such constraints in integrated manner (Rehber, 2007).

Emergence of Contract Farming in India

CF in India dates back to colonial period, when British government introduced cash crops such as tea, coffee, rubber, poppy and indigo through a central, expatriate-owned estate surrounded by small out grower's models (Singh, 2009; Sharma, 2014). ITC introduced cultivation of Virginia tobacco in coastal Andhra Pradesh in the 1920s incorporating most elements of fair CF system. Organised public and private seed companies, which emerged in the 1960s, had to necessarily depend on multiplication of seeds on individual farms under contract to them since they did not own lands. So, CF in India is not a new phenomenon as informal CF has been practiced by cooperatives for quite some time. However, corporate-led CF system in India is a recent phenomenon. Faced with an acute shortage of soft wood, Wimco, the country's sole mechanized match manufacturer instituted an innovative farm-forestry scheme for the cultivation of poplars in Punjab, Haryana and Uttar Pradesh (Deshpande, 2005). As a new processed food exporter, Wimco has also done CF with temporary success in tomatoes to supply its paste factories in Karnataka and Andhra Pradesh. Realizing the problems in farming economy of Punjab, the government started emphasizing the diversification of agriculture by promoting alternatives to the existing cropping pattern through CF, encouraging agro-industries and developing infrastructure for easy marketing access for other commodities (Dhillon and Singh, 2006). Singh (2004) believes that involvement of Punjab in contractual arrangements began in 1980s with seed and timber production and in perishables like mustard leaves, procured by Markfed from the farmers to process it for export market. However, this practice went unnoticed from the attention of the policies and research. But, most widely accepted belief about origin of CF in Punjab is associated with Pepsi Foods Ltd. (Singh, 2002). The entry of Pepsi was followed by another local entrepreneur (Nijjer) who also set up tomato-processing plant with half the capacity of Pepsi's plant. Hindustan Lever Limited (HLL, a Unilever subsidiary) set up its processing unit and entered into CF in 1995 (Singh, 2007).

Practice of Contract Farming in India

Procurement

The practice of CF by the companies differs across the locations and the crops (Table 1). Most of CF companies operated through written contracts with the farmers. Some of the companies such as Kartikey Indo Agritech, Technico Agri Sciences and Pepsico had their contracts in English, while others such as Agrocel, Pratibha Syntax had contracts in Hindi. Mahindra Shubh Labh translated contracts from English to vernacular language so that the farmers are able to understand the contracts. The companies supplied quality inputs such as seeds, fertilizers and plant protection chemicals by generating vertical linkages between the firms and the farmers. All the companies have different price fixation criteria for procuring the produce as Pratibha Syntax gave 15 per cent premium at market price, while foreign and domestic firm of Karnataka and Kartikey Indo Agritech provided pre-determined prices and another company Pepsico procured the basmati at the market prices.

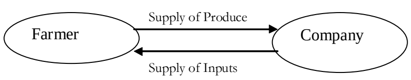
Table 1 - Features of Contract Farming Companies in India

Company	Location	Crop	Type of contract	Language	Input supply	Price fixation
Agrocel	Gujarat, Haryana, Odisha	Organic cotton	Written	Hindi	Not mentioned	Premium deposited in separate account to be used by the farmer group
Pratibha Syntax	Madhya Pradesh	Organic cotton	Written	Hindi	-	15% premium on market price
Domestic firm	Karnataka	Green chili, baby corn	Oral	-	Seeds, fertilizers, plant protection chemicals	Pre-determined
Foreign firm	Karnataka	Green chilli, baby corn	Written/oral	-	Seeds, fertilizers, plant protection chemicals	Pre-determined
Pepsico	Punjab	Potato, Basmati	Written	English	Seeds & pesticide kit	Market price- basmati
Mahindra Shubh Labh Services Ltd.	Punjab	Potato	Written	English (translated to Punjabi on demand)	Seeds & pesticide kit	May be changed if market price falls
Kartikey Indo Agritech Pvt. Ltd.	Punjab	Potato	Written	English	Seeds & pesticide kit	Pre-determined
Technico Agri Sciences Ltd.	Punjab	Potato	Written	English	Seeds & pesticide kit	May be changed if market price falls

Source: Nagaraj *et al.*, 2008; Singh, 2009a; Sharma, 2014.

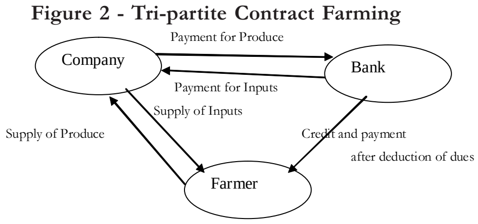
In Punjab, companies like Chambal Agritech and A.M. Todd procured mainly through the bi-partite case of buy back and input supply (Figure 1) and sometimes have tri-partite case of credit supply (Figure 2) along with lifting the produce from the farm-gate at the company's cost, while Pepsi/Fritolay and HLL asked the farmers to deliver their produce at the pre-agreed procurement point. FLI (Pepsi) in Maharashtra worked through an intermediary called 'Hundekari' who manages the relation with small growers on behalf of the company right from registering farmers to buy back arrangements. In Karnataka, the company had organised informal associations of growers, who manage the operations like seed distribution and supply schedules for delivery of the produce among themselves (Figure 3). In Kaithal, in case of organic basmati paddy, Agrocel supplied organic inputs certified by SKAL and seed supplied by PICRIC and procured the entire potatoes except damaged potatoes from the farmers at the factory (Singh, 2007). Agrocel charges Rs. 500 from PICRIC as service charge for coordinating contract organic basmati production with the farmers (Figure 4). The Punjab Agro Foodgrains Corporation (PAFC), a nodal agency of government of Punjab for the promotion of CF in the state, provided seeds and technical supervision to contract farmers along with the promise of buy back entire produce at pre-agreed prices through tri-partite agreement (Figure 5). The contract is signed between three parties in the presence of two witnesses with the farmers (Kumar, 2006).

Figure 1 - Bi-partite Contract Farming



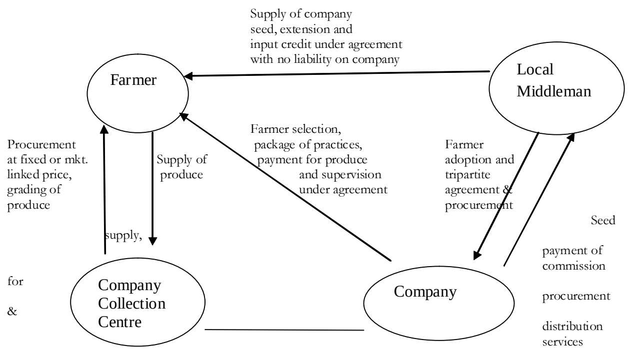
Source: Singh, 2005

Figure 2 - Tri-partite Contract Farming



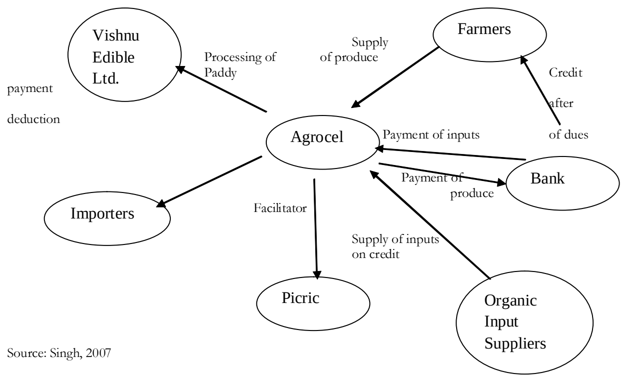
Source: Singh, 2005

Figure 3 - Tri-partite (Intermediary) Contract Farming



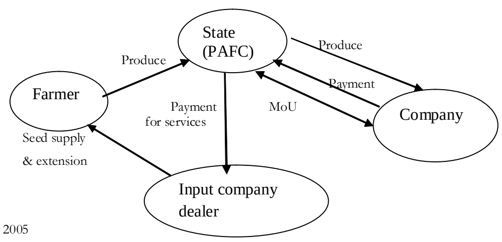
Source: Singh, 2007

Figure 4 - Agrocel Supply Chain for Organic Basmati Paddy



Source: Singh, 2007

Figure 5 - State-led Contract Farming



Source: Singh, 2005

Impact on producers

In case of Pepsi, HLL, Chambal Agritech and AM Todd in Punjab, the average size of the operational holding was higher in case of contract growers than that in case of non-contract growers (Kumar, 2006; Singh, 2009). This points that the companies worked with large farmers to gain from the economies of scale. Wimco instituted an innovative farm forestry scheme for the cultivation of poplars in Punjab, Haryana and Uttar Pradesh; ITC BPL in Andhra Pradesh; JK corp and BILT sewa unit in Odisha. The marginal farmers could not participate as the minimum number of trees to be planted under the scheme was 400-500 (Singh, 2004a). Kumar (2006) also observed that direct CF was operated effectively for all the farm size groups, but indirect contracts seem to favour only large farmers. Food Chain Partnership (FCP) program implemented by the transnational company, Bayer in India was highly selective in terms of the farmers and the crops to be covered. This limited the prospective of FCP to replace the traditional trade system as they concentrate only on those regions and products that were promising most profit to the companies (Trebbin and Franz, 2010).

The studies from Punjab (Table 2) indicate the preference of companies for medium and large farmers. The small farmers' participation in CF in West Bengal, Karnataka and Maharashtra may be due to their dominance in these states. The average size of operational land holding was 1.90 acres in West Bengal, 3.55 acres in Maharashtra and 3.82 acres in Karnataka. On the contrary, in Punjab the average size of operational land holding is 9.31 acres (Agricultural Census, 2010-11). Thus, the companies prefer to work with large farmers, but if the small farmers dominate area than the companies are left with no choice rather than procuring from them. CF is also promoting reverse tenancy as firms prefer to deal with relatively large farmers (Singh, 2000; Singh, 2002; Singh, 2009).

Table 2 - Contract Farming and Socio-Economic differentiation

Studies	Area of study	Contract firm	Contracted crop	Type of farmer
Singh (2002)	Punjab	HLL, Pepsi, Nijjer	Tomato, Potato, Chilli	Large
Dhillon and Singh (2006)	Punjab	Nijjer	Tomato	Medium
Sharma (2008)	Punjab	Pepsico, HLL	Basmati rice	Large
Nagaraj *et al.* (2008)	Karnataka	Domestic and foreign firm	Chilli, Baby corn	Small and medium
Swain (2010)	Andhra Pradesh	-	Rice seed	Small
Dev and Rao (2005)	Andhra Pradesh	AP govt. and various processors	Oil Palm, Gherkin	Oil palm- medium and large; Gherkin- small
Kumar (2006)	Punjab	Pepsi, HLL, Chambal Agritech, AM Todd and firms through PAFC	Various crops	Indirect contract- large
Kumar and Kumar (2008)	Karnataka	-	Gherkin, Baby corn, Paddy, Groundnut, Sunflower, Chilli, Ragi	Small
M.P. Singh (2007)	Punjab	PAFC	Basmati, Sunflower, Maize, Hyola	Medium
Ramaswami (2009)	Andhra Pradesh	-	Poultry	-
Sharma and Singh (2013)	Punjab	Technico Agri Sciences Ltd., Pepsico, Mahindra Shubh Labh Services, Kartikey Indo Agritech Pvt ltd.	Potato, Basmati rice	Medium and large
Pandit *et al.* (2009)	West Bengal	Frito lay	Potato	Small
Singh (2007)	Gujarat, Maharashtra and Karnataka, Punjab	Agrocel, FLI, AM Todd	Basmati paddy, Potato, Mint	FLI- small, Others- large
Singh (2004a)	Uttar Pradesh, Punjab, Haryana, Andhra Pradesh, Odisha	WIMCO, ITC BPL, JK Corp, BILT Sewa unit	Poplar	Medium, large

Several reasons have been pointed in literature for restraining small farmer participation. Like in Punjab, socio-economic factors that influenced the farmers' participation in CF were education, age, farm size, access to institutional credit, source of off-farm income, membership to an organization, proportion of adults and loan limit per acreage (Sharma, 2008; Sharma, 2014). The companies involved in CF of potato and basmati were biased in selection of farmers with preference for those who possess financial and social capital. The contract and non-contract dairy farmers of Rajasthan also assesses the asset differentiation i.e. land owned and number of milch animals (Birthal *et al*., 2008). The ownership of assets is significant factor for restraining the small farmers participation in contract farming (Sharma and Singh, 2013).

The returns per acre of cropped area for all direct contracting firms (Pepsi, HLL, Chambal Agritech and AM Todd) were higher in case of direct contracted crops compared to indirect contract crops of PAFC and non-contracted crops (Kumar, 2006). Similarly, gherkin and tomato contracted farmers had higher returns in Andhra Pradesh and Punjab respectively, as compare to other crops (Dev and Rao, 2005; Rangi and Sidhu, 2007). The mint contract growers of AM Todd & Co. in Punjab had lower cost of production; almost negligible transaction cost as the company did not charge for extraction of oil and higher net income than that of the non-contract growers (Table 3). It was mainly due to better quality of produce and better prices of the new varieties besides good extension services provided by the company (Singh, 2009).

Table 3 - Cost and Returns of Mint Contract Farmers and Non-contract Farmers in Punjab

Parameter	Contract Farmers	Non-contract Farmers
No. of farmers	20	23
Cost of production	10462	11639
Transaction cost	556	4880
Yield (litre)	29.89	48.39
Price (Rs/litre)	692.85	473.35
Gross income (Rs.)	20668	22428
Net income (Rs.)	9649	5909

Source: Singh, 2009

Within CF, net returns for baby corn and chilli crop were found to be higher under domestic contracts than foreign contracts in Karnataka (Nagaraj *et al*., 2008). For growing contract crops (rice seed) in Andhra Pradesh, cost was 31 per cent higher than non-contract crop (rice), but the net return was eleven times higher than the non- contract crops (Swain, 2010). Thus, most of the studies pointed that linking the farmers with CF bring more returns to them. But, there also existed many problems in their new institutional arrangements. Some studies highlighted the problems faced by farmers while working with contract firms like farmers of Pepsi, HLL and Nijjer reported problems such as poor coordination of activities, interior technical assistance, low prices, preferences for large farmers, delayed payments, outright cheating in dealings and manipulation of norms by the firms (Singh, 2004; Singh, 2012), seeds of winter maize supplied by PAFC was of poor quality (Rangi and Sidhu, 2007), undue quality cut on produce by firms and pest attack on the contract crop that led to crop failure (Singh, 2011). Similarly, the farmers who signed a contract with PAFC specified companies in Punjab were not provided with desirable extension services and their product was also not fully procured by the contracting companies (Kumar, 2006).

Conclusions and Policy Suggestions

The preference for the small and medium farmers in Karnataka, Maharashtra, West Bengal in some of the studies (Singh, 2007; Pandit *et al*., 2009; Nagaraj *et al*., 2008) is due to dominance of these farmers in such states. The companies left with no choice than to work with small farmers. The evidence suggests that contractors in Punjab prefer to work with large farmers as compare to small farmers because working with fewer large farmers reduces their transaction costs. Further, the performance of these companies reveal several problems such as undue quality cuts, delayed payments, low price for the high quality produce, poor technical assistance, not procuring the entire produce due to the glut in the market etc. In order to make work such institutional arrangements, CF should be legalized and violation of the contract should invite penalty on the either side. The firms should also take additional responsibilities such as providing institutional credit, provision of proper training facilities and agri-input facilities in order to sustain CF arrangements as such mechanisms will help in building mutual trust with each other.

References

Bellemare, M.F. (2012). As You Sow, So Shall You Reap: The Welfare Impacts of Contract Farming. *World Development.* 40(7): 1418-1434.

Birthal, P.S., Jha, A.k., Tiongco, M.M. and Narrod, C. (2008). Improving Farm-to-Market Linkages through Contract Farming. International Food Policy Research Institute. MTID Discussion Paper No. 85.

Da Silva, C.A.B. (2005). The Growing Role of Contract Farming in Agri-Food Systems Development: Drivers, Theory and Practice. Agricultural Management, Marketing and Finance Service. Retrieved from http://www.fao.org/fileadmin/user_upload/ags/publications/AGSF_WD_9.pdf

Deshpande, C.S. (2005). Contracting Farming as Means of Value-Added Agriculture. Department of Economic Analysis and Research. National Bank for Agriculture and Rural Development, Mumbai. Occasional Paper- 42.

Dev, S. M. and Rao, N.C. (2005). Food Processing and Contract Farming in Andhra Pradesh – A Small Farmer Perspective. *Economic and Political Weekly*. 40(26): 2705-2713.

Dhillon, S.S. and Singh, N. (2006). Contract Farming in Punjab: An Analysis of Problems, Challenges and Opportunities. *Pakistan Economic and Social Review.* 44(1): 19-38.

Glover, D. (1994). Contract farming and commercialization of agriculture in developing countries. In von Braun, J. and Kennedy, E. T. (Eds.), *Agricultural commercialization, economic development, and nutrition* (Pp. 166-175). Baltimore, MD: Johns Hopkins University Press.

Agricultural Census. (2010-11). Department of Agriculture and Cooperation. Ministry of Agriculture, Government of India, New Delhi.

Grover, D.K., Singh, J.M., Singh, J. and Kumar, S. (2012). Impact of Emerging Marketing Channels in Agriculture: Benefit to Producer-Seller and Marketing Costs and Margins of Potato and Kinnow in Punjab. AERC Study No.: 28. Punjab Agricultural University, Ludhiana.

Gulati, A., Ganguly, K. and Landes, M.R. (2008). Toward Contract Farming in a Changing Agri-food System. Contract Farming in India: A Resource Book, ICAR, IFPRI, USDA, New Delhi.

Kumar, J. and Kumar, P.K. (2008). Contract Farming: Problems, Prospects and its Effect on Income and Employment. *Agricultural Economics Research Review.* 21(conference number): 243-250.

Kumar, P. (2006). Contract Farming through Agribusiness Firms and State Corporation: A Case Study in Punjab. *Economic and Political Weekly*. 41(52): 5367-5375.

Minot, N. and Ronchi, L. (2014). CF- Risks and Benefits of Partnership between Farmers and Firms. *Trade and Competiveness Global Practice*. The World Bank Group. 344.

Mittal, S. (2007). Can Horticulture be a Success Story for India? Working Paper No: 197. Indian Council for Research on International Economic Relations (ICRIER), New Delhi.

Nagaraj, N., Chandrakanth, M.G., Chengappa, P.G., Roopa, H.S. and Chadakavate, P.M. (2008). Contract Farming and its Implications for Input- supply, Linkages between Markets and Farmers in Karnataka. *Agricultural Economics Research Review*. 21 (Conference Issue): 307-316.

Narayanan, S. (2013). Profits from Participation in High Value Agriculture: Evidence of Heterogeneous Benefits in Contract Farming Schemes in Southern India. *Food Policy*. 44: 142-157.

Pandit, A., Pandey, N.K., Rana, R.K. and Lal, B. (2009). An Empirical Study of Gains from Potato Contract Farming. *Indian Journal of Agricultural Economics*. 64(3): 497-508.

Ramaswami, B. (2009). Grower Heterogeneity and the Gains from Contract Farming- The Case of Indian Poultry. *Indian Growth and Development Review*. 2(1): 56-74.

Rangi, P.S. and Sidhu, M.S. (2007). Contract Farming in Punjab: Some Issues. In Bawa, R.S., Raikhy, P.S. and Dhindsa, P.K. (Ed.). *Globalization and Punjab Economy: Issues in Agriculture and Small Scale*. Pp.211-227. Guru Nanak Dev University, Amritsar.

Rehber, E. (2007). Contract Farming: Theory and Practice. The ICFAI University Press- Hyderabad.

Sharma, N. (2014). *Contract Farming in Punjab: Institutional Framework, Determinants and Efficiency* (Unpublished Doctoral Dissertation). IIT, Roorkee.

Sharma, N. and Singh, S.P. (2013). Contract Farming and Farmer Participation in Punjab. *Man and Development*. 35(4): 85-102

Sharma, V.P. (2008). India's Agrarian Crisis and Corporate-Led Contract Farming: Socio-economic Implications for Smallholder Producers. *International Food and Agribusiness Management Review*. 11(4): 25-48.

Singh, M.P. (2007*). Contract Farming and Emerging Agrarian Structure: The Case of Punjab* (Doctoral Dissertation). Jawaharlal Nehru University, New Delhi.

Singh, S. (2000). Contract Farming for Agricultural Diversification in the Indian Punjab: A Study of Performance and Problems. *Indian Journal of Agricultural Economics*. 55(3): 283-294.

Singh, S. (2002). Contracting out Solutions: Political Economy of Contract Farming in the Indian Punjab. *World Development*. 30(9): 1621-1638.

Singh, S. (2004). Crisis and Diversification in Punjab Agriculture: Role of State and Agribusiness. *Economic and Political Weekly*. 39(52): 5583-5590.

Singh, S. (2004a). Contract Farming and Forest Management. *Economic and Political Economy*. 39(26): 2693- 2695.

Singh, S. (2005). Contract Farming for Agricultural development- Review of Theory and Practice with Special Reference to India. Working Paper-2, CENTAD.

Singh, S. (2007). Leveraging Contract Farming for Improving Supply Chain Efficiency in India: Some Innovative and Successful Models. ISHS Acta Horticulture 794: International Symposium on Improving the Performance of Supply Chains in the Transitional Economies. Retrieved from http://www.actahort.org/

Singh, S. (2009). Supply Chains for High Value Crops: A case Study of Mint in Punjab. *Indian Journal of Agricultural Marketing*. 23(1): 93-102.

Singh, S. (2009a). *Organic Produce Supply Chains in India- Organisation and Governance*. Ahmedabad: Allied Publishers Pvt. Ltd.

Singh, S. (2011). Contract Farming for Agricultural Development in India: A Small Holders Perspective. Workshop on Policy Options and Investment Priorities for Accelerating Agricultural Productivity and Development in India, New Delhi.

Singh, S. (2012). Modern Food Value Chains in India: Emerging Potential for the Poor. SAMSKRITI, New Delhi.

Singla, N. (2012). *Fresh Fruit and Vegetable Retail Chains and their impact on Farmers in Punjab* (Unpublished Doctoral Dissertation). Guru Nanak Dev University, Amritsar, India.

Swain, B.B. (2010). Productivity and Farmer's Efficiency under Contract Farming: A Case Study of Rice Seed Cultivation in Southern India. Retrieved from http://www.mse.ac.in/Frontier/j10%20Braja.pdf

Trebbin, A. and Franz, M. (2010). Exclusivity of Private Governance Structures in Agrofood Networks: Bayer and the Food Retailing and Processing Sector in India. *Environment and Planning A*. 42: 2043-2057.

World Bank. (2008). *India: Taking Agriculture to the Market*. Report No. 35953IN. Agriculture and Rural Development Unit, South Asia Sustainable Development Department, South Asia Region, Washington.