

CHAPTER 2

REVIEW OF LITERATURE

Contract farming is viewed as an institutional solution to the various agricultural market failures in both developed and developing countries. The literature on contractual practice in farming has been reviewed case by case to understand appropriately its potential for the rural development in general and for farmers' welfare in particular.

2.1 Contract Farming Scenario at International Level

2.1.1 History of contract farming

The emergence of contract farming in the developed countries was continued from time immemorial in the literature. Eaton and Shepherd (2001) claimed that the contracts began to emerge in the ancient Greece, where a specified percentage of particular crops were offered as rents and debts and China also witnessed various forms of sharecropping during first century. However, the history of contracts between the firm and the farmers with tenure dates back around 100 years ago (Prowse, 2012). The involvement of agribusiness in vertical coordination for processing of F&Vs started in earlier 20th century in North America and Western Europe followed by poultry and hogs (Catelo and Costales, 2008). The contract for seed production was found since 1940s in Europe and North America in the study of Watts, 1994. The study also highlighted the use of contracts by the Japanese in Taiwan for sugar production in the last decades of nineteenth century and by the US firms in Central America in the early parts of the twentieth century. In advanced capitalist states, contract farming was generally led by the vegetable canning industry in North America and by the seed industry in the Western Europe in the 1930s and 1940s (Rehber, 2007). The expansion of contract farming has taken place in all regions of the world. Latin America has seen rapid growth in contract farming since the 1950s. In developing countries, private sector was playing a dominant role in contract farming: e.g., in 2008 Nestle (Switzerland) had contracts with more than half a million farmers in over 80 developing and transitional economies; Olam from Singapore contracted around 2,00,000 farmers in over 60 countries to supply 17 agricultural commodities; Unilever (United Kingdom/Netherlands) sourced two-thirds of its raw materials from approximately

1,00,000 small and large farms in developing countries and Carrefour (France) contracted with farmers in 18 developing countries (UNCTAD, 2009). The World Bank has also promoted contract farming in order to encourage the technology and market for the small farmers with the dynamic participation of private players (Little and Watts, 1994).

2.1.2 Farmers profile

Companies' decision about signing contract with farmers varies across crops and regions revealing their heterogeneous pattern. In Africa, contract farming is considered as most successful project to generate income among small farmers (Gresh, 1994). In some crops such as tomato and vegetables in Mexico (Runsten and Key, 1996; Key and Runsten, 1999) and French beans in Madagascar (Minten *et al.*, 2009), firms found profitable to work with small farmers as they were able to produce at low costs due to family labour, lower land rents, lower cost of pest control and higher yields. But in contrast, in China, small farmers were less likely to participate in contract scheme as compared to the large farmers (Guo *et al.*, 2005). Rosset *et al.* (1999) in their study of hybrid tomato seed production in Thailand observed that around 45 per cent of the farmers included in contract scheme were cultivating less than 3.9 acres and also observed that 23.6 per cent of those involved in contract scheme were landless households. In South Africa's Limpopo province, contract farming increased agricultural income of the contract farmers by providing better access to resources and extension services, but its scope remained limited in reducing poverty as it involved already better-off farmers (Freguin Gresh *et al.*, 2012). In general, contracting companies seems to prefer large farmers but in actual included whosoever was available. In 1980, ALCOSA purchased cold weather crops like cauliflower, broccoli and Brussels sprouts from 95 per cent small farmers in Guatemala (Glover and Kusterer, 1990). The selection of farmers for contract farming by companies was not a random distribution. The income between contract and non-contract farmer may differ due to some unobservable characteristics like management skills. The selectivity correction approach was used by Warning and Key (2002) among peanut growers in Senegal; by Miyata *et al.* (2009) for apple and green onion growers in China; by Simmons *et al.* (2005) for seed corn in East Java, seed rice in Bali and broilers in

Lombok, Indonesia and by Winters *et al.* (2005) for hybrid seed corn growers in East Java, Indonesia.

2.1.3 Procurement system

In Guatemala, ALCOSA operated 17 buying stations to procure the produce. At buying stations, farmer themselves classify and pack their produce in baskets provided by the factory. After weighing the product, farmers get the delivery receipt (Glover and Kusterer, 1990). In Tropical Africa, Kawacom procured on an average 198 kg organic coffee from farmers' at collection centre and pressing and grading is done in Kampala factory. Under contract scheme only dry parchment coffee is procured i.e. *beans whose pulp has been removed through wet-processing (hand pulping) and subsequent fermentation and sun drying* (Bolwig *et al.*, 2009). Vermeulen *et al.*, 2008 found that in South Africa, agri-business companies procured 78.5 per cent of the F&Vs for processing through contractual arrangement.

2.1.4 Factors affecting the participation of farmers in contract farming

There were three main motives of the farmers to indulge in contract farming i.e. transaction cost, risk management, positive impact on production efficiencies and technological improvement (Smale *et al.*, 1994; Poole *et al.*, 1998; Abebe *et al.*, 2013; Hu, 2013). Abebe *et al.* (2013) offered a sanguine approach towards small farmers' participation in contract farming to improve their livelihood. The author found that farmers' willingness to participate increases if a contract design has the following attributes: a written form, inputs, technical support and seed supply and variable output quality and variable price options. Barrett *et al.* (2012) highlighted the factors such as physical constraints (lack of assets) and institutional constraints (lack of credit and insurance, insecure land rights) restraining the participation of small farmers in contract farming from five countries- Ghana, India, Madagascar, Mozambique and Nicaragua. Among Tanzania farmers, experience, farm group and age had significant influence on farmers' decision to participate in contract farming in tobacco (Sambu, 2014). Miyata *et al.* (2009) examined the impact of contract participation on household income of apple and green onion farmers in China. Contract farmers were selected on the basis of location and labour availability rather than by the farm size or education level.

Thus, firms did not seem bias for large farmers. In case of small farmers, the transaction cost for assessing and supervising family labour was low due to which they may had comparative advantage in the production of labour-intensive crops (Poulton *et al.*, 2010; Saenger *et al.*, 2013). The imposition of contracts in Ethiopia's traditional vegetable marketing was primarily because of mutual trust and brokers' mediation (Haji, 2010). In East Asia and Latin America, contract participation by individuals' capital/labour ratio and access to infrastructure instead of land (World Bank, 2008).

2.1.5 Costs and returns

Contract farming had a positive effect on producers average return of corn and soybean in US (Hu, 2013), an organic coffee in Tropical Africa (Bolwig *et al.*, 2009), pollinated tomato seed in Rangpur (Sarkar *et al.*, 2011), sunflower in Tanzania (Henningesen *et al.*, 2015) and for seed corn and broiler in Indonesia (Simmons *et al.*, 2005), while it had insignificant effect on wheat producers in US and seed rice contract in Indonesia. Warning and Key (2002) determined how participation in the NOVASEN program affected the agricultural income of 32,000 peanut growers in Senegal without favouring the wealthier growers. It not only raised the standard of living of growers, but also had positive effect on employment, infrastructure and economic growth. Contract farming of tea production in Moc Chau district of Vietnam also provided higher technical efficiency and slightly higher income to households (Saigenji and Zeller, 2009). In few studies, comparison has also been made between high value crops and traditional crops. For example, watermelon cultivation was found to be hugely more profitable than local traditional competing rice crop as it provides 13 times more gross margin per hectare than rice (Shanker *et al.*, 2011). Similarly, Braun *et al.* (1989) also found that contract farmers in Gautemala growing non-traditional export crop, snow peas made 15 times more net return as compared to the farmers growing traditional maize crop. In Thailand, organic rice farming had been found to be more profitable for the contract farmer which was largely due to higher prices received in international markets (Setboonsarng *et al.*, 2006). Contract farming had been failed for oil palm, pineapple and asparagus in Thailand as the farmers had lower shifting cost. The farmers had greater production and marketing options in the open market (Glover and Lim, 1992). Malaysian Federal Land

Development Authority (FELDA) had not only increased the income of the settlers but the sources of income had also diversified. The FELDA scheme had also developed infrastructural facilities in the area along with economic development (Lim and Dorall, 1994).

Contract farming had not only increased the income of participating families, but also had increased the families' welfare. Bellemare and Novak (2016) found that the participation in contract farming in Madagascar has also reduced the hungry season in families by about eight days. In Ethiopia, high level of economic inefficiency was found for vegetable farms as compared to the whole farm (Haji and Andersson, 2006).

2.1.6 Role of the firms in contract farming

Firms would choose contractual practice only if the expected benefits were more than other alternative situations such as buying on spot market or producing on proprietary farms (Bellemare, 2012; Abebe *et al.*, 2013). Sugar Corporation provided seeds and fertilizers to the sugarbeet contract growers in AK village of Turkey (Morvaridi, n.d.). In Madagascar, Lecofruit used to provide cent per cent of the seeds, 37 per cent of pesticides and 57 per cent of the fertilizers used in the production of contracted crops e.g. green beans, cucumber, leeks, etc. (Bellemare, 2010). Further, the study also found that the number of visits by the extension staff had a statistically significant effect on the productivity and it was also more effective for the farmers who have completed fewer years of education. Both farmers and extension agents used to give more importance to the market-driven vegetable crops in Ethiopia. The farmers devoted high share of funds towards market-driven farm production. Even the extension agents provided less attention to the whole-farm production (Haji and Andersson, 2006). The private firm in Lam Nam Oon also gave some US \$40 payment to some farmers in case of natural disasters as support for the coming season (Benziger, 1996). To make contract farming program successful, there is need to strike balance between the farmers and the companies' interest as the farmers would like the increment in procurement prices every year due to rising input costs but on the other hand, companies' would like to pay lower prices (Sahota, 2013).

2.1.7 Role of the government in contract farming

Singh (2005b) recognized the role of the state in encouraging or discouraging the agribusiness firms in Thailand and found that contracts were biased against the farmers and the companies relied on the brokers to work with the farmers. In Ethiopia, among potato farmers, input market uncertainty was found to be more important than output market uncertainty in smallholders' decision to participate in contract farming. Farmers tend to minimize their risk by opting for the buyer firm above the state and NGOs as providers of seed, inputs and technical assistance (Abebe *et al.*, 2013). In 1953, the joint Sino-American Commission on Rural Reconstruction in collaboration with Taiwan Agricultural Research Institute initiated research for mushroom cultivation. Within a few years mushroom exports had reached 2 million cases, however this can't be possible if research had been left to the private sector. Further, the government contributed in this success through the provision of public roads and irrigation facilities (Benziger, 1996). Thailand government has promoted contract farming through four-sector cooperation plan to develop agriculture and agro-industry in 1987 (Manarungsan and Suwanjinder, 1992). The success of FELDA scheme in Malaysia for oil palm and rubber became possible only because of strong and continuous support by the government (Lim and Dorall, 1994). However, reason behind the failure in contract farming of Thailand was less interventionist approach of the government.

2.1.8 Pricing and quality parameters

Pricing policy adopted by the contracting firms played an important role in raising quality and productivity. Flexible pricing can make contracts self-enforcing because it makes farmers' confidence in firms that they would not be cheated in case of higher price in open market (Miglani and Kalamkar, 2012). Kenyan Tea Development Authority (KTDA) even remained restricted to the small growers to ensure plucking standards and also gave bonus for quality to growers for encouragement. Further, to maintain quality standards, KTDA tried to effectively control tea operation like- the quality of planting material through control of nurseries, the quality of production through selective registration, the effectiveness of extension, the supervision of leaf quality and critically, through the exercise of a buying monopoly (Baumann, 2000).

2.1.9 Major problems in contract farming

Contract farming had some shortcomings such as over-exploitation of resources caused soil erosion, fertility loss, ravine and gully formation (Siddiqui, 1998), and companies used to move to new lands to exploit productive resources at the least cost (Torres, 1994). Nanda (1995) considered the contract farming as an exploitative extension as the control of production shifted away from farm towards agro-industrial enterprises. Watts (1992) also criticized it by considering contract farming as a system for self-exploitation of family labour. Morvaridi (1995) and Siddiqui (1998) in particular criticized on the ground that the contract farming schemes as they found out that most of the contracts were short term and the firms tended to move on to the new farmers and lands after exhausting the natural potential of natural resources. In North Cyprus, Polly Peck International's involvement in citrus production showed that the contract terms differ on the basis of farmers' access to resources and production increased only in the short term at the expense of long term productivity. In the Central American countries, development policies had encouraged agricultural production for export with intensive exploitation of natural resources. While producing a new crop/variety, farmers faced production and marketing risks (Umamageswari *et al.*, 2013). Morvaridi (n.d.) also found that sugarbeet farmers in AK village were applying more water and fertilizer to make bigger size of the root to earn more money. Due to which, the problem of waterlogging and salinity had started emerging in the region. Delay in payment was reported by the farmers in Ethiopia, thus farmers lost their interest to make investment in the production of vegetables (Haji, 2010). Mwambi *et al.* (2016) found through case study of avocado in Kenya that participation in contract practice was not enough to increase farmers' income until the contract conditions were not attractive. Like in situation of glut production, contractor used to purchase only small quantity of produce at premium price. Even due to poor coordination, farmers had to often wait for long time for company-owned machinery during harvesting time and for wait for longer hours at the factory gate for delivery. The best example of poor coordination in case of tomato in Panama "*where it was unclear whether long waits at the factory gate for tomato deliveries were the result of poor coordination, or a deliberate effort to increase evaporation and reduce the effective product price*" (Glover and Kusterer, 1990).

2.1.10 Gender issues in contract farming

Though, women workers working in cotton plant processing of Japan gained better working condition (Ramamurthy, 2000). Contract farming in case of tomato processing industry in Dominican Republic increased the demand for women's farm labour; along with self esteem and strengthens their domestic standings (Raynolds, 2002). In Peru, the cultivation of asparagus had doubled the burden of house and farm work on women. However, it had positive impact on women's net income (Glover and Kusterer, 1990). Von Bulow and Sorensen (1993) found that KTDA faced difficulties in tea production due to conflicts between spouses and even sometimes women came to headquarter to claim their income share from their husband's tea license holder field, because they considered themselves to be the real managers of the tea field, while their husbands neglected them and their children.

2.2 Contract Farming Scenario at India Level

2.2.1 History of contract farming

Contract farming 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, R., 2009; Sharma, 2014). ITC introduced cultivation of Virginia tobacco in coastal Andhra Pradesh in the 1920s incorporating most elements of fair contract farming system. Organised public and private seed companies emerged in the 1960s, depend on individual farms for multiplication of seeds under contract farming as they did not own lands. So, contract farming in India is not a new phenomenon as informal contract farming had been practiced by cooperatives for quite some time. However, corporate-led contract farming 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).

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 contract farming, encouraging agro-industries and developing infrastructure for easy marketing access for other commodities

(Dhillon and Singh, 2006). Singh (2004) believed 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 contract farming in Punjab is associated with Pepsi Foods Ltd. (Singh, 2002). The Johl committee report on diversification in 1986 recommended that at least 20 per cent of the area under wheat and paddy should be brought under new crops specially F&Vs. In order to achieve the said objective, contract farming was adopted by the government of Punjab as a tool to promote diversification in the state. In 1988, with the support of Bhartiya Kisan Union and Shiromani Akali Dal, Pepsi introduced tomato cultivation in Punjab under contract farming to obtain inputs for its paste-manufacturing facility established as a pre-condition to its entry into India. 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. Pepsi sold its Zahura processing plant to Brook Bond India Ltd. and that was purchased by Hindustan Lever Limited (HLL, a Unilever subsidiary) in 1995 (Roul, 2001). Most of the other state governments had also amended their own Agricultural Produce Market Committee (APMC) Acts to allow contract farming. In 2000, Madhya Pradesh government formed a joint venture with HLL to grow wheat. With the gap of five years, the area has been increased to 15000 acres. Under this scheme, HLL, Rallis and ICICI formed an alliance with farmers, in which Rallis supplied agri-inputs and know-how and ICICI financed the contract farmers (Viswanadham, 2006; Spice, 2003). BHC Agro India private limited initiated Kuppam project with support of Andhra Pradesh government in 1997. The company leased-in land from small and marginal farmers who worked as labourers to grow potatoes, gherkins and chillies by using expensive Israeli technology (Pionetti, 2005). In 2002, Appachi Cotton Company (ACC) integrated with 600 farmers of Tamil Nadu on a holistic plank to encourage them to grow cotton seeds in their fields. Another company named Ugar Sugar Works established a malt unit and started contract farming in the Belgaum with 470 small and marginal farmers for providing barley in 1997 (Spice, 2003).

In 2002, when the impacts of agrarian and ecological crisis became clearly visible in Punjab, another committee headed by Dr. S.S. Johl was constituted after a gap of 16 years. The committee recommended that an area of 10 lakh hectares under paddy and wheat should be shifted to other crops those have a lower water requirement and are ecological and soil friendly. Given the above recommendations, the Punjab government introduced the contract farming programme as a solution for the prolonged malaise in agriculture sector. Punjab started the process of enacting a model APMC Act on the lines of the Model Act of 2003 initiated by the Union government to introduce private markets, abolish market tax, boost contract farming and facilitate spot trading in food grains. Punjab became the first state to launch contract farming officially. The Punjab Agro Foodgrains Corporation (PAFC) was designated as a nodal agency for promoting diversification under contract farming (Kumar, 2006). PAFC adopted multipartite model by involving farmer, government agency and private firm. Its role ranged from the provision of quality seeds, modern machinery, supervision and procurement of entire produce at comparable or with better returns to farmers as compared to wheat-paddy. The crops indentified for cultivation under contract in first phase were maize, sunflower, hyola, basmati, durum wheat, barley, moong and guar (Singh, M.P 2007). However, most of the initial attempts by the government to bring diversification in the state through contract farming have largely been failed. In 2013, the state government has launched new diversification plans by formulating a separate Punjab Contract Farming Act, but the APMC act in state is still remained unamended (Singh, 2016).

2.2.2 Farmers profile

Contract farming is more successful in high value crops. The share of high value crops increased from 37.3 per cent in Triennium Ending (TE) 1983-84 to 47.8 per cent in TE 2007-08 (Sharma and Jain, 2011). The small and marginal holdings account for 85 per cent of the total operational holdings. So the sustainability of agriculture depends upon the performance of small and marginal farmers (Dev, 2012). Therefore, the existing literature has been reviewed to understand the contract farmers' landholding status. Various studies showed the exclusion of small farmers from the contractual arrangements because of higher transaction costs (Kumar, 2006; Glover and Kusterer, 1990; Singh, 2012; Singh, N.

2016). Sharma (2013) found that only 15 per cent of the contract farmers belonged to small and marginal farm category. The public agency in Haryana contracted for cottonseed only with medium and large farmers, while private agency contracted with all categories of farmers (Kumar *et al.*, 2007). In case of Pepsi, HLL, Chambal Agritech and AM Todd in Punjab, the average size of operational holding was higher in case of contract farmers than that in case of non-contract farmers (Kumar, 2006; Singh, 2009). 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 contract farming was operated effectively for all the farm size categories, but indirect contracts seemed to favour only large farmers. Another study noted that the large contract farmers accrued greater benefits from participation in contract farming. Mainly progressive farmers of Punjab used to enter in contract farming, who tend to cultivate more than 50 acres, were educated and eager to increase their incomes through diversification and new technologies (Witsoe, 2006). Similarly, Sharma and Singh (2013) with an instance from Punjab in contract farming under Technico Agri Science Ltd., Mahindra Shubh Labh Services and Kartikey Indo Agritech Pvt. Ltd. in case of potato corroborate the dominance of medium to large farmers, however Pepsico Foods Pvt. Ltd. preferred to work with all kind of farmers for potato and basmati. However, optimists presented the cases of the inclusion of small farmers in contractual practice. In Haryana, for the cultivation of wheat seed, private agencies indiscriminately selected the farmers of all categories as compared to it government agencies excluded small and marginal farmers from production programme. The average operational landholding was found around 6.5 hectare, 1.65 hectare and 1.23 hectare among public, private seed agency and independent wheat seed growers, respectively (Kumar *et al.*, 2010).

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 concentrated only on those regions and products that were

promising most profit to the company (Trebbin and Franz, 2010). Further, most of the contract farming projects was found to be located in the developed states and areas with the highest concentration of small and marginal farmers were seemed to be evaded (Gill, 2004). This essentially meant that contracting companies did not encouraged the participation of those who need to be helped to participate, as risk preference and innovativeness require not only attitude, but also resources and a risk-taking capability to deal with risky crops and ventures (Singh, 2012a).

Some studies also took into account the non-random sample of contract population in India viz. Ramaswami *et al.* (2009) for poultry in Andhra Pradesh; Sharma (2016) for potato and basmati in Punjab; Birthal *et al.* (2008) for milk contract farming in Rajasthan and Sharma (2008) for different crops in Punjab.

2.2.3 Procurement system

PepsiCo even accepted the lower quality potato from contract farmers however the company was stricter with non-contract farmers. The company procured from non-contract farmers as the contracted produce was less than the companies' processing requirements. Even the Nijjer farmers in Sirsa used to sell their contracted tomatoes in open market through *borias* and traders when the prices were higher in open market (Singh, 2005). Unicorn Agro-tech Ltd. procured the harvested gherkins from the farmers' field and payment was done through cheque within 14 days (Erappa, 2006). Nijjer procured the tomato and chilli produce that should not be rotten, worm-affected and yellow in colour, AM Todd accepted the maximum oil extraction quality produce and PepsiCo paid lesser price for under and over size potatoes and rotten/mechanically damaged/ green potatoes were returned to the farmer. In case of PepsiCo and Nijjer, farmers themselves used to deliver their produce at processing plant and in case of AM Todd, farmers delivered their produce at extraction plant (Singh, N. 2016).

2.2.4 Factors affecting the participation of farmers in contract farming

Kumar *et al.* (2010) concluded that the adoption of contract farming among wheat seed farmers under public sector among contract farmers was influenced by prices, repayment of transfer cost and off-farm. In Punjab, socio-economic factors that influenced the farmers' participation in contract farming 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, 2015).

2.2.5 Costs and returns

At the India level, success stories of income improvement had been narrated in various studies. In Haryana, DCM Shriram Consolidated Limited's potato contract farmers had 8.84 per cent higher yield and 140 per cent higher gross income as compared to the non-contract farmers along with about 17-24 per cent higher costs. Farmers preferred the contract scheme due to guaranteed price provided by the contract firm (Tripathi *et al.*, 2005). In case study of Punjab, returns were higher among contract farmers for potato and basmati rice due to better prices (Sharma, 2016). The study also found that the contract for basmati rice was not so encouraging due to low yields and low prices. Kumar *et al.* (2013) also found that organic basmati paddy growers were able to receive the margin of 20 to 25 per cent as compared to conventional basmati paddy in Haryana. 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 as compared to indirect contract crops of PAFC and non-contracted crops (Kumar, 2006), higher returns from gherkin production in Andhra Pradesh as compared to other crops (Dev and Rao, 2005) and tomato in Punjab (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. 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). In Karnataka, net returns for baby corn and chilli crop were found to be higher under domestic contracts firms than foreign contract firms (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). In Rajasthan, contract farming in milk was found to be more profitable due to reduction in marketing and transaction cost and among milk suppliers, small farmers were selected in satisfactory numbers (BIRTHAL *et al.*,

2005; Birthal *et al.*, 2008). The major benefits received by contract farmers were higher yield and higher prices. Though, not all experiences of contract farming in India had been positive. There are also numerous examples when contractual schemes proved to be failed. Narayanan (2013) found that contractual arrangement had increased the returns of contract farmer in Tamil Nadu in case of broilers, gherkins and papayas. However, marigold cultivation under contract left participating farmers in worse condition. The study concluded that farmers' participation in modern supply chain will not improve their income at the same extent. So, this heterogeneous nature of contract farming required considerable attention of policy makers. Ultimately, the farmers doing or can do better in contract arrangement were excluded by the firms are cause of policy concern.

2.2.6 Role of the firms in contract farming

In India, Chambal Agritech and AM Todd lifted 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. The farmers who signed a contract with PAFC specified companies were not provided with desirable extension services and their product was also not fully procured by the contracting companies (Kumar, 2006). 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. Further, PepsiCo in Jharkhand used to select farmers on the basis of farmers' willingness to work under contract, ability to adopt new variety of seeds, assured irrigation facility, financial position and suitability of land for potato cultivation (Mishra, 2009). 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). Further, violation of contractual terms and conditions by the farmers and price fluctuations in the international markets were the major constraints faced by the contracting firms in Karnataka (Kumar and Kumar, 2008).

2.2.7 Role of the government in contract farming

The critics considered the contract practice a tool through which MNCs can exploit the poor farmers due to their monopoly position (Dhillon and Singh, 2006). Therefore, the government can play an important role in protecting the weaker entity from powerful agri-firms. Andhra Pradesh government encouraged oil palm contract farming through private and corporate entrepreneurs by allotting zones to the firms. Firms had to follow the prices fixed by the government for fresh fruits and to provide seeds along with extension services to the farmers. Although majority of the farmers wanted the government intervention and demanded power for 15 hours a day instead of the present seven hours (Dev and Rao, 2005). To promote contract farming of basmati, Uttaranchal government provided ₹ 200/ farmer to a service provider and established centre for providing technical and marketing support (Singh, 2009a). PAFC was promoting contract farming for diversification in state on behalf of Punjab government (Sharma, 2013). Though being a written contract, there was lack of commitment on extension services made by the companies (Kumar, 2006). In 2013, Punjab government passed Punjab Contract Farming Act *“to provide for improved marketing of agricultural produce through Contract farming and to regulate the development of efficient Contract farming system by putting in place effective infrastructure for Contract farming and lay down procedures and systems and the matters connected therewith and incidental thereto”* for 108 crops (GoP, 2013).

2.2.8 Pricing and quality parameters

Under direct contract farming in Punjab, companies purchased the produce only if it passed the quality norms set in contract agreement. Like, Fritolay purchased only those lots of potato that fulfilled the sugar norms and HLL bought basmati paddy from farmers only if the pre-determined norms related to moisture and colour of the produce was satisfied (Kumar, 2007). Fritolay did not return undersized potatoes to the farmers and used to offer one price for all rejected chip-grade potato produce. On the other side, in case of McCain there was possibility to reduce the price by an undetermined amount if the quality parameters like size, machine damage, presence of solid matter and mixing up of other varieties was more than 2 per cent in the produce (Singh, 2012b).

2.2.9 Major problems in contract farming

Contract farming was a agricultural industrialization that took place through contemporaneous processes of *appropriationism* that operates as a process of exploitation of land by the application of advanced technology to get more and cheaper raw materials and *substitutionism* that tried to move agribusiness away from direct dependence on land by a way of application of technology to create new products (Singh, 2002). Another study that raised long term environmental sustainability issues through repeated cultivation of potato crop was by Mishra (2009).

On the other hand, the farmers of Pepsi, HLL and Nijjer reported problems like poor coordination of activities, interior technical assistance, low prices, preferences for large farmers, delayed payments, outright cheating in dealings, manipulation of norms by the firms (Singh, 2004; Singh, 2012). Nagaraj *et al.* (2008) observed that the farmers faced constraints in contract farming were delay in payment and delivery of inputs, delay in lifting up of produce, manipulation of quality standards and higher cost of inputs. Contract farming was also promoting reverse tenancy as firms prefer to deal with relatively large farmers (Singh, 2000; Singh, 2002; Singh, 2009). The monopsony of contracting firms was found to be one of the major reasons for producers' exploitation because buyer was in a position to settle unfair contract terms that had to be accepted by the producers (Sivramkrishna and Jyotishi, 2008). Further, Swain (2016) found that the contract farmers used more chemicals to attain higher productivity that raises the question about contract farming's sustainable use of resources such as groundwater and about the sustainability of soil quality.

2.2.10 Gender issues in contract farming

In contract farming, women had been mainly employed because of their feminine skills and nimble fingers to accomplish delicate work. However, these were based on social skills entrenched during the upbringing of girls instead of natural skills (Singh, 2003). Female young workers employed in cotton seed farms of Andhra Pradesh were unfree labour and such changes in gender relations put more of the family maintenance onus on the women and daughters (Venkateshwarlu and Corta, 2001). For cotton-seed production, 10 to 15 children were hired for 100 to

150 days. In case of scarce labour, children were being ``tied" to contract farmers with advances of cash and grain to parents. Many girls also came with their mothers to fields for casual work (Ramamurthy, 2000).

2.3 Summary

The extant review of literature on contract farming at international and national level reveals about the diversity among contracting firms about the procurement operations and linkage building with the farmers as the contracting practice differs from crop to crop. The expansion of agribusiness companies in India has enhanced vertical coordination in agricultural sector by ensuring market and price for the farm produce. By opening new markets for high value farm produce, contract farming has built up the scope for the resource poor farmers to cultivate risky crops earlier that they might avoid to produce. Several studies showed that returns to contract farmers were higher than non-contract farmers due to provision of technical guidance and quality inputs by the contracting companies. Although, the contract farming companies were not free from some marketing constraints, but these were found less as compared to open markets. Further, the state governments are also taking the initiatives for the promotion of contract farming such as Punjab government introduced contract farming in 2003 through the involvement of PAFC as well as by enacting Punjab Contract Farming Act, 2013. Although several studies exist in the context of contract farming at Punjab level, but none of the study has been conducted on contracting of new commercial crops in the state.

Table 2.1

Review of Studies on the Contracted Crops across Various Regions

Author	Region	Company	Contracted crop
Punjab Studies			
Singh (2002)	Punjab	HLL, Pepsi, Nijjer	Tomato, Potato, Chilli
Dhillon and Singh (2006)	Amritsar	Nijjer Agro	Tomato
Kumar (2006)	Punjab	Pepsi/Fritolay, HLL, Chambal Agritech, A M Todd, companies operating through PAFC	Potato, Basmati, Potato seed, Mint, Maize, Sunflower, Durum wheat, Hyola, Groundnut
Singh, M.P. (2007)	Jalandhar	PAFC	Basmati, Sunflower, Maize, Hyola
Sharma (2008)	Amritsar, Jalandhar, Ludhiana	PepsiCo	Basmati
Singh (2009)	Jalandhar	AM Todd & Co.	Mint
Singh <i>et al.</i> (2015)	Bathinda, Mansa	United Breweries Ltd.	Barley
Sharma (2016)	Ludhiana, Jalandhar, Fatehgarh Sahib	TechnicoAgri Science Ltd., Mahindra Shubhlabh Services, Kartikey Indo Agritech Pvt. Ltd., PepsiCo	Potato, Basmati paddy
Singh N. (2016)	Punjab	Nijjer, PepsiCo, AM Todd	Mint, Tomato, Chilli, Potato, Basmati rice
National Studies			
Venkateshwarlu & Corta (2001)	Andhra Pradesh	Multinational and National companies via seed organisers	Cotton seed
Singh (2003)	Andhra Pradesh, Punjab	MNCs, national and local companies	Cotton seed, Tomato, Potato
Birthalet <i>et al.</i> (2005)	Punjab, Andhra Pradesh, Delhi	Nestle India Limited,	Milk, Broiler, Vegetable

		Venkateshwara Hatcheries Limited, Mother Dairy Fruits and Vegetables Limited	
Dev & Rao (2005)	Andhra Pradesh	Govt. allotted zones to processing factories	Oil palm, Gherkin
Tripathi <i>et al.</i> (2005)	Haryana	DCM Shriram Consolidated Limited	Potato
Nagaraj <i>et al.</i> (2008)	Karnataka	Foreign and domestic firm	Baby corn, Chilli
Singh (2009a)	Haryana	Agrocel	Organic Basmati
Bhanumathy & Ravichandran (2011)	Tamil Nadu	-	Gloriosa Superba
Sarkar <i>et al.</i> (2011)	Bangladesh	BADC	Tomato seed
Narayanan (2013)	Tamil Nadu	-	Gherkins, Marigold, Papaya, Broiler chicken
Swain (2016)	Andhra Pradesh	Pioneer, Pro-Agro	Hybrid paddy seed