



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Sustainable Agriculture, Poverty and Food Security

Edited by

S. S. Acharya

Surjit Singh

Vidya Sagar

AM 0334731 Code I-E-2002286787 Vol 1

06 UNIVERSITY OF MINNESOTA



Volume 1

Sustainable Agriculture, Poverty and Food Security

Agenda for Asian Economies

VOLUME 1

Edited by

**S.S. ACHARYA
SURJIT SINGH
VIDYA SAGAR**

Asian Society of Agricultural Economists, Seoul



RAWAT PUBLICATIONS
Jaipur and New Delhi

ISBN 81-7033-725-9 (set)

© Asian Society of Agricultural Economists, 2002

No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopying, recording or by any information storage and retrieval system without permission in writing from the Asian Society of Agricultural Economists or the Editors.

Published by

Prem Rawat for *Rawat Publications*

Satyam Apts., Sector 3, Jain Temple Road, Jawahar Nagar, Jaipur - 4 (India)

Phone: 0141 651748 / 657006 Fax: 0141 651748

e-mail : info@rawatbooks.com

www.rawatbooks.com

Delhi Office

G-4, 4832/24, Ansari Road, Daryaganj, New Delhi 110 002

Phone: 011-3263290

Typeset by Rawat Computers, Jaipur

Printed at Chaman Enterprises, New Delhi

Contracting Out Solutions: Political Economy of Contract Farming in the Indian Punjab

Sukhpal Singh

Besides providing resources for productive investment, agribusiness firms can benefit the locals in employment, technology transfer, and incremental technical knowledge, especially at the farmers' level (Goldsmith, 1985). But, agribusiness firms in general, and MNCs in particular, may not promote larger national objectives like employment generation, equity, and balanced regional growth as they are driven by business goals alone. They tamper with the local production structures in order to tailor the agricultural production to their needs, thus generating a process of dependence of the producers on these corporations. This paper looks at the political economy of contract farming in terms of its practice and implications for the producers and the local economy in the Indian Punjab which is the most grown region of India agriculturally and there have been no studies on this aspect of Punjab's or India's agrarian economy. It explores the nature of contracts, studies the farmer and the firm perceptions of the working of the contract system and problems, if any, and examines the effect of contract system on the local economy. The case studies are based on an interview survey of contract farmers, and discussions with the company officials (HLL, Pepsi and Nijjer) in three different crops (tomato, potato and chillies) which are being procured under contracts and processed into value-added food products for domestic and export markets.

'Contract farming' can be defined as a system for the production and supply of agricultural produce under forward contracts, the essence of such contracts being a commitment to provide an agricultural commodity of a type, at a time and a price, and in the quantity required by a known buyer. It basically involves four things: pre-agreed price, quality, quantity or acreage (minimum/maximum) and time. The contracts could be of three types: (i) *procurement contracts* under which only sale and purchase conditions are specified; (ii) *partial contracts* wherein only some of the inputs are supplied by the contracting firm and produce is bought at pre-agreed prices; and (iii) *total contracts* under which the contracting firm supplies and manages all the inputs on the farm and the farmer becomes just a supplier of land and labour.

The relevance and importance of each type varies from product to product and over time and these types are not mutually exclusive (Hill and Ingersent, 1987; Key and Runsten, 1999). Whereas the first type is generally referred to as marketing contracts, the other two are types of production contracts (Scott, 1984; Welsh, 1997). But, there is a systematic link between product and factor markets under the contract arrangement as contracts require definite quality of produce and, therefore, specific inputs (Scott, 1984; Little and Watts, 1994). Also, different types of production contracts allocate production and market risks between the producer and the firm in different ways.

For individual farmers, it is not contract per se but the relationship it represents which is crucial as the divergence between the two may prove crucial in determining the development of contract farming as an institution (Clapp, 1988). Further, it is the context of the contract which can make a big difference as there are many actors and factors in the environment which influence the working and outcome of contracts. The way farmers perceive contract farming, i.e., define their relationship with companies, differs across cultures (Asano-Tamanoi, 1988). In fact, there is so much diversity in the type of firms, farmers, nature of contracts, crops, and socio-economic environment that it is better to focus on specific situation than the generic institution of contract farming.

Contracting is happening as good quality and timely raw material availability is a prerequisite for any successful agribusiness firm, whether operating in the domestic or international market. The developments in the field of marketing, food habits, technology and agriculture in the new economic environment have brought about this change. It is important to recognise that this reorganisation or restructuring of the agricultural production sector is taking place due to policy and market changes outside the sector, i.e., in the industrial and trade sectors. And, these macro policy changes drive micro changes like contract farming which have the potential to change the production structure and relations of production in the agricultural sector. As a part of the internationalisation process in agriculture which involves globalisation of production, capital and trade, contract farming encompasses all the three dimensions through intervention in input supply and production decisions, supply of capital and finance, and global sourcing of agro-products. In fact, it is nothing but extension of the phenomenon of global sourcing wherein a firm can produce any thing anywhere, by sourcing inputs from anywhere, to be sold in any market in the world.

The proponents of agribusiness argue that it leads to big jumps in incomes and employment in agriculturally backward regions and brings a break from low levels of productivity and instability in production, thus putting the local economy on a dynamic path of growth and development. This is possible not only because of the technological and capital resources of these firms, but also because of the international character of processes of agribusiness which gives access to international markets. The agribusiness firms take risk by undertaking new projects in processing and marketing and provide a stream of cash flow to the local economy. This also helps earn foreign exchange and increase food supply nationally and locally (Williams and Karen, 1985; Leisinger, 1987; Benziger, 1996). However, it is also

important to recognise the role of the state in encouraging or discouraging the agribusiness firms and in protecting the producers in contract situations (Asano-Tamanoi, 1988; Christensen, 1992; Grosh, 1994; Benziger, 1996). And, there is a need to look at the potential role of agribusiness more specifically for different commodity sectors and regions, not as a blanket solution as there are certain sectors which may require a more effective public sector or state intervention, especially in technology and institutional innovations, instead of a private agribusiness effort (Christensen, 1992).

But, looking at agribusiness growth from a different perspective makes it clear that it is nothing but a process of industrialisation of agricultural and rural production which takes place through simultaneous processes of appropriationism and substitutionism. Whereas appropriationism operates as a process of exploitation of land and other biological sources of supply by the application of modern and advanced technology to get more and cheaper raw materials, substitutionism as a process tries to move industry or agribusiness away from direct dependence on land and other direct sources of raw materials by way of application of technology to create new products and sources of products. Thus, the two processes are contradictory to each other though are driven by the same agribusiness forces. Further, the application of biotechnology accelerates these processes and leads to what can be called bio-industrialisation (Goodman *et al.*, 1987). In fact, contract farming directly promotes the process of appropriationism. This is a political economy view of technology-led growth. Further, contract farming is similar to the practice of subcontracting in industrial sector under which the large firms farm out many production activities to small firms and benefit from lower costs and better skills (Wilson, 1986; Watts, 1992; White, 1997).

Thus, given the failure of government mechanisms for support to agriculture, and wide support for contract farming under the Structural Adjustment Programme (SAP) and liberalisation, in the presence of its promotion by the international development agencies like the World Bank, the USAID, the IFC and the CDC (Little and Watts, 1994; White, 1997), it is inevitable that more contracting and new forms of contracts will be tried by the agribusiness firms as it is the only way to ensure quality, timely and cost effective availability of raw material for processing, especially when, in some countries like India, captive farming is not allowed legally. Besides, captive farming means putting large resources in raw material production which may not be the best economic option for many agribusiness firms, especially small-scale ones. It may also not be a viable option. Since contract farming also leads to changes in the way agricultural production, processing, and marketing are organised (White, 1997), it is important to understand its practice and dynamics.

Logic and Implications of Contract Farming: A Review

For different reasons, both farmers and farm product processors/distributors may prefer contracts to complete vertical integration. A farmer, valuing his independence, may prefer a contract which can be terminated at reasonably short notice, to complete vertical integration which may be virtually irreversible. Contractual arrangements are attractive to farmers seeking additional sources of

capital to expand their businesses and also a more certain price by shifting part of the risk of adverse price movement to the buyer (Hill and Ingersent, 1982). They also get an access to new technology and inputs which otherwise may be outside their reach. On the other hand, for an agribusiness firm, the contracts are more flexible in the face of market uncertainty, make smaller demands on scarce capital resources and impose less of an additional burden of labour relations, ownership of land, and farm production activities, on management (Buch-Hansen and Marcussen, 1982; Kirk, 1987). It even gets an access to unpaid family labour (White, 1997) and can even make use of state funds, indirectly through agricultural production sector, which are directed at farmers by development agencies (Clapp, 1988). So, if it can procure adequate supplies of the required quality raw material by means of contracts which avoid complete backward integration, it may well prefer to do so (Hill and Ingersent, 1982). Also, food processors can minimize their overhead costs per unit of production by operating their plants at or near fully capacity, by obtaining assured and stable raw material supplies from farms under contracts. The firm can also project an image of working with local producers as a partner when it undertakes contract farming and may even obtain state and international agency incentives for its activities as developmental projects, instead of corporate farming (Kirk, 1987). Since value addition is increasingly taking place in the upstream stages of the agribusiness chain as the downstream stages have been more or less exhausted so far as quality and value of product are concerned, the firms are also compelled to go for more direct links with farmers.

Therefore, it is argued that the advantage of contract farming is not only that consumers benefit from improvement in quality and delivery of products, and the processors gain from the reduction in processing costs and the lessening of business uncertainties, but also, the farmers can avoid financial risk involved in price fluctuations in the open market and gain access to better production methods (Hill and Ingersent, 1982). At more macro economic level, contracting can help to remove market imperfections in produce, capital (credit), land, labour, information and insurance markets, can help in better coordination of local production activities which often involve initial investment in processing, extension, etc., and in reducing transaction costs (Grosh, 1994; Key and Runsten, 1999). From an institutional economics perspective, contract farming could be looked upon as a way of creating positive externalities, which can result in overall rural development, if they are created better by agribusiness firms than by the open market or the state. Thus, besides raising grower incomes, contract farming may also create positive multiplier effects for employment, infrastructure, and market development in the local economy (Key and Runsten, 1999). Contract farming figures as an institutional arrangement for agricultural development in the fields of inputs, product exchange, and product upgrading, the last referring to research and innovations (Christensen, 1992).

But, a political economy view of contracting rejects these benefits to consumers and farmers and argues that contracting develops only when there is diminished role of the state in agriculture, increased specialisation of agricultural production processes, and the agricultural markets like farm produce or credit become less competitive or inefficient. In fact, it argues that contract production is one mode of

capitalist penetration of agriculture for capital accumulation and exploitation of farming sector. This leads even to processes of 'self-exploitation' of the farmers, and the companies gain indirect control of land. The political economy approach rejects the various rationale of contracting like perishability of produce, specialisation of a crop, capital intensity of production, etc., as it is the social relations of production which determine these aspects of production system. And, product differentiation and monopolistic tendencies cause contracting (Wilson, 1986). Thus, though there are many benefits of contract production for the farmers, but what happens when yields stagnate, costs rise and there are open market gluts?

The studies of contract farming show that the farmers agreed that contracting helped them become better farmers, gave more reliable incomes, generated employment especially for women, provided new skills of farming, and did away with patron-client relationship between large and small producers (Glover and Kusterer, 1990; Fulton and Clark, 1996). But, farmers generally find that the contract are biased and enforced strictly, firms provide poor extension service, over price their services, pass on the risk to the producers, offer low prices of produce, favour large farmers, delay payments, do not provide compensation for natural calamity loss, and do not explain the pricing method (Glover and Kusterer, 1990; Grosh, 1994). On a larger level, farmers felt that they had little bargaining power compared with that of the companies which they perceived benefited more than the farmers, and that they had become dependent on the firms for credit and other inputs (Fulton and Clark, 1996). Finally, how can a contract between a processor and a farmer be equitable, as the two are not equal entities? Under conditions of anti-farmer contract terms and limited market choices, contracting tends to reinforce itself over time (Wilson, 1986). The over-exploitation of ground water, salination of soils, soil fertility decline, and pollution are typical examples of environmental degradation due to contract farming (Siddiqui, 1998). The firms tend to move on to new growers and lands after exhausting the natural potential of the local resources, particularly land and water, or when productivity declines due to some other reason (Torres, 1997).

The effect of contracting on non-contract farmers and the surrounding areas may not be positive always. Therefore, contracting needs to be examined in its totality as what is favourable for the contracting firms and farmers may harm other actors and sectors of the local economy (Little and Watts, 1994; Porter and Phillips-Howard, 1995). Contract production tends to shift the production in favour of export-oriented and cash crops at the cost of basic food crops for the poor. This can lead to higher prices of the food commodities and products, especially for non-contract farmers and the labour households who do not benefit from contracting in terms of higher incomes. Even regional differentiation tends to increase as the firms choose relatively better off areas for contracting (Shiva, 1991; Little and Watts, 1994).

It is also feared that by favouring the large scale farmer, who is better able to meet the exacting requirements of producing to contract specification, contracting may encourage a socially undesirable 'dual' agricultural development (Sachikoyne 1989; Korovkin, 1992; Grosh, 1994; Little and Watts, 1994; Dunham, 1995). The agribusiness companies may follow different contract methods for different types of

farmers for the production of the same crop. The bigger farmers have contracts which provide for an advance assessment of produce, advance fixing of and payments of price, as against the small and/or poor farmers from whom the firm picks up only selected part of the produce which meets quality standards (Grosh, 1994; Morvaridi, 1995). This socio-economic divide can be further deepened between the contracting and the non-contracting farmers (Glover and Kusterer, 1990). Even the wage rate for the landless workers may be lowered over time due to contracting as workers from outside may in-migrate and the out-migration may stop from the given area. This can further accentuate the disparity between the landed and the landless (Kirk, 1987; Little and Watts, 1994).

The gender effects of contract farming is also an important area of enquiry. Though, in many cases, women did not express dissatisfaction with the contract arrangement and, in fact, reported that the employment under contract production had given them better self-esteem, self-confidence and influencing power within the household (Kirk, 1987; Glover and Kusterer, 1990; USAID, 1994; Dunham, 1995; Porter and Phillips-Howard, 1995; Torres, 1997), contract farming does lead to gender inequalities both in the quantity and quality of work for women and children. The women not only end up working longer hours in field, as they are considered better workers and paid less (Collins, 1993), but also the burden of off-farm work falls on them due to the over-occupation of men with contract production (Porter and Phillips-Howard, 1997; White, 1997). There is gendering of tasks in the field (Torres, 1997). The gender relations within the household are affected by way of tension over contribution by women to contract production, and negotiation by women for share in the contract income (Carney, 1988). This, in turn, affects productivity of the farm as fields tend to be neglected and these disputes, being private family matters, are difficult to resolve. But, it is important to recognise that the impact on women is class-differentiated. There have been instances of collective action by women's groups over control of contract production and income (Buloh and Sorensen, 1993).

The growth of contract farming leading to commercialised sophisticated export agriculture undermines the communal arrangements, giving rise to new forms of mass-based rural organisations: labour unions among agricultural workers, on the one hand, and associations defending the commercial interests of small agricultural producers, on the other (Clapp, 1988). The growing importance of contract farming has serious implications for the agribusiness cooperatives, which have been practising some form of contract procurement in the past simply because they are producer-owned organisations. In Australia, lack of financial support to cooperatives by the state and the competition from the MNCs and local firms which practiced contract farming under deregulated environment, led to the closing down of some cooperative processing plants and a change in the form of organisation in case of some others (Burch and Pritchard, 1996). Also, an agribusiness firm generally does not encourage the formation and expansion of cooperatives in its area of operation as they may become competitors in the relatively longer term and spoil the procurement base of the firm (Wilson, 1986). This happened in the case of a Unilever subsidiary in Cameroon wherein as farmers tried to organise a cooperative to

strengthen their bargaining power, the company refused to procure and farmers' crop was wasted. This despite the fact that the cooperative was dominated by large farmers. Finally, the cooperative failed (Konings, 1998). However, it is seen that a para-statal may encourage cooperatives genuinely and if that happens, then they do succeed as well, as happened in Kenya in case of tea (Konings, 1998). But, the success of the contract system per se in the case of Kenya was the result of the coming together of the state, donors and transnational capital, favourable market conditions, access to capital, and a relatively decentralised management system (Little and Watts, 1994).

The tools of mitigating loss of control under contracting, used by farmers in the first world, have been the petitioning of the state for intervention to regulate the contracts, the formation of producer bargaining units, and the formation of farmers' markets (Welsh, 1997). The difficulty in collective action arises due to the heterogeneity of farmers and the conflict between the self-interest and the collective interest. Each farmer views his relationship with the company as an individualised one (Glover, 1987; Kirk, 1987; Rickson and Burch, 1996). Even where cooperatives deal with contracting firms, the farmers put self-interest before the collective interest (Kontos, 1990). The above review reveals that though contracting leads to better incomes and employment in the beginning, the relations between firms and farmers worsen overtime to the disadvantage of the growers, and the system results in ecological and economic degradation of local production systems. Most of the studies find contracts inequitable, short-term, and ambiguous. But, it is not the contract per se which is harmful but how it is practised in a given context.

Rationale and Evolution of Contract Farming in the Indian Punjab

The Punjab agriculture has been known for its Green Revolution of the late 1960s and the 1970s and overall agricultural development. The state achieved this though 70 percent of the holdings have been below 4 hectares each. But, during the 1980s, the momentum of the Green Revolution could not be sustained. There was stagnation in yields accompanied by increasing costs of cultivation. By the mid-1980s, a wheat grower in Punjab was obtaining lower net returns per hectare; even after incurring higher costs per hectare on modern inputs, than a wheat grower in Madhya Pradesh (Nadkarni, 1988). The number of operational holdings in 1980-81 declined as compared to those in 1970-71 due to a phenomenon of 'reverse tenancy' under which small and marginal farmers leased out land to medium and large farmers. The proportion of agricultural labour in the total rural male workers went up by 2.2 percent and that of the cultivators down by 2.7 percent during the 1980s. The jobs generated in the non-farm sector were only 19 percent of the ones lost in the farm sector (Fisher and Mahajan, 1997). The net annual income of a 7-hectare farm family in the 1980s was found to be lower than the annual salary of a government department assistant (Johl, 1996). About 24 percent of small farmers and 31 percent of marginal farmers had incomes below the poverty line (Chand, 1999). Further, Punjab ended up growing largely wheat and rice (71 percent of the gross cropped area) (Johl, 1996) and the net cultivated area reached 84 percent of the total area. The area under vegetable crops has been declining since the 1970s in relative terms (as

percent of gross cropped area) and that under potato alone fluctuating sharply during the two decades of the 1970s and the 1980s (Chand, 1999a). The high degree of mechanisation led to the problem of rural unemployment. But, in 1991, only 44 percent of rural population were literate (Chand, 1999a). The intensive production has also led not only to monocultures but also to higher incidence of pests and diseases which have in turn led to the ecological problems of decline in water table, waterlogging, soil salinity, toxicity, and micro-nutrient deficiency.

The Johl Committee report on diversification of Punjab agriculture (1986) recommended that at least 20 percent of the area under wheat and paddy should be brought under new crops especially fruits and vegetables which accounted for only less than 2 percent of the gross cropped area at that time as they were not, like many other crops, competitive with wheat or paddy in terms of their relative profitability. It was thus realised that the economic condition of a vast majority of farmers, especially marginal and small, could not be improved unless there were changes in the cropping pattern and technology of production. Diversification, intended to stabilise incomes and employment in the farming sector, could either be in terms of variety of crops grown or technologies used. The processing and marketing activities were necessary to bring dynamism to the agricultural sector by way of reduction in cost of cultivation by raising productivity or cutting costs directly, or raising returns to the producers by value addition or diversification. The contract farming arrangement with the growers by the private processing interests was to achieve both the objectives of cost reduction and value addition by providing them better seeds and other inputs, and better markets and prices.

Around the late 1980s, there was also a gradual opening up of the Indian industrial sector to competition. Making use of this opportunity, a para-statal (Punjab Agro-Industries Corporation) got into the promotion of fruit and vegetable processing and marketing activity, and with large support from the farmer lobby (Bhartiya Kissan Union or Indian Farmers' Union) and a farmer-based political party (Akali Dal), brought in Pepsi (a US MNC) in 1988 as a joint venture partner (the third partner was an Indian corporate, Voltas) to procure and process certain fruits and vegetables of the state. By the early 1990s, it had got into the contract production and processing of tomatoes. The entry of Pepsi was followed by another local entrepreneur who too set up a tomato processing plant which was half of the Pepsi plant's capacity, floated a public limited company with financial support from the Punjab Financial Corporation, and started procuring from farmers under contract.

The Firms, Contracts and Growers

Contract farming in Punjab was in place by the early 1990s with the entry of Pepsi Foods – an MNC (Pepsico) subsidiary – into tomato and chillies, and a local firm – Nijjer Agro Foods Ltd. – into tomato. It got further rooted in 1995 with the selling off of its tomato facility by Pepsi to Hindustan Lever Limited (HLL – a Unilever MNC) which processes one-tenth of world tomato production and is the largest food processing and marketing company in India), and Pepsi's entry into potato contracting by the mid-1990s. Since two of the firms (Pepsi and HLL) are

export-oriented directly, and the local firm (Nijjer) indirectly, through Nestle as it supplies tomato paste to Nestle under a contract, the farming sector of the state stands internationalised through contract production system. The HLL plant in Punjab is the biggest tomato paste plant in Asia with a capacity to process 650 tonnes of tomatoes a day. The company works with about 400 contract growers. Pepsi which had been working with hundreds of farmers with more than 1,700 acres under chillies until 1997, now works with only about a few dozen who plant 300 acres under chillies in all. The contract farming in potato by Pepsi Foods started in 1997-98 with 40 farmers which now number about 60. Nijjer Agro Foods works with about 400 contract tomato farmers. It is in this context that the study looks at the contract farming arrangement in terms of its contribution to help improve farm incomes and employment, and sustain the farm sector of the state.

The contracts are procurement and input (P&I) contracts under which the firms not only agree to pick up the contracted acreage specified quality produce at a fixed time and price, but also provide inputs like seedlings on credit (with part payment in advance), technical advice and various equipments—all free of cost on returnable basis. The contracts are only verbal commitments as there is no written proof with the farmers in the case of Pepsi and HLL, but Nijjer has written contracts (in local language) with farmers. The acreage for tomato production should not be less than 2.5 acres in Rajasthan (for HLL) and 5 acres for potato or tomato in Punjab (Pepsi and Nijjer) though it is not strictly followed. The contract price varies across regions depending on transport cost of produce to the factory. There is competition between HLL and Nijjer in contract tomato price in some areas. The tomato quality refers to produce not being rotten, worm effected, yellow in colour or damaged. The lots are rejected or accepted depending on the sample results. The farmers are selected on the basis of ability of a farmer to adopt new technology, suitability of land, assured irrigation, financial position, and commitment and literacy level. The companies also recommend schedule of pesticide sprays for each area and even the type and brand of pesticide to be used each time through farmer booklets. At the time of harvest, each tomato farmer is given crates free of cost on returnable basis. In the case of crop failure, HLL compensates the farmer to the extent of waiving his seedlings cost. Pepsi buys back the entire produce of potato and only two tonnes of chillies. The payment is made within 1-2 weeks after delivery by cheque/draft in the bank account of the farmer. Pepsi allows part of the acreage produce to be sold outside if enough procurement is available. The produce in all cases is brought to the factory by the farmers at their own cost.

Most of the MNC contract growers were secondary or college level literate with 12 years of schooling on the average, and the local firm growers only primary or secondary literate (7 years of schooling). The average owned land holdings of the MNC farmers were of the order of 40 acres ranging from 5 to 195 acres, compared with just 17 acre average of the Nijjer growers, some of whom were also landless. Some of the contract growers also leased in land ranging from 5-50 acres and even more, the average being 23.65 acres. Thus, the average size of the operational holding of the MNC growers was 72 acres, ranging from 53 to 90 acres, of the local firm growers 22 acres ranging from 3-60 acres, and the average for all growers being 61

acres. The Pepsi chilly farmers were more literate and had larger holdings (owned and operated), on the average, than their potato and tomato counterparts, with the exception of landownership which was higher in case of tomato growers (Table 1). There was no MNC farmer with less than 15 acres of operational landholding which is much above the average operational holding in the state (8.9 acres) (Johl, 1996).

Table 1 *Company-wise Average and Range of Schooling (years), of Land Owned, of Land Leased, of Land Operated, of Land Under Contract (all in Acres) and of Experience of Contracting (years) of Contract Growers*

<i>Parameter (average)</i>	<i>HLL</i>	<i>Pepsi -- P</i>	<i>Pepsi -- C</i>	<i>Nijjer</i>	<i>All</i>
Years of schooling	12.13 (5-18)	11.58 (5-15)	13.09 (5-17)	6.93 (0-15)	11.59 (0-18)
Land owned	47.25 (5-150)	33.79 (5-95)	39.63 (5-195)	16.87 (0-60)	35.72 (0-195)
Land leased	30.96 (0-165)	18.95 (0-100)	40.45 (0-165)	5.6 (0-25)	23.65 (0-165)
Land operated	78.21 (16-225)	52.74 (15-150)	90.18 (15-225)	22.47 (3-60)	60.99 (3-225)
Land under contract	26.88 (2-130)	4.37 (1-15)	4 (1-7)	5.27 (1-13)	12.33 (1-130)
Years under contract	5.38 (1-10)	1.58 (1-5)	3.73 (1-10)	2.07 (1-6)	3.35 (1-10)

Note: HLL: HLL tomato, Pepsi-P: Pepsi potato, Pepsi-C: Pepsi chillies, and Nijjer: Nijjer tomato.

The figures in parentheses are the range (minimum and maximum) for each parameter.

Source (Tables 1-3): Primary survey

Even the average acreage under contract for MNC (14.3 acres) as well as all contract growers (12.33 acres) was much above the average operational holding in the state. In fact, there have been growers of tomato in the past (under Pepsi) who put their entire land (as much as 45 hectares) under tomato (in 1995) and as much as 13 hectares under chillies (in 1996) (Gabrani, 1996). The contracted acreage under potato and chillies for Pepsi was very modest, i.e., three-fourth of potato farmers and 90 percent of chilly growers planting only 5 acres or less each under contract, and the contract production was in owned land in most of the cases. The HLL growers not only planted large acreage under contract but also had larger owned landholdings. The average contracting experience was 5.4 years for HLL tomato growers, 2 years for Nijjer tomato growers, and 3.7 years and 1.6 years in case of Pepsi chilly and Pepsi potato growers respectively, the average across firms being 3.35 years (Table 1). The main benefits of contracting, as perceived by the contract farmers, were better and reliable income, new and better farming skills, and better soil management in that order across firms. The farmers also prefer contracting as it gives them bulk sales outlet. Some of them go for tomato production as the crop is said to be effective in reducing water logging though it is also pesticide intensive. Similarly, potato is only a 3-month crop and farmers can take an additional crop of sunflower after potato. The chilly crop is grown under contracts as they provide an assured market.

Performance of Contracts

Procurement and Default

Default on quantity and/or quality has been one of the most common problems for firms in contracting everywhere (Glover and Kusterer, 1990). The terms of the contract were same for all classes of farmers and almost all the growers (90 percent) had met the contract terms in the past. In case of default, companies lose recoveries of seeds/seedlings cost. The default rate is high (> 50 percent) only if the gap between contract and market prices is very large (3-5 times). The companies blacklist all the full and part defaulters. They have not gone in for legal action against the defaulters, as it is neither feasible nor politically wise. About 80 percent of the farmers from the previous season are retained for the next season. It is not that only farmers default. Even companies (especially HLL) have not been able to procure from the farmers many times especially when they over-contract acreage and the yields are good. Then, either they did not give quota slips in time for entire produce or became strict on quality. Pepsi accepts even lower quality produce from contract growers.

Input Supply and Crop Failures

The HLL contract growers did not appreciate the company selling seedlings to the non-contract farmers when it had surplus seedlings, just for the commercial consideration of making money out of additional seedling production. But, perhaps, the company wanted to create a larger base for procurement and contracts in the longer term and also, surplus in the market to keep the market prices down, by doing this. The Pepsi farmers found the potato seed supplied by the company generally less than adequate for the acreage to be sown under contract and the pesticides recommended by the company as poor and costly. Two-third of the HLL farmers, three-fourth of the Nijjer growers and about half of the Pepsi potato growers reported lower yields as a case of crop failure, with another 12 percent of HLL and 7 percent of Nijjer growers reporting total crop failure. Some of the Pepsi growers also reported poor quality of produce (Table 2). The main reasons were disease or pest attack, natural calamity, and seed failure in that order (Table 3). About 25 percent of the HLL growers only reported waiver of seedlings cost by the company in such situations. The companies tend to blame the yield loss on the farmer and, therefore, do not offer any compensation. Though farmers feel there is generally no dictation from the company on field practices, they tend to follow the recommended practices as otherwise they may face quality problems. But, the farmers find company recommended pesticides costly and non-viable, as they doubt that there must be some corrupt arrangement between the company and the pesticide companies/dealers about the sale of particular pesticides and brands. There have been no problems of disease or lower yield in chillies. The farmers agreed that Pepsi had introduced new technology of deep chiselling, new methods of transplantation, besides introducing new seed varieties in tomato.

Table 2 Company-wise Distribution of Growers by Type of Crop Failure

Type of crop failure	HLL		Pepsi-P		Pepsi-C		Nijjer		All	
	No. of farmers	Percent	No. of farmers	Percent	No. of farmers	Per cent	No. of farmers	Per cent	No. of farmers	Per cent
Lower yield	15	62.5	9	47.4	1	9.1	11	73.3	36	52.2
Poor quality	0	0	2	10.5	0	0	0	0	2	2.9
Total failure	3	12.5	1	5.3	0	0	1	6.7	5	7.2
No problem	6	25	7	36.8	10	90.9	3	20	26	37.7
All	24	100	19	100	11	100	15	100	69	100

Table 3 Company-wise Distribution of Growers by Reasons for Crop Failure

Reasons for crop failure	HLL		Pepsi-P		Pepsi-C		Nijjer		All	
	No. of farmers	Per cent	No. of farmers	Per cent	No. of farmers	Per cent	No. of farmers	Per cent	No. of farmers	Per cent
Disease/pest	4	16.7	2	10.5	0	0	9	60	15	21.7
Natural calamity	3	12.5	3	15.8	0	0	0	0	6	8.7
Seed failure	3	12.5	3	15.8	0	0	1	6.7	7	10.1
Disease and natural calamity	4	16.7	1	5.3	1	9.1	1	6.7	7	10.1
Disease and seed failure	0	0	1	5.3	0	0	1	6.7	2	2.9
Natural calamity and seed failure	1	4.2	2	10.5	0	0	0	0	3	4.3
Disease, natural calamity and seed failure	3	12.5	0	0	0	0	0	0	3	4.3
No	6	25	7	36.8	10	90.9	3	20	26	37.7
All	24	100	19	100	11	100	15	100	69	100

Problems and Remedies

About two-third of the HLL growers and more than 50 percent of the Nijjer growers did not face any major problem in contracting. The others reported problems like poor coordination of activities, poor technical assistance, delayed payments, outright cheating in dealings, and manipulation of norms by the firm. One of the cases of poor coordination was the delivery of tomatoes at the factory. The farmers had to wait at the factory gate for a day or more which leads to weight loss of produce due to evaporation and the company ends up receiving more concentrated produce at the same price. Further, longer delays result in spoilage and higher rejection rate for the farmers. This again has been the most frequent farmer problem under contracts almost everywhere, either because of genuine problems on the part of the firm or due to deliberate strategy of getting more concentrated produce for processing (Glover and Kusterer, 1990). Some of the Pepsi potato farmers had a few problems with the contract system, but a large number (60 percent) were happy. Though a vast majority

of growers did not see any major role for the government in contract system, some of them wanted it to make market more competitive by setting up more processing units (27 percent) and some others wanted regulation of contracts and companies (10 percent). But a majority of them were more keen on the companies making improvements in their systems like higher rate for crop, better extension, field level grading and pick up, and a more sincere approach while dealing with growers. Despite various problems and conflicts between companies and growers, 62 percent of HLL, 80 percent of Nijjer, and 68 and 73 percent of Pepsi (potato and chilly respectively) farmers wanted to continue contracting.

Contracting and the Local Economy

As the above account of contract farming in the state shows, the farmers are generally happy with contracting, though they do face some day-to-day problems which have implications for their incomes. On the other hand, companies are also sticking on to the system though they do face problem of defaults from the farmers' side. But, that is all about the contracting parties. As proposed, we look at the effects of contract system on the local economy and its contribution in resolving the farm sector crisis in the following paragraphs:

Farm Incomes and Employment

Farmer satisfaction with contracts can be measured by the growers' interest in the contract system, number of farmers under the arrangement – growing or dwindling – and the level and frequency of income and its distribution effects across classes of farmers (CDC, 1989). More specifically, it is captured through farmer profitability of the crop, efficiency of payments and input supply, market assurance for the produce, and farmer participation in crucial decisions relating to contract production. There is no doubt that the vegetable crops under contracts are profitable for farmers. A very large majority of farmers interviewed also wanted to continue working under the contracts and many others wanted to get into contract production. This certainly indicates that the farmers, on the whole, are happy about the contract system. But, this may not last long due to the monopsonistic tendencies and the practice of 'agribusiness normalisation' over time by contracting firms which means lower produce prices and higher input costs for the farmers. That contracting has led to more and better employment opportunities for labour, especially women, is true and acknowledged by the labour. The labour intensity of potato and other vegetable crops is much higher than that of the traditional crops. It varies from 307 hours per acre in potato to 539 hours in other kharif vegetables (Chand, 1999). But, this may not be true for contract crop production as the operations are highly mechanised. The employment generated for labour may disappear soon as these companies are already planning to mechanise the planting and harvesting operations.

Biased Contracts

Whereas the contract agreements protect the firms of all and even any unforeseen obligation, the farmer is to meet the contract obligations under all circumstances.

There is no compensation to him even under conditions of crop failure due to natural calamity. In all the contracts, the farmer is bound to sell to the company only and is to be penalised for default. But, there is no specified company liability for the failure to buy his produce. The contracts of the local and the multinational companies also differed in many other ways. For example, the contracts of the local firm were in local vernacular language whereas those of the multinationals were in English only which is the case in MNC seed contracting in India as well (Shiva and Crompton, 1998). Also, the specification of the terms of the contracts was much more clear and stringent in the case of multinationals as compared to that of the local firm. That contracts are biased is clear from the following extracts from the contracts:

“Further provided that the seeds, the plants sprouting from the seeds and all parts of the plant will remain the exclusive property of PFL (the company) and shall only be disposed/sold off if so desired by PFL, as per PFL’s instructions” (Pepsi Foods contract).

“In case of default, the grower shall be liable to pay to PFL the damages for the shortfall on this account and in such an event, PFL reserves the right to forthwith terminate the contract” (Pepsi Foods contract).

(But, no liability is specified in case the company fails to pick up the produce)

“The decision on grading will be at sole discretion of PFL. However, PFL retains the first right to buy potato rejected due to deviation from specifications at prevailing market price” (Pepsi Foods contract).

“Farmer is bound to sell all healthy produce to the firm only. On the other hand, if the company’s factory is out of order due to some reason beyond its control, then company will not be liable for any loss to the grower”(Nijjer Agro Foods contract).

Sustainability Implications

Repeated cultivation of the same crop without rotation can lead to a variety of soil infestations, most commonly nematodes, which has happened in many situations in the case of tomatoes. In fact, sometimes, the land becomes unfit for any kind of crop cultivation (Glover and Kusterer, 1990; Torres, 1997). Irrigation intensity of contract crops like tomato, potato and chillies is more than that of wheat. For example, potato requires 8-12 irrigations compared with only 5-6 for wheat and other crops (Chand, 1999; Pepsi Foods manual for potato production in Punjab). Pesticides and fertilisers are also used at much higher levels than in the traditional crops. For example, potato cultivation requires 108 kg. of NPK (inorganic fertiliser) per acre as against only 78 kg for wheat (Chand, 1999) and 60 kg each of phosphorus and potassium per acre (Pepsi Foods manual). Tomato crop requires 60-90 kg of nitrogen, 60-100 kg of phosphorus, and 60-120 kg of potash per acre depending on the quality of soil (HLL manual for growing processing tomatoes). Similarly, the chip potato crop requires 4-5 pesticide sprays and the seed potato crop 6-7 sprays (Pepsi Foods manual). Tomato crop under contract requires as many as 14 sprays (HLL manual), which is

even higher than that in cotton. This, in a situation where farmer awareness of the negative effects of pesticides on the environment, other than human and animal lives, especially food-related aspects, is very low (Gandhi and Patel, 1997), can be quite problematic.

Socio-Economic and Gender Differentiation

Contract farming has led to the increased incidence of the practice of reverse tenancy in the region as the returns from farming have increased for those who can invest in it and take risk of crop failure, and these are mostly the large landholders or those who have other non-farm sources of income. This is certainly leading to higher orders of economic and social differentiation in the region as those who lease out land are only worse off. There is practice of child labour in harvesting of crops especially tomato and chillies. Since the wages are based on work performed, labour families tend to use child labour to maximise earnings. The female labour are preferred for transplanting and harvesting work as they are more sincere, more suited for this work, thus more efficient, and do not agitate. Also, sometime, when there are daily wage rates, they are cheaper to hire (a women worker's wage is only 50-60 percent that of the male worker) and more easily available in peak season. This certainly leads to more work for women and undesirable push for use of child labour. A large number of women could be seen picking potatoes and tomatoes and grading them in the fields at harvest time. Even mothers with infants attend to grading work as it is generally in one place and under shade of some tree or under a shed. This is no different from what has been observed in Mexico tomato fields under the agribusiness company ownership (Torres, 1997).

In some cases, the women members of the contract grower households could be seen supervising the potato grading labour especially when the produce is graded not in the fields but at the farm house of the grower. This is possible and desirable as most of the grading labour is female and it is easy and more effective for a lady member to control their work. Otherwise, these women do not participate in any farm operations. But, they do give necessary instructions to labour as and when required, from the house itself. The contract growers themselves also mostly supervise the labour and arrange various equipments for digging or drive the tractor for digging. Like any boss, they keep ordering labour to do this or that and not to waste time when the labour takes a break for food/water or bathroom.

Nature and Commitment of Firms

Of the three firms operating in the state and studied here, two (Pepsi Foods and HLL) are multinational subsidiaries and, are therefore, globally oriented in their operations. Both are expanding their operations in food sector as part of their global strategies, and are likely to stay in this business but may not restrict themselves to Punjab alone as is already evident in HLL's move into Haryana and Rajasthan for its procurement. Also, Pepsi Foods' limited procurement (10 percent of total requirement) from contract growers leaves much to be desired. It is just from 60 farmers and about 300 acres of potato production that it procures. On the other

hand, the locally emergent and locally oriented firm (Nijjer) is small in its operations and finding it difficult to grow on its own. It has already become a subcontractor to Nestle so far as contract production of tomato and processing of tomato paste is concerned. It procures from farmers, processes the tomatoes into paste and supplies in bulk to Nestle. Thus, it is operating as an intermediary between the farmers and the MNC. By doing so, it not only avoids the risk of farm production by contracting but also the market risk by selling in bulk to Nestle. Thus, practically, it is operating as a subsidiary of a MNC and, therefore, the benefits for the local economy are being reduced to that extent.

There does not seem to be any commitment by the companies to the state's farm sector as they are already moving out to other states (Haryana and Rajasthan) and withdrawing from processing altogether (Pepsi selling out its tomato operations to Unilever, and being only marginally present in local potato production through contracts). If Unilever's strategies and actions in Australian tomato sector are any indication of the HLL policy, then it is not likely to benefit the local economy and the farmers for long. In Australia, Unilever's actions were far from rhetoric as it did rationalise the grower numbers and worked only with large and efficient growers. Even, the upgrading of Australian operations did not correspond to a strengthening of the company's commitment to purchase Australian tomatoes as the investment was into upscaling of filling, storage and distribution capacity which implied that any tomato paste (Australian or imported) could be utilised equally efficiently in the new plant. The preference for purchasing local tomatoes initially by the company was a function of utilising plant's sunk costs rather than a reflection of any innate advantage of local tomato purchase. Further, the plant was oriented towards domestic market supply rather than for export (Burch and Pritchard, 1996). Another study of the Hindustan Lever in India in the mid-1980s also revealed that its record of contributing to local development in terms of capital inflow, technology transfer and employment generation has been very poor (Lieten, 1987).

So far as Pepsi is concerned, its record again is poor in terms of delivering the promised deals. Its interest in Punjab farming is already diluted as it has sold off the tomato paste plant to the HLL and is about to wind up chilly operations as well. Further, the crop it is continuing in (potato) is a well-trying crop of the region for many years. Thus, out of three crops it ventured into, one (tomato) it has given up for others, the second (chillies) it is planning to give up for good, and the third (potato) is not a big deal any way. Therefore, its contribution in changing the cropping pattern of the state is nowhere to be seen. Even after a few years of operations, it works only with 60 farmers and procures most of its potato requirements from outside the state. At the time of entry into the state and the country, it had promised to promote many other horticultural crops like pears, grapes, apple, etc., but nothing has been attempted on those lines. In fact, by acquiring a paddy processing plant in the neighboring Haryana, it is only adding to the perpetuation of paddy cultivation in the state and the region, though the primary ground for Pepsi' entry into India was that it would encourage diversification away from paddy and wheat in the state of Punjab (Singh, 1997). But, still it keeps preaching, as recently as April 1999, about its contributions to the development

model of contract farming, in various fora without even acknowledging that it has sold off the plant to HLL.

Further, the scale of operations of the companies does not warrant any optimism so far as diversification of state agriculture is concerned. Most of these firms have limited processing capacities and work only with tens (Pepsi) or a few hundreds of farmers (HLL and Nijjer). Despite 10 years of presence of some of them in the state, there has been no increase in processing capacity. In fact, the farmers feel that the companies should cover more acreage. Interestingly, another report on hi-tech agriculture in Punjab (Sharma, 1998), coming 12 years after the Johl Committee report, also concludes by recommending action on the diversification front.

Effect on Cropping Pattern and Land Lease Market

The area under the contract crop (tomato) has increased in all pockets of the region where there is practice of contract farming. Each pocket has a few hundred acres under tomato, which, in some areas, was not grown at all earlier. In all, the area under tomato in Punjab in 1999 was reported to be 15,000 acres and the total production of the crop 93,000 tonnes (*Punjabi Tribune*, Chandigarh, 9 May, 1999) which had increased to 2.5 lakh tonnes this year. There has been considerable shift from paddy, wheat and cotton to tomato partly because of better economics of tomato crop under contract which is explained to the prospective contract growers by the company officials, and partly because of the constant failure of cotton in some of these regions in the past few years. But, at the same time, no increase in area under horticultural crops is evident as the production increase under contracting has come largely for yield factor and not from expansion of area. In fact, the area under fruit and vegetable crops in the state still remains less than 2 percent. Also, there might have been area shift within fruit and vegetable crops due to contracting. The lease rates have also grown as there is now more demand for the same land for open market as well as contract production of tomatoes. Also, as tomato crop is more remunerative, system of 6-month or single crop lease as against annual lease has grown in practice. The land lease rate is not much affected by potato contracts as this crop has been grown in the state for many years.

Conclusions

One of the major issues in the farming sector of the state has been that of farmer participation in agro-industrial development as it is believed that the capitalist farmers have accumulated, under the green revolution regime, significant investible surpluses which need to be given an outlet for investment. That purpose is certainly not being served by the contract farming model of agricultural change as these firms are the only beneficiaries of value addition surplus and do not share the extra profits with farmers. In fact, the issue of diversification has been tackled in an undesirable fashion. Diversification can mean doing same thing or different things differently. But, here, different things are being done in the same way, i.e., new crops are being grown with same or higher input intensity. In fact, what the state should have directed and attempted in participation with other actors has been left to the private

corporate and multinational enterprises. It is important to recognise that what is needed is not less of state but better state for promotion and regulation of economic activities, and organisations and institutions for sustainability.

The NGOs and community organisations, which can play a role in information provision, and in monitoring and regulating the working of contracts, are, unfortunately, not there in the state at all. In fact, that was one of the reasons that the farmer suicides, due to crop failure and indebtedness, in the state recently (1998) could not be prevented. Even there is no genuine farmer organisation or cooperative in the state in agro-processing or marketing. So, what is must for making success out of contract system is the institutional and organisational innovations in the state's rural sector, which it is capable of, as proved by the emergence of the second-hand tractor markets in the state (Singh, 1999). Contracts require frequent and independent scrutiny so that they remain competitive both with similar contracts and with open market transactions. Wide publicity of contract terms will help to stimulate competition. Secondly, vigorous bargaining co-operatives, or other agricultural producer organisations are needed to negotiate equitable contracts which have been able to secure the standardisation of contracts and their scrutiny by a government agency in the past in the US (Wilson, 1986). In Japan as well, farmers have managed their relationships with companies well through cooperatives (Asano-Tamanoi, 1988).

A legal protection to contract growers as a group is must to protect them from ill-effects of contracting (Wilson, 1986). There are cases of legal protection given to subcontracting industries in Japan in their relations with large firms. These laws specify the duties (to have a written clear terms contract with the subcontractor) and forbidden acts for the large parent firm. The forbidden acts include refusal to receive delivery of commissioned goods, delaying the payment beyond agreed period, discounting of payment, returning commissioned goods without good reason, forced price reduction, compulsory purchase by subcontractors of parental firm's products, and forcing subcontractors to pay in advance for materials supplied by the parent firm. These provisions are monitored by the Fair Trade Commission. Interestingly, most of the violations by parent firms were on the written form of contracts and clear terms of the contracts (Sako, 1992). If contract farming is nothing but the flexible production systems prevalent in industry applied to farm production, then it is only logical to extend such legal provisions with necessary modifications to farming contracts.

But, contracting as a mechanism is desirable only if the crop is perishable, non-bulky, perennial in nature, needs heavy processing and strict quality adherence (Goldsmith, 1985), credit market is in a state of failure or there is a need to encourage new crops. But, still there are other options which should be tried out, i.e., state, NGOs for credit and other inputs, and if contracting is must, then it should be regulated and monitored (Grosh, 1994)

Outside of contracting, the farm sector of the state requires rationalisation in farming i.e. doing farming in an economical manner. There is need to encourage integrated farming systems, not just single crop or only crops systems. The farmer income should be diversified in its sources. Public or collective provision of costly inputs like tractors and combines should be made so that small and marginal farmers

can custom hire these machines. The important thing is to manage working and fixed capital costs at the farm level. The overuse of machines at the cost of human labour and with higher cost needs to be cut. Of course, there is a role for better processing and marketing of farm produce in the state.

REFERENCES

- Asano-Tamaoui, Mariko (1988): "Farmers, Industries, and the State: The Culture of Contract Farming in Spain and Japan", *Comparative Studies in Society and History*, 30(3), 432-452.
- Benziger, Vincent (1996): "Small Fields, Big Money: Two Successful Programs in Helping Small Farmers Make the Transition to High Value-Added Crops", *World Development*, 24(11), 1681-1693.
- Buch-Hansen Mogens and Henrik Secher Marcussen (1982): "Contract Farming and the Peasantry: Cases from Western Kenya", *Review of African Political Economy*, Number 23.
- Bulow, Dorte von and Anne Sorensen (1993): "Gender and Contract Farming: Tea Outgrower Schemes in Kenya", *Review of African Political Economy*, No. 56, 38-52.
- Burch, David and Bill Pritchard (1996): "The Uneasy Transition to Globalisation: Restructuring of the Australian Tomato Processing Industry" in D. Burch, R.E. Rickson and G. Lawrence (eds.): *Globalisation and Agri-Food Restructuring: Perspectives from the Australasia Region*, Brookfield (USA), Avebury, 107-126.
- Carney, Judith A. (1988): "Struggles over Crop Rights and Labour within Contract Farming Households in a Gambian Irrigated Rice Project", *The Journal of Peasant Studies*, 15(3), 334-349.
- Chand, Ramesh (1999): "Emerging Crisis in Punjab Agriculture", *Economic and Political Weekly*, 34(13), March 27-April 2, A2-A10.
- Chand, Ramesh (1999a): *Agricultural Diversification in India: Potentials and Prospects of a Developed Region*, Mittal, New Delhi.
- Christensen, Scott R. (1992): *Between the Farmer and the State: Towards A Policy Analysis of the Role of Agribusiness in Thai Agriculture*, Thailand Development Research Institute (TDRI) Background Report to the 1992 Conference on Thailand's Economic Structure: Towards Balanced Development?, Chon Buri (Thailand).
- Clapp, Roger A.J. (1988): "Representing Reciprocity, Reproducing Domination: Ideology and the Labour Process in Latin American Contract Farming", *The Journal of Peasant Studies*, 16(1), 5-39.
- Collins, Jane L. (1993): "Gender, Contracts and Wage Work: Agricultural Restructuring in Brazil's Sao Francisco Valley", *Development and Change*, 24(1), 53-82.
- CDC (Commonwealth Development Corporation) (1989): *Review of Smallholder Agricultural Programmes, Final Report*, Vols. 1 (analysis, conclusions and proposals) and 2 (case studies), London, CDC, April.
- Dunham, David (1995): *Contract Farming and Export Horticulture: Can Agribusiness Revitalise the Peasant Sector in Sri Lanka?*, IPS Agricultural Policy Series No. 3, Colombo, Institute of Policy Studies, February.
- Fisher, Thomas, and Vijay Mahajan with Ashok Singha (1997): *The Forgotten Sector: Non-farm employment and enterprises in rural India*, Intermediate Technology Publications, London.
- Fulton, Amabel L.A. and Robert J. Clark (1996): "Farmer Decision Making Under Contract Farming in Northern Tasmania" in D. Burch, R. E. Rickson and G. Lawrence (eds.):

- Globalisation and Agri-Food Restructuring: Perspectives from the Australasia Region*, Avebury, Brookfield (USA), 219-237.
- Gabrani, Krishan (1996): "Pepsi's Partnership with Farmers", *Span*, October-November, 6-11.
- Gandhi, Vasant P. and N.T. Patel (1997): "Pesticides and the Environment: Comparative Study of Farmer Awareness and Behaviour in Andhra Pradesh, Punjab and Gujarat" *Indian Journal of Agricultural Economics*, 52(3), July-September, 519-529.
- Glover, David J. (1987): "Increasing the Benefits to Smallholders from Contract Farming: Problems for Farmers' Organisations and Policy Makers", *World Development*, 15(4), 441-448.
- Glover, David and Ken Kusterer (1990): *Small Farmers, Big Business: Contract Farming and Rural Development*, Macmillan, London.
- Goldsmith, Arthur (1985): "The Private Sector and Rural Development: Can Agribusiness Help the Small Farmer?", *World Development*, 13 (10-11), 1125-1138.
- Goodman, David, Bernardo Sorj, and John Wilkinson (1987): *From Farming to Biotechnology: A Theory of Agro-industrial Development*, Oxford, Basil Blackwell.
- Grosh, Barbara (1994): "Contract Farming in Africa: an Application of the New Institutional Economics", *Journal of African Economies*, 3(2), October, 231-261.
- Hill B.E. and K.A. Ingersent (1982): *An Economic Analysis of Agriculture*, London, Heinemann.
- Johl S.S. (1996): "Future of agriculture in Punjab: some policy issues", *Journal of Agricultural Development and Policy*, 7(1), 1-21.
- Key, Nigel and David Runsten (1999): "Contract Farming, Smallholders, and Rural Development in Latin America: The Organisation of Agroprocessing Firms and the Scale of Outgrower Production", *World Development*, 27 (2), 381-401.
- Kirk, Colin (1987): "Contracting Out: Plantations, Smallholders and Transnational Enterprise", *IDS Bulletin*, 18 (2), 45-51.
- Konings, Piet (1998): "Unilever, Contract Farmers and Co-operatives in Cameroon: Crisis and Response", *The Journal of Peasant Studies*, 26 (1), 112-138.
- Kontos, Stephen (1990): "Farmers and The Failure of Agribusiness in Sudan", *Middle East Journal*, 44 (4), 649-667.
- Korovkin, T. (1992): "Peasants, Grapes, and Corporations: The Growth of Contract farming in a Chilean Community", *The Journal of Peasant Studies*, 19 (2), 228-254.
- Leisinger, Klaus M. (1987): "Multinational companies and agricultural development: A case study of 'Taona Zina' in Madagascar", *Food Policy*, August, 227-241.
- Lieten, G.K. (1987): *The Dutch Multinational Corporations in India*, New Delhi, Manohar.
- Little, Peter D. and Michael J. Watts (eds.) (1994): *Living Under Contract: Contract Farming and Agrarian Transformation in Sub-Saharan Africa*, Madison, University of Wisconsin Press.
- Morvaridi, Behrooz (1995): "Contract Farming and Environmental Risk: The Case of Cyprus", *The Journal of Peasant Studies*, 23 (1), 30-45.
- Nadkarni, M.V. (1988): "Crisis of Increasing Costs in Agriculture: Is there a Way out?", *Economic and Political Weekly*, 23 (39), A114-A119.
- Porter, Gina and Kevin Phillips-Howard (1995): "Farmers, Labourers and the Company: Exploring Relationships on a Transkei Contract Farming Schemes", *The Journal of Development Studies*, 32 (1), 55-73.
- Rickson, Roy E. and David Burch (1996): "Contract farming in organisational agriculture: The Effects Upon Farmers and the Environment" in D. Burch, R. E. Rickson and G. Lawrence (eds.): *Globalisation and Agri-Food Restructuring: Perspectives from the Australasia Region*, Brookfield (USA), Avebury, 173-201.

- Sachikoyne, Lloyd M. (1989): *The State and Agribusiness in Zimbabwe: Plantations and Contract Farming*, Leeds Southern African Studies No. 13, Leeds, African Studies Unit, Department of Politics, University of Leeds, August.
- Sako, Mari (1992): *Prices, Quality and Trust: Inter-firm Relations in Britain and Japan*, Cambridge University Press, Cambridge.
- Scott, C.D. (1984): "Transnational Corporations and Asymmetries in the Latin American Food System", *Bulletin of Latin American Research*, 3(1), 63-80.
- Sharma, R.K. (1998): *Hi-Tech Agriculture in Punjab: Performance and Prospects*, AERC, University of Delhi, Delhi, July.
- Shiva, Vandana (1991): *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics*, London, Zed Books.
- Shiva, Vandana and Tom Crompton (1998): "Monopoly and Monoculture: Trends in Indian Seed Industry", *Economic and Political Weekly*, 33(39), A137-A151.
- Siddiqui, Kalim (1998): "Agricultural Exports, Poverty and Ecological Crisis: Case Study of Central American Countries", *Economic and Political Weekly*, 33(39), A128-A136.
- Singh, Sukhpal (1997): "Multinational Enterprises and Agribusiness Sector in Developing Economies: A Case Study of Pepsi in India" in K.J. Azam (ed.): *Economic Liberalisation in India-Implications for Indo-US Relations*, Hyderabad, Delta, 202-217.
- Singh, Sukhpal (1999): "Institutional Innovations in Indian Agriculture: A Case of Input Markets", *Institutional Development*, 6(2), 3-9.
- Torres, Gabriel (1997): *The Force of Irony: Power in the Everyday Life of Mexican Tomato Workers*, Berg, Oxford.
- United States Agency for International Development (USAID) (1994): *Assessment of Contract Farming in Lam Nam Oon, Thailand*, Centre for Development Information and Evaluation, USAID Working Paper No. 193, USAID and the The Royal Thai Government, April.
- Watts, Michael (1992): "Peasants and Flexible Accumulation in the Third World: Producing under Contract", *Economic and Political Weekly*, 27 (30), PE 90-PE 97.
- Welsh, Rick (1997): "Vertical Co-ordination, Producer Response, and the Locus of Control over Agricultural Production Decisions", *Rural Sociology*, 62(4), 491-507.
- White, Ben (1997): "Agro-industry and Contract Farming in Upland Java", *The Journal of Peasant Studies*, 24(3), April.
- Williams, Simon and Ruth Karen (1985): *Agribusiness and the Small Scale Farmer: A Dynamic Partnership for Development*, London, Westview Press.
- Wilson, John (1986): "The Political Economy of Contract Farming", *Review of Radical Political Economics*, 18(4), 47-70.