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A Case Study of Pepsico Contract Farming For Potatoes

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Abstract: *PEPSICO INDIA provides farmers with variant of seeds for Contract Farming that helps farmers not only providing a ready market but also in technological application, getting farm credit and insuring their crops. Contract farming is an agreement between farmers and the company for production and supply of agricultural products or commodities of a certain type, under forward agreements regularly at a pre-agreed price and time for a certain quantity. This case study is an initiative to demonstrate Pepsico India Holdings Private Ltd, the Indian arm of Pepsico International's successful Contract Farming for potatoes in India. The case study provides a detailed outlook of the concepts of contract farming and the relationship of the farmers with that of the PEPSICO Company.*

I. Contract Farming: Strategising the Concept

Contract farming is an agreement between a buyer and farmers, to carry out agricultural production that refers to production and supply of agricultural produce under a forward contract. Singh (2002) stated that it is a commitment to provide an agricultural product at a fixed price, time and required quantity to a known buyer. The companies often meet farmers to introduce them to the best agronomy practices. It has been observed that Indian Companies are mainly embracing contract farming to support their export demands where they have to ensure product qualities and other specifications. However, farmers perceive contract farming as a relationship with the firm while from the purchaser's point of view, it is a good quality, timely availability of material at a predetermined price, which is the basic requirement for any successful agro-business firm whether operating at National /International market. Collier and Dercon argue, potential benefits for national economies as contract farming leads to economies of scale are bound to provide for a more dynamic agricultural sector. It is a flexible means which supports price and production and an assured market in advance. Contract farming is essentially a market driven farming, not like traditional farming, where farmers first produce a product and then search for its market. It essentially involves four factors like pre-agreed price, quality, quantity and time. Contract farming is a strategy adopted by food processors in gaining momentum due to sharp rise in the economy, rising food demand, organising retail boom and increasing shift towards branded food consumption.

- **Market Perspective**
  The grower and buyer agree to terms and condition for the future sale and purchase of a product.
- **Resource perspective**

In conjunction with the marketing arrangements, the buyer agrees to supply selected inputs such as seeds, fertilizers for the cultivation of crop including on occasions land preparation and technical advice.

- **Management Specification Perspective**

The grower agrees to follow recommended production methods, inputs regimes, and cultivation and harvesting specifications from the firm (Eton et al., 2001). Contract farming has been used for agricultural production for decades but its popularity appears to have been increasing in recent years. The use of contracts has become attractive to many farmers because the arrangement can offer both an assured market and access to production support. Contracts with farmers can also reduce risk from disease or weather and facilitate certification, which is being increasingly demanded by advanced markets. Contract farming is also of interest to buyers, who seek supplies of products for sale further along the value chain or for processing. Processors constitute the main users of contracts, as the guaranteed supply enables them to maximise utilization of their processing capacity.

A Win-Win Situation

It is extremely beneficial for companies involves in it as it can be a means to develop markets and technology transfer in a way that is profitable for both the companies and farmers. The contractual agreement can provide the farmers with access to production services and credit as well as knowledge of new skills and technology. Some contract farming ventures give farmers the opportunity to diversify into new crops and new markets. Contract Farming ensures timely supply of quality seeds to the companies which in turn increase the yields of the particular firm.

Objectives of Contract Farming

- To promote a steady source of earnings at the individual farmer level.
- To expand private sector investment in agricultural business.
- To inspirefinancially rewarding employment opportunities in rural communities, especially for landless agricultural labour.
- To bring down the burdenof central and state level procurement system.
- To minimize migration from rural to urban areas.
- To create a market focus in the matter of crop selection by Indian farmers.
- To promote value addition and processing.
- To bring down as far as feasible, any seasonality associated with such employment.
- To encourage rural self-reliance by pooling locally available resources and expertise to meet new challenges.

Types of Contract Farming Contracts

- Contract of Procurement, where buy and supply terms and conditions are intimated.
- Partial Contract, where agro firm supplies some inputs to farmer and produces are acquired by agro firm at pre-determined price.
- Total Contract, where agro firm supplies all the inputs required, to farmersforproducing crops on his own land.In case of total contract, farmershave to bear only land and labour.

Commencement of Contract Farming By Pepsico in India

In the year 1989, PepsiCo (formerly known as Pepsi Foods Ltd.) launched its agro business in Indiain Hoshiarpur District of Punjab with special emphasis on exports of value added processed foods by introducing world class tomato processing plant. TheContract farming model followed by PepsiCo, where thefarmerharvests the company’s crop on his land, and the company suppliesthe farmer with inputs such seeds/saplings,

agricultural applications and regular monitoring of crops by its technical team. Motivated by the success of contract farming for tomato in several district of Punjab, PepsiCo has been stronglyimitating the

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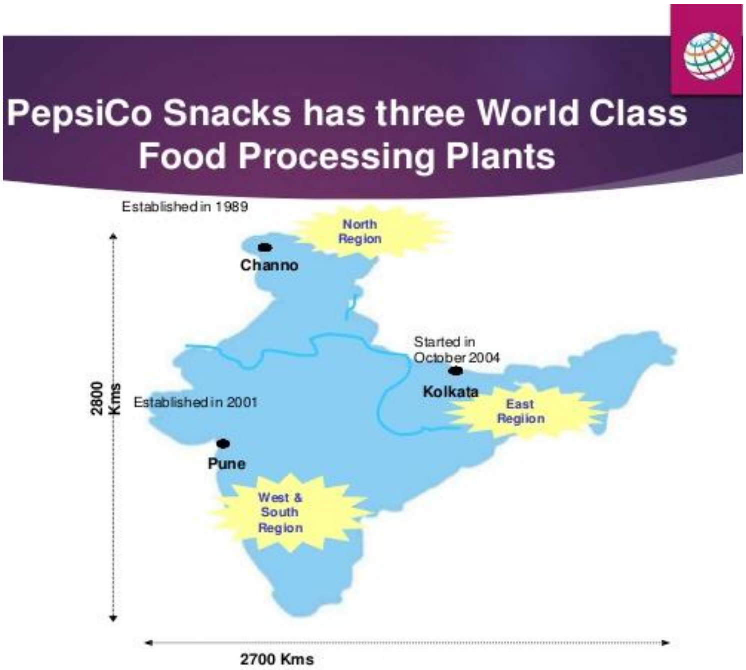
model of food grains, such as in case of Basmati rice, spices like chilies, oil seeds namely ground nuts and vegetable crops like potato. Since 1990,PepsiCo has been engrossed in the export of Basmati rice, the first processor in India to invest and build up linkages for Basmati rice. Before undertaking contract farming of Basmati rice, PepsiComoved through in-depth multi location field tests to assess several varieties for their acceptability.PepsiCocompany's scientistsestablish successful transplant of technology from the tests to the commercial field level, associated from the stage of selecting varieties of Basmati rice, evaluation of combination of practices for farmers and seed multiplication of these varieties. In the contract farming mechanism, the company procures entire pre-agreed quantity of the harvested produce at the farm gates at the pre-determined price. For the purpose of processing, packaging and exports, theprocured raw material is transferred to the processing plant at Sonepat in Punjab.

The company plans to expand and therefore has been organising several trials in Karnataka to assess hybrids/varieties of chilies, tomato, potato and maize. PepsiCo/Tropicana is moving forward in the field of contract farming for citrus fruits in collaborationwith theGovernment of Punjab, the Punjab Agricultural University and Department of Horticulture,where Punjab government has providedassistance in creation of nursery infrastructure, bearing cost of importing germplasm and allotment of land as demonstration plots at various locations.

In the same time Tropicana Products Inc, a PepsiCo owned company has facilitatedentry to numerous varieties and knowledge base for various practices for farmers. Leveraging services of international experts to part expertise from US nurseries and educating people on grafting and planting. A Group of Farmers from Punjab were sent to visit Citrus groves in Florida by PepsiCo. Farmers in Punjab will now have access to world class resource of planting material with this venture.With the help of this gainful venture with PepsiCo, farmers are now be able to select among more than fifty varieties of citrus and sixteen varieties of root stock for the purpose of production.



Contract Farming for Potato by Pepsico

In the year 1987, FritoLay, a PepsiCo group company set up its first potato chips plant in Channo, district Sangrur, Punjab. Later two more plants were started one at Ranjangaon, Pune (MH) and the other at Howrah in West Bengal. For the operations in these plants, PepsiCoCompany required more than 100,000 MT of processed grade potato per annum. Though India is the third largest producer producing nearly 25 million tons per annum after China and Russia, meeting the requirement of process grade potato is still uncertain. Potato is widely available but the challenge is in getting a year round supply of the processed quality of potatoes that are required for producing chips.The major factor behind this gap is non-availability of processing grade varieties. Immediately after the unveiling of K. Chipsona-1, K. Chipsona-2 and K. Chipsona-3 process grade varieties by the Central Potato Research Institute, Shimla this difference is being diminished. Seasonality, is the other vital limiting factor to meet the demandof process grade potato.

In India, around 90% of potatoes are produced in Indo-Gangeticplains,north-western plains, central and north eastern regions duringshortwinter days, and this contributesto the bulk of fresh harvested potatoes. Although, potatoes harvested in cooler north-western and west central plains are not fit for processing because low temperatures at the time of crop maturity results in build-up of low dry material and high reducing sugars in the potato tuber.

Hence, to meet its demand for processed potatoes, FritoLay a PepsiCo group company performs contract farming in the states of West Bengal, Maharashtra, Punjab, Jharkhand and Karnataka. After years of multi-location trials, acceptable varieties have been ascertained. The PepsiCo is involved in contract farming for potatoes in various states with more than 14000 farmers over an area of 12000 acres. Relationship with farmers is for long term and more than 90% farmers are repeat farmers.

The PepsiCocontract farming model differs slightly from state to state, but the basic model of operation is “Partners in Progress Model” (Fig. 1) where efforts are made to provide a win-win market linked self-sustaining opportunities. In the “Partners in Progress Model”, FritoLay establishes cooperatives or locally evolved farmers organizations to be affiliated directly. Suitable farmers who can produce quantity and quality as per requirement which is pre agreed are identified by these cooperatives or farmers organisations.

The PepsiCoCompany procures the production as per the price, quantity and quality which are pre agreed.Pay for Performance system is followed by PepsiCo where farmers get incentives on their production meeting high quality standards,this is carried on by PepsiCo company to drive quality and a continuous generous supply. Advanced generation standard seed tubers are distributed to the farmers.

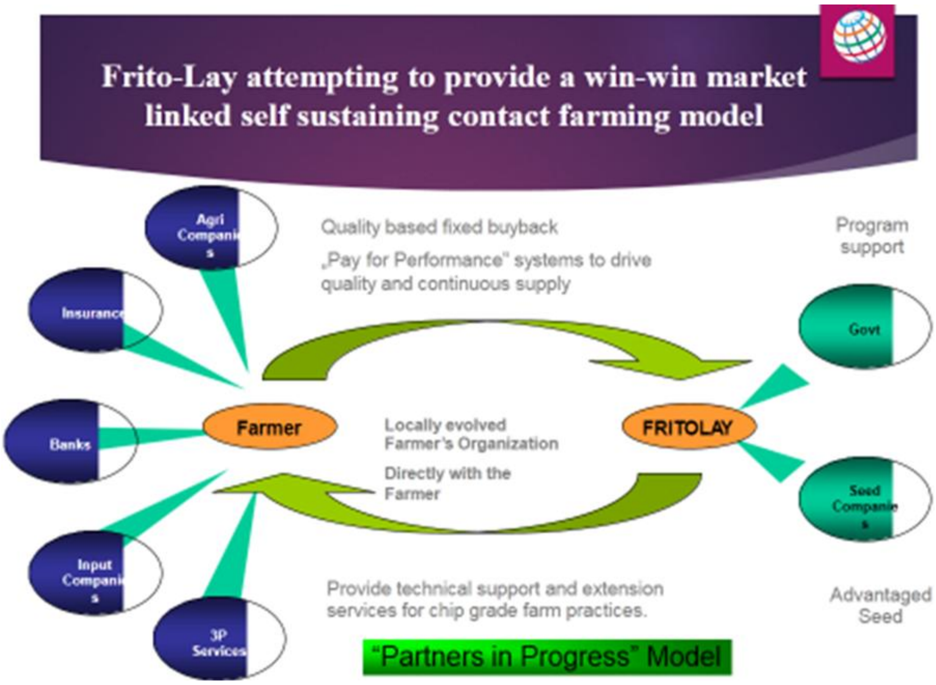


Fig. 1. “Partners in Progress” model adopted by FritoLay

The Company also delivers direct assistance to farmers in relation to extension services for chip grade farm practices via qualified agronomists and scientists. Agronomists also keep information for the field practices followed and stages of the crop.

On harvesting, quality standards are checked up and grading, bagging and transport of the production from farm gate is arranged. Finally, farmers are remitted with quality based fixed buy back rate of the produce.
Other supports and assistance by the company to the farmers includes, identifying input companies to make bulk supply ofinputs on reduced rate and benefits are thereon passed on directly to farmers. Low interest rates crop insurance and crop loans are also provided by the company through relevant agencies. A 360-degree

farmer connect program has been introduced by PepsiCothat has transformed the lives of small and marginal farmers by elevating the income of farmers across India.

360-Degree Farmer Connect Program Includes:

- Safeguarding farmers from open market price variations, by providing guaranteed buy-back of produce at pre-determined prices.
- High quality planting material provided to the farmers, including its proprietary advanced seed varieties.
- Providing Soft financing by way of national level tie-up with State Bank of India.
- Partnership with insurance companies to provide crop/weather risk insurance to safeguard farm incomes.
- Supplying plant protection scheme and technical know-how formulated in association with agricultural-input companies namely Bayer, BASF and DuPont.

Profile Of Pepsico Potato Contract

Procurement and input based contracts are proposed by PepsiCo in which the firm agrees to procure the produce under contract at a pre-agreed price as well as at a fixed time and also provideswith inputs such as seeds to farmers. In return the farmers do pay some amount to the company in advance in proportion to the acreage under contract.

The firm supplies two types of varieties to the farmer as the input. One among the two is LR type and other is CH1 type, time period of the LR variety is 60 days, and time period of CH 1 is 120 days. The process of harvesting of crop is started only when the crop attains its maturity stage. Usually, after a period of 90 to 120 days of sowing, the crops can be harvested.

Classification and grading of the production is very crucial in nature. It ensures higher income to the farmers. After the process of grading by the farmers the potatoes are further graded and classified by the firm under different categories as shown in the figure-2. But, the firm onlyacquires those potatoes that are of 45 mm, which is the recommended size of the potato.

In the arrangement of contract farming of potatoes, the PepsiCo also supplies the producers with a kit which comprises of chemical fertilizers andpesticides that are to be used as liquid spray on the crop.

In addition to this, the firm also delivers certain facilities and technical advices to the farmers such as an observation by the field officerat a regular interval of fifteen days, organising of meetings and lectures through seminars by the technical staff members in the villages, to encourage contract farming. And in seminars, problems related with contract farming and their solutions are discussed.

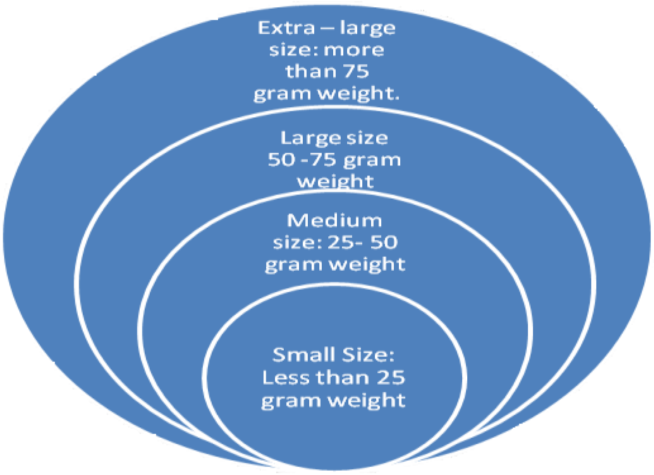


Fig2: Size of Potatoes

Beside these facilities, PepsiCohas also a facility of broadcasting of weather information regarding rain and frost conditions that areunfavourable for the potato crop. Tower are installed at suitable place in the village and such information are provided. These are made available to farmers free of cost.

The firm initiates the time, quality and quantity of the produce with the farmer at the time of forming the contract.The contract price for contracted crop is predetermined by the firm in the beginning.

Productionassessment and quality test function is also carried by the firms with different sophisticated equipment. Payment is made within a week after delivery by cheque in the bank account of the farmer.

PepsiCodoes not allow farmers to sell the produce in open market. But only at particular conditions the company permits part of the acreage produce to be sold outside if enough procurement is available and the production is quite higher from the desired expectation. If the company discoversout farmer's cheating with the companyor having a negative behaviour with company and is selling the produce in open market or else, then company states him as a defaulter and blacklists that farmer.

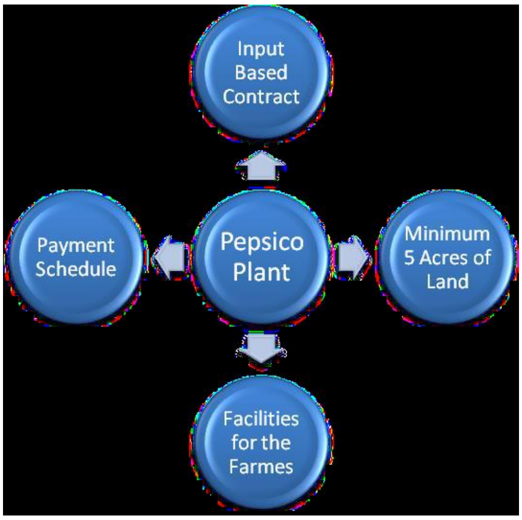


Fig 3:Profile of PEPSICO Plant

Pepsico Contract Farming Terms and Conditions Regarding Adoption and Size of Land Holding

Terms and conditions are specified to the farmers by PepsiCo Company before signing agreement. Marginal farmers are totally refused by the firm to participate in contract farming process. Engagement of small farmers in the contract farming is also very less as compared to the semi- medium, medium and large farmers.
PepsiCo firm has a set of rules and regulations for contract farming scheme like the acreage for potato should not be less than 5 acres. So, minimum acreage required for contract farming is 5 acres and it is strictly followed by the firm. PepsiCo firm also encourages the larger farmers in comparison to that of the small farm holders. The main reasonbehind this being the economic objective of the firm.

In the opinion of the firm, small farmers' lack knowledge about modern inputs;proper use of modern inputs and modern technology and are also difficult owing to lack of land. So,performing with the small – scale farmers is difficult for the PepsiCocompany.

Through the means of interviews with small farmers it has also been established that small farmers earn more profit by leasing -out land on rent than carrying-out agriculture. Off- farm and other possibilities are also leading them to the non- agricultural sector.

In West Bengal

West Bengal is the largest supplier of potatoes for the chips manufactured by PepsiCo India Ltd, with the company procuring 22,000 tonne of potatoes this year by way of its contract farming agreement with farmers in the State, according to Mr Nischint Bhatia, Executive Vice-President, Agro, PepsiCo India. The total procurement of potatoes by way of contract farming by PepsiCo was about 70,000-75,000 tonne in 2009-10. The company's potato procurement from West Bengal witnessed a 100 per cent growth from about 11,000 tonne in 2008-09 to around 22,000 tonne in 2010-11.

PepsiCo is expanding facilities in the existing plant. The company initially invested about Rs. 110 crore and later made an additional investment of Rs.150 crore. The company currently has three manufacturing units – one each in Punjab, Pune and Bengal. The company has entered into a contract farming agreement with about 6,500 farmers covering a total acreage of 2,250 acres in 2009. PepsiCo is hopeful of increasing its procurement to 37,000 tonne in 2010-11 by increasing the productivity of the crop and bringing more number of farmers into a similar arrangement with the company. PepsiCo planned to rope in additional 5,000 farmers in 2010-11 and take the total number to about 11, 500 and bring about 3,700 acres of land under the agreement.

For the farmers it is a win-win situation, particularly during periods such as this year when potato prices have crashed following a bumper crop. “We are being offered Rs. 6 a kg for these special quality potatoes by the company against Rs. 1-1.5 a kg for the normal varieties such as Chandramukhi, Pokhraj and Jyoti. We stand to gain about Rs. 20,000 an acre,” said Mr DebasishKonar, a farmer who has entered into an agreement with the company.

Cases Of Contract Farming As The Way Out For Potato Growers In Bankura, Westbengal

Plummeting potato prices for three consecutive years have prompted farmers to switch to contract farming this season. The reason is obvious. No one wants to get burdened with loans after the farming when it costs Rs18,000 a bigha. The trend is picking up in as many as 19 blocks of south Bengal - Hooghly, Burdwan, Birbhum, West Midnapore, Howrah and Bankura.

"Potato farming is becoming disastrous with packets of the crop kept in cold storage offered at 50 paisa or one rupee a kilo without any taker," said Sarmistha Ghosh of Shiromonipur village in Bankura. For them, tying up with the PepsiCo India is the only alternative for an assured return. "It's not that they are offering much. But at least we are assured of the return six months ago. Also, we don't have to take the produce to the local mundi or transport them to the cold storage on our own," Ghosh said.

What Is The Contract?

The farmer gives his land and labour. PepsiCo officials provide the inputs such as seeds - Atlanta and Chipsonavariety- different from the traditional Jyoti or Pokhraj variety and the technology support. They supervise the cultivation and give advice to farmers from time to time. After the yield they take the produce to their own storage. The farmer gets Rs 6 for each kilo of potato. Advantages for the hapless farmers is that they get to know about the procurement price while they start sowing the seeds. They get crop insurance, seeds and loans from PepsiCo agents that they need to pay after the yield.

Owner of two-bigha land TarunPramanick of Panahar village has also joined hands with PepsiCo. "With the profit I earned five years ago I married off my two daughters. Now I can't support my son studying at the Chandernagore Government College even. I can't take the risk," Pramanick said. JoydeepGuin from the Galsi block in Burdwan is also going for contract farming on 10 bighas of land. "Some farmers in the Kalna block have also opted for contract farming," Guin said.

Sensing the mood, the PepsiCo Holdings India has doubled its target this year. It planned to rope in 9,000 farmers doing the job in 5,000 acres of land. Assistant manager PepsiCo, Fritolay division Prabal Roy said: "We are not going for direct purchase from farmers. We are procuring the produce through vendors. Last year purchased 10,000 tonnes of potato and sent it our stores. We plan to procure 20,000 tonnes this season. We won't release this potato in the market. We thank the state government and officials of allowing us approach the villagers."

Contract Farming: The key to elevating productivity

Indian Government's ambitious programme, 'Make in India' should not be confined only to manufacturing but should extend to agriculture as well. To be able to produce enough for more of us, with less land, water and harmful chemicals, agriculture must combine technology with good agronomic practices. Modern farming is about producing what the consumer wants, which means working backwards from the fork to the field.

Contract Farming that leads to collaboration between large corporates and farmers in Burdwan District of West Bengal and Palanpur in Gujarat has raised productivity and farm incomes.

Potato chips were traditionally made from the ones used to make vegetables at homes. They come in various shapes and sizes. Because of their high sugar content, which gets caramelized upon frying, chips are coloured fifty shades of yellow. Pepsi wafers are smartly dressed, no dirty brown for them as consumers want food to look pretty and not just be tasty. Companies strive to indulge them.

VivekBharati: Executive Director, Agriculture and Corp Affairs, PepsiCo India Holdings says, "We have to serve our consumer in a consistent manner and we have to offer them a consistent quality of chip. If you see the unorganised chip you will see a lot of browning etc. There is no consistent quality. Our goal is to give consistent quality."

Contract farmer KantibhaiBecharbhai Patel, who hails from Iqbalgarh villages, says, "Contract farming is good because the risk factor becomes zero. Because at the time of sowing, you only know the price that you have. So farmer is planning to increase the yield. Due to the good yield, he will get good money back. Because company gives a fixed rate before planting and nowadays the rates in the season go to Rs 80-Rs 90, and the company is paying at a fixed amount of Rs 160 per 20 kg, which is almost double. So we come into a fix rate and due to that the losses of a farmer go to nil."

Deesa in Banaskantha is the hub of processed potatoes in Gujarat. It used to grow the tuber since colonial times on the bed of the Banasriver. When the river dried up, cultivation shifted to its banks, but the bad practices continued. Farmers would pump up deep and scarce groundwater to flood to irrigate the fields. The amount of water used through the potato crop cycle if stacked up would rise to a column about two feet high, which not only wasted fertiliser but caused pests to thrive. It was a Canadian company which in the last decade taught people there how to grow potatoes smartly by being in sync with nature and the rhythm of the crop.

"I am by birth a farmer. I knew a little bit about potato growing but how to do it scientifically, the company has taught me. They taught us the irrigation system, told us to use sprinklers so that 15 percent of our land which used to get wasted in furrows is saved and plant population increases and with that the production," says PathibhaiJethabhai Chaudhary, a contract farmer.

He says, "I have 16 families working for me. I have made a question paper of 100 marks. Timely sowing, proper seed cutting, depth of sowing, sprinkler placement. If temperature is down we reduce the amount of irrigation and if the wind speed is high, we increase the sprinkler time. I pay attention to these small details so that till harvesting we are aligned with nature."

Contract farming is good for small farmers too like Chelabhai Karen of Mervada village; it is not the preserve of large ones. A BA in Economics and a retired government officer, previously posted in the treasury office at Palanpur, Chelabhai has been growing potatoes on contract for four years like most in his village. The same is the story with MuljibhaiMor who owns six acres and grows potatoes on contract on a part of it.

Muljibhai says, "It (contract farming) is good because I have to pay only half the seed cost upfront. And the rate is fixed which is why it is good." Kachchhava says, "It is not true that vendors do not care for farmers. Farmers decide whether to go for contract farming or not." According to Patel, "Direct contract farming with a company is better because there is no risk. What is the vendors' liability? He is not registered, nothing. Only for his 55 paise commission per kg, he is motivated by that. If there is a problem, a company can bear a loss but not the vendor. He has no property nothing."

In West Bengal, there was such a glut of potatoes in March that two kilometre queues of trucks, tractors and carts outside cold storages was a familiar sight. Open market prices had collapsed and the growers of table potatoes were in distress. The only ones relieved were either those who had not grown potatoes or who had contracted to sell to corporates like PepsiCo, the maker of Lays and Uncle Chips wafers.Scenes like these were common in Bardhaman and Hooghly districts in West Bengal. Persuaded by last year's high price of Rs 8.60 a kg around March, farmers brought more acreage under potato. Favourable weather also boosted the crop, so much so that cold storages ran out of space and prices collapsed to as low as Rs 1.60 a kg as there were no buyers.Distress is writ large in this village, where the roads are unpaved and poverty is palpable. Women folk are worried for their families; one of them had contracted a loan of Rs 1.5 lakh at an interest rate that banks usually charge on credit cards to cultivate cultivated two acres on lease in addition to the half acre it owns. It is staring at ruin.The fields here are very small, as small as half an acre, the result of a successful land distribution programme of the late 1970s that made most farmers land owners. Companies therefore buy through aggregators like this cooperative which has 12,000 members. Syed Mohammed Tokai of Rasulpur in Kalna block is also one of the 128 aggregators whom PepsiCo has engaged to feed its local factory. This is also a political necessity as companies cannot buy directly from farmers.The contract farmers got six rupees a kg last year, when open market prices were higher. This year, they are getting eight rupees, when open market prices are less than two rupees a kg.Yet the clamour from farmers outside cold storages even in Gujarat this year shows that while contract farming has caught on, it is still not the rage. Last year's high prices for table varieties has led to acreage under potato in Banaskantha rising to 52,000 ha this year from 45,000 last year. This is about double from 25,000 ha in 2010-11. In the past 10 years, there has been a substantial expansion in potato cultivation, but contract farming is still less than 10 percent of the total. Ignorance, inability to make even basic investment or to change mindsets are the reasons.

Sumit Joshi of Dangiya Village says, "There are so many technical things. Seeds need to be maintained as per their quality. Like there are so many fertilisers you have to apply (like boron to prevent cracking) in contract farming. In traditional farming you do not have to apply that. Second, you have to sort and grade the potatoes, which adds to labour cost. Also, there are only few companies. They buy just as much as they need. If more companies come, corporate farming will increase."

Contract farming with the government playing facilitator and umpire can be beneficial to farmers. India's first Green Revolution was a result of knowledge transfer by government agencies. The self interest of private companies can be a powerful motivator. But private contract farming is just one tool. The government must do much more to de-risk farming.

Constituents of Contract Farming Model

PepsiCo, FritoLay's contract model constitutes of three components that are necessary for contract farming program to be sustainable in nature. These components are:

1. **Research and Developmental activities:**

- Assessment of favourable varieties.
- Based on multi-location tests, singling out varieties suitable to season and geography.
- Variety and location wise layout for complete package of practices evolved after analysis in local conditions.
- Demonstration farming.
- Assessment of farmer economic model.

2. **Technology Transfer:**

- Conducting field test at farmers fields for evaluation ofcrop timing and multi-locational potential.
- Education program to farmers by organizing group meetings,providing technical notifications and using audio visual assistance.
- Selection and training of additional services team.

3. **Commercialization:**

- Timely farmer payment system.
- Selection of farmers, land preparation and planting.
- Constant crop surveillance during growing period.
- Procurement, transportation and logistics.

I. Clauses To Contract Farming

The most conventional clauses to contract farming concern:

- Standardmutual obligations: the overall liability of the contracting partners.
- Production technology to be used, involvingcomponents such as seed variety, soil preparation and cultivation technique, transportation method, storage and quality standards.
- Detailing of the agricultural product that is to be produced and sold under the contractual agreement.
- The procedure to evaluate the final prices to farmers, often considering effects of differences in product quality and any applicable loan repayments corresponding with the supply of inputs or services.
- Conditions for purchase, payment agreement, timing and method of delivery.

II. Merits Of Contract Farming

a. Farmer secure an assured up front price and market place for his produce.
b. Encourages investments andlong term planning.
c. The company obtainsprerequisite quality material regularly at pre- agreed prices.
d. Farmers getinputs such as planting materials (seed tubers) of finest grade, crop supervision technical advices for free.
e. Priority transfers from price to returns per unit area/ season as it is driven by productivity rise and short duration varieties.

III. Drawbacksof Contract Farming For The Pepsico Company

1. No method exists to discourage default farmers. There prevails no legal resort for the company while facing with large scale breach of contracts.
2. Land holding of small size by farmer: Laborious to manage large number of farmers.
3. Insufficient insurance scheme for comprehensive crop protection in case of natural calamities.

IV. Drawbacks Of Contract Farming For The Farmers

1. Losing the ability to bargain vis-à-vis a mammoth agro-industry,monopolistic market power and exploitative terms.
2. Risk and uncertainty involved in producing new, unfamiliar crops and that too producing for markets that might not always live up to their presumption- or their sponsors' expectations.
3. Remarkable changes in market conditions,debts caused due to production complication, poor technical advice,or a company's failure to honour contracts.
4. Manipulation of quality standards bycompany in order to turn down purchases.

V. Is Contract Farming Inevitablly Benefical For Engaging Farms And Purchasing Firms?

As in any other form of contractual relationship, there are prospective disadvantages, risks and uncertaintiesinvolved in contract farming. If the conditions of the contract are not honoured by any of the contracting parties, then the affected party stands to lose. Typical contractual setbacks include farmer sales to a different buyer by way of side selling or extra-contractual marketing, a company's denial to purchase products at the pre-agreed prices, or the downgrading of produced quality by the company. Inequitable nature of the business association between farmers and their buyers is usual criticised in contract farming arrangements. Buying firms, who are inevitably more dominant than farmers, may use their bargaining influencefor their short-term financial gains, even though in long run this would be counterproductive and disadvantageous to the buying firms as farmers would cease to supply them there production. Despite of this difficulties, the balance between merits and demerits for both engaging firms and farmers tends to be on the positive side: presently in agriculturecontractual arrangements are more and more frequently being used worldwide.

VI. Initiatives To Be Taken By The Government Towards Implementation Of Contract Farming That Shall Lead To Mutual Advantage To Both Industry And Growers

i. A legal judicial system for imposition of contracts to be involved at the panchayat level and district administrationlevel for arbitration and prompt redress of disputes. The contract between the company and the farmers shouldbe irrevocable and enforceable by both the parties.The contracting company should not manipulate with the quality standards to turn down purchases.Neither the farmers should sell off the seeds and other inputs and /or produce toany other company or individual or sell it in open market.
ii. Assistance in the promotion of extension education by companies. Aproductivesystem can be formedto leverage and support Government's extension infrastructure by companies.
iii. Crop insurance arrangements should be developed to assist in short-term crop loans to growers for seed and for other inputs.

II. Conclusion

One of the most critical constraints in the growth of the food processing industry in India is the lack of integrated cold chain facilities. According to the government's estimates India has 5400 cold storage facilities of which 4875 are in the private sector, 400 in the cooperative sector and 125 in the public sector. Although the combined capacity of the cold storage facilities is 23.66 million metric tons, India can store less than 11% of what is produced. Most of the infrastructure used in the cold chain sector is outdated technology and is single commodity based. Many are designed for storing potatoes. Industry experts believe that controlled atmosphere storage facilities and other cold storage facilities with the technology for storing and handling different types of fruits and vegetables at variant temperatures would have a very good potential market in India.

Another major constraint is the lack of refrigerated vehicles for movement of perishables produce (with the exception of milk). According to industry estimates, approximately 104 million metric tons of perishable produce is transported between cities each year. Of this figure, about 100 million metric tons moves via non-reefer mode and only four million metric tons is transported by reefer. Although there are currently more than 25,000 vehicles and 250 operators involved in refrigerated transport, 80% of this capacity is dedicated to transporting milk. When compared with world standards for cargo movement through cold chain, India is still far behind. The percentage of movement of fruits and vegetables through cold chain in U.S. is around 80-85%, Thailand is 30-40% and India is negligible. Currently, most of the refrigerated transport in India is operated by small, non integrated firms that do not make use of state-of-the-art technology or management practices. Therefore, India offers market potential for cold chain logistic solution providers, including refrigerated transport services.

This case study of the PepsiCo's Frito Lay contract farming for potatoes is a good example of how international quality requirements are met by small farmers in India. A very strong extension network by PepsiCo co. helps to monitor and maintain quality at every level. Evidently the farmers working as contract grower's benefit on several fronts: there is extensive training and education of farmers for proper timing and method of sowing, harvesting and other field operations; farmers' overall management capabilities are enhanced by meetings and visits by agricultural experts from time to time. Gross margins for contract farmers are higher. Furthermore, because the company announces prices ahead of the production season, they are sure of covering at least their production costs and can invest in agrochemicals and other inputs, which in turn leads to enhanced productivity. Other risks from crop infestation and weather changes are also minimized as the company's extension agents are constantly working with the farmers to give timely input on these issues. Finally, weather insurance is also available for the company contract farmers, which further minimizes risks. The obvious advantage for the company is getting an assured quantity and quality for crisp making to enable utilization of the processing plant at optimal capacity. Direct involvement with farmers enables good communication to ensure availability of produce which meets the specific qualityrequirements for processing and indicators for the company's HACCP and ISO certification.

The Way Forward

Many organized players should be encouraged to enter this sector and should make a difference in the next few years so that the sector should see major investments. The Contract Farming expects substantial improvement in quality, productivity and reduced losses in French produce supply chain, perhaps a mix of co-operative and corporate model should work best for this sector. The role of subsidies may have to be studied for effective growth prospects.

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