



ROLE OF CONTRACT FARMING IN POTATO PRODUCTION: AN ANALYTICAL STUDY IN JALPAIGURI DISTRICT

Sisir Das

Assistant Professor, Dept. of Economics, Falakata College

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Abstract

Agriculture is the backbone of the Indian economy directly or indirectly majority of the people are dependent on agricultural sector where most of them are belong to small and marginal farmers. Agricultural marketing plays an important role for the agricultural development. Agricultural marketing is one of the major problems faced by the small and marginal farmers to channelize their produce to the market. Similarly, the problems of quality inputs, dependency on traditional techniques, problems of credit, uncertainty of output price etc. are the common obstacles of Indian agriculture. In this regard contract farming can be an alternative of traditional farming. In India there are different national and multinational companies involved in contract farming in different agricultural corps in different state. North Bengal is an agriculture dominated area substantially larger proportion of workers in agriculture as compared to the rest of the state. Potato is the largest vegetable crop produced and most of the farmers are involved in potato production especially in three districts Jalpaiguri, Alipurduar, Coochbehar. The prime objective of this paper is to discuss briefly the contract farming structure and identify the different obstacles and benefits by adoption contract farming in Jalpaiguri district.

Keywords: *Agricultural marketing, Contract farming, North Bengal.*

Introduction:

In the era of Globalization, linearization has increased the food quality censuses and changed the lifestyle of the people and opened up several opportunities by the involvement of private sector in the value chain of production through organizing commercial mode of cultivation (Paul, Laha, Kuri, 2019). On the other hand, it becomes difficult for the small-scale farmers to participate in the market economy. Sustainability of agricultural production is essential to accelerate economic development. Potato (*Solanum tuberosum*) is one of the most important food crop of the world and fourth most important food crop after maize, wheat and rice (Sapkota, Rokaya, Acharya, S parety, 2019). Potato is a carbohydrate rich, contains good

amount of protein and minerals compared to cereals and highly desirable for human diet (Brar, Bhatia, Pandey, Kumari, 2017). Potato is a Capital-intensive crop and requires higher amount of capital so the small and marginal farmers face the problems to cultivate (Singh, Rajesh, Rana, 2017). India is the second largest producer of potato after China and West Bengal is the second largest producer of potato after Uttarpradesh. Potato has emerged as the most important food crop next to cereals of the state. In Jalpaiguri District most of the farmers are engaged in potato production. Yield rate of potato in Jalpaiguri District is higher compared to the state. Agro processing industries can play a vital role by providing job opportunities and by increasing the income of the farmers.

Definition of contract farming:

Contract farming can be defined as a contractual relationship between farmers and producers where farmers committed to produce a given product with specific quality and producer committed to provide different farm inputs, extension services and buyback the produce at predetermined price. Contract farming can in different form depending on the nature of the contract. It may be written or verbal. Contract farming can also be considered as a relationship between farmers and agribusiness where its success depends on the long-term commitment of both the parties. Potato is the important crop of the study area and plays an important role in the economy and the livelihood of the small and marginal farmers.

Types of Contract farming:

Contract farming can be described in five different models on the basis of the nature of the crop, objective, resource and requirement of the sponsor, and experience of the farmers (Contract Farming: Partnership for growth, FAO, 2001).

The Centralized Model:

In the centralized model of contract farming, the sponsor and producer work in vertical coordination to purchase the crop under strict quality control, process it, and then market the finished product. This is a direct form of contract farming in which a sponsor enters into a contract with predetermined quotas stated at the outset of the cultivation. Sponsors under this kind of contract have the option to supply all extended services, such as land preparation, planting, various agrochemicals, and harvesting services, or they can supply just a certain variety of seed. This strategy allows for the contractual involvement of thousands of small and marginal farmers in a single project. The crops that are grown under this approach include tobacco, cotton, sugarcane, bananas, and dairy and poultry farming.

The Nucleus Estate Model:

This model of contract farming differs slightly from the centralized type in that the sponsor near the processing plant also owns and manages estate plantations to ensure a minimum availability of raw materials for their plant, such as oil palm, rubber, or sugar. Occasionally, these estate plantations may be very small, used only for demonstration and trial purposes. In most cases, the sponsor used their pilot estate for research or breeding before transferring it to producers following a successful trial. Commonwealth Development Corporation was the first to establish this kind of contract farming. This concept is frequently applied to transmigration or resettlement programs. For tree crops like oil palm and rubber, where technical transfer is necessary, this kind of strategy works well.

The Multipartite Model:

The multipartite model is a popular joint venture strategy in which various stakeholders are involved. For example, financial institutions are accountable for supplying credit, private companies are accountable for supplying necessary inputs and technical support, and various stakeholders are accountable for management, processing, and marketing. In many countries, the government collaborates with private enterprises to invest in contract farming, and it also plays a significant role in this model. The Chinese government oversees and assists in the effective execution of contract farming.

The Informal Model:

This kind of contract farming is extremely risky. The informal model is typically a seasonal agreement between several farmers and smaller purchasers without a formal written contract. In this model, the sponsor is a small business or an individual entrepreneur who enters into an informal contract with farmers for products like fresh vegetables, melons, etc. that require little processing. This kind of contract carries a higher default risk for the grower as well as the sponsor. According to this concept, the sponsor must rely on government extension services. Because of funding constraints, the sponsor enters into agreements with banking institutions to provide farmers with financing. This contract has a relatively limited duration, and it is only applicable to crops with lots of market outlet.

The Intermediary Model:

This is a sort of informal contract farming in which a big sponsor works with farmers through a middleman or intermediary who has an informal agreement with the farmers. Sponsor pays the middleman through them for the produce and purchases it from them. The possibility of

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losing control over price and production after payment makes using an intermediary a threat to the sponsor at times. This kind of contract farming model is called Plasma in Indonesia.

Methodology:

Jalpaiguri district is situated in the northern part of west Bengal and shares the international borders Bhutan and Bangladesh. Agriculture is the major economic activity in Jalpaiguri district. The study based on the primary collected from Jalpaiguri district and secondary data collected from different journals, different state agencies etc. There are seven blocks in Jalpaiguri district namely Jalpaiguri sadar, Mal, Mateli, Dhupguri, Maynaguri, Rajganj, Nagrakata out of which maximum potato produce in Dhupguri, Jalpaiguri Sadar and Mainaguri Block. There are different crops are been cultivating in Jalpaiguri district like paddy, wheat, maize, jute, and potato is one of the major vegetable crops that are been cultivating by the farmers.

For primary survey sample farmers have selected purposively from Sadar, Dhupguri and Maynaguri Blocks. The contract farming is mainly concentrated in Jalpaiguri Sadar and Maynaguri Block. Adoption and continuation of contract farming depends on the opportunities and challenges faced by the contract farmers. The prime objective of this paper is to highlight the structure of the contract farming in potato production and identify the different obstacles and benefits by adoption contract farming in Jalpaiguri district.

Potato Production in Jalpaiguri District:

India is the second largest producer of potato in the world after China with a production of 48.50 million tons in the year 2017-2018 (National Horticulture Database, 2018). After independence India cultivating about 38 variety of European *Solanum tuberosum* ssp. *Tuberosum* (Singh, Rana, 2014). Potato is grown across India in Various types in various type of soil like hills, plain etc. the production in India is primarily determined by climate. The maximum Potato in India is grown in the Northern and Eastern plains which is more than 80% of the total area covering (Govindakrishnan, S M Paul Khurana, 2003). Most of the potatoes are used in India is for cooking purpose and contains high sugar mater. West Bengal is the second largest producer of potato after Uttarpradesh. West Bengal and Bihar contribute almost 70 percent of the potato produced in the country.

Jalpaiguri district is dominated by small and marginal farmer. As per census 2011 total number of small and marginal farmers are 47282 and 237409 respectively where the total holdings area for small and marginal farmers are 77184 and 123943 and the area of holdings of large farmers

is 124908 and numbers of farmer is only 238. For the potato production larger number of farmers are belong to small and marginal farmer. Jalpaiguri district there are two kinds of potato are cultivating one is Jyoti variety and another is Pokhraj verity. Jyoti variety of potato is normally two types one is Halland or lal alu and white alu. In jalpaiguri district potato planting and harvesting takes place two time first in autumn season where planting starts from early October and harvesting starts from December/January this type of potato called Phokraj potato and this kind of potato does not stored in cold storage. After that Jyoti variety of potato cultivates. Non-contract potato farming concentrated in Sadar, Dhupguri and Maynaguri blocks. There are two kinds of seeds available kachcha seed and pakka seed which is differentiated by the generation of the seed. Kachcha seeds are second generation of seed known as Punjab certified seed or Bhutan seed where pakka seeds are the seeds stored in last year in cold storage. The productivity of Kachcha seeds are much higher than paka seeds but the price of the pakka seeds are more cheaper than kachcha seeds. Year wise potato production from 2015-2017 of Jalpaiguri district and Production in three blocks have been shown in the figure and it is seen that out of total production in Jalpaiguri district maximum production comes from Dhupguri block and the area of production is also higher in this block compared to Sadar and Maynaguri block.

Table 1: Potato production in Jalpaiguri District for the Year 2015

District/Block	2015-2016		
	Area (in Ha.)	Productivity (in kg./Ha.)	Production (in MT.)
Jalpaiguri District	31280	30622	957841
Dhupguri Block	15000	33650	504750
Jalpaiguri Sadar	5400	29000	156600
Maynaguri	4000	2115	96460

Source: Collected from department of Agriculture Govt. of West Bengal

Contract farming in India:

Contract farming was first introduced in Taiwan by the Japanese Govt. in 1885 in sugar production (Watts). In India it has started in colonial period by the cultivation of indigo by the British Govt. In 1920 ITC known as Imperial Tobacco Company introduced contract farming in Andhra Pradesh through the cultivation of virginia tobacco. In 1989 PepsiCo established tomato processing plants in Hoshiarpur district of Punjab and launched agro business (Dutta, Dutta, Sengupta, 2016). After that Different multinational and national companies have started contract farming in different ways in different crops in India. Table 2 shows the category of different foods and different crops which are grown under contract farming in India.

In India most of the contract farming is concentrated in Punjab, Madhya Pradesh, Karnataka and Gujarat state this is due to different policy formation and encouragement of contract farming by the Govt. The size of the land is also different across states which also impacting the contract farming. Govt. of India takes different initiatives for expansion of contract farming progress of the agro processing industries. In 2003 Ministry of agriculture formulate model State Agricultural Produce Marketing (Development and Regulation) Act, under the chairmanship of K M Sahani and shared with all the states for implementation and in this act a new chapter on contract farming was added to facilitate and promote smooth of contract farming. PepsiCo is one of the pioneers of contract farming in India and covers many crops like potato, basmati rice, tomato, chili, peanut, orange etc. PepsiCo has three processing plants located at Punjab (Sangur) West Bengal (Sankrail) and in Ranjangaon near pune in Maharashtra. PepsiCo requires more than 100000 MT of processed grade potato per annum.

Contract farming in West Bengal:

In West Bengal potatoes are generally grown after paddy and potatoes are cultivated as a Rabi crop. In West Bengal PepsiCo started their operation in 2003 PepsiCo company used Vendor model (M Punjabi, 2015). PepsiCo is the largest supplier of chips grade potato in India by PepsiCo India Ltd. In six districts namely Burdwan, Hooghly, Bakura, Birbhum, Howrah and West Medinipore company started its journey. In Sankrail at Howrah District of Kolkata PepsiCo has set up a processing unit plant in 2003 with production capacity 7500 tonnes (Paul, Laha, Kuri, 2019) and potatoes from different regions across Bengal comes to this processing unit. In West Bengal company witness a 100 percent growth in potato procurement from 11000 tonne in 2008 to around 22000 tonne in 2010-2011 (Dutta, Dutta, Sengupta, 2016). Company supplies their special chips grade potato to the vendors which are Atlantic variety popularly known as Pepsi potato. Company also supply a special agrochemical kit and

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arranged all the inputs to the farmers. In few districts of south Bengal Company arranged credit facilities to the farmers from State Bank of India by signing agreement with banks PepsiCo have adopted an agent or Vendor model of contract farming where vendors play the major role. Govt of West Bengal has taken initiatives to expand the contract farming. In the year of 2017 govt. of West Bengal has amended its existing Agricultural Produce and Marketing (Regulation) Act. (1972) by introducing single license system and company do not need multiple licenses for trade.

Contract Farming in Jalpaiguri:

In Jalpaiguri District contract farming is a new concept to the farmers though it has been started its journey from the year 2009. In North Bengal Contract farming have started in jointly in Alipurduar, Coochbehar and Jalpaiguri District. In Jalpaiguri District Contract farming first started in few villages of Jalpaiguri Sadar block after that it has expanded to Maynaguri block. Dhupguri Block is the largest producer of potato though contract farming has not yet started there. In Jalpaiguri District company introduced only one vendor and he had introduced few sub vendors. In this District there are approximately one thousand farmers cultivating under contract farming. Company directly makes the written agreement but vendor makes an oral agreement with the sub vendor. Vendor contract the sign in commission basis per packet and share it with the sub vendors. Company directly makes the payment to the vendor's account. In this District company no not directly contract with the farmers. Vendor and sub vendor are responsible for interacting with the farmers. PepsiCo supply the seed to the vendor and Vendor supply it to the sub vendor and the farmers get the seed for cultivation through from the sub vendors. Price of the seed is charged for last three years is 1500-1600 per 50 kg packet. Vendor has to book seed according his requirement before the season start. Farmers pay only some amount of seed price and after harvesting he get the amount subtracting the remaining amount of seed, Kit, bag etc

Vendor and sub vendors are the local persons and they influence the farmers to cultivate under contract farming and arrange a meeting every year before the cultivation starts and representatives from PepsiCo announced the buyback price of the crop for the respective year and also the procedure of cultivate. PepsiCo provides their own seed which are low reducing sugar level (<.02%) and high dry matter content (>20%) and a minimum size potato required for Potato chips processing. In Jalpaiguri District company supplied LR, FC3, FC5. In this District sub vendors supplies the fertilizer to the contract farmers though the farmers are not bound to purchase it and he can buy it by himself from anywhere. But in this district Vendor is

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associate with the fertilizer business thus the supply fertilizes to the farmers at a subsidize rate. The contract agreement usually took place in verbal type where the contract farmers agreed to produce potato of certain quality and size. The agreement between farmers and vendors or sub vendor are totally depending on trust between them. If any dispute happens, they try to short out by conversation for their joint interest. The company ensures that all the farmers get all the farm inputs and vendor and sub vendor arrange all the farm inputs at the right time.

In Jalpaiguri District Company has employed an agronomist who frequently visits at the farm level and advice the farmers about cultivation and keeps the record about the growth of the potato cultivation process. In south Bengal or other states PepsiCo signed a MOU with the State Bank of India and bank agreed to provides loan to the contract farmers and company directly repay the loan amount after harvest but in this district, farmers do not get this kind of facility one farmer Susil Sarkar said “Every year I purchase the seed by paying some amount of the seed price and purchase the fertilizer at an subsidies rate from the vendor and repay the amount after harvest”. According to the advice of the agronomist and chemical company based on the weather and soil condition etc of the selected area prepare a agriculture toolkit and provide to the farmers (K Roy,D Dutta,2020).

Difference Between cost of Production in contract and non-contract potato production:

Cost per bigha for cultivation of potato is higher for contract farmers compared to non-contract farmers. In the table given below shows that cost for land preparation, manure, tuber extraction from seeds, plantation of seeds, labour cost for chapan, cost for irrigation, extraction cost and cost for bags are same between contract and non-contract farmers. The cost varies due to cost of specific quality seed supplied by company which is nearly 8000 for contract farmers but it costs Rupees 5000 for non-contract farmers. Another important cost is for agrochemical kit provided by the company which cost Rupees 4500 and used for 3 bigha per kit so for one bigha it cost Rupees 1500 but for contract farming requires more labour to spray more time compared to non-contract farming. Cultivation of contract farming required more attention and care. Lastly in contract farming farmers need to package the potato through grading of size and have to reject greenish potato which requires more two labour compared to non-contract farming. So approximately for contract farming cost per bigha is Rupees thirty-one thousand nine hundred only where the cost per bigha for non-contract farming of potato is Rupees twenty-five thousand two hundred only so the difference in cost of production between contract and non-contract farming is Rupees six thousand seven hundred.

Total cost of Production (on Average) for Potato Per Bigha for contract farming

Item	Contract farming	Item	Non-Contract farming
Preparation of Soil and Land	2000	Preparation of Soil and Land	2000
Cost for manure	10500	Cost for manure	8500
Cost for seed potato	8000	Cost for seed potato	5000
Cost for tuber extraction	800	Cost for tuber extraction	600
Cost for plantation	1200	Cost for plantation	1200
Cost for Agrochemical Kit & Spray	4500	Cost for vitamin & spraying	2500
Labour cost for chapan	1200	Labour cost for chapan	1200
Cost for irrigation	500	Cost for irrigation	500
Extraction cost	3200	Extraction cost	2600
Cost for bags	00	Cost for bags	1100
Total	31900	Total	25200

Conclusions:

Contract farming may be the possible solutions to establish agro processing industries and ensure food and nutrition security of million people similarly it can also improve the farmers conditions. Contract farming is a win-win situation where both the parties benefited by production. But the to get the optimal benefit of the contract farming awareness among the farmer need to raise. In this scenario Govt. have to play a vital role between sponsor and farmers to safeguard the benefit of the farmers. Before joining Contract farming farmers need to understand their strength and challenges. Most of the do not know properly about the benefit and drawback of the type of farming different seminar and awareness programme need to organize. Farmers also need to make organization of the farmers so that it can increase their bargaining power.

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