ANALYTICAL STUDY INTO CONTRACT FARMING SYSTEM IN PUNJAB

Dissertation

Submitted to the Punjab Agricultural University
in partial fulfilment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY
in
EXTENSION EDUCATION
(Minor Subject : Entomology)

By

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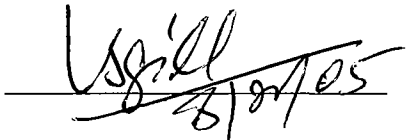
2005

DEDICATED TO MY FRIENDS

CERTIFICATE I

This is to certify that the dissertation entitled, **"Analytical study into contract farming system in Punjab"** submitted for the degree of **Ph.D**, in the subject of **Extension Education (Minor Subject : Entomology)** of the Punjab Agricultural University, Ludhiana, is a bonafide research work carried out by **Vipan Kumar (L-2001-A-13-D)** under my supervision and that no part of this dissertation has been submitted for any other degree.

The assistance and help received during the course of investigation have been fully acknowledged.



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This is to certify that the dissertation entitled, **"Analytical study into contract farming system in Punjab"** submitted by **Vipan Kumar (L-2001-A-13-D)** to the Punjab Agricultural University, Ludhiana in partial fulfillment of the requirement for the degree of **Ph.D** in the subject of **Extension Education (Minor subject : Entomology)** has been approved by the Student's Advisory Committee of the Department after an oral examination on the same.

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Professional accomplishment is not the result of days work built gradually as the steps of strains. One is incomplete on its even needs, guidance to achieve the goal and this is a preliminary step in human activity.

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ABSTRACT

This study was undertaken to know the farmers' reactions regarding different aspects of contract farming, area covered by different crops under contract farming, problems of contract farming and suggestions of farmers for improving contract farming scheme in future. Five districts namely, Amritsar, Faridkot, Patiala, Bathinda and Mansa with maximum numbers of contract farmers were selected for the study. A sample of 200 farmers were selected proportionately to total number of contract farmers of five selected districts of Punjab. For collecting data, interview schedule was prepared which had three parts. The first part socio-personal characteristics, second part farmers' reactions and third part held with problems faced by the farmers and their suggestions. A separate questionnaire was developed to study area covered by different crops under contract farming, it was done with the help of secondary data.

The findings of the study showed that majority of the respondents above the age of 35 years engaged in contract farming ; middle and matric level of qualification ; had 2-15 acres of operational land holding ; had 1-5 acres of operational area under contract farming ; had taken the information of contract farming from advertisement, contracting agencies and PAFC Camps. Majority of the respondents were innovative, had ability to take risk and were very economically motivated for starting contract farming. Secured returns and more income were having higher ranks among the motivational factors for starting contract farming. Majority of the respondents were having agreement about quality of seed, fertilizers and pesticides and were having disagreement about payment of the produce and only 48 per cent of them were partially agreed with market support the main problems faced by the respondents were the strict grading practices, non-marketing of the produce, non-numerative prices, late payment. There was decline in area registered by PAFC and proposed area under contract farming plan (2003-2004) in most of the crops. Thirty five per cent of the respondents wanted to continue the contract farming and 60 per cent of them did not want to continue the contract farming in future. Majority of the respondents suggested that there should be arrangement of assured procurement at fixed rate, quality standard should be fixed at the time of agreement and payment of the produce should be given without unnecessary delay.

Keywords :- Contract farming, reactions, problems, suggestions, area covered.

Signature of Major Advisor

Vipan Kumar 8/4/2005

Signature of student

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LIST OF ABBREVIATIONS

Sr. No.		
1.	DM	District Manager
2.	EL	Escorts Limited
3.	HKB	Hariyali Kisan Bazar
4.	HLL	Hindustan Lever Limited
5.	ICAR	Indian Council of Agricultural Research
6.	KRBL	Khushi Ram Bihari Lal Company
7.	MOU	Memorandum of Understanding
8.	PAFC	Punjab Agro Foodgrains Corporation Limited
9.	PAU	Punjab Agricultural University
10.	PMP	Prevailing Market Price
11.	RKK	Rallis Kisan Kendra

Chapter-I

INTRODUCTION

The present scenario of Punjab agriculture is the monoculture involving wheat-rice rotation. The state of Punjab has the highest concentration of these two crops i.e. about 75% of gross cropped area at all India level during the triennium ending 1999-2000 (Sangwan, 2002). Extensive coverage under this system disturbed the ecosystem of the Punjab state particularly water balance and soil health. Moreover, in the age of liberalization, globalization and expanding agribusiness, there is danger that small farmers will find it difficult to fully participate in the market economy. The news of farmers' distress in regions like Punjab, Haryana, Andhra Pradesh, Karnataka and Maharashtra has become sore issue for policy ma kers. The major problems faced by the farmers require intervention of four important issues : price assurance, assured product marketability, elimination of intermediaries in the market and timely availability of production credit. In order to increase the income per unit area and to maintain ecological balance in the agro ecosystem, there is urgent need to diversify the cropping pattern by the introduction of non-conventional crops like winter maize, sarson (hyola), barley, basmati rice, sunflower, mentha etc.

To achieve this, there is a need to provide infrastructure in the form of cultivation technology, market facility and post harvest technology to raise these high value and labour intensive crops. One of the best methods to

achieve this is the contract farming. It is an intermediate institutional arrangement that allows agro-processing firms to participate in and exert control over the production process without owning or operating the farms. In essence, contract farming is a demand/market driven phenomenon unlike traditional farming that first produces a commodity and then looks for its market. To interpret it slightly differently, it resembles subcontracting in the industrial sector under which a large firm contracts out the manufacture of many individual components to small firms and benefit from lower costs, especially labour costs, and better skills. In its most extended form, contract farming is nothing but an extension of the phenomenon of global sourcing wherein an agro-processing firm can produce anything anywhere, by sourcing inputs from anywhere, to be sold in any market in the world (Singh, 2000).

In India, contract farming can be traced back to colonial period when commodities like cotton, indigo etc. were produced by the Indian farmers for English factories. Seed production has been carried out through contract farming by the seed companies quite successfully for more than four decades in the country. There are several agricultural and horticultural crops such as tomatoes, potatoes, chillies, baby corn, onions, cotton, wheat, basmati rice, groundnut, flowers and medicinal plants, etc. produced in some form of contractual arrangements with the farmers in India. Big corporate houses such as Hindustan Lever, Pepsi Foods, A.V. Thomas, Daburs, Thapars, Marico, Godrej, Mahindras, Wimco etc. undertake contract farming for many crops apart from several small players. Though many of them follow a bilateral

contract arrangement between the firm and the farmers, there are tripartite and multipartite arrangement as well e.g. Rallis India Ltd. organized wheat production in Chattisgarh under contract farming. State Bank of India took care of the credit needs of the farmers by treating the contract as a collateral. The wheat was supplied to Hindustan Lever Ltd. for processing and marketing. Thus, there are several variants of contract farming are emerging, depending upon the crop, the company's objective, local conditions, market regulation etc. (Ashokan and Singh, 2003).

In Punjab, the State government has argued that contract farming is the best means of crop diversification, in a region where there is a real question of ecological survival and sustaining natural resources like water and soil in a reasonably healthy state. Even the incidence of different pests (weeds, diseases and insect-pests) have increased from earlier 1970s to late 1990s on account of monoculture (PAU, 1998). Traditional crops like wheat and the more recently paddy are seen an excessively reliant on water. So, reduction in acreage of these crops by around 30 per cent is suggested by this arrangement. However, since contract farming is based on private corporate interest that are inherently profit-driven there is no reason why these should coincide with the ecological requirements of the region, indeed much of the recent corporate interest in Punjab agriculture has been in basmati rice farming which is one of great water guzzles.

Contract farming in Punjab was in place by the early 1990's with the entry of Pepsi Foods – a multinational company (Pepsico) subsidiary

into tomatoes and chillies, and a local firm, Nijjar Agro Food Ltd. into tomatoes. It got further rooted with the selling of its tomato facility by Pepsi to Hindustan Lever Ltd. (HLL)–a unilever multinational company which processes one-tenth of world's tomato production. Since two of the firms (Pepsi and HLL) are export oriented directly and the local firm (Nijjar) indirectly, through Nestle as it supplies tomato paste to Nestle under a contract. The HLL plant in Punjab is the biggest tomato paste plant in Asia with a capacity to process 650 tonnes of tomatoes a day.

To give boost to the diversification of agriculture in Punjab, the government of Punjab has also started contract farming scheme from *rabi* season 2002-2003 through Punjab Agro Foodgrains Corporation Limited. Under this scheme the area is being shifted from rice and wheat to other high valued crops like winter maize, sarson (hyola), sunflower, mentha, basmati etc. The government has planned to diversity 4 lakh acres under different crops during 2002-2003 which will increase to 25 lakh acres during the year 2007 (Anon, 2003).

1.1 Statement of the problem

No systematic study has been conducted in Punjab on contract farming system in the discipline of extension education. Thus, there is an urgent need to know about this agribusiness, an important component for diversification of rice-wheat cropping pattern. Therefore, keeping in view the above facts the present study entitled, "Analytical Study into Contract Farming System in Punjab", was undertaken with the following specific objectives.

1.2 Objectives of the study

1.2.1 To study the farmers' reactions regarding different aspects of contract farming.

1.2.2 To find out the area covered by different crops under contract farming.

1.2.3 To study the problems faced by the farmers under contract farming system.

1.2.4 To study the relationship between the characteristics of respondents and their reactions about contract farming.

1.3 Scope of the study

With Indian agriculture dominated by small-scale land holdings, food processors struggle to procure adequate supplies to high-quality produce ; huge agriculture and horticulture produce get damaged due to poor technological and financial constraints, under such conditions contract farming seems to be the best alternative. Punjab government realizing its importance has started multi-year multi-crop diversification plan under nodal agency Punjab Agro Foodgrains Corporation. The project is very important as traditional rice-wheat rotation creating both economical and ecological problems for Punjab state. Since, this venture is new there is a strong need to conduct a study in this area, so as to understand the reactions of farmers towards this system, areas covered by different crops in acres under this system, the problems faced by farmers while dealing with contract agencies. Corrective measures will be taken

after thorough analysis of this diversification plan which will help in better implementation and growth of multi-year multi-crop diversification strategy of Punjab government.

1.4 Limitations of the study

1.4.1 Being a student research the time availability and other resources were limited.

1.4.2 The sample size was small and results were based on data collected from five districts with maximum number of contract farmers and these results might not be true for other districts.

1.4.3 The findings of the study were based on the expressed opinion of respondents. Although every effort was made to get accurate information from the respondents, the possibility of the respondents giving some biased information cannot be completely ruled out.

1.4.4 Data provided by Punjab Agro Foodgrains Corporation were not compiled in concrete form; so, ambiguity might have cropped up in these results.

Chapter-II

REVIEW OF LITERATURE

Any research is planned and executed on the basis of what and how much work has already been accomplished in a particular sphere and related area of significance at a particular time. A review of literature thus, provides a gainful insight which could help in the development of the research instrument, selection of study sample, interpretation of the findings and the discussion of results of research problem under study. So, it is desirable to review the relevant literature thoroughly while handling a research problem.

An afford has been made to acquaint with the available literature having direct or indirect bearing on the present research study.

2.1 Contract farming

Bruch *et al* (1990) stated that contract farming represent a significant change in the organization of farm production in both the developed and the developing world. It integrated farmers and farm families into the wider national and global economy by separating land ownership from the power to make land use decisions. This included cropping – use of chemicals (pesticides, herbicides, fertilizers) and harvesting decisions and are no longer the exclusive province of farm owners and operators. The study reported that the primary benefit for the farmers of contract farming is the reduction of economic risk and allowing investment in large scale processing system.

Carney (1992) reported that contract farming was the distinct social organization of labour which linked farmers, producers to the state through the supply of agricultural commodities specified in advance by a written or oral contract which was intended to raise the productivity. Contract farming began with a description of the production contract implemented in the project area. Then, the next attention was focused on the labour processes and specially the changing land and crop rights induced by contract farming.

Watts (1992) stated that contract production has traditionally been considered a feature of advanced capitalist agricultural structures. It represented an expanding and much suggested method of agro-industrial integration for developing economics. Contract farming is a method by which agriculture in the developing world is converging with that in the developed world.

Kelley (1993) found that the use of production contracts was increasing in US agriculture. In 1990 contract production accounted for 7 % of food and feed grain production and 12 % of cotton production. Whereas, 80% of processed vegetables are produced under contract farming approach.

Adams (1994) has given four approaches for dissemination of new technologies, provisions of inputs, services and other facilities to the rural people in general and particularly to the farmers i.e., autonomous

extension approach, the package, regional development approach and the contract farming approach.

Grosh (1994) reported that contract farming has the potential to provide a Pareto improving form of governance and this can be used to measure the income available to the rural sector. It is a practice, which may be engaged in for both efficiency and anticompetitive motives.

Watts (1994) observed that for agribusiness corporations, contract farming is a convenient means of spreading risks. But for the contract growers, it often brought strict production regimes and oppressive new form of management. Contract farming can also create new tensions within the household over who should work.

Gabrani (1996) found that main benefits of contract, 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 preferred this contract as it gave them bulk sales outlets. Some of them went for tomato production as the crop is said to be effective in reducing water logging though it was pesticide intensive. The chilli crop was grown under contract as they provide an assured market.

Desai *et al* (1998) found that three types of factors conducive for agricultural growth were economic, institutional, and technological. Economic factors mainly included prices, subsidies, taxes and governmental expenditure. Institutional factors were land tenure, marketing agencies and rural financial institutions. The technological

factors included agriculture research, extension and supply of farm inputs such as seeds, feeds, fertilizers etc. Under contract farming all these essentialities were served at par, which led to better productions and quality.

Shiva and Crompton (1998) stated that whereas the contract agreements protected the firms of all and even any unforeseen obligation, the farmer was to meet the contract obligations under all circumstances. There was no compensation to him even under conditions of crop failure due to natural calamity. In all contracts, the farmer was bound to sell to the company only and was to be penalized for default. But there was no specified company liability for the failure to buy his produce.

Chand (1999) found that a large majority of the farmers wanted to continue working under contracts and many others wanted to get into contract productions. But this might not last long due to monopolistic tendencies and agri-business normalizations over time by these firms. That contracting led to more and better employment opportunities for labour especially women were true and acknowledged by labour. It might not be true for contract crop production as the operations are highly mechanized. The employment generated for labour may disappear as these companies were already planning to mechanize the planting and harvesting operations.

Kaur (1999) conducted study on the status, prospectus and problems of contract farming is flower seed production in Ludhiana

district and concluded that the total area under seed production was 18.01 per cent of the operational land holding and was likely to increase marginally to 19.94 per cent. The probable discontinues were planning to vegetable production. Intensive labour, lack of literature and lack of training in flower seed production were the major problems faced by the farmers. Lack of contract farming awareness among farmers and delaying seed export due to non cleaning of seed by farmers were the problems faced by all the contract agencies.

Singh (2000) studied the opportunities of agricultural diversification under contract farming. He stated that contracting agency helps the farmers in generating more reliable incomes, employment for women and provided new skills of farming. It ensured the farmers level participation in agro -industrial development.

Bana (2001) found that European and Indian food businesses were scarcely comparable. Around 5.1 million businesses in the food sector served one billion consumers, and over 95 percent of all purchases were made in shops with areas of less than 45 sq.m. It contributed a mere 2 percent to the national product. A few companies were there while nearly 75 percent of total industry were under unorganized sector. More the share of unorganized sector lesser would be the efficiency of that industry.

Sharma (2001) reported that vegetable production under contract farming was remunerative but it required more labour than wheat and

paddy. The contract farming significantly influenced cropping pattern, income and employment of human labour of contract farmers.

Chawla (2002) observed that contract farming has some inherent obstacles. One of the main constraints in this model was the absence of laws to govern the contracts. In short term crops, farmers might be tempted to sell off their produce if the market price was more than the promised one in the contract. In the long-term plantation crops the companies might fail to honour the contract and paid the farmers less than was originally promised. Another constraint was that though the risk was allocated between the farmers and the company, it was usually the farmer who got a raw deal due to lack of knowledge, and unavailability of alternatives.

Dileep *et al* (2002) did economic analysis on contract farming of tomato in Sirsa block of Haryana and concluded that the large contract farmers were more benefited then the small farmers and also the cost spent on inputs by contract farmers were almost double than the non-contract farmers. It was obligatory on the part of contract farmers and the processing firms to strictly adhere to contract by bringing suitable legislative measures by the government.

Dhaliwal (2003) observed that in the newly introduced contract farming has so many constraints which must be removed to make it a successful venture, He found that in learning from experience the agencies concerned should take up their seed distribution and crop

procurement procedures, and avoid delays. Present farmers should be shown realistic picture to avoid disillusionment with everything "government". They must chalk out contingency plans for unavoidable failures, as with winter maize this time. There should be new crops, farmers need extra technical support at each step that was lacking this time.

Ghosh (2003) stated that Punjab farmers were becoming increasingly resentful of the system that has put them under the total control of corporations which would decide not only the crops to be grown but also the procurement price. The growing incidents of the pre-determined prices being reduced on the pretext of inferior quality of the grain or crop, had added to the resentment among farmers.

Key and Mcbridge (2003) observed that the recent growth in contracting did not necessarily imply that the contracts were associated with higher farm productivity. The increase in the use of contracts might have been propelled by other benefits from contracting (such as lower grower income risk) that offset negative on-farm effects. The use of contracts could potentially lower on-farm productivity if they reduced incentives for growers to work efficiently or to invest fully in specific productive assets. In addition, because contracts they did not fully reward grower efforts, and farmers for whom high efforts yield, high returns might choose not to contract.

Singh *et al* (2003) found that the seed companies always faced certain elements of risks when contracting for seed production. The most obvious form of risk was crop failure and cross purchase of seed. They regarded a 10% loss as significant, such a loss might be regarded as normal and even 100% losses were not unusual. Spreading cash flow and being able to catch up on any lost production were important for Asia's seeds man.

Chatterjee (2004) reported that that a few big buyers denied procuring at the agreed price. This is the traders mentality, they thought they could bring down the price by delaying in purchase if the price fixed by the traders did not leave a good margins for farmers then Punjab Agro Foodgrains Corporation will buy the produce providing a decent solution.

2.2 Prospects

Narashimhan *et al* (1976) stated that a loss in first year in cut flowers enterprise could be minimized by inter-cropping with crops like groundnut or onion which fetches roughly Rs. 500 as net income per acre.

Hubbard *et al* (1989) conducted a survey of 92 Georgia floriculture firms. They reported that the production floriculture industry produces annual sales estimated to exceed $100 million and approximately 3500 full or past time jobs. This industry outranks many traditional agricultural commodities. In contrast to many feed and food products, expansion of the market for floriculture products is most promising. They further

suggested to shift the research and education from traditional agriculture to ornamentals.

Kaur (1990) found that majority of the farmers perceived low prospects of diversification in crop alternatives and dairy .From the crop alternatives maximum number of farmers were willing to shift to sugarcane, plus raya and 88 per cent of the officials perceived area shift to this crop rotation. In case of orchids, kinnow prospects were perceived as good both by farmers and the officials.

Hedge (1992) concluded that the strategy for the expansion of export needs to be developed. So that India can gain from its comparative advantage in terms of cost bearing in mind the sector's infrastructure limitations. He further reported that India's advantage arises due to limited environmental controls and low cost labour. Thus, any adopted strategy will need to maintain low environmental control costs and aim to minimise labour.

Shedage and Borudge (1992) conducted a study in Thane district of Maharashtra. They found that the cultivation of flowers (Mohra, Kagda and Lily) was quite profitable. The regression coefficient were positive for all the variables except fertilizer. Price ratios were greater than unity of area, hired labour, plant protection measures and irrigation indicated that their use can be increased, whereas the ratios of family labour and fertilizers were less than unity hence, their use need to be curtailed.

Chauhan *et al* (1993) concluded that profitability of the marigold can be increased by adopting the recommended cultural practices because the production capacity of marigold was about 100 qt/acre while the farmers were producing only 40qt/acre.

Chand (1999) stated that the contract system has led to more and better employment opportunities for labour especially women was true and acknowledged by the labour. The labour intensity of potato and other vegetable crops was much higher than that of the traditional crops, it varies from 307 hours per acre in potato to 539 hours in other *kharif* vegetables.

2.3 Problems and suggestions

Barwale (1985) studied the problems faced by private seed industry. There were lack of availability of quality breeder and foundation seeds in required amount, marketing problem, financing problem, non-availability of quality processing equipment and lack of clear cut policies.

Btaoile and Thorat (1987) concluded that lack of credit and finance for purchase of costly inputs restrict adoption of recommended practices of different crops.

Thakur (1987) pointed out that lack of supply of critical inputs, weed control, thinning of blossoms, control of diseases and attack of insect pests were the main problems in the production of horticultural crops. He further reported that private trade which is handling as much as

85 per cent of the produce were changing many unauthorised charges from the producers and not making the payment in time. All the producers are not in a position to spend from their own source for arranging the marketing inputs e.g. labour for picking, assembling, grading, packing and transportation, etc.

Dhesi (1988) narrated that though the area under fruits and vegetables cultivation had increased considerably but the problem of marketing of these still persisted.

Ramamurthy (1988) studied the working of the seed industry in India and observed that the major portion of seed produced was by the public sector. He further concluded that farmers were liable to break their contracts and sell outside if they get better prices and thus the public organizations were unable to achieve their target.

Kaur *et al* (1989) listed the problems faced by the farmers in bringing about the diversification in agriculture as marketing of produce (39.68%), labour shortage (25.46%), lack of technical advice (17.46%), lack of knowledge (15.87%) and non-availability of pesticides and credit facilitates (6.35%). Only 3.17% and 4.76% quoted non-availability of fertilizers and ensured price as the problems, respectively. Problem of supply of electricity and natural hazards were referred by 1.59%.

Narang *et al* (1989) reported that procurement, shortage and marketing are the problems which are acting as a disincentive to the oil

seed growers. Risk factor is also a major problem. High cost of fertilizers, chemicals for plant protection and lack of funds are the other problems.

Umesh and Bisaliah (1989) found that among biophysical factors variety, seed treatment, time of sowing, method of sowing, spacing, plant nutrients, diseases, pests and irrigation are the main constraints in the higher productivity. Besides socio-economic characteristics, inputs non-availability and their cost, crop output, credit marketing, technical guidance and its accessibility and feasibility are the other problems in the adoption of new technology and input use.

Bruch *et al* (1990) reported the constraints due to contract farming that the farm families are increasingly marginalized and farmers loose power by dependence upon processing companies for inputs and know-how.

Gallina (1990) reported that the persons who are working in the floriculture sector are highly trained but there is scarcity of marketing structure at all levels.

Shih *et al* (1990) noted that the constraints on the development of floriculture industry are the small scale of many producers, capital, lack of facilities which led to high production costs, unstable production, low quality and lack of an open auction system which limits the marketing.

Singh *et al* (1990) concluded that seed industry faced a number of constraints in development like finance, risks involved, difficult seed research, small operations, etc.

Lakhera and Punjabi (1991) reported that lack of technical guidance (regarding pre-harvest practices) was being perceived by the farmers as important constraint.

Hedge (1992) revealed the constraints in the development of floriculture industry as lack of scientific information on flower growing for cut flowers or non-availability of good quality seeds and plating material.

Awasthi (1993) reported that the major constraints to flower production lie in the non-acceptability in the foreign market due to sub-standard quality and cost advantage.

Bansal (1994) observed that poor post-harvest management, inadequate cold storage, under developed market infrastructure, inadequate market information services, low level of productivity and fragmented holdings are the main constraints in the export of horticultural products.

Minot and Abbott (1994) pointed out the problem of access to production resources (inputs, services and information) and access to market as the constraint on small farm production. Suggested to provide facilities to small farmers, access to credit, technical assistance and reduce the uncertainty in marketing their output to the degree that such mechanisms are developed and policy biases reduced, then small farmers will be able to raise their income by producing high value crops.

Pandey and Chaturvedi (1994) studied the problems in export of floriculture products as inadequate post-harvest technology, limited germ plasm, non-availability and unfavourable air freight costs and European Union import taxes relative to some competitor countries.

Roozendall (1994) studied the problems in cut flower industry in Kenya as lack of investment, high prices of inputs such as fertilizers, post-harvest quality preservation during transport and inadequate air freight capacity.

Raha and Nasrin (1995) conducted a study on marketing of flowers in Dhaka city of Bangladesh. They reported different measures suggested by traders as development of modern storage facilities, cultivation of various flowers around the year, contractual agreement between producers and traders, provision for adequate and suitable transportation systems, etc.

Ghosh and Chand (2001) analyzed the constraints of different types and disclosed the dominance of economic constraints followed by infrastructural constraints. The technical and socio-psychological constraints were next in order of importance.

Paul *et al* (2001) revealed that lack of proper knowledge of composting, losses on account of perishable nature of mushrooms, difficulty in borrowing loans, lack of storage facilities were major constraints confronted by the selected mushrooms cultivators.

Resmy *et al* (2001) revealed that the farmers were not adopting the sustainable practice due to lack of knowledge, technical guidance and lack of information sources. There is need for intensification of educational efforts by the field extension agencies and Coconut Development Board.

Sagar (2001) observed that large mushrooms growers faced problems like lack of good quality spawn, uncertainly in price of mushrooms, lack of common facility for storage of fresh mushrooms, non-availability of requisite inputs, complex process of obtaining loan/finance, lack of low cost mushrooms farm design and lack of training facilities.

Sharma and Singh (2001) concluded economic constraints such as non-availability of credit by financial institutions when needed, high cost of insecticides and fungicides and high cost of crop cultivation in adoption of mustard technology. Mustard crop damaged due to free grazing, lack of irrigation facilities and non-availability of sowing and threshing implements were the important infrastructural constraints.

Nirmala *et al* (2002) concluded that inability to remember the quantity and method of adoption of bio-fertilizers. Inadequacies of irrigation water at the time of application and inability to plan in advance were the major constraints. The efforts should be geared up to step up the irrigation facilities through planning by the authorities concerned.

Jahagirdar and Sundaraswamy (2002) pointed out that lack of knowledge, non adoption of practices like seed rate, spacing, application of farmyard manure, application of chemical fertilizer as basal dose etc.

Chapter-III

THEORETICAL ORIENTATION

The scientists use theory to organize and explain a range of empirical laws and diverse factual statements. According to Mayers and Grossen (1974) acquisition of general theoretical knowledge or orientation is not only very useful, but also very important as theory serves to explain certain observed relationship. A theory emerges from research and so does a particular research pursuit from the theory. This interdependence of theory and research has been concisely stated by Dubin (1969), "A theoretical system is what we construct in our mind's eye to model the empirical system".

Therefore, it is very necessary to understand the theory which helps to organize and explain a range of empirical laws and predicts unobserved relationship. It also helps to explain the practice, which in turn, enriches the theory. Thus, it is useful to operate the theoretical framework in order to understand the various phenomenons involved in the scientific theory. For the purpose of this study, the theoretical orientation is discussed hereafter.

3.1 Contract farming

According to Eaton and Shepherd (2001) contract farming can be defined as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices. The

agreement also invariably involves the purchaser in providing a degree of production support through, for example, the supply of inputs and the provision of technical advice. The basis of such agreements is a commitment on the part of the farmers to provide a specific commodity in quantities and at quality standards determined by the purchaser and commitment on the part of the company to support the farmers production and to purchase the commodity.

3.1.1 Model of contract farming being practiced in the state

Under this effort has been made to depict the type of contract farming taking place. Example of various companies has been taken to give it more clarity and better understanding. Under recent proposed contract farming programme of Punjab state under nodal agency Punjab agro food grains corporation (PAFC) there has been 3 parties :

- Contracting agencies e.g., Hariyali Kisan Bazaar (HKB)
- PAFC
- Farmers

A Memorandum of Understanding (MOU) is to be signed between contracting agencies, PAFC, farmers and also if some banks or final buyer wants to get involved in it.

- Punjab Agro Foodgrains Corporation (PAFC) is first established as a company of the Punjab Government., and registered under the companies act 1956, having its registered office at 2 A, Sector 28 A, Madhya Marg, Chandigarh -160002.

- KRBL LTD. a company registered under companies Act 1956, having its head office at 5190, Naya Bazaar, New Delhi -110006. It will purchase produce from HKB which will act as intermediary for carrying out whole production.
- Hariyali Kisan Bazaar (HKB), a unit of DCM Shriram Consolidated Ltd., a company registered under company Act 1956, having its registered office at Kanchenjunga Building, 18, Barakhamba Road, New Delhi -110001. This company will work at grassroot level and will work with farmers for production of desired crops.

3.1.2 Type of dealing

As part of the overall crop diversification programme of the Punjab government, PAFC is facilitating contract-farming operations in Punjab for various crops except paddy -wheat. Among paddy only basmati rice is allowed. It is guiding the whole diversification plan based on Johl Committee report and crops recommended by that committee will be allowed to produce under contract farming agreements. KRBL, which is a leading rice exporter, is interested in direct procurement of basmati from the farmers registered with HKB in Punjab. HKB is capable of identifying farmers for contract farming and to provide field extension services to the farmers registered with HKB for raising of the required varieties of basmati rice crop.

3.1.3 Contents of the agreement

a) Location/area covered : The contracting agencies select areas on their own, P AFC provide them assistance in providing data regarding past production statistics, type of climatic changes, geo-socio statistics etc. it helps the companies in selection of areas according to their requirement. HKB selected the areas of Ferozepur, Moga, Sangrur, Faridkot and Rallis India Ltd. selected the areas of Amritsar, Gurdaspur, part of Patiala, after a detailed survey of the districts. The parties covered acreage of about 10000 acres under basmati in the season of *Kharif* 2003. Based on the initial performance, the acreage will be increased in the future.

b) Identification and registration of farmers : The agencies identified the farmers who are willing to participate and register them under the scheme of contracting farming, the agreement is signed in written form. PAFC provided necessary support through the district agricultural offices to the contract agency for propagating the scheme at the field level. Farmers selected on the basis of land holding and financial health. There is fee of Rs. 100 for registration.

3.1.4 Support to farmers from the company

a) Provision of seeds/seedlings : Either contracting agency or final buyer will decide about the variety to be grown. Recommended or certified seeds will be given to the farmers for cultivation. Seeds can either be certified by PAU or ICAR. In some cases seeds were imported

to further multiplications under that conditions and permissions are taken from the respective government agencies. Under given example KRBL provides the requisite quantities of basmati to HKB, which would in turn sell the same to the registered farmers. Prices of seeds are determined by HKB and KRBL jointly.

b) Extension services : Contract agency provides support on field agronomic practices to the registered farmers. HKB and KRBL jointly decide the appropriate set of agricultural practices for cultivation. HKB charges a fee of Rs. 150/acre for extension services for one crop season. HKB has established its retail outlets in these areas from where it sells all types of inputs and services under one roof. It sells not only of its own brands but also of its competitors. PAFC assists HKB in getting required testing for soil and water through universities and KVKs (Krishi Vigyan Kendras) and other approved agencies.

c) Quality//grading/standardization : Farmers are informed about the quality specifications regarding minimum quality standards for final purchase of the produce. Prices are fixed based on the grades. Farmers are shown the quality of their produce at the time of arrival at the procurement centre. As KRBL mainly purchases crops for the export and it specifies the variety of basmati for cultivation and HKB is responsible to ensure the cultivation of the requisite or any other variety mutually agreed between KRBL and HKB. HKB communicates the quality specifications to the farmers registered under the scheme to ensure that

the farmers reasonably understand the same so that the crop is produced accordingly.

d) Observations and communication : HKB monitors the crops on an ongoing basis and intimate the progress to KRBL on 15 days interval for any adverse features, which may affect the yield and quality of the crop. HKB maintains record of farmers based on crop and its acreage and on time-to-time basis in co-ordination with KRBL they meet with farmers. Several types of seminars and functions are organized at district level at their outlets.

e) Recording of identity : Under export obligation, company has to give exact name of seeds and details of practices followed for raising those crops. To manage such type of problems, contract agency has been asked to ensure a complete chain of custody over the farming and procurement system to ensure a clear and complete trail and trace ability of the final output of basmati paddy, linking it backwards to the seeds.

f) Procurement : Under the contract, contracting agencies have to purchase all the quantity produced by farmers if it meets the quality specifications as listed in the contract. As grading based prices are followed, the company first measures the grade of the produce and the same is shown to the farmers. The material, which does not meet the quality specifications is purchased on support price basis. However, companies have the option to reject if the quality is mutually accepted is sub-standard. HKB facilitates the purchase of the produce from the

farmers on the behalf of KRBL. A representative of KRBL comes at the time of procurement and approves the material and fix as the price, which shall be final binding on KRBL. Efforts are made to complete the procurement with in 3 weeks if the registered area is around 5000 acres.

g) Procurement prices : KRBL purchases the product at the prevailing market price (PMP). It is calculated in reference to neighboring *mandi* prices as per quality. This practice is not followed in case of flower export contract farming where prices are usually defined before the starting of cultivation.

h) Minimum guarantee : Usually a minimum support price is announced as per government standards. KRBL procures paddy as per PMP appropriate to the quality. KRBL announced a minimum support price at Rs. 1100 per quintal for "A" grade produce to all registered farmers of HKB. In case, the PMP is lower than the minimum support price, KRBL is responsible to buy the produce at the guaranteed MSP. The minimum support price of "B" grade material shall be about Rs.25 per quintal lower than the "A" grade price. Both grading tables have been given at the end of this model.

i) Licencing : HKB obtains the necessary permission / license from the related state Govt. agencies to procure the basmati paddy at their designated procurement centres, alternatively. PAFC would appoint HKB as a sub-agent for procurement within PAFC as own license. PAFC along with KRBL assist HKB in obtaining these approvals/permissions, in

complying with all regulatory requirements pertaining to *mandi* licensing food control orders and tax regimes etc. PAFC notifies the HKB procurement centres at approved *mandies*/sub-yards for direct procurement of basmati paddy. PAFC interfaces with government for necessary notifications for *mandi* tax exemption as well as exemption of other taxes and duties as applicable for growing, storage and transportation for contract farming programme/export market productions. It is clearly understood between the parties that the aforesaid *mandi* taxes and other taxes would not be borne by HKB in any case. In case any such taxes are levied, the same shall be reimbursed on actual by the KRBL to HKB.

j) **Infrastructure support :** The procurement location is mutually agreed between PAFC and contracting agency. Any expenditure incurred on creation of platforms/sheds will be borne by PAFC. In this case the contracting agency HKB will be responsible to ensure that suitable infrastructure should be available at the procurement centres to enable the following operations :-

- Unloading of basmati
- Cleaning
- Weighing of basmati
- Bagging of basmati
- Stacking of bags
- Handling and loading of trucks

All costs pertaining to cleaning, labour, bags, *sutli*, insurance, security etc. which are directly attributable to paddy procured shall be borne by the KRBL and reimbursed to HKB at actuals or at a pre-agreed charge. PAFC installs at these centres appropriate cleaning machines at their costs. For the purchase by HKB for KRBL, HKB will follow the accounting procedures in line with the state *mandies* and sales tax laws. The procedures are finalized with both the companies account personnel well before procurement.

k) Transportation : HKB arranges for the dispatch of entire quantity of paddy procured on any particular day to the designated warehouse/location of KRBL by trucks on a "freight to pay" basis. The cost of transportation and transit insurance is borne by the KRBL.

l) Payments to farmers : For all the produce procured from the farmers, the payments are usually made within 2 weeks to 2 months. For flower export contract-farming payments made within 1-2 months. To compensate farmers, usually advance is given; in case of HKB it usually pays the farmers within 2 weeks for the purchase made for KRBL. The payments may be made either in cash or by demand drafts/cheques in favor of the farmers. KRBL reimburses HKB within 2 weeks of dispatched material.

m) Margins for contract agency : Contracting agency's margin depends on the type of work done in the whole contracting process e.g., Rallis India, HKB sells various inputs and services of their own and they earn both from the sale of products/inputs to the farmers and earn

commissions for the procurement made for ultimate buyers like KRBL etc. in the given case. KRBL pays a commission of 1.5% of the value of the total procurement to HKB. Commissions are paid on dispatch basis. In the event of total or partial non-procurement of paddy by the KRBL, PAFC will intervene to compensate HKB for assessed loss as it is last resort buying. HKB is running its own agricultural inputs retail stores where it sells various inputs and HKB also earns from registrations fees and services charges from extension services.

n) **Breakdown of contract :** All agreements are based on certain obligations. In case of malpractices adopted by the farmers, the companies hold the right to refuse the procurement for his produce. In case of agreement between companies both companies hold the right of first refusal e.g., HKB have aright of first refusal in case of the KRBL wants to enter into a similar arrangements for extension/procurement with a third party or on its own directly. Similarly, the KRBL have a right of refusal if HKB wants to enter into a similar arrangement with a third party buyer. Each party is responsible for all its obligations towards its respective employees, no party to this agreement shall use the logo, trademark, trade name copyrights etc., in any advertisements publishing or the material without the written consent of party owing proprietary rights.

HKB coordinators of the respective projects are deputed to the factory of KRBL to understand the specifications practically. This is to avoid any

confusion during the time of purchase and ensure a clear understanding of the specifications by both the parties. The entire crop is must to be harvested by hand i.e., no machine harvesting.

	Basmati raw		Basmati sela	
	A (Percentage)	B (Percentage)	A (Percentage)	B (Percentage)
Moisture	15-16	16-17	17	18
Broken polished rice	< 16	15-16	< 18	18-24
Chalky	Nil	1	4-5	5-7
Sun crack	Nil	< 1	2-5	5-8
Foreign matter	Nil	0.5	Nil	0.5
Immature	< 1	1-2	< 1	1-2
Length	10-11	9-10	10-11	9-10

Under this model, the data was collected from the farmers and the contract agencies.

Salient features of contract farming model

- Final buyer do not interact directly with farmers; every time they meet it is through the contracting agencies.
- PAFC brings farmers in contact with the contracting agencies. It helps the contracting agencies in dealing with government procedures and infrastructure bottlenecks.
- Farmers are free to procure basis inputs like pesticides, herbicides, fertilizers etc. from anywhere or they can take this material from company owned outlets. Only condition is that they must follow the recommended practices and inputs.

3.2 Prospects

According to Oxford Dictionary meaning of the word 'Prospect' is a picture in the mind or imagination especially of a future event.

Narang *et al* (1989) studied prospects by estimating annual growth rates of oil seed crops in terms of area and productivity overtime.

Kaur (1999) measured prospects in terms of farmers' expressed shift to flower seed production acreage under contract farming in proportion to the total operational land holding.

Prospects can also be interpreted as progress in terms of increase/expansion in number of entrepreneurs, production, area and total profitability under crops and enterprises overtime.

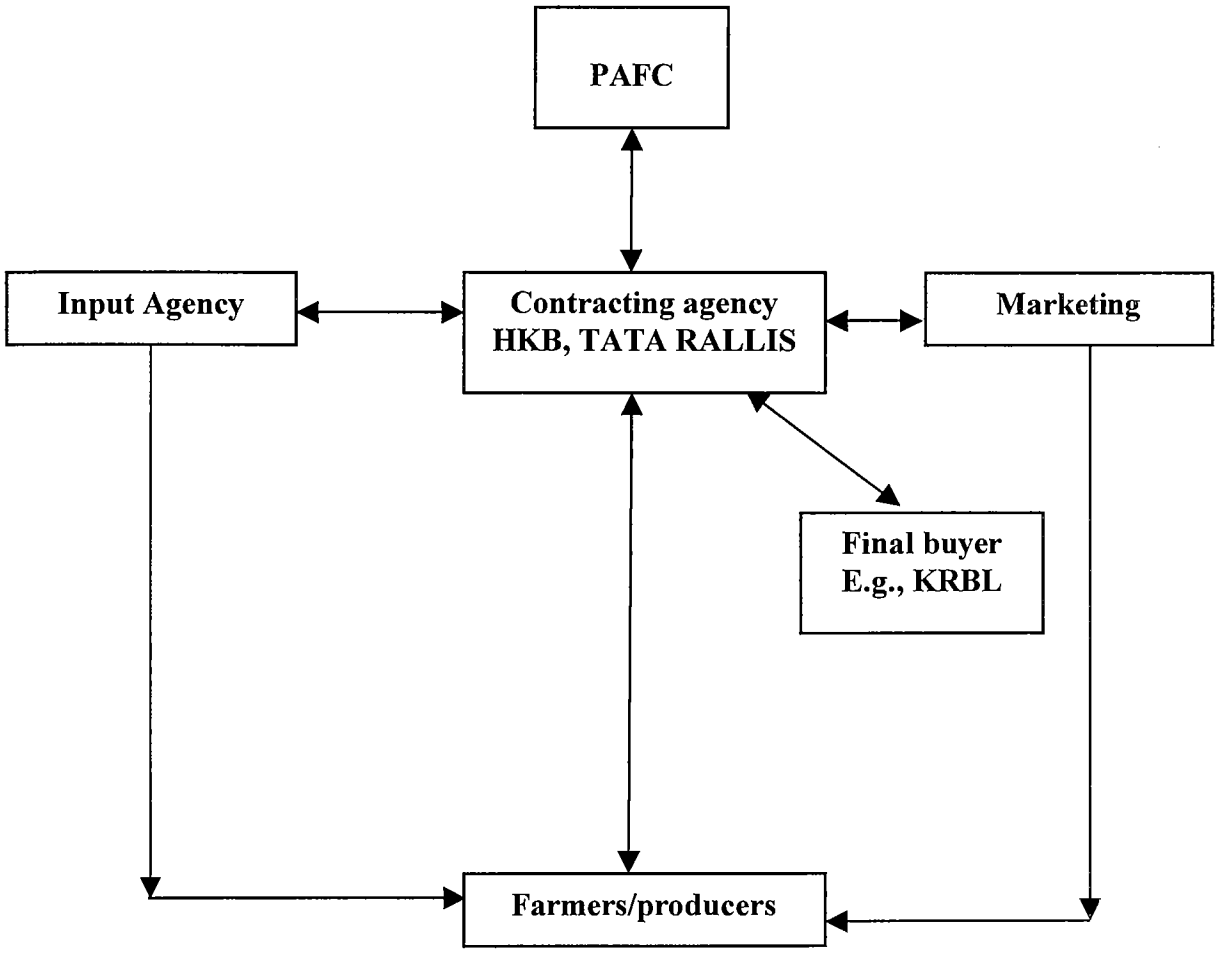


Fig. 1 Contract farming model

Chapter-IV

MATERIALS AND METHODS

The methodological frame work adopted for conducting the present investigation is discussed under the following headings :

4.1 Locale of the study

4.2 Selection of the districts

4.3 Selection of the respondents

4.4 Construction of innovativeness, risk orientation and economic motivation scales

4.5 Reliability and validity of the scales

4.6 Selection of the variables

4.7 Development of research instrument

4.8 Pre-testing of the research instrument

4.9 Collection of the data

4.10 Tabulation and analysis of the data

4.1 Locale of the study

The study was conducted in the Punjab state.

4.2. Selection of the districts

Punjab Agro Foodgrains Corporation Limited has identified the contract farmers in different districts of Punjab. District-wise list of identified contract farmers was prepared.

Table 4.1(a) District-wise number of farmers cultivating basmati under contract farming in 2003-2004

Sr.No.	District	Number of farmers
1.	Amritsar	1036
2.	Bathinda	829
3.	Faridkot	1008
4.	Fatehgarh Sahib	108
5.	Gurdaspur	548
6.	Hoshiarpur	88
7.	Jalandhar	593
8.	Ludhiana	30
9.	Moga	87
10.	Mansa	795
11.	Patiala	1053
12.	Ropar	79
13.	Sangrur	707

Five districts namely, Amritsar, Faridkot, Patiala, Bathinda and Mansa with maximum number of contract farmers were included in the study.

4.3 Selection of the respondents

On the basis of list prepared for contract farmers of selected districts, a sample of 200 farmers were selected proportionately to total number of contract farmers in five selected districts of Punjab as the respondents of the study.

Table 4.1(b) Number of farmers selected proportionately out of total number of farmers in selected five districts of Punjab.

Sr.No.	District	Number of farmers	Number of selected farmers
1.	Amritsar	1036	44
2.	Bathinda	829	35
3.	Faridkot	1008	42
4.	Mansa	795	34
5.	Patiala	1053	45

4.4 Construction of innovativeness, risk orientation and economic motivation scales

Likert method of scale construction was used for construction of innovativeness, risk orientation and economic motivation scales and it consisted of the following steps :

4.4.1 Universe of content :- According to Edward, the class of all possible statements that could be made about a given psychological object (here, psychological objects are innovativeness, risk orientation and economic motivation) is often called a universe of content or simply universe. In this step, the items were obtained relating to innovativeness, risk orientation and economic motivation.

4.4.2 Collection of the statements :- After an area of content or universe of interest has been defined, then a number of statements relating to sub-universe were collected. After consulting relevant

literature and having discussion with the members of the advisory committee, large number of statements about innovativeness, risk orientation and economic motivation were selected.

4.4.3 Editing of statements :- An informal criteria for editing the statements was used in the construction of scales. According to this criteria, 17 statements for innovativeness, 20 statements for risk orientation and 16 statements for economic motivation were prepared.

4.4.4 Treating the statements with Likert Method of scale construction :- Under Likert method of scale construction, the prepared statements were then given to a group of 60 respondents from the non-sampled area (Gurdaspur) who were asked to respond to each one in terms of their own agreement or disagreement with the statements. Their responses were collected on any one of the five categories : strongly agree, agree, undecided, disagree and strongly disagree. For favourable statements, the strongly agree response has been given a weight of 4, the agree response a weight of 3, the undecided response a weight of 2, the disagree response a weight of 1 and the strongly disagree response a weight of 0. For unfavourable statements, the scoring system was reversed, with the strongly disagree response being given the 4 weight and the strongly agree response the 0 weight.

4.4.5 Selection of items :- As basis for rejecting statements in the likert method an item analysis was used. The frequency distribution of scores based upon the responses to all statements were considered. Then, twenty five per cent of respondents with highest total scores and twenty five per cent of the respondents with lowest total scores were taken. These two groups provided the criterion groups to evaluate the individuals' statements in terms of t-value. These calculated values of t about all the statements are given in Appendix-I.

4.4.6 Selection of final statements :- The value of t was a measure of the extent to which a given statement differentiated between high and low groups. Any t-value equal to or greater than 1.75 as indicating that the average response of the high and low groups to a statement differed significantly. So, at the end there were ten statements for innovativeness scale, eight statements for risk orientation scale and eight statements for economic motivation scale.

4.5 Reliability and validity of the scales

4.5.1 Reliability determination :- The reliability is the ability of the measuring instrument to yield consistent results when apply to the same sample. It was tested by using split-half (odd-even) method. The items in each of these scales were splitted into equal number and were placed into two sets. These two sets of halves of scale items were used for working out the reliability of scale. The Pearson Product Moment

Coefficient of correlation was worked out for the three scales. The reliability coefficient was determined by using the Spearman Brown Formula.

4.5.2 Validity determination :- A scale is said to be valid, when it measures, what it intends to measure. The empirical type of validity which Guilford (1954) called the intrinsic validity was determined by taking the square root of reliability coefficient. The reliability and validity estimates of the measurement scales as obtained above are given in Table 4.5.

Table 4.5 Coefficient of reliability and intrinsic validity of measuring scales.

S.No.	Scale	Coefficient of reliability	Intrinsic validity
1.	Innovativeness	0.68	0.82
2.	Risk orientation	0.70	0.83
3.	Economic motivation	0.64	0.80

It could be concluded from the table that measuring scales used in the investigation were sufficiently reliable and valid as well.

4.6 Selection of the variables

In order to understand the background information of the farmers, some variables related to their personal, social and economic life were selected. Information about the variables is given as under :

4.6.1 Age

The term age referred to the chronological age the respondents in terms of completed years of life at the time of data collection. The

respondents were categorized into four categories, viz. 26-35, 35-44, 44-53 and ≥ 53 years.

4.6.2 Education

It referred to the respondents' academic qualification through formal schooling in years. The education of the respondents classified into different categories i.e. illiterate, middle, matric, graduate and post-graduate.

4.6.3 Family type

It referred to nuclear or joint family.

4.6.4 Occupational background

The farmers were asked to give information about the crops grown and subsidiary occupation followed by them. They were grouped into different possible combinations of crops and other enterprises.

4.6.5 Operational land holding

It referred to the number of acres of cultivated land owned by the farmers including leased in but excluding leased out. It was classified into four categories, viz. 2-15, 15-31, 31-54 and ≥ 54 acres.

4.6.6 Innovativeness

It was the degree to which an individual was relatively earlier in adopting the new ideas as compared to other members of the social system. Likert method of scale construction was used to measure the innovativeness of the farmers.

4.6.7 Risk orientation

It was the degree to which an individual was oriented towards risk and uncertainty and had the courage to face the problems in contract farming. Likert method of scale construction was used to measure the risk orientation of the farmer.

4.6.8 Economic motivation

It was the occupational success in terms of profit maximization and relative value and individual placed on economic ends. Again, Likert method of scale construction was used to measure economic motivation of the farmers.

4.7 Development of research instrument

The focus of the study was to study the motivational factors, opinion of the farmers regarding terms of agreement, farmers' reactions, area covered by different crops, problems faced by farmers, suggestions of farmers and relationship between socio-personal characteristics and farmers' reaction. The measurement procedure followed to measure these variables are given as under :

4.7.1 Motivational factors for starting contract farming.

4.7.2 Opinion of farmers regarding terms of agreement for contract farming.

4.7.3 Farmers' reactions regarding different aspects of contract farming.

4.7.4 Area covered by different crops under contract farming.

4.7.5 Problems faced by the farmers under contract farming system.

4.7.6 Suggestions of farmers for improving contract farming system.

4.7.7 Relationship between socio-personal characteristics and farmers' reactions about contract farming.

4.7.1 Motivational factors for starting contract farming

Various factors were ranked from one to five. Rank one implying to most important and rank five implying to least important. To make out the conclusion, the ranks were converted into scores such that :

Rank	Score
1	5
2	4
3	3
4	2
5	1

Later on, scores for each factor were aggregated and mean score was calculated. Higher the mean value for factor showed its importance.

4.7.2 Opinions of farmers regarding terms of agreement for contract farming

Opinions are the expressed view of the farmers regarding various aspects of contract agreement. It was taken under different headings like opinion of farmers regarding terms of agreement, their opinion regarding production returns against stated returns, their opinion regarding extension advice taken from sponsoring agencies, their opinion regarding reasons for high cost of production under contract farming and their source of finance for farming.

Opinion of farmers regarding extension advice taken from sponsoring agencies for different farm operations and regarding reasons for high cost of production were calculated by method similar that used in calculating motivational factor.

4.7.3 Farmers' reactions regarding different aspects of contract farming

The reactions of farmers employed the favourable/unfavourable value attached to different aspects of agreement under contract farming like provision of inputs and production services, access to credit, introduction of appropriate technology, skill transfer, guaranteed and fixed pricing structure, access to reliable markets. Farmers' reactions were measured in terms of agreement, partial agreement and disagreement. If the farmer agreed with a particular aspect of contract farming then it was given a score of two, if disagreed again a score of two and if partial agreed then score of one.

4.7.4 Area covered by different crops under contract farming

A separate questionnaire was developed to study the actual area under contract crops registered by the PAFC for all crops and the proposed area in target plan for contract farming in 2003-2004. It was done with the help of secondary data. Under this, preference of contract farmers to enter contract farming in future was also measured.

4.7.5 Problems faced by the farmers under contract farming system

The problem is an obstacle or hindrance faced by the farmers under contract farming. It was studied with structured and open ended questions

about various aspects such as supply of inputs (improved seeds, fertilizers, pesticides, herbicides etc.), advisory/extension services, soil testing, providing farm machinery and specified equipment, buying entire produce and delivery of payments. It was measured by ranking the various problems from one to seven. Rank one implying to the problem faced by maximum number of the farmers and rank seven implying to the problem faced by minimum number of the farmers. To make out the conclusion, the ranks were converted into scores, such that:

Rank	Score
1	7
2	6
3	5
4	4
5	3
6	2
7	1

Later on, scores for each problem were aggregated and mean score was calculated. Higher the mean value for the problem showed its importance.

4.7.6 Suggestions of farmers for improving contract farming system

For the improvement of any new venture, it is varying important to have suggestions of the farmers who have concerned with it. This aspect of investigation has been summed up as multiple responses of the farmers.

4.7.7 Relationship between socio-personal characteristics and farmers' reactions about contract farming

This was calculated with the help of correlation coefficient and chi-square.

4.8 Pre-testing of the research instrument

Interview schedule so prepared was pre-tested on a sample of 60 respondents from the non-sampled area Gurdaspur. On the basis of information obtained through pre-testing, necessary modifications were made in the final schedule if any (Appendix-II) so as to make it easy for recording data and to remove ambiguity.

4.9 Collection of the data

After finalizing the research instrument, the data were collected through personal interview method from 200 farmers of five selected districts of Punjab.

4.10 Tabulation and analysis of the data

All the filled up interview schedules were transferred to master tables. Tally sheets and frequency tables were prepared and then analysis was carried out with the help of frequencies, percentages, cumulative cube root method (Singh, 1975), mean scores and chi-square method.

4.10.1 t-value for item analysis

It was used for rejecting the statements in Likert method of scale construction. Any statement having t-value equal to or greater than 1.75 was included in the final scale.

$$t = \frac{\overline{X}_H - \overline{X}_L}{\sqrt{\frac{\sum(X_H - \overline{X}_H)^2 + \sum(X_L - \overline{X}_L)^2}{n(n-1)}}}$$

where,

$\overline{X_H}$ = the mean score on a given statement for the high group.

$\overline{X_L}$ = the mean score on the same statement for the low group.

n = the number of respondents (in high as well as in low group).

4.10.2 Split-half (odd even) method for testing reliability

$$r_{xy} = \frac{N\Sigma xy - (\Sigma x)\ (\Sigma y)}{\sqrt{[N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]}}$$

where,

r_{xy} = coefficient of correlation between odd and even items.

x = scores of odd statements

y = scores of even statements

N = number of respondents

4.10.3 Spearman brown formula : was used to calculate the reliability coefficient

$$r_{tt} = \frac{2r_{xy}}{1 + r_{xy}}$$

where,

r_{tt} = reliability coefficient

r_{xy} = Coefficient of correlation

4.9.4 Intrinsic validity : It was used to measure the amount of accuracy with which a set of scores measure what they ought to measure.

Validity = $\sqrt{r_{tt}}$

where,

r_{tt} = reliability coefficient

4.10.5 Cumulative cube root method : This method was employed to classify the respondents into different categories with probability proportion to the number of respondents in each category. Singh, (1975)

$$S_i = L_i + \frac{iT/3 - C_{(i-1)}}{3\sqrt{f_i}} \times h$$

where,

L_i = lower limit of the i^{th} class, i = 1, 2.

$C_{(i-1)}$ = cumulative frequency of the class preceding to the i^{th} class

$3\sqrt{f_i}$ = frequency for i^{th} class in $3\sqrt{f}$ column.

h = width of the i^{th} class interval

T = Total of $3\sqrt{f}$ column.

CHAPTER-V

RESULTS AND DISCUSSION

Results and discussion of the present study have been presented under different heads which are as under :

5.1 Socio-personal characteristics of the respondents

5.2 Sources of information used by the farmers about various aspects of contracting farming

5.3 Motivational factors for starting contact farming

5.4 Opinion of farmers regarding terms of agreement for contact farming

5.5 Farmers' reactions regarding different aspects of contract agreement

5.6 Problems faced by the respondents

5.7 Area covered by different crops under contact farming

5.8 Preference of the contract farmers to enter contract farming in future

5.9 Suggestions for improving contact farming system

5.10 Relationship between socio-personal characteristics of the farmers and their reactions regarding different aspects of contract farming

5.11 Association between farmers' reactions regarding different aspects of contract farming and socio-personal characteristics

5.12 Reactions of contacting agencies

5.1 Socio-personal characteristics of the respondents

The personal characteristics of the respondents such as age, educational, type of family structure, occupational background, operational land holding, operational area under contract were taken as independent variables and information about these aspects have been given in Table 5.1.

Table 5.1 Distribution of respondents according to their socio-personal characteristics

n = 200

S. No.	Characteristics	Category	Respondents	
			Frequency	Percentage
1.	Age (yrs.)	26-35	41	20.50
		35-44	66	33.00
		44-53	39	19.50
		≥ 53	54	27.00
2.	Education	Illiterate	1	0.50
		Middle	68	34.00
		Matric	89	44.50
		Graduate	30	15.00
		Postgraduate	12	6.00
3.	Type of family structure	Nuclear	120	60.00
		Joint	80	40.00
4.	Occupational background	Farming	114	57.00
		Farming + Business	6	3.00
		Farming + Service	11	5.50
		Farming + Dairy	45	22.50
		Farming + Bee keeping	24	12.00
5.	Operational land holding (acres)	2-15	84	42.00
		15-31	65	32.50
		31-54	37	18.50
		≥ 54	14	7.00
6.	Operational area under contract (acres)	1-5	108	54.00
		5-9	49	24.50
		9-17	27	13.50
		≥ 17	16	8.00
7.	Innovativeness	Low level	59	29.50
		Medium level	14	7.00
		High level	127	63.50
8.	Risk orientation	Low level	52	26.00
		Medium level	12	6.00
		High level	136	68.00
9.	Economic motivation	Low level	13	6.50
		Medium level	17	8.50
		High level	170	85.00

5.1.1 Age

The respondents were classified into four age groups by using cumulative cube root method. Data in Table 5.1 showed that as much as 33.00, 27.00, 20.50 and 19.50 per cent of the respondents belonged to the age group 35-44, ≥ 53, 26-35 and 44-53 years, respectively. It implied that 80 per cent of farmers above the age of 35 years engaged in contract farming.

5.1.2 Education

Data revealed that educational level of respondents varied from primary to postgraduate. A large number of the respondents i.e. 44.50 per cent possessed matric qualification whereas, 34.00 and 15.00 per cent of respondents were middle and graduates, respectively while only 6.00 per cent of the respondents were post-graduate and one respondent was illiterate.

5.1.3 Type of family structure

The variable indicated the data about this that more than half of the respondents i.e. 60.00 per cent belonged nuclear families and 40.00 per cent belonged to joint family.

5.1.4 Occupational background

The data in Table 5.1 indicated that 57.00 per cent respondents belonged to farming occupation whereas 22.50 and 12.00 per cent of them were doing dairy and beekeeping as subsidiary occupation along with farming, respectively. More than 5.00 per cent of respondents were doing

service and only 3.00 per cent of them were doing business of various kinds along with farming.

5.1.5 Operational land holding

Based on the data about operational land holding of the respondents was grouped into four categories by using cumulative cube root method. The study findings revealed that respondents' operational land holding varied between 2 to 90 acres. As many as 42.00 per cent of the respondents operated on 2-15 acres of land, 32.50 and 18.50 per cent of them operated on 15-31 and 31.54 acres of land, respectively. Only 7.00 per cent operated on more than 54 acres of land.

5.1.6 Operational area under contract farming

The operational area under contract farming was split up into five categories on the basis of data by using cumulative cube root method. The study findings showed that respondents' operational area under contract farming varied between 1-22 acres. As many as 54.00 per cent respondents had 1-5 acres and 24.50 per cent had 5-9 acres under contract farming, whereas 13.50 per cent of them were doing contract farming on 9-17 acres. Only 8.00 per cent of respondents were doing contract farming on more the 17 acres of land. It could be concluded that majority of the respondents undertook contract farming on experiment basis.

5.1.7 Innovativeness, risk orientation and economic motivation of the respondents

These three variables were very important for starting any new venture like contract farming. It was adopted by those farmers who were

relatively earlier in adopting the contract farming as compared to other, had courage to face the problems in contract farming and a relative value they placed on economic ends.

The data in the Table 5.1 indicated that 63.50 per cent of the respondents were highly innovative, 29.50 per cent fell in low category and 7.00 per cent of respondents fell in medium category.

The findings of Table 5.1 showed that 68 per cent of the respondents fell in high level of risk orientation, 26 per cent of the respondents fell in low category and 6.00 per cent of respondents fell in the category of medium. Majority of the respondents had high risk orientation, the reason might be that the contract farming was a risky venture and it was adopted by only these farmers who could take risk.

The data in the Table 5.1 showed that the majority of the respondents i.e. 85 per cent was highly economically motivated and fell in the high level. The respondents fell in the category of medium and low level i.e. 8.50 per cent and 6.50 per cent respectively.

5.2 Sources of information used by the farmers about various aspects of contract farming

5.2.1 Information used for starting contract farming

The pursue of the data of Table 5.2 showed that 33.50 per cent of the respondents came to know about contract farming through advertisement due to the efforts of contracting agencies and Punjab Agro Foodgrains Corporation, 25.00 and 23.50 per cent of respondents came to know about this system through these two bodies. *Kisan Mela* (PAU) also

served as channel for spreading information this for 11 per cent of them and only 7.00 per cent of respondents came to know about this system through peer group. It could be concluded that different sources of information played a role for starting contract farming among the farmers.

Table 5.2 Distribution of the farmers according to the source of information used by them about various aspects of contract farming

(n = 200)

S. No.	Aspects	Sources	Frequency	Percentage
1.	Information used for starting contract farming	Media advertisements	67	33.50
		PAFC camps	47	23.50
		Kisan mela (P.A.U.)	22	11.00
		Sponsor company	50	25.00
		Peer group	14	7.00
2.#	Information used for updating agriculture knowledge	Newspapers	123	61.50
		Farm magazines	94	47.00
		Radio	166	83.00
		T.V.	200	100.00
		Kisan mela	173	86.50
		Seminar	46	23.00
3.	Interaction with agricultural research scientists / extension officers	After one month	10	5.00
		After three months	29	14.50
		After six months	90	45.00
		After one year	44	22.00
		No interaction	27	13.50

 # Multiple response

5.2.2 Information used for updating agricultural knowledge

The data in Table 5.2 revealed that majority of the respondents i.e. 100.00, 86.50 and 83.00 per cent had television, *Kisan Mela* and radio as their source of information, respectively whereas, 61.50 and 47.00 per cent of the respondents had newspaper and farm magazine as their source of information respectively. Only 23.00 per cent of respondents had seminars/conferences as their source of information.

5.2.3 Interaction with research scientists/extension officers

Data in Table 5.2 indicated that a large number of respondents i.e. 45.00 per cent interacted with research scientists/extension officers after six month. Almost equal percentage of respondents i.e. 14.50 per cent and 13.50 per cent interacted with research scientists/extension officers after three month and did not interact with them, respectively whereas, only 5.00 per cent interacted after one month and 22.00 per cent of respondents interacted after one year. The above findings indicated that the farmers interacted with the research scientists / extension officers based on the season of different crops.

5.3 Motivational factors for starting contract farming

Motivation of factors play very important role in the adoption of any new innovation / technology. These factors differ according to the type / nature of technology. As regards, contract farming, the important factors are secured return, more income, risk share, better adjustment in crop rotation and high productivity. The respondents were asked to assign ranks from 1-5 to each factor as given in Table 5.3.

Table 5.3 Ranks accorded to motivational factors for starting contract farming among the respondents

n = 200

Ranks accorded by respondents	Motivational Factors				
	Secured return (f)	More income (f)	Risk share with companies (f)	Better adjustment in crop rotation (f)	High productivity (f)
1	138	46	16	--	--
2	45	135	18	2	--
3	17	19	98	53	13
4	--	--	62	126	12
5	--	--	6	19	175
Aggregate score	921	827	576	438	238
Mean score	4.61	4.14	2.88	2.19	1.19
Overall ranks	I	II	III	IV	V

The findings of data of Table 5.3 indicated that motivational factors like secured return and more income with mean score 4.61 and 4.14 first and second, respectively. The respondents were very much optimistic about the contract farming programme. They pursued the contract farming with a hope that it would be more profitable and provided secured return as they had experienced lot of problems regarding marketing of their produce in the previous years. Next important factors of risk share with companies with mean score 2.88, the respondents thought that companies would provide some sort of risk

compensatory mechanism under poor yield or natural calamities. The respondents had accorded fourth and fifth rank to the factors like better adjustment into crop rotation and high productivity with mean score 2.19 and 1.19, respectively. As basmati was alternative to paddy and cotton and this was better adjusted into crop rotation. Similarly, the respondents thought that it would increase the productivity of land as they could not increase its out put through paddy-wheat cycle. The study findings are supported by Bruch *et al* (1990).

5.4 Opinion of the farmers regarding terms of agreement for contract farming

5.4.1 Opinion of the farmers regarding terms of agreement for contract farming with the contracting agencies

The information about terms of agreement has been given in Table 5.4.1. The findings of this table revealed that the contract period was fixed for one crop only. They had to pay registration fee and 40.00 per cent of respondents paid supervision fee. In Bathinda, Faridkot and Mansa, the Escorts (Graintic) company did not charge extension services during registration as it was decided that this would be deducted at the time of payment of produce to the farmers. As regards, purchase of produce only 20.00 per cent of the respondents sold their full produce to the agencies while 8.00 per cent of them sold in the open market. This was due to the reason that the price in open market was higher than the price that was given by the contracting agencies. 84.00 per cent of the respondents got less price than market price due to strict grading

practices of contracting agencies whereas, 10.00 per cent and 6.00 per cent of the respondents got more price than market price and equal price to market price, respectively. The study findings are supported by Chawla (2002).

Table 5.4.1 Distribution of respondents according to terms of agreement for contract farming with the contracting agencies

n=200

S. No.	Terms of agreement		Category	Frequency	Percentage
1.	Contract period	i)	For single crop only	200	100.00
2.	Fee	i)	Registration fee (Rs. 100)	200	100.00
		ii)	Supervision fee (Rs. 80/ acre)	80	40.00
3.	Purchase of produce	i)	Complete by contract agencies	40	20.00
		ii)	In open market	160	80.00
4.	Price paid	i)	Equal to market price	12	6.00
		ii)	More than market price	20	10.00
		iii)	Less than market price	168	84.00

5.4.2 Opinion of farmers regarding production returns against stated returns

The findings of the Table 5.4.2 cleared that respondents did not get higher returns as per stated by contracting agencies and 10.00 per cent of

Table 5.4.2 Distribution of respondents according to production returns against stated returns

n = 200

Category	Frequency	Percentage
High	0	0.00
Equal	20	10.00
Low	180	90.00

respondents stated that they got returns as per stated by contracting agencies before start of contract farming. But, 90.00 per cent of

respondents answered this question in negative, they got less returns as compared to the stated one.

5.4.3 Opinion of farmers regarding extension advice taken from sponsoring agencies

The data in Table 5.4.3 indicated that respondents took maximum extension advice from the contracting agencies at the time of sowing (mean score 4.81). The respondents ranked extension advice for disease control, fertilizer and irrigation time second and third respectively. The respondents applied those pesticides, fungicides and fertilizers that were recommended by the contracting agencies.

Table 5.4.3 Ranks accorded to extension advice related to different farm operations taken from sponsoring agencies by contract farmers

n = 200

Ranks accorded by respondents	Farm operations				
	Sowing (f)	Disease control (f)	Fertilizer and irrigation (f)	Transportation (f)	Harvestin (f)
1	165	23	12	--	--
2	31	128	21	11	9
3	4	39	89	41	27
4	--	10	78	81	31
5	--	--	--	67	133
Aggregate score	961	764	567	396	312
Mean score	4.81	3.82	2.84	1.98	1.56
Overall ranks	I	II	III	IV	V

The respondents got least extension service at the time of harvesting and transportation. It could be concluded that farmers sought extension services about farm operation related to cultivation of crops. The study findings are supported by Singh (2002).

5.4.4 Reasons for high cost of production under contract farming

The data in Table 5.4.4 showed that the respondents ranked the variables like charges for extension services, registration fee and transportation and seed costs as most important reasons for cost increasing variable (mean score 3.94, 3.93 respectively). Respondents told that the companies charged high price for seeds/seedlings.

Table 5.4.4 Ranks accorded to reasons for higher cost of production under contract farming

n = 200

Ranks accorded by respondents	Reasons				
	Charge for extension services, registration fee and transportation	Seed costs	Disease control	Fertilizers	More labour
	(f)	(f)	(f)	(f)	(f)
1	58	90	39	13	--
2	89	38	43	20	--
3	35	39	45	81	--
4	18	33	54	84	11
5	--	--	9	2	189
Aggregate score	787	785	659	558	211
Mean score	3.94	3.93	3.30	2.79	1.06
Overall ranks	I	II	III	IV	V

Disease control with pesticides and fertilizers were ranked next by the respondents. The respondents complained that the price for fertilizers and pesticides were higher that recommended by the companies. More labour required for contact farming ranked fifth as a reason for higher cost of production.

5.4.5 Source of finance among contract farmers

The data in Table 5.4.5 revealed that all the respondents used their own funds for practicing farming.

Table 5.4.5 Ranks accorded to sources used by respondent for raising funds for farming

S. No.	Funds	Frequency (#)	Percentage
1.	Own funds	200	100.00
2.	Peer group	113	56.50
3.	Funds from relatives	139	69.50
4.	Financial institute/banks	132	66.00
5.	Money lenders / Ahrityas	189	94.50

 # Multiple response

The next important source of finance among contract farmers was money lenders/ahrityas. Funds from relatives and financial institutes/banks placed next important sources of finance. The respondents also borrowed money from their peer group. It could be concluded that money lenders were the importance sources of finance for the farming.

5.5 Farmers' reactions regarding different aspects of contract agreement

The reactions of the respondents regarding various aspects of contract agreement were measured in terms of agreement, partial agreement and disagreement. The aspects of agreement included, inputs provided, extension services, provision of credit, technical know-how, marketing support and payments.

Table 5.5 Distribution of respondents according to farmers' reactions regarding different aspects of contract farming

n=200

S. No.	Aspects	Farmers reactions		
		Agree	Agree Partially	Disagree
1.	**Inputs provided**			
	i) Quantity of seeds	143 (71.50)	50 (25.00)	7 (3.50)
	ii) Quality of seeds	125 (62.50)	55 (27.50)	20 (10.00)
	iii) Availability of seeds at right time	167 (83.50)	33 (16.50)	--
	iv) Quality of fertilizers	158 (79.00)	36 (18.00)	6 (3.00)
	v) Quality of pesticides	112 (56.00)	57 (28.50)	31 (15.50)
2.	**Timeliness of Advisory services**	107 (53.5)	65 (32.50)	28 (14.00)
3.	**Provision of credit**	--	--	200 (100.00)
4.	**Availability of technical know how**	85 (42.50)	69 (34.50)	46 (23.00)
5.	**Marketing support**	40 (20.00)	96 (48.00)	64 (32.00)
6.	**Payments for produce without unnecessary delay**	2 (1.00)	38 (19.00)	160 (80.00)

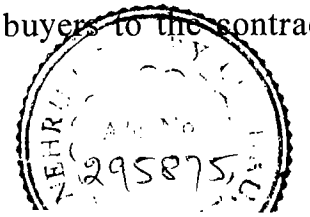
Figures in parentheses indicate percentages

The information about this has been given in Table 5.5 the majority of the respondents (71.50 per cent) agreed about the quantity of seeds provided by contracting agencies whereas, 25.00 and 3.50 per cent of the respondents

partially agreed and disagreed about quantity of seeds. The similar results were seen in case of quality of seeds and quality of fertilizers and 83.50 per cent of respondents agreed about availability of seeds at right time and 16.50 per cent of them partially agreed on this aspect. About half of the respondents were having agreement about quality of pesticides but 28.50 per cent and 15.50 per cent of respondents had partial agreement and disagreement, respectively about quality of pesticides.

It is apparent from the data in Table 5.5 that 53.50 per cent of respondents showed agreement with timeliness of extension services given by contracting agencies and 32.50 per cent and 14.00 per cent of them had partial agreement and disagreement.

The data in Table 5.5 revealed that all the respondents reported disagreement with credit provision and 42.50 per cent of them were agreed with technical know how provided by contract agencies. 34.50 and 23.00 per cent of respondents had partial agreement and disagreement with technical know-how. The partial agreement or disagreement with marketing support was indicated by 48.00 and 32.00 per cent of the respondents, respectively. The respondents complained about the grading based pricing used by the agencies. Majority of the respondents i.e. 80.00 per cent with payments for purchase whereas, 19.00 per cent of them partially agreed with payment system and only 1.00 per cent of respondents agreed with this. The payments of produce were made by final buyers to the contracting agencies, the agencies to PAFC, PAFC to



DM (District Manager) at each district and then they issued cheques to the farmers. Obviously, it was time consuming process and delayed the payment to the farmers and eroded their confidence. The study findings are supported by Chawla (2002).

5.6 Problems faced by the respondents

The responses of the respondents regarding the problems faced in contract farming are presented in Table 5.6. The respondents ranked no. 1 to the problem of grading and standardization (mean score 6.78) while dealing with contracting agencies. Farmers got less price as farmers were not able to meet grading requirements, thus their net returns reduced and showed discontentment among them. The respondents reported as no. 2 to the problem of marketing of their produce (mean score 6.12) due to high quality specification. The respondents complained about the way of contract farming practices being held by contracting agencies and PAFC. PAFC did not informed in advance about quality specifications of basmati. The study findings are supported by Ghosh (2003).

The respondents also faced problem of non-numerative price fixed by contracting agencies after grading their produce and ranked it third in order. Similarly, the problem of late payment and costly and low quality inputs with mean score 3.77 and 2.18 were ranked fourth and fifth in order. The promised yield results reported by the contracting agencies could not achieve which led to losses to the farmers. The respondents ranked sixth and seventh to lack of financial aid and lack of extension services, respectively. The findings are supported by Barwale (1985), Btaoile and Thorat (1987), Chatterjee (2004), Dhesi (1988), Kaur *et al* (1989), Sharma and Singh (2001).

Table 5.6 Ranks accorded to problems faced by the respondents while interacting with contracting agencies

n=200

Ranks accorded by respondents	Problems						
	Grading practices (f)	Marketing of produce (f)	Non-numerative price (f)	Late payment (f)	Costly and low quality input (f)	Lack of financial aid (f)	Lack of extension services (f)
1	158	42	--	--	--	--	--
2	39	139	22	--	--	--	--
3	3	19	144	14	20	--	--
4	--	--	32	151	11	4	2
5	--	--	2	18	131	39	10
6	--	--	--	8	20	99	73
7	--	--	--	9	18	58	115
Aggregate score	1355	1223	986	753	595	389	299
Mean score	6.78	6.12	4.93	3.77	2.18	1.95	1.50
Overall ranks	I	II	III	IV	V	VI	VII

5.7 Area covered by different crop under contract farming

The area under contract crops contracted by the different agencies and registered by the PAFC for all the crops and the proposed area in target plan for contract farming (2003-2004) is given in Table 5.7.

Table 5.7 Crop-wise actual area covered under contract farming and proposed are under contract farming in 2003-2004

S. No.	Crops	Actual area registered by PAFC (acres)	Proposed area under plan (acre)	Rise/Decline in area
1.	Basmati	90500	25000	+ 65500
2.	Sunflower	22014	12500	+ 9514
3.	Barley	5200	5000	+ 200
4.	Maize	28000	158000	- 130000
5.	Durum wheat	11400	100000	- 88600
6.	Hyola	19111	75000	- 55889
7.	Caster	1667	5000	- 3333
8.	Moong	4400	5000	- 600
9.	Guar	4600	5000	- 400

Source : Punjab Agro Foodgrains Corporation

The data in the Table 5.7 revealed that a decline in area covered by the PAFC and proposed under contract plan (2003 to 2007) in most of the crops. It was observed that there was rise in basmati (65500 acres) in sunflower (9514 acres) and in case of barley (200 acres). Increase in area in case of basmati, because it was proposed to grow in Amritsar and sub mountainous area but latter on it was spread in whole of the Punjab. Later on, Escort Ltd. did not prefer the area of Bathinda, Ferozpur and Mansa for basmati in future. The area registered by PAFC for basmati was 90,500 acres. The reasons for this might be that though the contract farming programme apparently seemed to be voluntary programme yet, this programme has been made a target oriented forced upon the farmers as well as the officials of the agriculture department. The agency availed the services of the agriculture department for distributing seeds to the farmers. Otherwise, at no stage there was any involvement of agriculture department even in technical matters in this scheme.

The Punjab Government launched contract farming as a part of diversification of agriculture in the state. The purpose of contract farming had been to shift area from wheat and paddy to hyola, barley, winter maize, durum wheat, sunflower, spring corn, basmati, *kharif* corn, guar, caster, moong etc. The working of contract farming failed to produced the desired results. The expected four lakh acres of area shifted from wheat and paddy cultivation could not be achieved during 2003-2004. The findings are supported by Kaur (1990).

5.8 Preference of contract farmers to contract farming in future

On the basis of experience of farmers who had grown basmati under contract system, they were asked about their preference to enter contract farming in future. It is evident from the findings in Table 5.8 that 35.00 per cent of respondents were interested to continue the contract farming. Though the yield of the crop was lower than the committed by the agencies and the problems of grading and marketing they had faced but the respondents quoted different reasons for their preference to continue contract farming e.g. if the price of output is higher than previous

Table 5.8 Distribution of respondents according to their preferences regarding continuity and discontinuity of contract farming

n=200

Sr.No.	Response	Frequency	Percentage
1.	Continue	70	35
2.	Discontinue	120	60
3.	Undecided	10	5

year's open market price, liberty to sell in open market, hope for better in future and if good quality seeds provided. It was surprising to note that 60.00 per cent of respondents discontinued contract farming because they were not informed about the exact terms of contract, harassment in the market by grading practices, monetary losses due to marketing problems, poor extension services, availability of Bt. cotton seed. Five per cent of respondents were undecided to enter contract farming in next season, they were of the view that depending upon the contract price of the crop and terms of contract.

5.9 Suggestions for improving the contract farming system

This aspect of investigation was well taken care off and information about this aspect had been given in Table 5.9.

Table 5.9 Suggestions of respondents for improving the contract farming system

n = 200

S. No.	Suggestions	Frequency (#)	Percentage
1.	Assured procurement at fixed rates	200	100.00
2.	Quality standards should be fixed at the time of agreement	169	84.50
3.	Quality seeds should be provided	79	39.50
4.	Quality extension services should be provided	129	64.50
5.	Facility of credit should be provided	99	49.50
6.	Insurance of the crops	105	52.50
7.	Payments for purchase without unnecessary delay	181	90.50

 # Multiple response

The information presented in Table 5.9 showed that all the respondents suggested that there should be an arrangement for assured procurement at fixed rates and 84.50 per cent of them suggested that the quality standards should be fixed at the time of agreement. More than 90.00 per cent of the respondents proposed that payment of produce should be given without unnecessary delay. The other suggestions accorded were quality of extension services at right time, crop insurance, facility of credit and provision of quality seeds at right time.

5.10 Relationship between socio-personal characteristics of the farmers and their reactions regarding different aspects of contract farming

The findings in the Table 5.10 revealed that the operational land holding of the respondents was found to be positively correlated with farmers' reactions about contract farming as indicated by r-value of 0.4560. The null hypothesis that there is no correlation between operational land holding with farmers' reactions about contract farming was rejected. The area under contract farming was again found to be positively correlated with farmers' reactions about contract farming as indicated by the r-value of 0.4184. The null hypothesis that there is no correlation between the area under contract farming with farmers' reactions about contract farming was rejected.

It could be concluded that the farmers having large operational land holding, they put large acreage under contract farming and had favourable reactions about contract farming.

The r-value of 0.6123 in Table 5.10 revealed that the innovativeness variable significantly correlated with farmers' reactions about contract farming at 1 per cent level. Thus, the null hypothesis that there is no correlation between innovativeness and farmers' reactions was rejected. It can be noted from the Table 5.10 that risk orientation was significantly correlated with farmers' reactions about contract farming as indicated by the r-value of 0.6255 at 1 per cent level. Thus, the null hypothesis that there is no correlation between risk orientation and farmers' reactions was rejected. It can be noted from the Table 5.10 that economic motivation was significantly correlated with

farmers' reactions about contract farming as indicating by 0.6185 at 1 per cent level. Thus, the null hypothesis that there is no correlation between economic motivation and farmers' reactions was rejected.

It could be concluded that the farmers who were relatively earlier in adopting the contract farming, were oriented towards risk and uncertainty and were placed relative value on economic ends had favourable reactions towards contract farming.

The r-value of 0.0925 placed in Table 5.10 showed that the age was non-significantly correlated with farmers' reactions about contract farming. The null hypothesis that there is no correlation between age and farmers' reactions about contract farming could not be rejected. The age had no correlation with reactions of the farmers about contract farming because the farmers entered contract farming irrespective of their age.

Table 5.10 Relationship between the farmers' reactions regarding different aspects of contract farming and socio-personal characteristics

Sr.No.	Socio-personal characteristics	Farmers' reactions r-values
1.	Age	0.0925
2.	Operational land holding	0.4560**
3.	Area under contract	0.4184**
4.	Innovativeness	0.6123**
5.	Risk orientation	0.6255**
6.	Economic motivation	0.6185**

**** Significant at 1% level**

5.11 Association between farmers' reactions regarding different aspects of contract farming and socio-personal characteristics

Some of the socio-personal characteristics which were discrete in nature were put to chi-square test for the purpose of knowing as to whether their association with the dependent variable is significant or not. The association of all the discrete independent variables with the farmers' reactions about contract farming was worked out. The resulted are presented hereafter.

Table 5.11 Association between the farmers' reactions regarding different aspects of contract farming and socio-personal characteristics

n = 200

	Characteristics	Farmers' reaction towards input			Total	χ^2-value
		Agree	Agree partially	Disagree		
a)	**Education**					
	Illiterate	0	0	1	1	
	Middle	20	24	24	68	
	Matric	33	27	29	89	12.023*
	Graduate	15	10	5	30	
	Postgraduate	7	2	3	12	
	Total	75	63	62	200	
b)	**Type of family structure**					
	Nuclear	49	36	35	120	
	Joint	26	27	27	80	14.689**
	Total	75	63	62	200	
c)	**Occupational background**					
	Farming +Business	40	39	34	113	
	Farming + Service	3	1	2	6	
	Farming + Subsidiary occupation	7	2	2	11	2.7078
	Farming only	25	21	24	70	
	Total	75	63	62	200	

*** Significant at 5% level of significance**
**** Significant at 1% level of significance**

5.11 Farmers' reactions regarding different aspects of contract farming and socio-personal characteristics

The research findings of Table 5.11 showed significant association of education with farmers' reactions about contract farming. The chi-square value of 12.023 was found to be significant at 5 per cent level. Thus, the null hypothesis that there is no association between education with farmers' reactions about contract farming was rejected.

The family type of the respondents was found to be significantly associated with the farmers' reactions about contract farming. The chi-square value of 14.689 as indicated in Table 5.11 was significant at 1 per cent level. Thus, the null hypothesis that there is no association between family size with farmers' reactions about contract farming was rejected.

The chi-square value of 2.707 placed in Table 5.11 showed that the occupational background was non-significantly associated with the farmers' reactions about contract farming. Thus, the null hypothesis that there is no association between occupational background with farmers' reactions about contract farming could not be rejected.

5.12 Reactions of contracting agencies

For basmati, Amritsar, Gurdaspur and Patiala were covered by Rallis India Ltd., Escorts Ltd. covered Bathinda, Faridkot and Mansa under contract farming scheme. The reactions of the contracting agencies are discussed under following headings :

5.12.1 Purpose of agencies for starting the contract farming

Escorts Ltd. was either working under export orientation or trading i.e., they bought produce for sale to its ultimate buyers [(Satnam Overseas Ltd., DD International (P) Ltd. and Amira Foods (India) Ltd.]. Rallis India Ltd. was working for trading and sale of their inputs through Rallis Kiran Kendra (RKK) and sold the produce to LT Overseas Ltd.

5.12.2 Criteria for selection of contract farmers

The contract agencies looked for personality or attitude towards contract farming among farmers. The agencies preferred to those farmers who approached them for starting contract farming. An initiative among farmers was most preferable virtue for selection as a contract farmer. This characteristic was given rank one. Land holding ranked second in preference.

Table 5.12.1 Criteria for selection of farmers preferred by contracting agencies

S.No.	Criteria	Preferences of contracting agencies
1.	Farmers' initiative	1
2.	Land holding	2
3.	Financial soundness	3
4.	Educational level	4
5.	Climate	5

A minimum land holding was taken as prerequisite for registration as a contract farmer with any agency. The agencies looked for those farmers, which could be free from any type of debt, financial soundness ranked as

third most preferable virtue. Climate was the characteristics which ranked fourth, since most crops were grown for export and the companies were shown high consideration for climate or traditional belts of particular crops. The agencies did not give much weightage to formal education, in fact some sort of exposure to farm training was given an added advantage.

5.12.3 Problems faced by contracting agencies

Farmers' negative attitude towards contract farming is one of the biggest problems, which was ranked first by the companies. A number of situations could lead to farmers dissatisfaction like late payments, inefficient extension services, poor agronomic advice, unreliable transportation for crops and management's rudeness to farmers, all normally generated dissent, as a result the farmers withdrew the projects. Land issue was difficult to address specially, people cultivated land of their relatives. Farmers must have suitable land to cultivate their contracted crops.

Table 5.12.2 Problems faced by contracting agencies while dealing with farmers

S.No.	Characteristics	Ranking of problems
1.	Farmers' negative attitude towards contract farming	1
2.	Land holding	2
3.	Extra contractual activities	3
4.	Marketing and technical assistance	4
5.	Social cultural constraints	5

Problems could arise when farmers had minimum or no security of tenure as there was a danger of sponsors' investment being wasted as a result of farmer landlord disputes. An extra contractual sale was another big problem which was always seen and was not easy to control when an alternative market existed. Thus, it was difficult for the sponsors to regulate production targets and quality aspects. Marketing and technical assistance was fourth most important problem faced by agencies. A project became very difficult to manage when farmers' diverted technical assistance to other crops. Promoting agriculture through contracts is also a cultural issue an individual might feel that the contract farming would reduce the ownership. Farmers insisted on growing crops of last season as seeds for next crop instead of buying new seeds from contracting agencies.

5.12.4 Information provided by Escorts Limited (EL)

Escort Ltd. is basically dealing with tractors and has good reputation among the farming community. This corporate launched Basmati Contract Farming Programme in collaboration with Graintec India Ltd., Ludhiana with three buyers viz. Satnam Overseas Ltd., DD International (P) Ltd. and Amira Foods (India) Ltd. Escorts Limited with Graintec undertook programme in 10 districts of southwestern or Malwa belt Punjab including Bathinda, Faridkot and Mansa. A large share of seed was distributed by commission agents of market and officers of the department of Agric./PAFC. The major part of field staff energy was

utilized for listing of the farmers, which had to be submitted to PAFC office and buyers for availing tax discount provisions of the contract farming programme from the government.

The extension service charges were to be taken from the farmers at the time of purchase of produce. Therefore, the required amount of such service could not be collected, which was a loss to the corporate. Secondly, the buyer had to pay 2% on the cost of purchased product to corporate, which also got reduced drastically due to procurement much below the targets (15-20% only). In other words, there was double loss to the corporate due to this model. Escorts will continue contract farming alone but now, the area will be restricted to seven districts except Bathinda, Ferozepur and Mansa, which were observed not much suitable for production of quality basmati.

5.12.5 Information provided by Rallis India Ltd.

It is a TATA Enterprise, which deals in the field of plant protection and maintains close contact with the farmers. This corporate developed the concept of 'One Window Delivery' to the farmers for efficient use of their brands through the "Rallis Kisan Kendra" (RKK). Rallis India Ltd. made an agreement with LT Overseas Ltd., a leading buyer of basmati and got best suited area of basmati in Punjab i.e. Amritsar, Gurdaspur and Patiala. Seven RKKs have been established to provide extension services and certified seed for crops under contract at the door of the farmers. Moreover, prescribed recommended

insecticide/weedicide/fungicide/fertilizer etc. were also made available to the farmers in close circuit of these RKK.

The payment was made within seven days through local cheques. The purchased produce was shifted by buyer to Bhalgarh (Sonepat) from Patiala and from the remaining area to Bhikhiwind (Amritsar). Farmers also tried to supply variety CSR-30, instead of variety HBC-19 provided to them, which also created some problems. The staff from final buyer who took lot of time for sample analysis, which comparatively was much longer than traditional way of assessment by buyer. Therefore, farmers got irritated. Secondly, the quality personnels of LT Overseas were also very conservative in offering the price to the farmers. Therefore, staff of Rallis India Ltd. was very much disappointed from the buyer due to poor co-operation and below expectation procurement, which impacted on Rallis India Ltd. reputation adversely and also damaged the concept enormously.

CHAPTER-VI

SUMMARY

In the age of liberalization, globalization and expanding agri-business, there is a danger that small farmers will find difficulty in fully participating in the market economy. The news of farmers' distress in regions like Punjab, Haryana, Andhra Pradesh, Karnataka and Maharashtra has become sore issue for policy markers. So, there is a need to provide infrastructure in the form of cultivation technology market facility and post harvest technology to raise high value and labour intensive crops. One of the best methods to achieve this is the contract farming. The contract farming is nothing but an extension of the phenomenon of global sourcing wherein an agro-processing firm can produce anywhere, by sourcing inputs from anywhere, to be sold in any market in the world. In Punjab, the state government has argued that contract farming is the best means of crop diversification, in a region where there is a real question of ecological survival and sustaining natural resources like water and soil in a reasonably, healthy state.

To give boost to the diversification of agriculture in Punjab, the government of Punjab has also started contract farming scheme from *rabi* season 2002-2003 through Punjab Agro Foodgrains Corporation Limited. Under this scheme, the area is being shifted from rice and wheat to other high valued crops. Thus, there is an urgent need to know about the agri-business, an important component for diversification of rice-wheat

cropping pattern. Therefore, the present study was undertaken with the following specific objectives :

6.1 Objectives of the study

6.1.1 To study the farmers' reactions regarding different aspects of contract farming.

6.1.2 To find out the area covered by different crops under contract farming.

6.1.3 To study the problems faced by the farmers under contract farming.

6.1.4 To study the relationship between the characteristics of respondents and their reactions about contract farming.

6.2 Research methodology

6.2.1 Locale of study

The study was conducted in the Punjab State.

6.2.2 Selection of districts

Punjab Agro Foodgrains Corporation Limited has identified the contract farmers in different districts of Punjab. Districtwise list of identified contract farmers was prepared. Five district namely, Amritsar, Faridkot, Patiala, Bathinda and Mansa with maximum number of contract farmers were selected for the study.

6.2.3 Selection of respondents

From the list prepared for contract farmers of selected districts, a sample of 200 farmers were selected proportionately to total number of

contract farmers in five selected districts of Punjab as the respondents of the study.

6.2.3 Construction of innovativeness, risk orientation and economic motivation scales

6.2.3.1 After consulting relevant literature and thorough discussion with the members of the advisory committee, a large number of statements were selected. Then, applying important criteria for editing the statements, 17, 20 and 16 statements for innovativeness, risk orientation and economic motivation scales were prepared, respectively.

6.2.3.2 Under Likert method of scale construction, these statements were then given to a group of 60 respondents from the non-sampled area who were asked to respond to each one in terms of their own agreement or disagreement with the statements on five point continuum i.e. strongly agree, agree undecided, disagree or strongly disagree. For each respondents, we obtained a total score was calculated by summating his scores for all the individual items.

6.2.3.3 As a basis for rejecting statements in the Likert method, were form of item analysis. 25 per cent of respondents with highest total scores and also the 25 per cent of the respondents with lowest total scores were taken. These two groups served as the criterion groups to evaluate the

individuals statements. Thus, we might find the ratio in term of t-value. Any statement having t-value equal to or greater than 1.75 was included in final scale. So, at the end there were ten statements for innovativeness, eight statements for risk orientation and eight statements for economic motivation scales.

6.2.3.4 These scales were administered to ten non-sampled respondents for determining their reliability and validity which came out to be 0.68 and 0.82 for innovativeness, 0.70 and 0.83 for risk orientation and 0.64 and 0.80 for economic motivation scales, respectively. Split half technique for reliability and square root methods were employed for calculating reliability and validity of scales.

6.2.4 Development of research instrument

An interview schedule was constructed for collecting information from the respondents. It consisted of three parts.

6.2.4.1 The first part included the items relating to personal characteristics of the respondents and innovativeness, risk orientation, economic motivation.

6.2.4.2 The second part dealt with the farmers' reactions regarding different aspects contract farming. Farmers' reactions were measured in term of agreement, partial agreement and disagreement by framing questions/statements of probing type.

6.2.4.3 A separate questionnaire was developed to study actual area under contract crops due to contract farming registered by the PAFC for all the crops and the proposed area in target plan for contract farming (2003-2004). It was done with help of secondary data. Under this, preference of the contract farmers to enter contract farming in future was also measured.

6.2.4.4 The third part dealt with the various problems faced by the farmers under contract farming.

6.2.5 Pre-testing of the interview schedule

The interview schedule was pre-tested on 60 non-sampled respondents. On the basis of information obtained, necessary modifications were made in the final interview schedule.

6.2.6 Collection of the data

The data were collected from 200 farmers of five selected district of Punjab were collected through personal interview technique.

6.2.7 Tabulation and analysis of data

6.2.7.1 All the filled up schedules were transferred on the master tables and the analysis was done.

6.2.7.2 Frequencies, percentages, cumulative cube root method, correlation and chi-square method were used to analyse the data.

6.3 Salient findings

The major findings of the study are as follows :

6.3.1 Socio-personal characteristics of respondents

It was found that the respondents of all age groups were included in the sample. More than 75 per cent of the respondents had middle and matric level of qualification, only one respondent was illiterate. Majority of the respondents hailed from nuclear families and had farming as their main occupation. About 42 per cent of them were operating on 2-15 acres of land and only 7 per cent were operating on more than 54 acres of land. More than half of the respondents were doing contract farming on 1-5 acres of land. Majority of the respondents had television, *Kisan Mela* and radio as their source of information. Majority of the respondents had taken the information of contract farming from advertisements, contract agencies and PAFC camps.

6.3.2 Innovativeness, risk orientation and economic motivation of respondents

About 63 per cent of the respondents had high degree of innovativeness and 30 per cent of them had low degree of innovativeness. Similarly, 68 per cent of the respondents had high degree of risk orientation and about 25 per cent had low degree of risk orientation. But, majority of the respondents had high degree of economic motivation and only 6 per cent of the respondents had low degree of economic motivation.

6.3.3 Motivational factors for starting contract farming

Most of the respondents accorded higher ranking to the factors like secured return and more income. The other important factors were risk share with companies, better adjustment in crop rotation and high, productivity according to their importance.

6.3.4 Terms of agreement for contract farming

6.3.4.1 The contract period was fixed for one crop only. All the respondents had to pay registration fee. Only 20 per cent of respondents sold their complete contract crop to the agencies because of low price and strict grading practices. Majority of the respondents got less price than market price.

6.3.4.2 Majority of the respondents got less returns as compared to the stated one.

6.3.4.3 Majority of the respondents took maximum extension advise from the contracting agencies at the time of sowing. The other important farm operation for which they took extension advice was disease contract, fertilizer and irrigation, transportation and harvesting.

6.3.4.4 Majority of the respondents used their own funds for practicing farming. The next important source of funds was money lenders / ahrityas.

6.3.4.5 Majority of the respondents ranked seed costs and charges for extension services, registration fee and transportation as

most important reasons for cost increasing variables. The other variables were disease control, fertilizers and more labour.

6.3.5 Farmers' reactions regarding different aspects of contract farming

Majority of the respondents were having agreement about the quantity of seeds, availability of seed at right time and quality of fertilizers. 62 per cent of respondent and 56 per cent of respondents were having agreement with quality of seed and quality of pesticides respectively. Near half of the respondents were having agreement with the timeliness of the extension services. Only 42 per cent of respondents were having agreement with availability of technical know-how. 48 per cent were partial agreed with market support of the contract agreement. Majority of the respondents were disagreed with payment for produce without unnecessary delay of the contract agreement.

6.3.6 Problems faced by the respondents

The main problem faced by the respondents was the grading practice. The second biggest problem was the marketing of the produce. The other problems according to their importance were non-numerative price fixed by contracting agencies, late payments, costly and low quality inputs, financial and lack of extension services.

6.3.7 Area covered by different crops under contract farming

6.3.7.1 There was a decline in area registered by the PAFC and proposed area under contract plan (2003 to 2004) in most of

the crops. There was rise in area only in case of basmati, sunflower and barley.

6.3.7.2 Thirty five per cent of the respondents were interested to enter into contract in future and 60 per cent of them were not interested to enter into contract in future.

6.3.8 Suggestions for improving contract farming system

Majority of the respondents suggested that there should be an arrangement for assured procurement and at fixed rate, quality standards should be fixed at the time of agreement, payments for produce should be given without unnecessary delay.

6.3.9 Relationship between socio-personal characteristics of the farmers and their reactions regarding different aspects of contract farming

There is positive correlation between operational land holding, area under contract farming, innovativeness of the respondents, risk orientation of the respondents and economic motivation of the respondents and their reactions towards various aspects of agreement.

6.3.10 Association between socio-personal characteristics of the farmers and their reactions regarding different aspects of contract farming

The education and type of family of the respondents are associated with farmers' reactions. The occupational background is not associated with farmers' reactions.

6.3.11 Reactions of the contracting agencies

Rallis India Ltd. and Escorts Ltd. were the two corporates covered the selected district of the study. Escorts Ltd. sold the produce to Satnam Overseas Ltd., DD International (P) Ltd. and Amira Foods (India) Ltd. Rallis India Ltd. sold the produce to LT Overseas Ltd. The contract agencies preferred those farmers who approached them for starting the contract farming and had their own land holding was as pre-requisite for registration as contract farmers. The agencies also preferred those farmers who were financially sound. The main problem faced by the contract agencies was the negative attitude of the farmers towards contract farming. Other problems faced by the agencies were the landlord disputes, extra contractual activities and social constraints as the farmers did not buy new seed every time.

6.4 Conclusions

Majority of the respondents were innovative and had the ability to take risk but they were very economically motivated for starting contract farming because of secured returns and more income as stated in the agreement. The contract period was only for one crop and the respondents got less returns as compared to the stated earlier by the agencies. All the respondents had to pay Rs. 100 as registration fee and majority of them sold their produce in open market. Majority of the respondents agreed with the quality of the seeds and availability at right time, quality of fertilizer as inputs provided in the agreement. There were a mixed

response regarding the quality of seeds, quality of pesticides and the availability of technical know-how. Majority of the respondents disagreed with the market support and payment for produce as a provision in the agreement. The main problems faced by the respondents were the grading practices, marketing of the produce and non-numerative price fixed by contract agencies. There was a decline in the area registered by the PAFC and proposed area under contract plan (2003-2004) in most of the crops. More than half of the respondents did not want to continue contract farming in future. Majority of the respondents suggested that there should be an arrangement for assured procurement and at fixed rate and quality standard should be fixed at the time of agreement.

6.5 Suggestions

6.5.1 Selection of enterprise should be according to the soil, water and climate. The areas suitable for each crop should be marked properly. For example, quality basmati can be grown in *Majha* region and not in south-western districts of the state.

6.5.2 Good quality and certified seeds dully approved by the Punjab Agricultural University, Ludhiana should be provided well before the time of sowing.

6.5.3 Cost of inputs should be lower than the market rate to cut down the cost of production.

6.5.4 Timely supply of inputs should be ensured.

6.5.5 Farmers should be given compensation for the crop failure, if the poor quality of produce is due to fault of contracting agencies.

6.5.6 Department of Agriculture and Horticulture, Punjab along with Punjab Agricultural University should be involved in the contract-farming scheme.

6.5.7 There should be an assured procurement of the produce by the agency and produce should be procured in time.

6.5.8 Crops should be covered by an insurance scheme.

6.5.9 Farmers should be given some inputs on credits.

6.5.10 Payments of the produce should be made immediately.

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APPENDIX-I

A) Innovativeness :

Calculated t-values of the statements are given below :

S. No.	Statements	t-values
1.	I am among the first in my circle of friends to start contract farming.	2.97*
2.	I like to start new practice regarding farming after other people do.	0.78
3.	I take advantage of the first available opportunity to find out new and different results.	9.49*
4.	Prior to start new idea, I prefer to consult a friend that has experience with new idea.	8.24*
5.	Starting any innovation is usually a wastage of time and money.	1.00
6.	I like to try new and different things.	1.54
7.	I would like a job that does require me to keep learning new tasks.	7.14*
8.	I am the kind of person who always looking for an exciting, stimulating and active life.	4.94*
9.	I take chances more than other do.	1.50
10.	No matter who I am talking to, I am always a good listener.	1.07
11.	I am very curious about how new things work and what are the results.	1.62
12.	I decide to try new practice without relying on the opinion of friends who have already tried it.	3.00*
13.	Whenever any new things regarding farming come, I try it in the farm.	6.42*
14.	The innovative people are those who do not mind being original and different.	2.58*

15.	I seek information about agricultural innovation.	1.69
16.	I like to consult source that introduce new idea.	4.47*
17.	If agricultural innovation comes, I would give a lot of weight to what others think of it.	6.15*

B) Risk Orientation :

Calculated t-values of the statements are given below :

S. No.	Statements	t-values
1.	It is risky to try new venture.	3.15*
2.	I will start new venture after seeking success with majority.	1.50
3.	Knowing the chances of success are high, one should take risk.	2.30*
4.	Resource rich farmers can go for new venture.	1.69*
5.	I will continue new venture even if it is risky.	2.18*
6.	One should take decision of starting new venture by keeping in view the post experience.	2.47*
7.	Adopting new venture involves risk but it is worth doing it.	0.96
8.	I order to excel, it is necessary to take risk.	3.58*
9.	A farmer who is willing to take greater risk than the average usually does better financially.	5.22*
10.	A farmer should grow other crops also in order to avoid risk in new venture.	0.35
11.	One progress by taking risk.	1.10
12.	If there is chance of failure, risk taking seems foolish and dangerous.	1.54
13.	To gain skill through experience, it requires taking risk.	1.08

14.	Trying a new venture has its own charm even if there are chances of failure.	0.88
15.	One should try in a limited area before adopting new venture on large scale.	1.38
16.	In risky situation, one learns a great about the new practice.	3.70*
17.	When it comes to take chance, I would rather safe than sorry.	3.24*
18.	There is only wastage of time and money to start new venture.	2.30*
19.	One should get good result without taking risk.	0.39
20.	When confronted by risky situation, I seek guidance and support from my friends.	1.65

C) Economic Motivation :

Calculated t-values of the statements are given below :

S. No.	Statements	t-values
1.	Surviving in society, social relations are more important than money.	6.45*
2.	Although contract farming is difficult to do, still one should go for it in order to earn money.	1.32
3.	One should earn money at the cost of mental peace.	4.50*
4.	If one has good financial status, then respect comes automatically.	3.08*
5.	A farmer should try new ideas which earn him more money.	0.69
6.	I will select that venture which may lead to maximum profit.	2.46*
7.	Economic profit is the only motive of my life.	4.53*
8.	Inspite of various problems of contract farming, I will continue this if it ensures high profit.	0.89
9.	Financial assistance is required to make a good start in contract farming.	3.96*

10.	A farmer should go for different type of farming to be recognized different in social system.	0.42
11.	I will continue with contract farming if it gives good return than traditional system of farming i.e. wheat-rice.	1.29
12.	Earning good status, one should work hard.	1.00
13.	One should forget about gain or loss if one wants to get new experience.	3.24*
14.	I adopt contract farming for economic gains.	1.11
15.	Money is very important but life cannot be defined in economic terms.	1.54
16.	In order to have good financial standing one should always go on adopting new enterprises.	3.45*

*** These statements are included in final scale.**

APPENDIX-II

Interview Schedule

1. Name of the farmer :
2. Village : _____ Block : _____ District : _____
3. Age of farmer (Yrs.) : _____
4. Education of farmer : _____
5. Operational Land Holding : (a + b – c)
   a) Area owned _____ acres.
   b) Area leased in _____ acres.
   c) Area leased out _____ acres.
6. Family Background
   a) Rural
   b) Urban
7. Subsidiary Occupation :- Yes / No

   If yes, specify :-

	Production	**Rate**
a) Dairy		
b) Bee Keeping		
c) Poultry		
d) Mushroom		
e) Seed production		
f) Any other		

8. Do you have the interaction with agricultural research scientists/ADO of your area :-
   a) After one month
   b) After three months
   c) After six months
   d) After one year

9. What are your sources of information for updating agriculture knowledge ?

a) Newspaper

b) Farm Magazine

c) Radio

d) T.V.

e) *Kisan Mela*

f) Seminar/Conference

g) Friends / Neighbours

Information relating to contract farming

A) Source of information for contract farming

a) Through advertisement for magazine/radio/newspaper/T.V. by PAFC

b) Camps organized by PAFC

c) *Kisan Mela*

d) Commission Agent/ Contracting agencies

e) Relatives/Friends/Neighbour

B) Indicate your motive for starting contract farming

a) To earn more income.

b) To break the rice-wheat rotation.

c) Desire to become innovative.

d) Risk share with contracting agencies

e) Better adjustment into crop rotation.

f) Secured return

g) Any other.

C) Terms of contract

a) Duration of contract _____ season.

b) Quantity committed to be procured _____ qtls.

c) Price to be paid (Rs./qtls) _____ .

d) Deduction, if any _____ .

e) Transportation charges to borne by the agency (Rs./km) _____.

f) Distance of the market from the production place _____ km.

g) Membership fee Rs. _____ .

h) Supervision fee Rs. _____ .

i) Crop insurance _____ Yes/No.

D) Area

Crops : _____ Variety _____

i) Area under contract farming _____ acres.

ii) What kind of contract had you made with contract agency ?

a) Oral

b) Written :- (i) Plain paper

(ii) Stamp paper

iii) In which year you have started contract farming ? _____

iv) Replaced crop _____

v) Area replaced _____

vi) Please give the information regarding area under contract farming

When started		**Presently**		**Future plans**
Crop	**Area**	**Crop**	**Area**	

viii) Whether you want to continue/discontinue contract farming ? Give reasons :-

a)

b)

c)

d)

E) Input supply by Contract Agency

Inputs	Quantity supplied	Total Quantity used	Price paid to contract firm	Market price
Seeds Fertilizer Pesticide Herbicide Machinery Any other				

F) Returns

a) Yield committed by the contract agency (qtls/acre) _____

b) Realized / Actual Yield (qtls/acre) _____

c) Value of by product, if any (Rs./acre). _____

d) Quantity procured by the agency _____ qtls.

e) Price paid (Rs/qtls). _____

f) Quantity sold in open market _____ qtls @ Rs. _____ /qtls.

Whether the produce was fully procured in the season, if no, why ?

1.

2.

3.

Farmers' Reactions Towards Various Aspects of Agreement

	Aspects	Agree	Agree Partially	Disagree
1.	Various inputs are provided			
	a) In appropriate quantity b) At right time c) Quality of seeds d) Quality of fertilizer e) Quality of pesticide			
2.	Extension/Advisory services			
	a) Quality of service b) Given at right time or when required			
3.	Provision of credit			
4.	Transfer of skill involved in cultivation			
5.	Machinery/other appropriate technology is also given when required			
6.	Providing fixed and guaranteed pricing structure			
7.	Procure the produce without unnecessary delay			

Problems faced by the farmers under contract farming

1. Problems related to supply of inputs

a) Seeds :-

(i) Timely availability seeds

(ii) Quality of seeds/germination of seeds/varieties mixed

(iii) Quantity of seeds

(iv) Mixed with foreign particles

(v) Any other

b) **Fertilizer :-** (i) Timely availability

(ii) Quality

(iii) Quantity

(iv) Any other

c) **Pesticide and herbicide :-** (i) Timely availability

(ii) Quality

(iii) Quantity

(iv) Any other

2. **Problems related to advisory/extension services**

i) Availability

ii) Quality of services

3. **Problems related to providing farm machinery and equipment when required**

4. **Problems related to marketing/procurement**

5. **Problems related to delivery of payments**

Suggestions for improving contract farming

APPENDIX-III

Measuring Innovativeness, Risk Orientation and Economic Motivation of farmers during contract farming

A) Innovativeness

S. No.	Statements	SA	A	N	D	SD
1.	I am among the first in my circle of friends to start contract farming.					
2.	I take advantage of the first available opportunity to find out new and different results.					
3.	Prior to start new idea, I prefer to consult a friend/neighbour that has experience with new idea.					
4.	I would like a job that does require me to keep learning new tasks.					
5.	I am the kind of person who always looking for an exciting, stimulating and active life.					
6.	I decide to try new practice without relying on the opinion of friends who have already tried it.					
7.	Whenever any new things regarding farming come, I try it in the farm.					
8.	The innovative people are those who start new venture after seeing its benefits.					
9.	I try new venture without consulting the source that introduces it.					
10.	If agricultural innovation comes, I would give a lot of weight to what others think of it.					

B) Risk Orientation

S. No.	Statements	SA	A	N	D	SD
1.	Knowing the chances of success are high, one should take risk.					
2.	I will continue contract farming even if it is risky.					
3.	One should take decision of starting new venture by keeping in view the post experience.					
4.	I order to excel, it is necessary to take risk.					
5.	A farmer who is willing to take greater risk than the average usually does better financially.					
6.	In risky situation, one learns a great about the new practice.					
7.	When it comes to take chance, I would rather safe than sorry.					
8.	There is only wastage of time and money to start new venture.					

C) Economic Motivation

S. No.	Statements	SA	A	N	D	SD
1.	Surviving in society, social relations are more important than money.					
2.	One should earn money at the cost of mental peace.					
3.	If one has good financial status, then respect comes automatically.					

4.	I will select that venture which may lead to maximum profit.					
5.	Economic profit is the only motive of my life.					
6.	Financial assistance is required to make a good start in contract farming.					
7.	One should forget about gain or loss if one wants to get new experience.					
8.	In order to have good financial standing one should always go on adopting new enterprises.					

VITA

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EDUCATIONAL QUALIFICATION

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B.Sc. Agri. (Hons)	PAU, Ludhiana	1999	7.72/10
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