An Alternative Deal for Potato Growers in the Contract Farming System

Aree Wiboonpongse[1], Songsak Sriboonchitta[2], Puttawan Khuntonthong[3]

Abstract

At the present time there is much controversy over the equity of small-scale producers in the supply chain, especially in developing countries. It is widely believed that farmers in the Third World have difficulty in gaining market access. While contract farming is attributed as a direct mechanism to integrate small growers into the supply chain, the system has often been blamed as lacking advantages for growers. In particular, growers have a concern regarding fairness of the contracts they sign with food processors and their economic security after the termination of the contract.

This paper aims to illustrate the significant change in farmers' practice from being contracted farmers, to being non-contracted. This encourages potato growers to negotiate a better deal in order to participate in the potato supply chain, as well as creating access to public sector support by small scale farmers. Furthermore, the positive outcome of the contract farming system is also presented.

Potato growers in the San Sai District of Chiang Mai Province in the northern region of Thailand, have cultivated table potatoes since the 1960s. When processing potatoes were first introduced into San Sai District in 1987, potato growers had been acquainted with the contract system. At the initial stage, the firms made contracts with the farmers' group and provided financial support and knowledge on potato production, which benefited growers directly. However, in 2001 the contracts were terminated due to various changes. Driving forces behind these changes were: the rapid increase in demand for potato chips, technical innovations, and continuous support from various government agencies in terms of research and development. The key consequences of the changes impacted on the functioning and performance of the market and better farm gate prices, lower production costs, and higher income from rotation cropping systems for farmers, as well as better soil conservation practices.

Keywords: potato, contract farming system, potato grower, technical innovation

POTATOES IN THAILAND

Potato crops were first grown in the northern region of Thailand. It is believed that potato seeds were introduced to highland growers by English missionaries who traveled from India through Myanmar

---

[1] Multiple Cropping Center, Faculty of Agriculture, Chiang Mai University

[2] Faculty of Economics, Chiang Mai University

[3] College of Arts, Media and Technology, Chiang Mai University

to Thailand for over 40 years. Presently, there are two types of potato growing in the country; table and processing types (processing potatoes account for 90% of total production). Potato has become an important cash crop in the 1990's due to an increasing demand for potato chips and the rise of tourism in Thailand. All table potatoes produced are delivered to fresh markets, supermarkets, hotel and restaurants. While processing potatoes are processed into potato chips by several large firms.

The main planting area is in northern region; especially in Chiang Mai Province. It has been the major production center for potatoes and supplies more than 50% of total production (the Office of Agricultural Economics, 2006). However the processing firms have extended their contracts to many provinces in the North and three provinces in the Northeast, due to the rapid increase in demand for French fries and snack chips. In 2005, the total production area was 12,233 acres and the national production reached 97,411 tons. While the contract system of potato has spread to new areas, the original sites of contract potato began to leave the system. However, these growers remain part of the supply chain. Does this incidence imply failure of the contract system and exclusion of growers from the supply chain? It is the purpose of this research to explore and analyze causes and effects of changes in the supply chain. We define the departure from contract farming, the main innovation in our paper. However, other related innovations will also be presented.

LITTERATURE REVIEW

A number of studies reviewed the success and failure in the early days of contract farming experience in Thailand. Examples of these include Manarangsan and Suwanjindar (1992), Laramee (1975), Gedgaew (1993), Glover (1992), Wiboonpongse and Sriboonchitta (1995), Bloomfield *et al.*, (1996) as well as several studies carried out by Office of Agricultural Economics (OAE, 1989,1991,1993).

The private sector in Thailand had practiced contract farming long before it was terminologized and formally defined. According to Golver, Thailand contract practices were advanced relative to other countries in the region. As far as public policy is concerned, contract farming was first implemented in the Sixth National Economic and Social Development Plan (1987- 1991). The agricultural development policy included the guidelines for development of agro-industries, which had the objectives: to promote export and import substitute commodities through improving quality and management systems, to assist agro-industrial plants in transferring appropriate technology to farmers, and to support farmers in production planning.

In order to augment the guidelines, the Thai government developed a committee the so-called "Four-Sector Co-operation Plan to Develop Agriculture and Agro-industry" (4-sector plan). The agro-industrial firms, farmers, financial institutions (Bank of Agriculture) devised a system so as to reduce price risk, market uncertainty, improve farmers' technical knowledge and in turn raise production efficiency.

The successful contracts appeared and continued in several sectors in various parts of Thailand (Falvey, 2002; Naritoom, 2000) including processing potatoes in the North. However as observed by Sriboonchitta and Wiboonpongse (2005), marketing practices of potato growers in the San Sai District of Chiang Mai Province, the original site of potato contracts, had gradually changed. Most growers (in 2004) either bought seeds from the firms via brokers or used their own seeds. They no longer had contract selling, but rather, sold their potatoes to brokers at prevailing market prices.

PROCESSING POTATO SUPPLY CHAIN IN SAN SAI DISTRICT

In 1976, a potato processing factory was set up to produce potato chips to catch early trends in the snack business. However, the firm was faced with the unstable and limited supply of raw materials. To solve the problem, the firm started to make contract with potato growers for the first time in Chiang Mai Province in 1987(DOA, 2005).At the initial stage the firms made contract with farmers' groups under the auspices of local agricultural extension offices. The officers served the system as coordinators and supporters for both parties and ensured they honored the contracts (Fig.1). In 1995, there were eight groups of potato growers working with three processing firms. The number of growers groups rapidly doubled and extended to nearby districts.

When potato processing was first introduced into the San Sai District farmers were acquainted with the contract system. Like other contract crops, at the adoption stage growers lacked sufficient technical know-how on potato cultivation and production inputs, especially seeds. The processing firms played a significant roll in providing seeds, financial support for seminars, technical meetings for farmers and also sponsored annual fairs, which directly benefited growers.

In 1980's, the provincial government, encouraged contract farming, and carefully considered permission to firms based on their business security status. Despite having responsibility on knowledge dissemination, local officers found insufficient interest, due to the shortage of staff. The know-how was then provided by the firms themselves. As these firms were located in Chiang Mai, they could easily collaborate on research and development with the staff of the two public universities in Chiangmai; Chiang Mai University and Mae Jo University, as well as the staff of the Department of Agriculture. The relationship of all parties in the potato contract system in the early stages is illustrated by Fig.1.

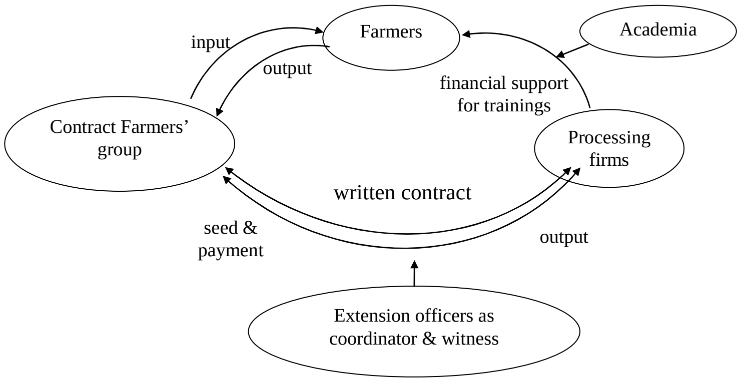

Figure 1 Small growers' linkage in the supply chain of processing potato during 1980's

During 1993-4 (and 1994-95) farmers received the same guaranteed prices for different grades from all firms. For example: 5.50 baht/kg for big and medium sizes together. Small potatoes could not be used for processing, the firm paid 1.70 baht/ kg. By this pricing agreement and contract arrangement, processing firms absorbed all production. It had a positive psychological effect on most farmers, that their produce was not left unsold. The success in the potato contract system during the initial stages was derived from many factors. One district feature was the effect advocated by the local government workers in linking relevant agencies in supporting the contract system.

Efforts of various agencies were vital to the success of potato contracting. For example, the Royal Project Foundation initiated and cooperated with Chiang Mai University and Mae Jo University (1964-1985) in various trials and cultivation practices. This provided a foundation for the continuity of research and development as well as net working (interview with broker, 2006).

MAJOR CHANGES IN THE SUPPLY CHAIN OF POTATOES IN THE SAN SAI DISTRICT

At this time, the farming contract system for potatoes in San Sai District has mostly ceased. While potato growers in the other provinces are under the contract, the survey reveals that 95% of potato growers in San Sai District are non-contractees. They have not obtained seeds and inputs from the processing firms. Since the seeds provided by the firms are imported, they are considered to be quality seeds. Some of these growers possibly switch back and forth to grow under contract with firms via brokers when they need imported seed. The remaining 5% include growers who need some production inputs from firms. Thus most of the 5% were working in 2 systems i.e. partly contract.

In the past, potato processing firms employed their own personnel to supervise farmers and via some leading farmers to act on the behalf of these firms. Presently, each of the four brokers run businesses to make profit. They estimate production and seek a quota from each processing firm. The amount they propose to the firm was estimated on the basis of the relationship with growers and the selection criteria. For example, one broker who also owns an input store would choose his clients who had suitable soil and sufficient irrigation. They then inspect the suitability of land before accepting growers.

Each broker supplied to one or two firms. Via his sub-broker, a broker could reach a large number of growers. Eighty nine percent of productions (large and medium size) are delivered to processing firms. The growers sold the extra large (Grade O) potatoes as table potatoes to the fresh market (for 10-12 baht/kg). The other unacceptable sizes (smaller than 4 cm) were kept in cold storage for seeds (Fig. 2). Furthermore, the non-contractees receive higher prices than those of the farmers under contract.

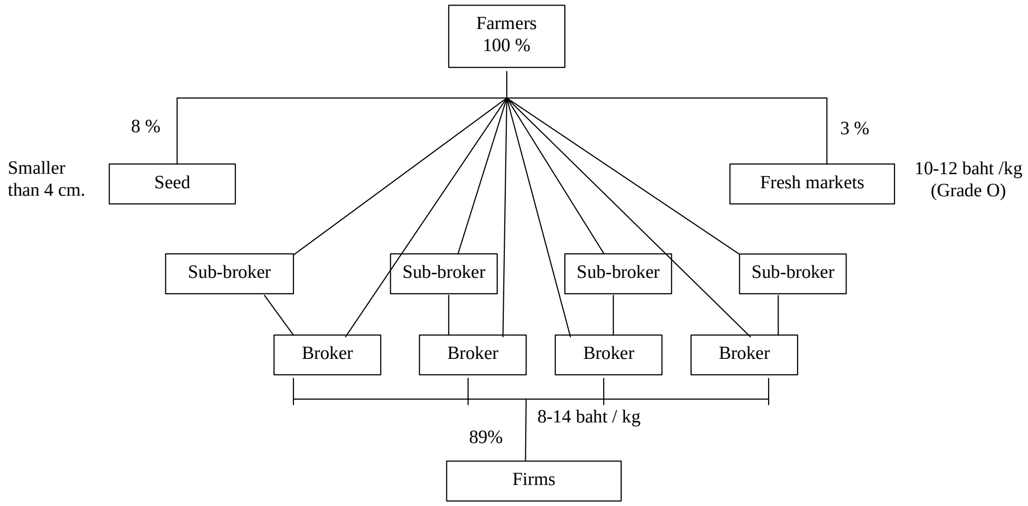

Figure 2 Distribution channel of processing potato in San Sai District in 2006

Source : Interview, 2006

THE DRIVING FORCE BEHIND THE CHANGE

The possible reasons for leaving the contract system of potato growers in San Sai are the following:

Decreasing in Demand for Potato: The demand for potato snacks and potato chips has increased rapidly. The growth in consumption for French fries and crisp chips was estimated at 30-50% per year during 1992-1995 (USDA, 2004) and the demand for potatoes by processing firms increased from 118,000 tons in 1997/98 to 165,390 tons in 2005. This caused the shortage of processing potatoes in this country, especially in the monsoon and the early part of the cool season.

Price incentive: Since all the firms' contractees receive imported seeds once a year and harvest potatoes in February. Farmers, who can arrange their crop growing schedule to grow process potatoes and harvest their crop in November to December, would receive the highest prices (14 baht/kg) instead of 8-8.50 baht under the contract due to shortage of supply.

The Impact of Innovation. Technical innovations that help the farmers to reduce production costs as well as to gain benefit from rotation cropping system are:

- The knowledge in keeping their own seeds. The farmers experimented in keeping defective produce in cool storage to use as seed in order to reduce the cost of imported seeds provided by the firms. The cost of imported seed was 4500 baht/rai (i.e. 30 baht/kg) while the local seed cost 2400-3000 baht/rai (12 baht/kg). Comparison of costs, yields and margins to growers of processing potato in San Sai for both contract and non-contract, reveals that the non-contractees enjoyed the highest net margin, which was equal to 7,866.15 per rai. The average cost per rai of contractees was lower than the non-contractees (Table 1).

Table 1 Comparison of processing potato in contract and non- contract in Chiang Mai province

	No of growers	Total cost (baht/rai)	Yield/rai (kg)	Seed cost (% to total cost)	Price received (baht/kg)	Total revenue (baht/rai)	Margin to growers (baht/rai)	Average cost (batn/kg)
CF in Chiang Mai	30	16,133.39	2,407.23	33.25	8.22	19,779.43	3,646.04	6.70
NCF in Chiang Mai	34	18,596.47	2,745.59	14.93	9.64	26,462.63	7,866.15	6.77

Source: Survey, 2006

Note : area is express in rai (2.5 rai) = 1 acre ; income is in baht/year (40 baht = 1 us$)

: CF = Contract farming, NCF = Non-contract

- **Rotation Cropping System**. Farmers in San Sai grow 3 crops a year, i.e. potatoes after the rice crop (July-October) and then sweet corn (April-June) on the same land. This crop system appears to be most suitable and allow farmers to grow potatoes year after year without a need to change plots in order to avoid accumulation of pests and diseases. Furthermore, the stems of corn are ploughed back to increase organic matter and improve the soil.

Choices of brokers: Despite the fact that four brokers supplied the same few firms, to growers, they felt they had alternatives. Freedom on brokers choices was highly valued by most farmers reflecting traditional social values and culture especially in the Northern region. As mentioned earlier, some brokers provided more incentives to growers which also often meant that they received above the agreed price (i.e. cartel did not succeed in this situation).

Environmental advantages: Growers in San Sai appreciated the major advantages they have (in order of importance) i.e. their potato production experiences/expertise, soil suitability (sandy soil), good irrigation throughout the year and proximity to processing firms.

Win-Win situation: Since growers aimed for high prices, they were willing to take production risks. Due to high production risks, firms had no intention to contract growers but had the advantage of buying fresh raw material at the price much lower than less fresh imports. This way, firms could concentrate and devote their investment in new areas where they could find more contractees.

Continuous support from various government agencies: The support from government agencies in terms of research and development encouraged growers to increase production and reduce costs.

CONCLUSION

The market of potato processing in Thailand has been restructured. The contracted growers in 1987 and their second generation growers presently manage to cultivate outside the contract. Via professional brokers (who used to be and still are growers), growers in San Sai district freely choose to contact one or more brokers and decide whom to sell to based on the best non-price offers.

The Macro environment indicates the rapid increase in demand for processing potatoes. The government policy supports close integration between raw material production and the value added agro-industry. The contract farming system was promoted in the 6th National Social Economic Development Plan (1987-1991). Consequently, with effort of local officers in coordinating favorable contract arrangement, favorable bio-physical and social-economic environments, potato contract farming was one of the most successful cases in Thailand.

At the me-so level, the potato sector has received continuous technical support from local universities and government research agencies on varietal selection, cultivation practice, mechanical harvesting and post harvest management, as well as cold storage facilities have been improved and prevailed

The experiments on stored local produce for seed have made great impact on the growers' decision in growing early season potatoes.

The impact of grading has contributed to the changes in the supply chain. Over-size potatoes are sold in fresh markets for good prices and under-size became valuable in producing domestic seed (12 baht/kg).

The recommendations drawn from this research are:

1. Public-private support the contract growers on technical is required to drive improvement of new small scale producers at the early stage of development.

2. Give several advantages of contract farming to small farmers, (to have access to technology, input and output markets and price stability), it is also desirable to increase competition so that farmers

have market alternatives. The win-win situation should explored and encouraged by the public sector for further benefits of growers and firms.

References

Gedgaew, C. 1993. Optimal farm plans under risk in Amphoe Sansai Chiang Mai province : contract versus non-contract farming. master thesis, Faculty of Economics, Chiang Mai University,Chiang Mai.

Glover, D. 1992. Introduction, pp.1-9. In Glover D. and L.T.Ghee (eds.). Contract farming in Southeast Asia : three country studies. Institute Pengajian Tinggi/Institute for Advanced Studies. Kuala Lumpur.

Gnun, P. “Analysis Production and Markerting of Potato in Chiang Mai Province”, Research

Laramee, P. 1975. Problem of small farmers under contract marketing with special reference to a case in Chiang Mai province, Thailand. Economic Bulletin for Asia and the Pacific. 26, 2/3 (Sep/Dec):43-57.

Linsay. F. (2002). “Agribussiness” Proceedings of the 14 th Biennial Conference on Global Agribusiness : The Role of Asian Agricultural Academic Institutions. Chiang Mai University, Chiang Mai, Thailand.

Manarungsan S. and S. Suwanjindar. 1992. Contract farming and outgrower schemes in Thailand. pp.10-70. In Glover D. and L.T.Ghee (eds.)., Contract farming in Southeast Asia : three country studies. Institute Pengajian Tinggi/Institute for Advanced Studies. Kuala Lumpur.

The Department of Customs, Ministry of Commerce. 2006. Import and Export Potato. [Online]. Available: http://www. customs.go.th (04/05/2006)

The Office of Agricultural Economics. 2006. Potato Production in Thailand. [Online]. Available: http://www.oae.go.th/zone/zone1/stat_potato.htm (02/05/2006)

USDA Foreign Agricultural Service. 2004. Thailand Product Brief Snack Foods Industry 2004 [Online]. Available: http://www.fas.usda.gov/gainfiles/200407/146107002.doc (12/05/2006)

Wiboonpongse, A. and S. Sriboonchitta. 2004. “Contract Farming in Thailand: Lessons Learned. A paper requested by ADBI for ADBI-UNESCAP Regional Workshop on Contract Farming and Poverty Reduction Issue and Research Methodology, 9-12 August, 2004. United Nations Conference Center, Bangkok, Thailand.

Wiboonpongse, A., S. Sriboonchitta, *et al.* (2005). “The Roles of Contract Farming in Agricultural Transition in Thailand”. *J. ISSAAS.*, 4, 4: 74-97.