Agricultural Economics Research Review
Vol. 20 January-June 2007 pp 99-116

Mode of Operation and Performance of Contract Farming of Cottonseed in Haryana

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Abstract

The quality of cottonseed matters most for the successful product development. The quality cottonseed production is monitored by the Haryana State Seed Certification Agency in the state. The study has reviewed the prevailing contract cotton farming models; has studied mode of operation of cotton contractual arrangements; has analyzed the production matrix, growth and contributions; and has discerned and quantified variations in intensive structure of public and private seed firms. It has used both primary and secondary data. Appropriate statistical tools, viz. exponential growth model, index, etc., have been used to study the data. All categories of farmers have been brought together under the management of private seed agency for production of cottonseed of a single variety on a large homogeneous block. Contract cotton farming has fully vetted the legal agreements with their growers. The public and private agencies pay incentive price to farmers which is higher than the prevailing market price. Farmers of private agency are free from the intricacies of input and output markets, receive all technology and technical know-how and have facilities for production and consumption loans, whereas farmers of public agency are trailed far behind in terms of these benefits. Private agency has flourished at the expanse of public agency since contract cotton is incentivised by private contractors under flexible and farmer-friendly production regime. The latest production technology, strong capital and management base of private seed agency have left the public agency behind in the competitive race. The study has concluded that favourable changes in socio-economic and legal framework of government policies have to be encouraged for the active participation of private sector in cottonseed business and contract cottonseed farming has emerged as a viable alternative farming in the post-WTO regime.

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The authors thank the referee for his valuable suggestions.

Introduction

Cotton (*Gossypium spp*.) is the most important source of natural fibre used in the Indian textile industry. The producers of cotton have started perceiving marketing rather than production as a constraint in enhancing their farm income. Hence, it has been suggested that farm production should be income-focused than price-focussed through contract farming (Kumar *et al.*, 2005). Contract farming encourages demand-driven production system, which coordinates many aspects of primary production supply (Fraser, 2005). Contract farming basically involves four aspects (pre-agreed price, quality, quantity or acreage, and delivery time) between farmers and company (Kiresur *et al*., 2004). The success of contract farming depends on the mutual benefiting relationship between producer, consumer and company. The producer benefits from assured price from the company; the company benefits from assured supply of quality material at competitive price so that its product becomes successful in national and global markets, as per Codex, and ultimately, the consumer is benefitted by getting a quality product at a reasonable price (Kumar and Chand, 2004). This got aligned with the amendment of Agriculture Produce Market Committee (APMC) Act 2004. Agribusiness firms have entered into contract cottonseed farming, with farms specializing in production of quality cotton-seed in the state of Haryana. However, some inherent differences between public and private seed firms exist in contract farming in the form of bargaining power, risk-sharing conditions, etc. (Kumar and Chand, 2004).

Cotton occupied an area of 5.4 lakh hectares with annual production of 10.38 lakh bales in Haryana during 2003-04 (Haryana Agricultural Statistics at a Glance, 2004). A core group of highly progressive and commercial farmers is engaged in integrated contract cotton farming (both seed and lint). Thus, a quality seed production programme is in operation in the Haryana state, which is being monitored by the Haryana State Seed Certification Agency (Kumar *et al*., 2002) to meet the standards of quality seed.

In this backdrop, the present study has been undertaken to (i) review the prevailing contract cotton farming models, (ii) study the mode of operation of cotton contractual arrangements in the state, (iii) analyze production matrix, growth and contributions, and (iv) discern and quantify variations in the incentive structure of public and private seed firms. The findings of the study would help the researchers, policymakers, entrepreneurs, extension people and farmers to encourage contract farming in general and contract cotton farming, in particular.

Methodology

This study was confined to the Haryana state and pertained to the year 2003-04. The study has used primary data for the year 2003-04 and secondary data for the period 1990-91 to 2003-04. Secondary data on quality cottonseed production were collected from the annual reports of the Haryana State Seed Certification Agency (HSSCA). Time series data of cotton firms, other marketing firms, etc. engaged in contract cotton production were collected from the state Headquarters. All the firms engaged in contract farming along with their operational area, business volumes, nature, characteristic and terms and conditions of contract were collected from the official records of HSSCA. The lists of farmers of public and private cottonseed firms were collected from the official records of HSSCA. The primary data on various aspects, viz. components of technologies, use of man-power, other socio-economic parameters of contractors and contractees, etc. of public and private production regimes were collected through personal interview method, using specially structured and pre-tested schedule.

Comparing contracts generates the expressions needed to make conceptual comparisons and gives insights of underlying reasons for various approaches that one form of contract is chosen from among alternatives in varying environments under public and private seed firms with various prevailing contract models. The most significant development after new economic policy was the evolution of private seed business firms in the state (Kumar *et al*., 2002). Hence, it becomes important to know the direction and speed of change in total contract cottonseed as well as its market price and incentive price. Tabular analysis such as simple averages and percentages were carried out to derive the inferences. The growth rates were computed by fitting an exponential function to the time series data and results were subjected to 't'-test to find the significance level. The form of growth model was:

$$Y = a\ b^t \qquad \ldots(1)$$

where,

Y = Price per quintal in rupees,

t = Time period in years, and

'a' and 'b' are the parameters to be estimated.

It can be expressed in the log form as Equation (2):

$$\log Y = \log a + t.\ \log b \qquad \ldots(2)$$

The Compound Growth Rate (CGR) was calculated as per Equation (3):

$$\text{CGR (\%)} = (\text{Antilog [log b]} - 1) \times 100 \quad \ldots(3)$$

The disproportionate variation in the market price and incentive price (given by public and private firms to farmers) has adverse implications on the incentive price structure of production of certified cotton by contract firms. The values of market and incentive prices of public and private seed firms were standardized to see the direction of change and the index of premium was computed as per expression (4):

$$\text{Index of premium} = \frac{\text{Actual premium during current year}}{\text{Premium during base year}} \quad \ldots(4)$$

Prevailing Models of Contract Cotton Farming in India

In contact farming, an incentive price is offered to the farmer to meet the extra cost incurred by him in producing the requisite quality of produce. Contract farming works when there is no zero sum game (no one gains at the expanse of the other) and helps when market does not exist or is under-developed; conversely, contracts diminish in importance with the development of competitive markets. They are ideal under win-win situations, since they represent a natural mutual dependency. Contractual arrangements in the country are moving from informal to formal forms (Kumar *et al*., 2005). Formal contracts specify the anticipated duties and obligations of different stakeholders, deliverables and penalties for defaults. There are four types of contract cotton production models, viz. Pepsi, Tripartite, Tamil Nadu and Appachi.

(1) Pepsi Model

Price fixation under this model is done directly between farmer and company. Incentivised cotton by contractor induces the farmer to enter into contract production, though an individual farmer is not able to bargain with the company on equal footing (Haque, 2000). Such agreements are relatively loose, one time informal (oral/handshake) arrangements between the farmer and the buyer to manage production with input provision and ties loans/ advances. Since the nature and terms and conditions of contract are decided arbitrarily and can hastily be distorted in favour of the company, there are frequent breaches of contracts and no arbitration mechanism exists. It is the most exploitative model in contract farming (Kumar and Chand, 2004). Private seed firms engaged in cotton farming in the Haryana state practised a form of this model.

(2) Tripartite Model

This model establishes a tripartite arrangement amongst farmer, company and government and the price fixation is decided by a government agency in consultations with other two stakeholders. None of the stakeholders, in letter and spirit, can breach the contract and is liable to penalty in case of non-compliance of terms and conditions of the contract. Hence, the compliance of contract is reinforced by a government agency. The most common variants of this model are:

(a) CCI Contract Model: Cotton Corporation of India (CCI) with the aid of state government has become a guarantor of operation of contract cotton farming after the launching of Technology Mission on Cotton in 2001. CCI has established backward linkages with the farmers, making arrangements of supplying all sorts of quality inputs, technical know-how, etc. and has also established forward linkages with cotton mills to cater corporate consumption. Hence, CCI helps to coordinate quality-led incentive between textile mills and farmers.

(b) Gujarat Model of Contract Farming: The Agricultural Produce Marketing Committee (APMC) with the aid of state government has become a guarantor of operation of contract cotton farming. APMC has established backward linkages with the farmers involving integrated service providers and making arrangements of supplying all sorts of quality inputs and technical know-how to contract farmers. It has also established forward linkages issuing notification regarding allowing of industrial houses and trading companies to continue to purchase produce directly from farmers. As a facilitator in the continuous process of negotiation, the purchases are sanctioned by the government agency to cotton mills to cater corporate consumption.

(c) PRIME BIO Model of Contract Farming- PRIME BIO, a part of the Coimbatore-based automobile engineering major Premier Instruments and Control Ltd. (PRICOL), has implemented the Dharapuram contract farming under the banner of Prime Farm Solutions (PFS), its farm service arm, is the nodal agency to run the contract farming. This contract model designated under the integrated agriculture development project actually centres on two crop-choice patterns – high-valued and low-valued agri-crops and a twin contract model – the five-year land lease to meet term loan for drip irrigation mechanism and the seasonal or annual crop contract. These contracts are executed between farmers' self-help groups in the designated villages and the PFS, which also entered into back-to-back contract with industries seeking specific supplies of the commodities. A large apex body known as Farmers Coordination Committee, represents

the farmers' interest and deals with the PFS. The PFS as facilitator arranges the bank credit for drip irrigation system and crop loan for growers and also procures support services such as inputs, crop care, insurance cover and marketing of harvested crop. Major textile houses like Super Spinning Mills, Precot Mills, etc. have buyback contracts with PFS for the medium/long staple cotton. This way PRIME BIO caters quality cotton to corporate consumption. Besides, the PFS is also actively engaged in organizing contract cultivation of cotton and wheat in Hubli, Dharward and Belhaun regions in Karnataka.

(3) Tamil Nadu Model of Contract Cotton Farming

In this model, both farmer and company are free to settle the price mutually. Once the price is settled, it has to be submitted to the enforcement officer of the state government. Arbitration is resorted to settling disputes and differences out of court between two or more persons through an independent and impartial person, if there is breach of contract by either party. The award is given by law enforcement agency after proper investigation and hearing. Both parties are liable to comply with the final award of arbitration (Kumar and Chand, 2004). The common variants of the model are:

(a) An Act on contract farming exists in Tamil Nadu only. So, the Tirupur-based Royal Classic Group, which owns the Classic Polo and Smash brands, entered into a tripartite agreement with the State Government (T.N.) on contract farming in January 2005. The company had assured the growers to either pay the minimum guaranteed price or the market price, whichever was higher. With the consent of the farmers, the government machinery identified and certified the land. Royal Classic guarantees the purchase at the minimum guaranteed price and the grower is assured of buyback of the farm produce around the area of Eroda.

(b) Public sector seed firms in the Haryana state practise this form of model. The farmers satisfying the criteria of taking contract cottonseed programme approach the firms of public sector and the firms submit the list of duly approved contract farmers to the Haryana State Seed Certification Agency to certify the cotton filed of growers as per codex of quality standards. The public firms purchase only the certified cotton of growers with pre-agreed incentive price.

(4) Appachi Model of Intergrated Cotton Farming

The Appachi Care Foundation acts as the coordinating agency between small farmers and other stakeholders such as input suppliers, service providers

and actual users of cotton (ginneries, textile mills). Bulk purchases of seeds, fertilizers and agrochemicals are made at discounted rates and the benefit is passed on to farmers' groups. The Foundation has brought small farmers together and has consolidated them into self-help groups and provides them with resources, technologies and finance to improve cotton yields. Agronomists are appointed to render extension advisory service. The Appachi Care Foundation negotiates with banks for institutional finance for the group of farmers (who are, otherwise, ineligible for loans) at confessional rate of interest, as also crop insurance at lower price. A significant feature of the Appachi Model, is that under his scheme, the farmer has the option but not the obligation to sell his produce to the coordinating agency. As the price is not pre-determined, the grower has sufficient marketing flexibility and obtains the market price. Besides, contract farming can open up new markets, which would otherwise be unavailable to small farmers. This is ensures delivery of price benefit to resource-poor farmers in the country. This model was started in 2002 with about 600 farmers, each holding less than one hectare of land, covering 400 hectares and formed into 12 self-help groups, has now been expanded to cover 1500 farmers in 65 self-help groups, covering over 800 hectares of land spread over four regions of Tamil Nadu (Business Line, 2004).

Mode of Operation of Contract Farming in the Study Area

Farming contracts succeed if they contain the elements of fair risk transfer or coverage measures and trust relationships built over long periods. These work only when there is a market niche for the specialty product whose demand is more than the supply. A conceptual comparison of operation of public and private contract farming models has been presented in Table 1. A perusal of Table 1 revealed that the public agency contracted with medium and large farmers only, based on the locality of farms, size of holding, field history, economic condition of the farmer, possession of farm machinery, assured irrigation, willingness to cultivate at least in 5 acres of land and level of commitment to the contract for ensuring supply of quality cotton. On the other hand, the private agency contracted with all categories of farmers, irrespective of their size of holdings and tried to bring together small farmers to improve their productive capability and build capacity among them to face challenge of the market. Bhalla and Roy (1988) had reported that the economic performance differed considerably even between farms operating under more or less similar production regimes. Differences in the economic results are usually attributed to differences in the management of farms. Small and marginal farmers, badly affected with limited access to market and price information in the developing countries, bear the brunt of

Table 1. A comparison of different modes of operations of contract cottonseed farming by public and private agencies in Haryana: 2003-04

Particulars	Public sector (Tamil Nadu Model)	Private sector (Pepsi Model)
Price settlement (Rs/q)	Market price + Bonus @ Rs 180-200/q + Transportation charges	Market price + Bonus @ Rs 100-120/q + Transportation + Certification charges
Categories of farmers	Medium and large	Small, medium and large
Nature of contract	Formal (written)	Informal (oral agreement)
Kind of contract	Direct	Indirect
Linkages	Forward	Backward and forward
Nature of price	Discovered	Undiscovered
Mode of payment	2/3rd payment after harvest + 1/3rd after 'O.K.' report	Lumpsum payment (on spot)
Incentive criterion	Based on market price, covers additional cost for extra care and maintaining isolation distance	i) Extent of increase in market price and/or average of prevailing fortnightly highest market price, ii) Selection of species and choice of variety.
Rouging operation	By farmer	By labour of private firm
Technology and supporting services	Only seed	All kinds of inputs and technical know-how
Physical take-off limits	85% of produce/unit area	No limit
Compensation in crop damage	Nil	Seed + field certification charge
Market intricacy	Input supply (seed only & buyback output	Free from both input and output markets
Arbitration mechanism	Yes	No
Credit facility	No	Yes
Production decision	Independent	Dictates of firm prevail

Source: Based on primary survey data (2003-04)

price collapse in market. Inconsistent quality is another issue. Cotton growers have to face the vagaries of not only weather but market place also. Flinn (1993) has explained that heterogeneity in cotton quality arises only across compact land areas of production due to differing soils, water, agro-climates and location; and to minimize the impact of diverse environment, a uniform variety of cotton is grown under the contract farming system, ensuring uniformity in the quality of produce. Hence, the private firms contract with the small farmers for undertaking cotton production of a single variety by encompassing neighbouring land areas to make a large homogeneous block. This revolves around the principle of *'one variety, one quality and one village'*. Contractual arrangements vary across production regimes (Haque, 1999). The nature of contract may differ according to variations in the nature of crops and the context in which they are practised. Farmers choose one suitable production regime, ranging from informal to formal contracts (Kumar and Chand, 2004). The nature of contract production of the public sector's firm is in writing and has fully vetted legal agreements with their growers. A farmer has to submit all terms and conditions of contract on an affidavit to the HSSCA. The nature of contract of private firm is indirectly written between farmer and the HSSCA, but is oral between farmer and private firm. The farmer produces cotton for a private firm but firm acts as a middleman between the farmer and the HSSCA.

The primary producers will, in future, rely less on conventional price discovery mechanism and more on exclusive supply arrangements (AFFA, 2002). The method of price settlement of public agency is on flat rate basis but of private agency is on varying rates basis. The public agency paid Rs 180-200 more on the prevailing market price to contract growers. The private firms were paying an incentive price ranging betweenRs.100 to Rs.120 per quintal on the prevailing market price to farmers for cotton production, depending upon spices of cotton (upland and lowland cotton) and the choice of variety under the Pepsi model. The criteria of incentive price were: (i) the extent of increase in procurement price and/or the average of prevailing highest fortnightly market price, and (ii) type of cotton spices and choice of the variety. The aim was to keep the incentive price over and above the prevailing market/procurement price. The transportation costs of the produce are paid to the farmer by the agencies of both public and private sectors as per distance covered. The public procurement agency has put a maximum physical take off limit of cotton per acre because of undersized, damaged cotton seed etc., whereas farmers hooked to private agency have no such limit on per acre basis. Contract is used to motivate behaviour and performance of grower and can often minimize transaction cost associated with business (Fraser, 2002). Moreover, all expenses and responsibilities of

cotton certification on behalf of farmers are borne by the private agency, while farmers of public agency have to bear such expenses themselves.

According to Goodhue (1999), moral hazard and profit maximization arguments can be used to justify as to why certain contracts might explicitly control the choice of various inputs used by a grower. A farmer of private firm receives all production technology and extension services, whereas a farmer of public agency is provided only the seeds and the rest of inputs used in cotton production are to be managed by himself. The private agency deducts all input costs at the time of procurement of cotton and the remaining payments are made to the farmers after the receipt of all lots of cotton at ginning plant, as per contract. The mode of payment of public agency to the farmer is on installment basis. Two-thirds of the total payments are made to the farmer after receipt of cotton at the ginnery and the remaining one-third payment is released after getting the 'O.K' seed test report from the state seed-testing laboratory. Growers enter into contractual arrangements for reasons such as risk reduction, lack of capital, more income, etc. (Kliebenstein and Lawrence, 1995). No compensation is paid to the farmers of the public agency in case of damage of crop, whereas the farmers of private agency get exemption from seed and certification costs and the remaining cost incurred in the production of cotton crop is recovered from the next crop season. The farmer of public agency is free only from output (seed and lint) market but not free from complexities of input market, whereas the farmer of private agency is free from the complexities of both input and output markets. Hence, contract cotton farming linkage in public agency has only forward linkage, whereas the farmers of private agency have both forward and backward linkages.

In general, the producer gives up the opportunity for higher prices in return for protection from low prices. The farmers of public agency have the option of readdressal of their grievances by arbitration mechanism in case of breach of contract, but the farmers of private agency have no such option of readdressal or suing of a case in the court of law since the contract between farmer and private agency is oral and indirect. The farmer of private agency has facility for production as well consumption loans. Thus, contract farming has potential to be an effective instrument for credit deepening with more involvement of private sector in agriculture. Haque (1999) has emphasized that contract farming may encourage 'Proletariat class of peasant farmers'. The family of contract farmer of private firm loses its independent decision-making power on crop production under the dictates of firm. Moreover, informal contracts are always not well understood, with prices, quality stipulations and respective responsibilities being the major areas of confusion.

Production Matrix for Cotton under Contract

The basic concept of production matrix is to formally identify all the key components that influence seed production in terms of their significance, responsibility and performance. Essential components have to be achieved in their entirety; otherwise the seed programme would be placed in considerable jeopardy. Necessary components generally have to be achieved to the maximum extent possible, although marginal performance of one or two such components would not necessarily endanger the programme. Desirable components are considered necessary but not vital for the seed programmer's success. Contract farming, which normally incorporates new management methods and capital, needs incessant feedback regarding the acceptance/rejection or modification of new techniques suiting to farm situation by farmers, the changing working patterns and seed production capabilities of farmers. Components under achievement and significance ranking have been tabulated in Table 2.

In the above matrix, it could be seen that all essential components have been achieved, except for research and training, which is inadequate. The sponsors should collate with the cotton institutes and universities for imparting skills to seed growers and for advanced research and in disseminating the technologies for a technically feasible and economically viable and eco-friendly seed programme under contract farming. All the desirable

Table 2. Production and post-harvest matrix for cotton under contract

Component	Public		Private	
	Achievement Ranking	Significance Ranking	Achievement Ranking	Significance Ranking
Farmer's selection	3	E	3	E
Land area allocation	3	D	2	D
Seed supply	2	E	3	E
Research and training	1	E	1	E
Plant protection	2	N	3	N
Credit deepening	1	N	3	N
Farm machinery	2	D	3	D
Certification procedure	3	E	3	E
Harvesting	2	N	2	N
Timely delivery of outputs	3	E	3	E
Assured buyback	3	E	3	E
Timely payment	2	N	3	N

Key: 1 = Inadequate; 2 = Adequate and 3 = Objectives achieved; E= Essential, N= Necessary and D = Desirable.

Source: Primary survey data, 2003-04.

components have been achieved, except credit depending to the farmers of public seed firms, which is inadequate. The sponsors should collate with public and private financial institutions for advancing credits and its assured recovery from the contract farmers at the time of procurement of desirable quality produce. From Table 3, it could be seen that the contract farmers availed the advantage of increase in yield to the tune of 500-600 kg against 300-400 kg in the case of non-contract farmers due to adoption of recommended package and practices to the farmers' fields.

It has been found that cost minimization up to Rs 360 per acre could be obtained under contract cotton-seed production of private firms because the costs of certification procedure and transportation were borne by seed firms. Incentive prices offered to contract farmers of public and private seed firms were more by 10-15 per cent and 5-10 per cent, respectively, on open market price. This discerned that contract farming is increasing farmer's income by reducing the cost of cultivation. Most important of all, 2/3rd payment is made on procurement of produce to contract farmers of public seed firms and remaining 1/3rd payment is made after the seed test report (nearly six months). On the other side, on the spot, full payment is made to the contract farmers of private seed firms, whereas in the case of non-contract farming, it takes 30 to 40 days to get the entire payment. Contract farmers of public and private seed firms can get loans at the annual rate of 9-10 per cent as against 12-14 per cent in the case of non-contract farmers.

Table 4 shows that the sponsor gets the kapas of uniform quality of single cotton variety as per requirement of pressing and spinning technology of mills with low trash content, less contamination, and increased realization by weight under contract farming. But, cotton under contract is ginned by ginneries of seed firms and textile mills at the rate of Rs 75-100 per bale purchased lint available with seed firms more than that of market price.

Table 3. Benefits and facilities enjoyed by the contract farmers

Particulars	Non-contract farmer	Public contract farmer	Private contract farmer
Yield, kg/acre	300-400	500-560	500-600
Input cost	Nil	Additional cost Rs 360/acre	Cost reduction Rs 360/acre
Incentive price	Nil	10 to 15 % more on MP	5 to 10 % more on MP
Payment	30-40 days	2/3rd on spot + 1/3rd after 6 months	On spot full payment
Crop loan interest	12-14% annum	9 % per annum	10 % per annum

Source: Primary survey data, 2003-04

Table 4. Benefits enjoyed by the seed firms/cotton mills

Particulars	Market cotton	Contract cotton	
		Public	Private
Uniform quality of cotton seed	Mix	98.5% genetic and physical purities of single variety	98.5% genetic and physical purities of single variety
Expenditure for cleaning and segregation of kapas	Rs 1.25/kg	Re. 0.40/kg	Re. 0.35/kg
Trash content	3-4.5%	1-2 %	1-2%
Contamination	12-22 mg per bale	0-1.5 gram per bale	< 1 gram per bale
Yarn realization by weight (combined counts)	63%	71%	72%
Margin on sale of lint available with seed firms	Nil	Rs 75 per bale	Rs 75-100 per bale

Source: Primary survey data, 2003-04

These textile mills are assured of uniform quality of cotton lint of a single variety from seed processing firms because seed firms maintain genetic as well physical purities of seed of a single variety under the supervision and control of a seed certification officer. Most important of all is that seed firms could get quality seed as per stringent seed certification standards.

Performance of Public and Private Sectors

Generally, the cotton produced in Haryana is not of very good quality and is mostly consumed in the state (Duhan, 1998). Performance of public and private seed agencies in contract cotton production in the state is given in Tables 5 and 6. A perusal of Tables 5 and 6 revealed that contribution of the public agency in contract cotton production was 40 per cent in 1990-91 in the state, which had decreased to 28 per cent in 1993-94. After the establishment of WTO, its share went down drastically and reached nearly 8 per cent in the year 2002-03. The detrended growth rate of public agency computed as 1.77 per cent per annum was statistically significant.

The contribution of private agency was 56 per cent in 1990-91, which increased to nearly 92 per cent in 2002-03. The detrended growth rate of the private agency was computed as 2.39 per cent per annum, which was

Table 5. Growth rates of cottonseed production of public and private firms in Haryana: 1990-91 to 2002-03

Particulars	CGR (%)	R^2
Public	-1.77*	0.62
Private	2.39*	0.84
Overall	-0.02NS	0.01

Source: Official Records of HSSCA, Panchkula, Haryana
* Significant at 5% level, NS- Non-significant

Table 6. Contributions of public and private sectors in contract cotton production in the state of Haryana: 1990-91 to 2002-03

(in per cent)

Year	Public	Private	Total
1990-91	43.99	56.01	100
1991-92	49.18	50.82	100
1992-93	39.06	61.74	100
1993-94	27.70	72.29	100
1994-95	12.73	87.26	100
1995-96	9.95	90.03	100
1996-97	9.72	90.26	100
1997-98	3.09	96.90	100
1998-99	1.87	98.12	100
1999-2K	6.89	92.76	100
2000-01	11.46	88.53	100
2001-02	9.46	90.53	100
2002-03	8.33	91.66	100

Source: Official Records of HSSCA, Panchkula, Haryana

statistically significant. But, the detrended growth rate of the overall contract cotton in the state was – 0.02 per cent per annum, which was statistically non-significant. It could be concluded that the growth rate of cotton production was almost stagnant due to monopsonistic nature of market. Between a given period, the share of public agency had diminished and that of private agency had increased. It could be concluded that the private agency flourished at the cost of public agency and captured a major portion of contract cotton production of public sector in the state. It might be due to the facts that contract of private agency was quasi-formal, farmer-friendly and flexible to the need and requirement of farmers as compared to the contract of public agency. The private business firms have sharpened their competitive edge and the public agency is lagging behind in the competitive race, losing their share in contract cotton production; their technological obsolescence is also worrying them. In addition, favourable changes in socio-economic and legal

framework of government policies have encouraged active participation of private agency in agribusiness.

Standardized Values of Public and Private Seed Agencies

Standardized values of public seed agency, market price and private seed companies are given in Tables 7 and 8. A perusal of these tables revealed that prevailing market price of cotton increased almost more than two-times per quintal during the period 1990-91 to 2002-03. The standardized values of market price and incentive price of public and private agencies depicted (Fig. 1) that the standardized values of incentive price of public and private sectors always remained above than the standardized value of market price. It purported that contract cotton was incentivised by contractors and the incentive price remained favourable to farmers thoughout the study period, even though the market prices slipped down below the procurement price in 2003-04. The last column of Table 4 of private agency depicts that the percentage premium on market price continued to exhibit a mixed trend in the given period, but during the initial years it slipped down from 8.4 per cent in 1990-91 to 5.6 per cent in 1994-95. It started showing increasing premium percentage and reached 10 per cent in 2003-04. The last column of Table 5 of public agency showed diminishing incentive price over the market price and reached almost equal to the percentage incentive over market price of private agency.

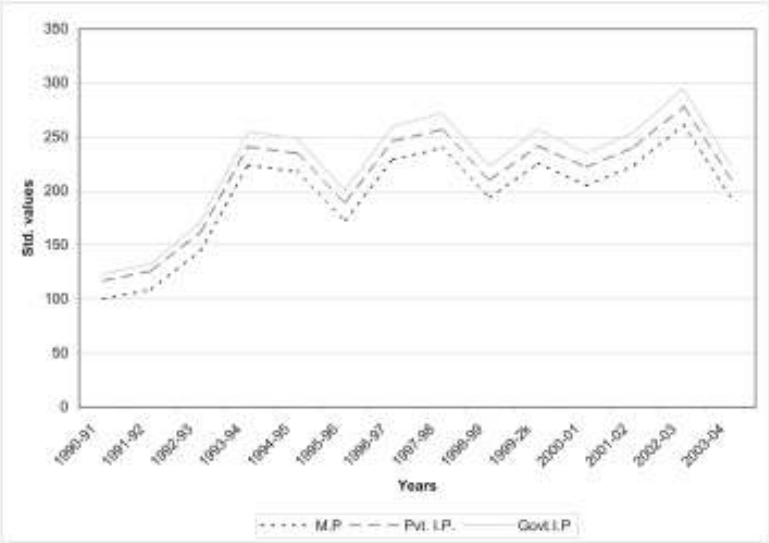

Fig. 1. A comparison of standardized value of market price, incentive price of private agency and incentive price of public agency firms

Table 7. Standardized value of minimum support price, market price, incentive price and percentage premium on market price of cottonseed production of private agency in Haryana: 1990-91 to 2003-04

Year	MP	IP	MP Base=895	IP	(MP×100)	(Ip×100)	Incentive over MP (%)
1990-91	895	1045	1.00	1.17	100	117	8.40
1991-92	975	1125	1.09	1.26	109	126	8.20
1992-93	1297	1447	1.45	1.62	145	162	6.80
1993-94	2008	2158	2.24	2.41	224	241	5.00
1994-95	1950	2100	2.18	2.35	218	235	5.60
1995-96	1553	1703	1.73	1.90	173	190	7.40
1996-97	2050	2200	2.29	2.46	229	246	5.90
1997-98	2150	2300	2.40	2.57	240	257	5.80
1998-99	1733	1883	1.94	2.10	194	210	7.80
1999-2K	2020	2170	2.26	2.42	226	242	7.40
2000-01	1833	1983	2.05	2.22	205	222	8.40
2001-02	2006	2156	2.24	2.41	224	241	8.20
2002-03	2341	2491	2.61	2.78	261	278	7.50
2003-04	1740	1890	1.94	2.11	194	211	10.00

Source: Official Record of Market Committee, Haryana

Table 8. Standardized value of minimum support price, market price, incentive price and percentage premium on market price of cottonseed production of public agency in Haryana: 1990-91 to 2003-04

Year	MSP	MP	IP	MP Base=895	IP	(MP×100)	(Ip×100)	Incentive over MP (%)
1990-91	620	895	1045	1.00	1.23	100	123	22.34
1991-92	645	975	1125	1.09	1.33	109	133	20.51
1992-93	800	1297	1447	1.45	1.71	145	171	15.42
1993-94	900	2008	2158	2.24	2.55	224	255	9.96
1994-95	1000	1950	2100	2.18	2.49	218	249	10.26
1995-96	1150	1553	1703	1.73	2.01	173	201	12.88
1996-97	1180	2050	2200	2.29	2.60	229	260	9.76
1997-98	1330	2150	2300	2.40	2.72	240	272	11.63
1998-99	1440	1733	1883	1.94	2.23	194	223	14.43
1999-2K	1575	2020	2170	2.26	2.57	226	257	12.38
2000-01	1625	1833	1983	2.05	2.35	205	235	13.64
2001-02	1675	2006	2156	2.24	2.55	224	255	12.46
2002-03	1725	2341	2491	2.61	2.95	261	295	10.68
2003-04	1775	1740	1890	1.94	2.23	194	223	14.37

Source: Official Record of Market Committee, Haryana.

Summary and Conclusions

Cotton production needs to be income-focused than price-focused through contract farming with the amendment of the Agriculture Produce Market Committee Act (2005) that has enabled direct marketing between the farmer, cooperative, private companies etc. and has opened up contract farming to create avenues for the private sector. Four types of contract cotton farming models, viz. Pepsi, Tripartite, Tamil Nadu and Appachi, are prevalent in the country. Public agency undergoes contact with only medium and large farmers, whereas private agency contracts with all categories of farmers to bring together small farmers for undertaking the programme of cotton production of a single variety on a large homogeneous block. Contract cottonseed farming has fully vetted legal agreements with their growers. The public and private agencies pay a better incentive price to contract growers than the prevailing market price. Private agency bears all expenses and responsibilities of cotton certification on behalf of farmers and farmers receive all production technology and extension services while public agency bears no such expenses and responsibilities and farmers receive only quality seed on payment basis. The farmers of public agency have the option of readdressal of their grievances but no such option exists with farmers of private agency. To keep strong linkanges with farmers, the private agency provides not only production and consumption loans to its farmers but has also captured a major portion of public agency in the state. The premium percentage of private agency on market price hoveres between 5 and 10 per cent and that of public agency has diminished after WTO, reaching almost equal to the percentage incentive over the market price of private agency. The study has concluded that the private agency has sharpened its competitive edge while the public agency has lagged behind in competitive race perhaps due to obsolescence of technology, weak management, capital constraints, etc. Moreover, the favourable changes in socio-economic and legal framework of government policies have encouraged active participation of the private sector in cottonseed business. The commitment-driven contact farming has emerged as a viable alternative-farming model, which provides assured and reliable input service to farmers and desired farm-produce to the contracting firms.

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