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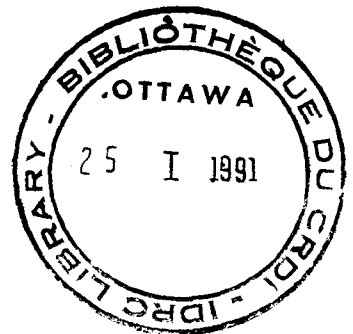
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**CONTRACT FARMING
AND OUTGROWER SCHEMES
IN SOUTHEAST ASIA**

(THAILAND)

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PREFACE

In addition to various secondary sources, such as international organizations, government and private agencies, the success of this paper is attributed to in-depth interviews during field surveys. Among those interviewed were farmers, executives of processing plants, exporters, officials of farmer organizations, staff members and executives of financial institutions, particularly the Bank for Agriculture and Agricultural Cooperative's (BAAC), sales promotion officers of companies selling farming inputs, officials of the Ministry of Agriculture and Cooperatives, the Ministry of Commerce, and the Ministry of Industry, etc., working in the fields, including relevant policy makers. The research team spent over two months conducting the field surveys.

Both the form and content of the main part of this paper are presented in close accordance with the terms of reference and outlines prescribed by Dr. David J. Glover, who is responsible for coordination of this research project. The main report will be published as part of the book entitled "Contract Farming and Outgrower Schemes in Southeast Asia", which is a compilation of reports of the research project conducted in three countries, namely, Thailand, Indonesia and Malaysia. Nevertheless, the limit set for the number of pages of the paper precludes the researchers from presenting the details of the findings, especially those dealing with economic analysis of each study commodity. The detail analysis is presented in the appendixes together with tables derived from secondary sources and field surveys.

This research paper would not have been possible without financial support from the International Development Research Centre (IDRC) and efficient coordination by Dr. David J. Glover. The Thai University Research Association (TURA), which oversees this research project, has also contributed significantly to the success. The research team therefore would like to dedicate all the merit of this work to the above mentioned persons and organizations. The responsibility for any mistakes is borne totally by the research team.

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Abbreviations and Conversion Rates

1 rai	=	0.16 Hectare
1 Baht	=	US\$0.038
BAAC	=	Bank for Agriculture and Agricultural Cooperatives
OECD	=	Overseas Economic Cooperation Fund
IBRD	=	International Bank for Reconstruction and Development.
EEC	=	European Economic Community
CP	=	Charoen Pokphand
BOI	=	Board of Investment
NESDB	=	National Economic and Social Development Board
USAID	=	United States Agency for International Development

Introduction

Background and Current Problems of Thailand's Agricultural Sector

Despite ongoing industrialization efforts, agriculture remains the most important sector of the Thai economy. Agricultural products account for approximately 25% of Gross Domestic Product (GDP). Over fifteen million people (about 70% of the total labour force) are engaged in farming activities. Agriculture brings in approximately 60% of annual foreign exchange earnings. Prior to the Fourth National Economic and Social Development Plan (1977-81), farm production increased steadily at a considerable rate. The average growth rate of the Thai agricultural sector was about 5% annually, while that of world agricultural production was only 2.5-2.8%.

However, since the beginning of the Fourth Plan, annual growth rates of the agricultural sector have followed a downward trend, averaging only 3.4% per year during the Fourth Plan and 2.8% per year during the Fifth Plan (1982-86). It is estimated that the agricultural growth rate of the sector during the current Sixth Plan will be around 2.6-2.9% per year.

Current Problems In the past, Thai agriculture was based on only a few products. Over the period 1982-84, the total annual value of Thai agricultural production averaged 61.81 billion baht, or about US\$ 2.29 billion (at 1972 prices). The combined value of the six most important crops

(rice, sugar, tapioca, rubber, maize, and tobacco) averaged 43.243 billion baht (about US\$ 1.6 billion) or nearly 70% of the value of the total. Exports of these six items accounted for 74% of the total export value of Thai agricultural products.

The concentration of Thai agricultural exports in only a few products has made it quite difficult to increase export earnings from the agricultural sector, particularly when world market conditions are unfavourable. Additional problems, such as unemployment and the low level of farmer income have also plagued the agricultural sector. Diversification of production from traditional crops or commodities to new ones is clearly needed. One non-traditional institutional arrangement which can encourage production of new commodities with high market potential is contract farming (CF).

1. Theory and Practice of Contract Farming (CF)

a) Definition of Contract Farming

The contracting relationship is a way of coordinating the flows of goods through a vertical chain of production and marketing.¹ In CF, the firm exercises considerable control over raw material production without ownership of the production units.

In CF arrangements, a central processing or exporting unit purchases the harvests of independent farmers. These purchases can supplement or substitute for production by the central unit itself. The terms of the purchase are arranged

1. D.Glover "Agrarian reform and agro-industry in Honduras" Canadian Journal of Development Studies, Vol VII, No 1, 1986, p.34.

in advance through contracts which are generally signed at planting time and which specify the quantity the company will buy and the price it will pay. The firm often provides credit, production inputs, farm machinery rental, and technical assistance, and it retains the right to reject substandard produce.²

CF is most commonly practiced by food processing firms which have high fixed costs. These firms have an interest in maintaining raw material inflows at a steady level close to plant capacity.³

Contract farmers have an assured market for their crop, access to the firm's services, and easier access to credit.⁴ In cases in which the firm itself does not provide loans to its growers, banks will generally accept a contract as collateral.

b) Methodology

Socio-economic analysis is applied to all the data, which were gathered for the study. Primary data were gathered largely from in-depth interviews with a wide variety of persons concerned with contract farming and Thai agriculture. These ranged from farmers, buyers of agricultural products, and employees of processing plants, exporters, MNC's, and financial institutions, to officials of the relevant government agencies, particularly the Ministry of Agriculture and

2. D.Glover, 'Increasing the benefits to smallholders from Contract Farming: Problems for Farmers' Organizations and Policy Makers', World Development Vol.15, No 4, 1987, p.441.

3. Ibid.

4. Ibid.

Co-operatives, the Ministry of Industry, the Ministry of Commerce, the National Economic and Social Development Board, and farmer organizations.

c) Study Products

The products selected for the study were broiler chickens, pineapple, oil palm and asparagus. All of these except asparagus have been produced under contract farming or in the contract market for a considerable period of time.

d) Study Areas

Provinces selected for the study were in the central and southern regions of Thailand, both of which contain large-scale production of the four products. The study areas for each product are specified below:

(1) Broilers: Chon Buri, Chachoengsao, Prachin Buri, and Rayong.

(2) Oil Palm: Surat Thani and Krabi.

(3) Pineapple: Chon Buri, Phetchaburi, Prachuap Khiri Khan and Rayong.

(4) Asparagus: Prachuap Khiri Khan and Nakhon Pathom.

2. Policy Context and Legal Framework

a) National Policy Towards Agricultural Development

The national policy regarding development of the agricultural sector is included in the Guidelines for Development of Agro-industries under the Sixth National Economic and Social Development Plan(1987-91), objectives of which are as follows;

(1) To develop and support agro-industries which have potential for export promotion and import substitution, with emphasis on the following:

(1.1) Quality improvement.

(1.2) Management systems development.

(2) To expand into new forms of agro-industrial production which have potential for further development, such as food processing industries which use vegetables and fruits as raw materials.

(3) To create linkages and improve production techniques, marketing, research, and technology transfer, as well as management and investment of the public and private sectors.

(4) To support farmers in production planning with emphasis on ensuring a consistent supply of high quality raw materials to meet the requirements of agro-industrial processing plants.

(5) To assist agro-industrial plants in transferring appropriate technology to farmers.

It is noted in the guidelines that the agricultural development programmes contained in the Sixth Plan are in many respects similar to contract farming. It is also clearly stated that contract farming will be one of the production systems to be promoted by the government. This

emphasis in the Sixth Plan makes a study of contract farming in Thailand, which was in the past rare and unsystematic, useful for purposes of planning and development.

In addition to the broad national policy guidelines cited above, the Royal Thai Government (RTG) has a specific plan for developing contract farming. This is referred to as the Four-Sector Co-operation Plan to Develop Agriculture and Agro-Industry. Under this plan, private firms (engaging in agro-industries), farmers, financial institutions (particularly the Bank for Agriculture and Agricultural Co-operatives - BAAC), and various ministries will work together, with the Ministry of Agriculture and Co-operatives acting as the core agency, to achieve the goals.

b) The Government's Policies Toward Agricultural Commodities in this Study.

(1) Broilers

Important policies affecting inputs to the production of broilers are as follows;

(1.1) Price guarantees for soybeans and fish meal. The Government has imposed tariffs and import quotas on soybeans and fish meal in order to protect domestic producers, making domestic prices of the two main ingredients of animal feed much higher than world market prices.

(1.2) Price and quality control of animal feeds by the Department of Livestock Promotion.

(1.3) Policies aimed at promotion of broiler exports, as reflected by such measures as;

- Lifting the export premium (0.50 baht per kilogram) effective from 18 August 1982.

- Establishing quality standards and control for exported frozen chickens.

- Granting promotional incentives to export-oriented chicken processing businesses.

- Negotiating with certain trading partners, such as Japan, with a view to eliminating import tariffs imposed on Thai broilers.⁵

(2) Pineapple, Oil Palm and Asparagus

(2.1) Pineapple: In the Sixth National Economic and Social Development Plan (1987-1991), the Government stated its intention to encourage pineapple production through contract farming. Heavy competition among firms exporting pineapple products, resulting in frequent price wars, has led to Government fears that such competition might jeopardize the economy; the government consequently has set up export floor prices. It also adopts minimum price guarantee measures during times of low prices of fresh pineapple.⁶

(2.2) Oil palm has now been included as a crop to be produced under contract farming. According to the Fifth and Sixth Plans, oil palm is regarded as one of the most promising crops in the south. During the Fifth Plan, the target was to produce sufficient supply to fulfill domestic demand. The plan was quite successful, as production growth rates actually exceeded the target. The goal during the Sixth Plan is to encourage exports, while the combined planting area will be limited to 700,000 rai.

5. The Japanese Government subsequently agreed to lower the tariff rate by 14% in early 1986 and the present rate is 12%.

6. In practice, however, such minimum price guarantee measures have never been effective.

Some additional objectives concerning oil palm stipulated in the Sixth Plan are as follows;

- To allow the private sector to grow oil palm in some deteriorating national forests.

- To accelerate research and development work in order to identify superior oil palm varieties, as well as to improve production and maintenance techniques.

- To register oil palm seed dealers and have the Department of Agriculture enact measures to regulate their activities.

Since May 1987, the Government (through the Department of Internal Trade) has fixed the minimum and maximum prices of oil palm nuts and crude palm oil.⁷

The Government has also launched suppression operations to counter palm oil smuggling along the southern and eastern borders of Thailand.

(2.3) **Asparagus** The Government, through the Ministry of Agriculture and Co-operatives, has specified asparagus as one of the crops under the Four-Sector Co-operation Plan to Develop Agriculture and Agro-industry.

7. The minimum prices for palm nuts and crude palm oil were fixed at 1.40 and 9.00 baht/kilogram, respectively and the maximum prices at 2.20 and 13.00 baht/kilogram, respectively.

3. Nature of Production and Processing

a) Broilers

Broilers raised in Thailand are generally of foreign origin, and are imported mainly by animal feed producers. Most of the imported breeds are hybrids from the United States. The largest supplier of poultry breeds is the Arbor Acres (Thailand) Company, which is currently providing about 60% of the total supply.

(1) Location: Poultry farms can be found in every province. The greatest broiler production is in Chachoengsao, followed by Chon Buri, Nakhon Ratchasima, Chiangmai and Ubon Ratchathani.

(2) Nature of Production: Newly hatched chicks must be delivered to ranchers immediately, before they are fed. During the first two to three weeks, chicks require special care and intensive labour inputs. They must be warmed constantly by electric lamps, vaccinated, and their mouths cut; they must also be fed six times a day. During this period, very intensive labour is therefore required. Labour needs are then lighter until the 5th or 6th week, when the feed conversion ratio grows larger and the chickens are able to eat more food in the cooler weather. Feeding in this period has to begin early in the day (4-5 a.m.).

Female and male chicks have different growth patterns. Females normally reach maturity in forty-six days, while males take fifty-six days. Moreover, the growth rates at different stages vary, necessitating the use of different feed formulas. Because broilers are very vulnerable to diseases, ranchers must take special measures to protect them.

It normally takes fifty to fifty-two days to raise a flock of broilers with an average weight of 1.8-2.0 kgs.

(3)Production Costs: Feed is the largest cost in broiler raising, constituting 70-80% of the total. The cost of new chicks is 20-25% of the total, and the balance includes the cost of medicine and other inputs.

(4)Processing: Over one hundred million baht is required to establish a large scale chicken processing plant which can meet the standards of foreign markets, which are the major outlet for Thai chickens. The meat must be tested to ensure that it does not contain excessive chemical residues and the processing must meet hygienic requirements.

The past few years have seen a boom in broiler exports. The volume of exports rose from 40,000 tons in 1986 to 90,000 tons in 1988. Japan, which absorbs about 90% of Thai broiler exports, has become much stricter regarding the quality of imported chicken meat. As a result, greater care must now be taken, particularly in the prevention of excessive residues; this has meant higher costs.

b) Pineapple

(1) Location: The southern region (particularly Prachuap Khiri Khan and Phetchaburi provinces) is the most important pineapple planting area, accounting for 60% of the national production. The second largest producing area is the eastern region (Rayong and Chon Buri Provinces), with about 20% of the total.

(2)Production: In 1987, the total area planted with pineapple was about 440,000 rai, yielding 1,770,900 tons of pineapple.

(3)Method of Planting: Pineapples can be grown in either single or double rows, the former requiring 3,000-5,000 crowns per rai and the latter 6,000-10,000 per rai.

About 70% of pineapples in the south are grown in single rows⁸, but in the eastern region, 70-80% of pineapples are grown in double rows.

Pineapples grown in double rows are more suitable for canning. Canneries prefer pineapples weighing about two pounds and not too juicy. Double-row planting requires more chemical fertilizer and a good drainage system, and is more suitable to large plantations with heavy capital investment. Most small farmers continue single-row planting because of their limited financial resources. This lack of resources often results in poor maintenance and fruits too small to be accepted by canneries. However, growing pineapples in double rows would limit small farmers' ability to sell the crop in fresh markets, as most consumers of fresh pineapple prefer large, juicy fruit.

(4) Season:⁹ The peak season for pineapple is normally between May and June, as the cool season (December-January) is the best time for flowering, and the fruit grows to its full size over the ensuing 4-6 months. Overproduction most often occurs during the peak season. Many farmers are now using chemicals to control the flowering. The preferred method is to apply gas to pineapple tops. One worker can

8. However, the proportion of double-row planting is on the increase.

9. Field Surveys.

cover 900-1,200 tops per hour and each top needs treatment three times every ten days. While the night-time is suitable for this work, most farmers do this treatment after rain falls. Most of the work is done from August to November, resulting in a flood of pineapples in the market from February to May. If farmers wish their pineapples to be harvested during the low season (August-October), they have to shift the planting and gas-applying periods, which is difficult to do, and often ineffective. If the planting is shifted to the rainy season, the crown often decays. The cost per pineapple crown is 0.50-0.70 baht and the total cost of producing each pineapple is about 1.10-1.30 baht/kg. In general, planting in the early rainy season (May-June) is effective only to a certain extent and possible only on large plantations with heavy investment in water systems and other production inputs. For small farmers who depend on rain-fed production, the planting spread to avoid peak season is rarely possible.

(5) Yield: Single-row planting normally yields three to five tons per rai, while double-row planting yields 6-8 tons per rai. However, the latter requires heavy use of production inputs, especially fertilizer; the standard rate of application is 100-150 kgs per rai per year.¹⁰

(6) Processing: About 80% of pineapples harvested are supplied to pineapple canneries, each of which requires hundreds of millions of baht in investment. The best size for Grade A canning is about two pounds per fruit, as the loss from peeling and cutting is minimal. Most canneries also

¹⁰ Field survey.

produce other canned pineapple products, such as pineapple chunks, fruit salad, and pineapple juice, so that virtually all the pineapple is used.

c) Oil Palm

(1) Location: For oil palm cultivation, the soil should consist of loam or clay, with reasonable water absorption and circulation. Year-round rainfall, high humidity and plentiful sunshine are also needed.

Krabi Province has the largest oil palm cultivation area. In 1985, it had 242,752 rai, or 55% of its arable land planted to oil palm. Other major oil palm producing provinces include Surat Thani, Chum Phon, and Satun.

(2) Production: In 1987, total oil palm production from the national planting area of 614,955 rai (of which 432,238 rai gave yields) was 728,315 tons of fruit or 124,786 tons of crude palm oil.

(3) Structure of Oil Palm Production: There are three types of oil palm planters, described as follows :

(3.1) Planters who are registered as companies: these each have a planting area of over 1,000 rai. In 1987, planters in this category constituted 59% of all planters.

(3.2) Planters who are individual businessmen, not registered as legal entities. This category accounted for 23% of all planters registered in 1987.

(3.3) Planters who are members of settlement co-operatives and self-help settlements. This category represented 18% of the total.

(4) Oil Palm Yields: In 1986 and 1987, average oil palm yields were 1.85 and 1.70 tons of fruit per rai respectively.

(5) Costs of Oil Palm Nut Production: According to a 1988 field survey, the average cost of oil palm cultivation per rai was 1,553 baht per year. When this was translated into oil palm nut production cost, the average per kilogram cost was 0.92 baht.

(6) Palm Oil Production: Crude palm oil crushing mills can be placed in two categories according to their production capacity, as follows:

- Large mills which buy palm nuts for extracting oil from their husks and threshing out the kernel. They use steam for sterilization and removal of moisture from palm nuts. These mills are mostly promoted by the Board of Investment (BOI)¹¹ and have production capacity of over five or more tons (FFB)/hour.

- Small mills with production capacity of less than five tons (FFB)/hour. Mostly, they buy palm nuts and palm bunches which are taken for moisture removal through steam heat and put into screw press receptacles which press on both the seed and kernel of palm nuts to obtain both palm oil and palm kernel oil combined.

d) Asparagus

¹¹ BOI is an agency under the Prime Minister's Office. It was established in 1954, to consider granting promotional privileges to domestic and foreign private businesses investing in industrial projects in Thailand. Promotional privileges granted by BOI include tax incentives, local industry protection by several measures, such as imposition of tariffs or surcharges or banning of imports, and giving special export facilities.

(1) Location: At present, asparagus farming is scattered over 12 provinces. Prachuap Khiri Khan, with 945 rai of asparagus planting area in 1987, is by far the largest producer. Other important asparagus-producing provinces are Phetchabun and Nakhon Ratchasima.

(2) Production Asparagus planting area in Thailand in 1987 totaled 5,055 rai. Less than 40% of the total area, only 1,940 rai, produced the total output of 1,940 tons of asparagus. The area originally targeted for asparagus production in 1987 was 8,000 rai and the target output was 4,000 tons. According to the plan, this would be expanded to 25,000 rai and 26,000 tons in 1991. Production in 1987 fell far short of expectation, however.

(3) Yields: Asparagus can be harvested about 250 days a year. At peak periods, up to 10-15 kgs./rai/day can be collected, while only 2-3 kgs/rai/day is available during low periods. The average yield is about 1,000 kgs./rai/year.

(4) Types of Asparagus: About 90% of asparagus grown in Thailand is for direct consumption, and is referred to as the "green" type. The remaining 10% is the "white" type, used for canning. There are only a small number of canneries at present. Most of them are situated in Rayong, Chon Buri, and Suphan Buri. More will likely be set up in the near future.

4. Major Issues on Contract Farming in Thailand

a) The role of private firms in CF

It has long been the policy of many successive Thai governments to promote investment in the private sector, especially in industries with complex production and marketing structures. It is believed that the private sector's greater managerial ability will mean greater efficiency in production. An example of this is the broiler industry, which is the only clear example of contract farming in Thailand. The production procedures require advanced technology, and management is relatively complex and demands high efficiency.

Another important reason for the major role played by private firms in contract farming is the credit extension policy of commercial banks, which are required by the central bank to extend rural credits amounting to at least 20% of their total deposits. Commercial banks frequently have difficulty meeting this requirement because of the high risks involved. One way to resolve the problem is to extend credits to CF projects run by private firms, which are considered more efficient and less risky.

b) The relative absence of plantation farming.

Farming in Thailand has traditionally been small-scale for two principal reasons:

(1) The land-holding pattern in Thailand is basically oriented toward small holdings. This is largely due to government policy since the country was opened to foreign trade in 1855. The various governments felt threatened by colonial powers and consequently prohibited any individuals

from holding large plots of land for plantation-style cultivation. As most of the lands are now owned by small holders, it is quite difficult for private individuals to gather enough land for plantation cultivation.

In the past decade, however, the government began to encourage plantation farming by permitting private individuals and firms to use large plots of former forest land for farming. A clear example of this is the oil palm plantations in the south, which presently account for about 60% of oil palm cultivated area.

(2) Plantation cultivation is less efficient than small-scale farming, due to the following:

(2.1) Plantation wage labourers are paid fixed wages, and are therefore not adequately motivated to work hard.

(2.2) There are many problems related to employee dishonesty, especially the theft of production inputs such as fertilizer, pesticides, tools and even the produce itself.

(2.3) It is difficult to secure high quality management. For plantation cultivation to be efficient, management staff with highly developed skills are required; this means higher costs.

(2.4) Business firms which incorporate plantations are often not specialists in agricultural production. They are not structured or equipped to produce their own raw materials. Consequently, most factories and business firms prefer to purchase raw materials in the open markets or enter into contractual arrangements.

c) The role of CF in promoting non-traditional exports.

CF has been quite effective in this respect. Many export items produced under CF, such as chickens, sugar and asparagus, are new commodities which have become important exports only in the last two decades. At present, nearly 70% of exported chicken meat and 100% of exported sugar are produced under CF.

There are indications, however, that CF will play a lesser role in export promotion in the future. In the chicken industry especially, exporters are now turning more and more to direct farming, mainly to improve the quality of exported chickens. A major reason for this change is that Japan, which absorbs about 90% of exported Thai chickens, is now very sensitive to the hygienic quality of chicken meat.

For pineapple and oil palm, most exported produce comes from open markets. Only a small portion is from contract markets.

d) The performance of MNC's and local firms.

(1) Broilers

(1.1) Chicks: All chicks in the Thai broiler industry are controlled by MNC's, with Arbor Acres of the United States commanding a market share of about 60%. All parent stocks are still imported, because the scale of the broiler industry in Thailand is not large enough to justify parent stock breeding.

(1.2) Feed: Virtually all feeds are produced by local firms. However, some MNC's, such as Cargill, are now making preparations to produce feed in Thailand.

Cargill's role in the Thai broiler industry had in the past been limited to supplying raw materials for producing feeds and veterinary medicines.

(1.3) Processing plants: Almost all of the modern processing plants are owned in joint ventures with Japan-based MNC's (e.g., Mitsubishi, Mitsui, and Itoman). These MNC's usually hold 20-40% of the shares in each plant. Japanese-based MNC's have invested heavily in Thai broiler processing in expectation of increased chicken imports from Thailand.

(1.4) Veterinary medicines: Most of this business is controlled by MNC's such as Bayer, Shell and Hertz.

(2) Pineapple

Dole (Thailand) Ltd. is directly involved in both pineapple planting and canning. In the past, Dole plantations supplied 60-70% of the pineapples required by its cannery. This proportion has now dropped to about 40% because of the expansion of cannery capacity. Because the size of its plantations has not increased, Dole now has to rely more on pineapple purchased in the open market. The company applies highly capital-intensive techniques in its plantations. Marketing of the product is entirely handled by the parent company in the United States. In processing pineapple, the company does not operate through farmer organizations, probably for fear of giving these organizations more strength and bargaining power.

The majority of local firms no longer operate their own plantations. They normally handle marketing by themselves, or sell their products through trading companies (mostly Japanese and Taiwanese). In order to ensure a supply

of raw materials, local firms have set up several procurement systems, including purchasing quotas and contract markets based on minimum price guarantees. They do not, however, provide technical services or credits to farmers. Canneries which have contract market dealings normally limit their CF obligation to about 40% of their total demand for raw materials.

Labour Employment Systems of MNC's and Local Companies: Since the Dole cannery belongs to a multinational corporation, the workers hired initially were all permanent employees and came from many regions.¹²

These workers received wages only when the cannery was in operation. The cannery lent each worker 1,200 baht when there was no work and offered other benefits to workers such as transportation and entertainment.

Five years ago, Dole workers went on strike, demanding compensation from the company for periods when there was no work. The company laid off all the workers and gave them six-month compensation pay. Those who reapplied for jobs received an additional three-month pay, but the new hiring was temporary, except for those in the administration and mechanical departments. The present employment contract is renewed every three or four months. The daily wage is 61 baht but workers now have to pay for their own transportation (about 4-8 baht/day) and the cannery no longer provides other benefits.

In this way, Dole changed its employment system from the western-style of hiring permanent employees to the style employed by Thai canneries, which gives more power to

12. The company paid 50 baht to employment agents for each worker placed.

the cannery itself. Over the past two years, although the Dole cannery has been in operation almost year-round, there has been no sign that it will turn back to a permanent employment system and give workers greater stability.

Another characteristic of MNC's which makes them different from local firms is their method of ensuring a supply of raw materials. Dole (Thailand) relied on its own plantation when it first constructed its cannery. Later, the expansion of production capacity led to more purchases from the open market or from regular suppliers under a quota system. Dole did not engage in either contract markets (in the form of minimum price guarantees) or contract farming. Farmers living near Dole's plantation and cannery have therefore not benefited from the plantation, either in the form of input credit or technical know-how. In contrast, local firms which operate plantations in the eastern region can supply themselves not more than 40% of the total produce requirements. The rest is supplied through contract markets arranged with farmers. In the beginning, these firms provided technical and credit extension services as well as some input credits to contract farmers. These services had not been heavy burden or increased the cost of the firms as normally these firms had their own plantations with a wide range of facilities, making it easy enough for them to provide services to farmers. However, firms in the eastern region provided backward linkage services only in the early stage of their establishment when they were faced with shortages of raw materials. After the problem of supply shortage had become less intense, these firms reduced their services to the farmers. Besides, only large farmers who own production

techniques similar to those used by plantations of these firms could utilize facilities and services provided by the firms.

(3) Oil palm

MNC's in Thailand used to be major consumers of imported oil palm products. Unilever, for example, used to rely mainly on palm oil imported from Malaysia. Since 1982, however, the Thai Government has adopted a policy of protecting domestic oil palm industries, especially oil palm plantations and crushing mills. The first measure taken to achieve this was the imposition of tariffs on imported palm oil products. Since then all imports have been completely banned. Consequently, MNC's such as Unilever have had to operate their own plantations and crushing mills by entering into joint ventures with local firms.

(4) Asparagus

A Japanese firm (Taniyama) has contract market dealings with many small farmers. It does not provide credits or technical services in the production process, however. Asparagus farmers have to rely on their own resources or borrow from the BAAC. Asparagus sold by farmers is subject to regrading, and only about 20% of the asparagus sold is considered good enough for export to Japan, Singapore and Hong Kong.

Local firms buy asparagus from local dealers to whom they provide operating loans. Local firms still play a dominant role in the buying and selling of asparagus, and most of the produce goes to local markets.

e) Foreign Aid and Foreign Investment

a) Foreign aid to the Thai agricultural sector comes from many sources, the principal ones being the EEC, USAID and OECF (Japan). Apart from giving direct aid to particular projects, international donor agencies also finance projects through local agencies. For the four commodities in this study, foreign aid is channeled to farmers through the BAAC, which then extend credits to oil palm, pineapple and asparagus growers. Chicken farmers very rarely borrow from the BAAC; most of them use the services of commercial banks.

At present, over 20% of BAAC lending funds are grants and low-interest loans from international agencies. These sources play an important role in the BAAC's ability to provide low-interest loans to farmers.

All the BAAC's main foreign sources of funds (OECF, EEC, IBRD, etc.) have included provisions for increased lending to small farmers in their loan agreements with the BAAC.¹³

b) There was direct foreign investment in nearly all the produce processing plants under our study, such as pineapple canneries, chicken processing plants, palm oil crushing mills and asparagus cold storage. According to Thai law, total foreign investment cannot exceed 49.0% of the shares of each company.

f) Diversification of Farmers' Production

13. BAAC, 'Agricultural Credit in Thailand', Bangkok, December 1984 p.17.

Nearly all of the farmers producing the four commodities under our study have diversified their production. Their income comes from both on-farm and off-farm activities.

(1) On-farm activities. Each farm household typically produces several crops at the same time. Chicken farmers, for example, may also grow tapioca, coconut trees, paddy, etc. The most important factors determining the diversification of each household's production are the amount of land and the size of the labour force available. The greater the quantity of land and labour, the greater the opportunity for diversification. The labour required for raising broilers varies with the age of the chickens. When chickens are younger than three weeks old, they must be fed six times daily.¹⁴ For a short period after that, the work is less intensive; raising 10,000 chickens (the number an average-sized farmer raises at one time) only requires about four hours daily.¹⁵ Labour becomes intensive again after the chickens reach six weeks, when their appetite matures and the feed conversion ratio is high. Raising chickens requires continuous care, especially during hot weather and when the chickens are infected with any of several diseases. Normally, however, the raising of 10,000 chickens requires only one full-time labourer. Broiler-raising households in the eastern region, most of which have more than three active labourers (adult males)¹⁶, can therefore still diversify

14. From interviews with farmers in CP project at Si Racha.

15. From interviews with extension officers of firms at Si Racha.

16. Field surveys.

into other activities. And even those households which lack labour can easily hire more at comparatively low wages (40-50 baht a day).¹⁷

It is noteworthy that farmers who have land that is fit for growing paddy will continue growing paddy although the price of rice has not been very attractive.¹⁸ Most of the land used for raising chickens in the eastern region is highland and rather infertile. Farmers in this area like to grow crops which do not need intensive labour, such as tapioca (which is grown by most chicken raisers) and coconuts; this helps keep the labour market in the region quite relaxed.

Farmers growing the three crops also typically grow several other crops as well. Pineapple growers, for instance, also grow tapioca, rubber trees, and fruit trees; while most asparagus growers also grow pineapple, paddy and vegetables. Of the three study crops, asparagus has the most intensive labour requirement because, in addition to tending the crop, farmers also have to harvest it throughout most of the year. Asparagus requires one labourer per rai of productive land; as a result, the average asparagus farming household rarely works more than 2-3 rai. Even so, asparagus planters still have time to grow other crops, as normally farmers will not have to work beyond noon to collect their produce for the market each day. In addition, the peak season for asparagus is in the months of March

17. This situation was still true at the time the field survey was conducted in 1988. However, the economy in the eastern region at present is unusually dynamic as the Thai government has designated it to be an industrial area and deep seaport, which may result in a shortage of labour in the near future.

18. About 20% of farmers in Si Racha District are still growing paddy, mostly for their own consumption. (From interviewing agricultural co-operative officials of Si Racha District).

and April, when farmers are free from other farming activities; while the period of October to November, which is the harvest season for many other crops, is incidentally the low season for asparagus.

Normally, farmers produce both cash crops for sale, and subsistence crops like paddy, vegetables and fruit trees for their own consumption. Diversification is favoured as a way to reduce the risks inherent in monoculture production. From field surveys it was discovered that some pineapple planters had at one time increased the proportion of their land devoted to pineapple; when pineapple prices fell, these planters had to sell half of their land to pay their debts.¹⁹ In another case, oil palm planters in a self-help settlement in Pra Saeng District of Surat thani Province were encouraged by settlement officials to grow only palm trees, and later also had to sell their land rights to pay the resulting debts.²⁰ Diversification has one disadvantage, however, in that it discourages commercial firms from engaging in CF, as they fear that farmers will take inputs that the firms have given to them and use them on non-contract crops, especially if the other crops are selling at better prices.

(2) Off-farm activities. In a typical farm household in both CF and contract market projects, some labourers will look for off-farm work either inside or out-

19. In one case, the pineapple grower had to sell 25 of his 50 rai of land after devoting the whole to pineapple planting for two years.

20. Farmers who are members of the Self-help Settlements do not have documents showing their right of possession, but the selling of land rights is a normal practice.

side the immediate region. Aside from general agricultural labour, the most important off-farm employment is in the various food processing plants.

Diversification therefore helps reduce barriers to exit (from CF or contract markets) for farmers, and also reduces their risks.

g) Multiplier Effects

(1) Broilers

There is not much direct employment in a broiler CF project itself, as one full-time labourer is normally able to raise up to 10,000 chickens per two-month lot. The CF project of a giant firm at Si Racha, which raises about two million chickens in each lot, employs less than 200 labourers.

The firm expects contract farmers to raise chickens by using their own households as their principal labour source. In practice, however, farmers in the project also hire labour from both inside and outside the region for additional help. Most employees from outside the region come from the northeastern region. Wages are normally 2,500-3,000 baht per two months, but the employee pays for his own food. Calculated at a daily rate, wages average 40-50 baht.²¹ Contract farmers who hire extra labour are either those who are raising more than 10,000 chickens per available man in the household, or those who have many other production activities in addition to chicken raising.

²¹ Besides the wages for raising chickens, employees may also receive certain additional benefits, such as permission to eat chickens which die on the farm.

Apart from direct employment in the CF project, there are spillover or linkage employment effects which increase the total amount of employment due to broiler production.

(1.1) Employment in an animal feed mill. The animal feed mill of the large firm at Si Racha is a very capital intensive one, using computers to control nearly all of its work. Construction of the mill cost 120 million baht, but only ten workers are required in its operation.²² This mill produces feed specifically for the firm's CF project in the eastern region.

The operation of these feed mills has increased employment outside the mills themselves. Truck drivers bringing raw materials, workers unloading raw materials, and guards watching the grounds are examples of jobs related to the operation of feed mills.²³ Demand for the raw materials that are used in feed production (there are about 30 different ingredients) also increases employment among raw material producers, although the extent of increase is difficult to quantify here.

(1.2) Employment in an incubation plant. Incubation plants are also characteristically capital-intensive. An incubator which can incubate over 70,000 chickens at a time employs the direct labour of only two workers.

22. From an interview with the manager of an animal feed mill in Si Racha District of Chonburi Province.

23. There are 106 workers in the mill, but only ten are directly responsible for the production of animal feed. The rest are other officials, such as guards, repair-and-maintenance men, accountants, secretaries, and laboratory technicians. The ratio of staff to capital investment is 1 person : 1.13 million baht.

(1.3) Employment in a chicken processing plant which is more labour-intensive than the two preceding. Each large processing plant employs the labour of 1,000-2000 workers (mostly women). At present there are nine processing plants in Thailand.

(2) Pineapple, oil palm, and asparagus

Among the three crops, the growing of asparagus is the most labour intensive. It requires the labour of one man for each rai, while one man can work on 10 rai of pineapple or oil palm. Pineapple and oil palm farmers growing less than 25 rai generally employ only labour from within their own households.

Only contract market arrangements were found in the study of these three crops. Firms supply no input credits or technical and extension services to farmers. The method of production inside the contract market project is therefore not different from that of outside farmers who produce the same crops. Consequently, there is no difference between the patterns of labour employment of farmers who are inside and those outside contract market schemes.

Employment related to production of the three crops is principally in the processing plants. A pineapple cannery that can process 100,000-180,000 tons of fresh pineapple a year employs 1,500-2,500 workers in the peak season (April-June), and 400-500 workers the rest of the year.

Over 80% of the labour employed in these canneries is on a temporary basis; employment contracts must be renewed every three or four months. Workers receive only wages, with no other benefits. Canneries in the southern region pay 50-61 baht daily²⁴; in the eastern region, which is a growing industrial zone and has a slight labour shortage, 67 baht is the normal daily wage. Most of the workers are local residents, and many of them come from households that grow pineapple.

Other employment related to the production of these three crops consists of the transport and production of various inputs, such as fertilizer and chemicals.

However, this linkage employment is not necessarily the result of growing these crops under contract markets only. The production of these crops in the open market has similar effects on employment opportunities.

5. Nature of Firm, Farmer and Contract Relationship

a) Firm

(1) Broilers

Of the four items in the study, the case of broilers is the only one for which CF has truly been practiced according to theory; i.e., the price to be paid to farmers is fixed beforehand; credit and various technical services are provided by the firms.

24. Dole (Thailand) pays 61 baht daily, but workers must pay for their own transportation (4-8 baht daily), while other factories pay daily wages of 50-52 baht, plus transportation expenses.

CF in broiler raising projects is most popular in the eastern region, where tapioca growing used to be the traditional occupation.²⁵ In addition to favourable geographical characteristics, the local population's limited choice of profitable farming activities makes it particularly suitable for broiler raising promotion by private firms. This new occupation, which requires intensive labour, has increased farmer income.

(1.1) There are several ways in which CF arrangements in broiler raising projects are made:

- **Direct CF arrangements between firms and farmers:** This type of CF was first tried in 1977 by Charoen Pokphand Company (CP), which is the leader in animal feed production and chicken raising in Thailand. CP invited farmers in the eastern region who had land of their own to join its CF project. The farmers were required to use their land as security in obtaining loans from commercial banks, with CP signing as the co-guarantor. In this way, commercial banks gave higher loans to farmers than would normally have been obtainable.²⁶ Part of each loan was used by farmers for construction and equipment purchases, while the rest was used by CP as a revolving fund for purchases of chicks, feed, etc. The majority of farmers who joined the company's project raised quite a large number of chickens (an average flock of about 10,000 chickens).

²⁵. 75% of the farming area of Si Racha District, where CP in chicken raising was first introduced, was used for tapioca growing. (Information from the office of Agricultural Economics, Ministry of Agriculture and Co-operatives).

²⁶. Normally, farmers cannot borrow more than 60% of the value of their land as assessed by commercial banks.

- CF arrangements between feed firms and farmers through feed agents or large-scale chicken producers: This is the method preferred by the other six large-scale animal feed companies.²⁷ The firms deal with local feed agents or a few large-scale chicken producers, who in turn deal directly with farmers.

Feed agents contact two or three animal feed companies to procure feed, chicks, and medicines for the farmers who raise chickens for them under contract. After the farmers in the project have raised their chickens to maturity, they sell them to the agents at prices fixed in advance. The agents then sell the chickens to the feed companies contacted earlier. Under this arrangement, the agents are the bearers of risk from price fluctuations of both inputs (animal feed, chicks, etc.), and output (grown chickens). Agents contact more than one feed company because they wish to have some options in determining the conditions of sale. At the same time, they want to minimize management problems which may arise from dealing with too many companies; contacts with too many companies can also reduce the scale of business with each company, naturally lessening the agents' bargaining power.

Farmers joining CF projects through feed agents tend to raise chickens on a small scale, with not more than 4,000 chickens per lot. Chicken raising is, to them, an occupation supplementary to growing crops such as tapioca, paddy, and coconuts. These farmers tend to have an economic status inferior to that of those who engage in direct CF with feed companies.

27. Laem Thong, P. Charoenphand, Saha Farm, Betagro, Centagro and Sri Thai.

(1.2) There are two main types of CF for chicken raising in the eastern region:

The first type is a guaranteed price contract, and is in close accordance with CF concept. That is, the firm supplies various inputs on credit to farmers in the project, fixing prices for these inputs in advance. It also fixes the buying price for the output, which means the firm bears the risk of price fluctuations for both inputs and outputs. Participating farmers bear only the risks inherent in production; their returns are determined by the feed conversion ratio, or FCR, and the chicken death rate. The firm provides technical services, including advice on chicken raising techniques and veterinary assistance. When the chickens are fully grown, the firm first deducts the costs of inputs and repays the interest and principal borrowed by the farmers from commercial banks; the balance of the purchase price is then paid to the farmers in cash. According to field surveys, this type of CF is most popular in Si Racha and Banglamong Districts of Chon Buri Province, in Pluak Daeng District of Rayong Province, and in Phanom Sarakham District of Chachoengsao Province.

The second type of CF is a guaranteed wage contract. The firm pays farmers a fixed price for each chicken or for each kilogram of chicken produced. The farmers, however, have to buy equipment and invest in shelter construction, using bank loans for which the firm acts as guarantor. The firm supplies various inputs and technical services and is still the owner of those inputs. Farmers are de facto hired workers; their returns depend on the feed conversion ratio and the chicken death rate.

Field surveys indicated that if there are other alternatives, firms usually do not favour the guaranteed wage contract as they must take special care in screening prospective farmer participants. (Dishonest farmers can easily cheat firms by selling the supplied feed or chicks outside the project or by letting their own chicks eat the supplied feed.) Firms are sometimes forced to use this type of contract, however. There are two major reasons for this. First, many farmers still do not understand the benefits they can receive from joining a CF project. Firms must therefore give incentives by offering wage guarantees to give farmers confidence. (They might switch the deal to the guaranteed price type, after farmers have joined the project for a certain period of time.) Second, farmers in some areas are too poor to be recruited into guaranteed price CF. Examples of this can be found in Muang District of Chon Buri Province, Phanom Sarakham of Chachoengsao Province, and Si Maha Phot of Prachin Buri Province.

Most of the CF contracts are made verbally.

(2) Pineapple, oil palm and asparagus

At present, CF arrangements involving these three crops are usually made as a forward linkage contract in the form of a guaranteed minimum price. The firm designates a certain minimum buying price for the produce, but if the market price goes above that minimum, the firm agrees to pay the market price.²³

²³. Such contracts have been made in written form between the firm and the farmers, but there has never been any legal action taken when a party to the contract refuses to honour the agreement.

Some of the firms dealing with either of the three crops (pineapple, oil palm and asparagus) have made CF arrangements, setting a minimum buying price for the produce and providing technical and extension services and credit for input purchases to farmers.²⁹ These firms, however, often face problems of farmers in the project secretly taking contract produce and selling it to outside buyers, which, apart from making firms unable to ensure the supply of raw materials for their factories, also makes them unable to deduct input credits that were earlier given to the farmers. When this occurs, firms have to turn to other systems.

(2.1) Firms' systems to ensure a supply of raw materials.³⁰

Firms in some areas use a combination of firm-owned plantations (20-40% of raw materials required), guaranteed minimum price contracts with farmers (20-30%), and purchases in the open market. Firms employing this system are most often pineapple canneries and palm oil crushing mills.

Firms rarely grow on their own plantations more than 40% of the raw materials they need. Although in the past, some pineapple canneries grew up to 70% of their raw materials themselves,³¹ plantations were later

29. In the case of pineapple, after the factory in the eastern region had just been established (around 1977-1978), it made CF arrangements with farmers to ensure a supply of raw materials in addition to the production from its own plantation. In making such arrangements, apart from guaranteeing a minimum price, the factory also provided backward linkage services, such as selling crowns on credit at low prices, providing soil preparation services and transportation services. Only large-scale farmers had access to these facilities and services, however.

30. Field surveys.

31. Dole (Thailand) Company Ltd. is a particular example.

reduced to their present, smaller size. The principal reason for the plantations' lesser role arose from the high cost of plantation administration. Too much reliance on firm-operated plantations also reduced the firm's flexibility in marketing its own product, especially when the market for that product was highly competitive. When the price of raw materials in the market was lower than the cost of materials produced on the plantation, the cannery which produced most of its materials on its own plantation was at a disadvantage in competition.

Firms in other areas use a contract system (not exceeding 40% of their total demand), giving contract farmers minimum price guarantees and other special privileges, such as first precedence in produce delivery during the peak pineapple peak season. For the rest of their raw materials, firms buy from regular individual suppliers using a quota system based on the quantity of produce each farmer supplied to the firm's plant during the previous production season, and from the open market.

When making these purchases, firms buy both from large-scale farmers who have enough produce to send it to the cannery themselves, and from middlemen who provide the service of collecting and bulking produce from smaller-scale farmers. Most of the time these middlemen receive in return for their services 10-20% of the price the cannery pays for the pineapple. But during the peak season, when there is an excess supply, the profit margins of the middlemen may increase to as much as 50 percent of the value of the produce sold. These profits are gained because the middlemen have better access to the canneries than do small farmers.

Alternatively, some firms purchase up to 40 percent of their raw materials from agricultural co-operatives, obtaining the rest from regular customers and the open market. In order to ensure the level of supplies from the co-operatives, firms give special incentives by fixing both the buying price and the grading of produce.³²

From these various purchasing systems, it can be seen that the guaranteed minimum price contract market is only one of the means by which firms ensure their supplies of required raw materials. The most important variables determining firms' decision to use which systems are the production conditions of the farmers in the area and the marketing structure of the good produced by the firm. Because these conditions may change, successful firms will maintain enough flexibility in their supply system to adapt rapidly to new circumstances. Minimum price guarantee contracts are made to ensure the supply of raw materials without backward linkage contracts in order to maximize flexibility.

(2.2) In order to make raw material supply systems more efficient, firms normally will co-operate with other agencies in making backward linkage contracts with farmers to provide them with capital and extension services. Two important parties in this respect are the BAAC and companies which sell farming inputs.

The BAAC is at present the agency with the greatest role in providing credit to middle-scale and small-scale farmers. Joining a private firm to make market

³² It was noted that the bargaining power of some co-operatives (e.g. those at Hua Hin and Sam Roi Yod Districts of Prachuap Khiri Khan Province) increased significantly during periods of strong demand for raw materials. During the recent pineapple export boom, the co-operatives played a larger and more active role in marketing their produce to the processing plants.

contracts with farmers helps the BAAC reduce its business risk, as the firm deducts the loan and interest from farmer sale receipts. At the same time, the firm does not have to extend input credit itself, and farmers are able to obtain credit they need. All three parties are made more secure in this way. At present, the BAAC gives credit, both in cash and in kind, to farmers participating in a contract market with the firm, but farmers who actually join the project receive special privileges. Those who join a contract market project are able to borrow up to 60,000 baht from the BAAC without collateral; ordinarily they would be able to borrow no more than 30,000 baht in this situation.³³

Companies which sell various agricultural inputs such as fertilizer, insecticide, and other chemicals, often contact the purchasing department of large firms in order to ask for co-operation in promoting their goods. Since firms do not make backward linkage contracts to supply input credit to farmers, they do not give extension and technical services to project farmers directly. They instead arrange that the companies which sell agricultural inputs also provide extension services and technical advice on how to use these inputs. This is agreeable to the companies, which naturally wish to increase the level of input use among farmers.³⁴

Government agencies seem to have surprisingly little role in giving technical and extension services to farmers of the three crops under this study.

33. From field survey and BAAC report.

34. From field surveys it was discovered that most of the companies selling agricultural inputs would use one or two men from their extension staff to meet farmers to promote sales of their goods, and give technical advice, the cost of which is 1.5-2.0% of their sales.

despite the fact that there is a government agency designated to provide these services in the study area. Farmers frequently complained to researchers about the lack of technical assistance available to them when faced by plant disease or inferior crop strain problems. They were particularly aggrieved at the unavailability of relevant government officials.

Participants in market contracts demonstrate a clear division of labour.³⁵ Processing plants fix guaranteed minimum prices for the farmers' produce, the BAAC releases credit to farmers, and companies selling agricultural inputs give technical and extension services to farmers. In this way, each of these private sector agencies serve farmers while maximizing their own returns.

b) Social Status of Contract Farmers

(1) Broilers

Farmers in CF projects vary greatly in their background status as follows:

(1.1) Guaranteed price contract farmers.

From the field surveys conducted in Si Racha District, it was discovered that firms prefer to recruit farmers of high economic status for the project. The most important criterion in farmer selection is that they have land of their own in large quantity. Some contract farmers have

³⁵ These private firms co-operate in various ways, which help promote the business of one another. For example, while the team of researchers was conducting field surveys, it was discovered that a pineapple factory in Prachuap Khiri Khan Province had held an exhibition to create good relations with planters. As part of this exhibition, there were displays from companies selling fertilizer and agricultural chemicals, BAAC, and government agencies concerned.

hundreds of rai of land, and in general farmers in the project own not less than 40-50 rai per household. Considering the prices of land which have soared very high, holding land of such quantities makes all of them well-to-do.³⁶ Apart from chicken raising, these farmers have other professions; they are also merchants, land brokers, teachers, etc.; they all therefore tend to have high, secure incomes.

As for family size, each household in the field survey samples had between four and seven members. Most of the family heads had completed primary education.

Raising chickens is not the principal source of income of farmers in the CF project, although it was for most of them when they first joined the project.

(1.2) Guaranteed wage contract farmers found during the field surveys tend to have status conspicuously inferior to the price contract farmers, owning smaller quantities of land or land in less fertile areas.³⁷ Apart from raising chickens, the majority of these farmers grow cassava and other crops that can withstand drought; some family members also have jobs outside the farm.

Family size of wage contract farmers in the project did not differ from that of the guaranteed price contract farmers (four to six people). The majority of the family heads had also completed their primary education.

³⁶ Each rai is worth 100,000-300,000 bath at current prices.

³⁷ But at present the prices of these lands have soared because of the development of the eastern Seaboard.

In the first period after joining the CF project, farmers received quite good returns, but more recently the return from the raising of chickens has dropped considerably, to the extent that sometimes there was a net loss.

(2) Pineapple, oil palm and asparagus

(2.1) Pineapple. Contract farmers have great variation in economic status, ranging from large-scale planters, each of whom grow 400-500 rai of pineapple, to planters who grow not more than twenty-five rai (most of these are members of self-help settlements).

Most small-scale planters grow ten to twenty-five rai of pineapple per household, and more than half of the farmers surveyed had land of their own. Family size averaged five to six persons. Most of the household leaders had completed primary education.

During the past few years, the export boom for pineapple products has somewhat improved the status of small-scale pineapple planters. This income is used for daily consumption expenditures, investment in better inputs for more efficient production, and purchases of status-building consumer items, such as pick-up trucks.³⁸

(2.2) Oil palm. Just as with pineapple planters, oil palm planters varied greatly in size. Approximately 60% of all palm plantation area was owned by large-scale planters and owners of oil palm crushing mills.

³⁸ From field surveys, it was discovered that half of the members of the settlements who grow pineapples had pick-up trucks.

Most of the small-scale planters were members of self-help settlements, possessing about twenty-five rai of land per household, using most of this land to grow oil palm. There were some small-scale planters outside these settlements, however. Of special interest were the small-scale planters in Khiri Ratthanikhom District of Surat Thani Province, which is almost the only oil palm growing area in the southern region where small-scale planters have CF arrangements with firms.

Most of the small-scale planters in Khiri Ratnikhom District grew oil palm on not more than twenty-five rai per household. Most of the land was from run-down forest. Household size was the same as for other groups studied, but family heads had usually completed only the early years of primary education.³⁹ The most important variable leading to differences in economic status was the communication and transportation system that provided access to the village and to the palm planting areas. In areas which had a good transportation system, the villagers were better off since they could diversify production more efficiently with more markets available. Transport of the palm nuts for sale could be done easily and at low cost; obtaining marketing information was easier; and trips to attend meetings organized by the firm were more feasible. Moreover, in areas that had a good road system, the firm usually operated its own plantations, enabling small-scale planters nearby to easily gain technical advice. Small-scale planters in areas with poor transportation systems who were located far away from the

³⁹ Field surveys.

crushing mills tend to live in poorer circumstances. These planters, had to rely principally on one another for new cultivation techniques.

Small-scale planters in an area that has a good communication system, having significant income from palm plantations (and from other productions),⁴⁰ spend part of their money on investment in palm growing, while the other part is used for daily consumption. For small-scale planters in areas where communication and transportation systems are not good, not having money left for investment to improve their palm plantations, most income is spent on daily consumption.⁴¹

(2.3) Asparagus. Most of the farmers grew two to three rai of asparagus per household. The average family size was four to six persons, and most household heads had completed only the early grades of primary education.⁴²

Most asparagus farmers made profit of 34,000 to 50,000 baht yearly, which is very high, considering the quantity of land used for cultivation.⁴³

Part of the income is used for buying fertilizer and pesticide, which are required in large quantities for this kind of crop: the rest is used for daily consumption.

⁴⁰ These small-scale farmers may make a profit of 100,000 baht yearly.

⁴¹ Field surveys.

⁴² Field surveys.

⁴³ Field surveys.

Since asparagus is a crop which requires intensive labour and constant care, both the husband and the wife therefore must help each other in production and in making investment decisions, while the spending for daily routines of the household remains the duty of the wife.

6. Evaluation of Performance

a) Main areas of performance

(1) Input supply

(1.1) Broilers

CF of broilers originates from firms' necessity to ensure demand for the goods that they produce; that is, animal feed and day-old chicks. Animal feed is the most important input in raising chickens. Animal feed mills therefore try to create markets to absorb their products, without having to compete with other mills. Hatcheries (mostly operated by animal feed mills) must send day-old chicks to farmers immediately before having to feed them. Finding certain markets is therefore of utmost importance. The fact that supplies of such inputs are very inelastic forces the firms to initiate CF.

Over ten years ago, when the animal feed industry and modern chicken raising were first introduced in Thailand, mills that possessed the technical knowledge to produce animal feeds were able to make handsome profits. Over 30 types of raw materials can be used as ingredients in feed production⁴⁴; the producer's decision as to which combination

⁴⁴. From an interview with the manager of an animal feed mill at Si Racha District, Chonburi Province.

of ingredients to use depends on their prices. Large mills therefore have the advantage, as they can computerize their operations, and more efficiently select feed formulas. However, in the past five to six years, technical knowledge in animal feed production has become widespread. There are several new animal feed mills, and large-scale farmers now have their own feed mixers, especially those raising layers, who can produce 70-80% of their total requirements. Broiler raisers can produce only about 20% of their total requirements,⁴⁵ because of the complexity of the work and because broilers of different age groups require different feed formulas. Producing their own feed is therefore not economical, especially for medium and small-scale farmers. Farmers who are under CF, the majority of whom raise less than 10,000 chickens, therefore have to rely on animal feed from the contract firm. When raw material shortages occur, or when the government sets controls on animal feed prices, it is not difficult for feed mills to use different, cheaper raw materials. Their product might become poorer in quality, and the poor quality is passed on to farmers. (This matter will be discussed in detail later.)

Heavy investment is required to set up hatcheries. A small one that produces only 100,000 chicks a week needs an investment of 30-40 million baht.⁴⁶ (Hatcheries of vertically integrated chicken firms can produce 600,000-2,000,000 chicks/week.) Chicken breeds still

45. Field survey.

46. From interviews with independent chicken raisers at Muang District of Chonburi Province who jointly set up a hatchery in 1988.

have to be imported from abroad, especially those of Arbor Acres which take about 60% market share; the rest are European chicken breeds, namely Rose and Habbap.⁴⁷

The quality of chicks depends on their sizes and on the age of the mother stock. Mid-age mother stocks produce the healthiest chicks.⁴⁸ Mothers that are too old produce unhealthy chicks, which die easily. It is not difficult for hatcheries to extend the egg laying time of mother stocks when the demand for chicks in the market increases.⁴⁹ Contract farmers have no right to choose the size of chicks that the firm delivers to them.⁵⁰ The decision rests solely with the firm. Hence, firms can easily jack up their profit margins by manipulating chick sizes. (This topic will be discussed in detail later.)

(1.2) Pineapple, oil palm and asparagus

Since firms do not normally make backward linkage contracts, farmers have to rely on the market as their principal source of inputs.

For pineapple, the most important input cost is the crowns.⁵¹ In the past, some canneries supplied farmers with crowns at low prices and on credit to motivate

47. Field survey.

48. Normally mother stocks lay eggs until they are 16-18 months.

49. From an interview with the owner of a hatchery in Chonburi.

50. Chicks received by farmers in the project are usually mixed males and females. Raising mixed chicks may be a handicap to raisers, as male and female chicks mature at different ages. Raising mixed chicks will make the average FCR lower than raising chicks of either sex alone (field survey).

51. Each crown costs 0.50-0.70 baht. (Field survey)

them to grow pineapples. This was particularly true in the eastern region (Chon Buri and Rayong) where pineapple growing was relatively new. Because of the insufficient local supply of pineapple, canneries in the eastern region often had to rely on produce from the southern region (Prachuap Khiri Khan and Phetchaburi) and pay higher costs. Farmers in the eastern region were not expanding their pineapple production because of the unattractive returns compared to those obtained from cassava and sugarcane, the principal crops of this region. During the past six to seven years, however, more and more farmers have switched to pineapple as the prices of cassava and sugarcane fell considerably. Moreover, rubber tree planting has greatly increased in the region and growing pineapples between young rubber trees not only generates more income to the farmers but also helps the growth of the trees themselves, as weed growth is inhibited.

The production of pineapples in the eastern region has expanded considerably since 1985, because of an export boom in pineapple products. Canneries in the eastern region now do not have to rely so much on pineapples from the south. As a result of the increase in pineapple supply, firms have been less willing to comply with the terms of the guaranteed minimum price contract. Firms have also cut down or cancelled their provision of inputs, especially crowns. Farmers therefore have to buy crowns in the open market.

For supplies of other inputs, such as fertilizer and other chemicals, farmers depend almost entirely on the open market. In order to increase their yield per rai and to produce good pineapples, farmers have to use a lot of such inputs.

Oil palm planters usually buy seeds (claimed to have been imported from Malaysia) in the open markets. For small-scale planters, seeds are a major problem, because it is difficult for them to tell the origin and quality of seeds. It takes at least four years to produce nuts which show the quality of the planted seeds. By then, it is too late to change. Many farmers complained that they could not turn to anyone for help with this problem, since government agencies involved play a passive role this issue. (Most government officials seem to view oil palm as "rich men's" plant, implying that owners should be able to take care of their own business).⁵² However, this problem is now not so serious for large scale plantation owners who have better access to good sources and many of them now hire Malaysian experts to work at their plantations.

In addition to seeds, oil palm plantations rely heavily on other inputs, especially fertilizer. For an oil palm plantation to achieve maximum yields, 150 kilograms of fertilizer is needed annually for each rai. Most planters buy fertilizer in the open market; only a small number (mostly large-scale plantation owners) can obtain fertilizer on credit from crushing mills.

Asparagus, meanwhile, is a crop which requires very intensive care. Most planters buy canned asparagus seeds in the open market. Other production inputs, such as fertilizer and insecticide, are also bought in the open market.

(2) Extension

(2.1) Broilers

⁵² From interviews with agricultural officials in the oil palm plantation areas.

Broiler raisers were the only group covered in the study that really enjoyed formal technical and extension services from contracting firms. The extension staff of contracting firms inspect the broilers every two to three days. The ratio of extension staff to contract farmers is 1:50, if the farms are within a radius of 40 kilometres. Contract farmers should organize themselves into groups, each group raising about 100,000 chickens, in order to make it convenient for the firm to provide extension services to them. Extension staff normally have veterinary degrees.

In addition to providing extension services to contract farmers, extension staff also have a duty to see that contract farmers observe relevant regulations laid down by the firm. Farmers who are under the closest supervision in this respect are those under wage contracts, because most inputs are provided to them by the firm, which wishes to make certain that the contract farmers operate honestly.⁵³ Extension staff are also expected to motivate farmers participating in the project to work more diligently and to adopt techniques aimed at improving productivity.⁵⁴

(2.2) Pineapple, oil palm and asparagus

Although firms have their own extension staff, these staff are not directly responsible for providing extension services to farmers because the firms do not engage in

⁵³ For example, if they report death of chickens, they must show supporting evidence; e.g., legs of the dead chickens.

⁵⁴ One method widely used by extension staff is to give awards to outstanding farmers. Other farmers will thus work harder in order to surpass the honoured farmers. (Field surveys.)

backward linkage contracts. Their main duty is to recruit farmers, to sell their produce to the firm on a regular basis in order to ensure a constant supply of raw materials. In addition, these staff are responsible for inspecting the quantity of the produce supplied by participating farmers - which is usually not consistent, depending on weather condition - in order to set prices. In order to encourage farmers to sell produce to their factory, extension staff may occasionally give advice on planting methods, and on appropriate brands of fertilizer or other chemicals.⁵⁵ Most pineapple canneries employ five to ten extension staff members. Each cannery has 700-2,500 farmers as their regular suppliers. The extension staff members visit contract farmers once or twice a month. For asparagus, only one extension officer is needed in a project area which has about 200 contract farmers.

Opportunities for Farmers to Obtain New Technical Know-How:

Farmers in broiler CF projects are able to obtain new technical knowledge from their contact with the firm. However, application of this knowledge to other types of agricultural production is rather difficult; once the farmers give up raising chickens, the knowledge is almost useless.⁵⁶

As for the other three crops, it was found that farmers participating in CF projects can gain some new technical knowledge, mostly from input suppliers which launch

⁵⁵ For this reason, many suppliers of agricultural inputs try to approach extension officers of the firm in order to have their products included on the list of recommended inputs. One pineapple cannery has four fertilizer firms and eight chemical firms on its list.

⁵⁶ From field surveys, it was found that the turnover rate of farmers at major projects, particularly in Si Racha District is as high as 40-50% since the launch of the first project in 1977 and many of them have now given up this occupation, selling their broiler shelters to other raisers.

sales promotion campaigns such as demonstration plots, exhibitions and farm contests. (A popular approach is to hold contests in yield enhancement.)⁵⁷

Among the three crops, firms dealing with pineapple processing are the most active in disseminating technical knowledge to farmers, especially those in the eastern region which buy most of the pineapples through contract market, because most farmers in this region are in favour of double-row planting which enables them to obtain pineapple in the sizes required by the canneries. The average yields of pineapple in the eastern region are thus higher than those in the south (in Prachuap Khiri Khan and Phetchaburi), where over 70% of pineapple growers apparently prefer single-row planting. The average yields per rai of pineapple in the eastern region are six to eight tons, while those in the south are only three to five tons.

Growers of oil palm, particularly small growers, can readily apply their knowledge of rubber planting, which is similar to oil palm planting, in their plantations.⁵⁸ Owners of large plantations hire experts, mostly Malaysians, for their plantations.

As for asparagus growers, they usually learn farming methods from among themselves, because they have little opportunity of receiving technical knowledge or extension services from either private firms or government officials, although technical knowledge is very important to this crop. Without adequate technical knowledge, their produce is often

⁵⁷ Field surveys.

⁵⁸ Field surveys.

of sub-standard quality. (Only 10-20% of asparagus purchased at Kui Buri and Bang Len meets with the specifications set for export.)⁵⁹

Technical knowledge and extension services are especially needed in the period when production is first introduced; after that they might not have much impact on improvement of productivity since the farmers have already acquired the necessary experience. In addition, farmers can learn technical know-how from among themselves. Newcomers are found to accept new knowledge more easily than old ones who tend to think that they are well versed in their field.

(3) Credit

(3.1) Broilers

Most farmers participating in CF projects depend on the services of four or five commercial banks. Field surveys revealed that it is not difficult for contract farmers to acquire bank loans, even when the value of their collateral (land) is not sufficient,⁶⁰ because the contracting firms guarantee the loans for them. Most of the loans are used for building chicken shelters, which constitute the highest operating cost. A chicken shelter which can accommodate 10,000 chickens requires 300,000-500,000

⁵⁹. Field surveys.

⁶⁰. According to prevailing regulations, loans extended by commercial banks cannot exceed 60% of the assessed value of collateral.

baht for construction. Remaining loan money is generally used for purchasing equipment (30,000-60,000 baht for 10,000 chickens on the average).

Commercial banks seem to be quite willing to extend credit to contract farmers. They are required by the central bank to extend credit amounting to 20% of their total deposits to the rural sector. The banks, however, frequently fail to fulfill this obligation because farming in Thailand is generally undertaken on a small-scale basis, which makes the cost to the bank for extending this type of credit quite high. Moreover, the risk of bad debts is higher than for other sectors. Commercial banks are forced to deposit part of the money earmarked for rural credit with the BAAC, which will in turn lend it to farmers. They thus obtain less benefit from their deposits because the interest they obtain from the BAAC is usually lower than they can charge if they lend directly to borrowers. Commercial banks, therefore, are willing to extend credit to contract farmers because their risk is lowered and they can charge market interest rate.

When farmers sell broilers to the firm, the firm will deduct from the payment the cost of various inputs they have provided for farmers. If the price is high and the farmers make considerable profit, the firm will deduct an additional sum from the payment and deposit it in a bank account which it has opened in each farmer's name. Farmers participating in the project cannot withdraw this money except for emergencies because the purpose is to reduce the risk to the firm. Whenever farmers are faced with losses (due to high death rate or high FCR), these deposits can be

used as compensation. It would not be wise to ask the firm to make repayment in cash in such a situation as doing so could easily lead to disputes.⁶¹

(3.2) Pineapple, oil palm, and asparagus

Most large plantation owners (pineapple and oil palm planters) rely on commercial banks for credit because they concurrently engage in other businesses which provide sufficient collateral. Many pineapple plantation owners also operate gas stations or transportation services or have trading businesses in town; while many large-scale oil palm plantation owners are forest concessionaires, lawyers, merchants or government officials.

Most medium and small-scale farmers, however, have to rely on credit from the BAAC. Borrowing is divided into two types, as follows:

- Loans to independent farmers

An independent farmer who has collateral can obtain a maximum loan of 60% of the assessed value of the collateral. The BAAC will arrange small-scale plantation owners who do not have adequate collateral into groups and allow group members to act as personal guarantors for loans of their fellow members. This arrangement is referred to as joint liability groups.

⁶¹ Some contract farmers had losses for several production periods, and their accumulated debt with the firm was greater than the deposit in the bank. After the firm asked them to repay the outstanding debt, they refused to do so. As a result, the farmers had to leave the project and the firm cancelled its provision of chicks to them (from field surveys).

The loan ceiling for farmers in a joint liability group is set at only 30,000 baht per year. However, the actual amount loaned to each farmer averages only 10,000 baht.⁶² These loans are typically used as a revolving fund for farming. It is not intended for any long term investment because the amounts are small and farmers have to repay the loan each year.

In addition to the BAAC, farmers can also seek credit in non-formal financial markets. They can obtain loans from local money lenders who charge interest rates of 3-5% per month⁶³ or from local middlemen who offer interest-free loans (5,000 baht maximum) to those who sell produce to them on a regular basis.

- Loans to farmers in the contract market

Large-scale plantation owners who participate in contract markets usually do not have problems in obtaining loans from financial institutions because they have sufficient security to be used as collateral. By contrast, for small-scale plantation owners, who are the major target group of this study, participation in contract markets means greater access to credit in the organized money markets, especially the BAAC.

Pineapples: Contract farmers in the eastern region (where contract markets are very popular) whose plantations are not larger than 25 rai can use the contract they

62. From a BAAC report. (The bank charges an interest rate of 14% per annum on this type of loan.)

63. From an interview with a local money lender who also owns a coffee shop.

signed with the canneries to apply for a maximum loan of 60,000 baht from the BAAC, without having to use land as collateral.⁶⁴ The BAAC extends credit to them both in cash and in kind. When contract farmers sell their produce to the firm, the firm makes payments to the farmers' accounts at the BAAC and the BAAC then deducts repayments plus interest from the accounts.

Oil palm : Farmers who own planting areas of less than 25 rai in Kiriratnikom District (which is the only area where market contracts are made directly between small-scale owners and oil palm crushing mills) can obtain a loan of 130,000-160,000 baht from the BAAC, using land as collateral.⁶⁵ For those whose land value is not sufficient, the contracting firm guarantees the amount not covered by the collateral.⁶⁶ The loans have a grace period of four years after the trees are planted; i.e., farmers have to start repaying the debt after the palm trees have begun yielding nuts. The size of loans given to oil palm growers is relatively large and is the most important incentive to farmers to participate in the contract market arrangement.⁶⁷

The BAAC could not reach its target of 44 million baht in loans to oil palm growers participating in the project; only 24 million baht was lent.⁶⁸ The major

64. Field surveys.

65. Field surveys.

66. From the field survey, it was found that the firm guaranteed only 10% of the total loans.

67. Field surveys.

68. The BAAC could offer credit to only 260 farmers, against the target of 450. (From interviews with BAAC staff in Suratthani).

reason for failure to meet the target was that the number of oil palm growers participating in the project was too small. Other growers might have fully qualified to participate in the project, but their planting areas were too far away. Farmers who participate in the project are generally those whose planting areas are within a radius of 50 kilometres from the mill.⁶⁹

Some agricultural co-operatives in oil palm plantation areas have also tried to encourage farmers to grow oil palm, through a similar credit scheme. The co-operatives obtained funds from the BAAC and extended loans worth about 130,000-160,000 per 25 rai to farmers.⁷⁰ The gestation period is four years. When members sell their produce to the co-operative, the co-operative deducts 30% of the payment to repay the debts plus interest to the BAAC.

Another portion of loan - about 600-1,000 baht per month-is for oil palm-growers to spend on their daily necessities while waiting for income from the plantations.

Asparagus: According to the quadripartite co-operation plan of the government, which was launched in late 1986, asparagus is a crop to be promoted, and under the scheme, the BAAC is required to extend 268 million baht credits to asparagus growers.

Nevertheless, the BAAC credit extended to asparagus growers was well below the target. Although the production cost per rai of asparagus, as estimated by the

⁶⁹ From an interview with the manager of the BAAC's Surat Thani branch.

⁷⁰ The co-operative pays an interest rate of 9.5% per annum to the BAAC and charges an interest rate of 12.5% per annum to members.

Agriculture Ministry, is about 10,000 baht annually, the BAAC gives only 2,000-3,000 baht loan per rai, or 20-30% to each borrower. In other words, the credits actually extended by the BAAC to asparagus growers are more or less the same amount as loans given to its client under the joint liability group scheme, (about 10,000 baht each on the average), because an average asparagus farm is only two to three rai.⁷¹

The BAAC's failure to meet the target was probably due to inadequate co-operation among the four parties concerned. As an example, the BAAC extended credit to contract farmers in the project at an interest rate of 9.5% per annum, which is about 3.0% lower than the bank's normal lending rate in order to induce more farmers to the project. The Agriculture Ministry is committed to offset the shortfall by using money from the Farmers Welfare Fund.⁷² However, until this very day, the BAAC has not received any such subsidy. Furthermore, frequent changes of the government, or more specifically, of the Agriculture minister, have affected the project in that it is uncertain whether or not the subsequent government will pursue it.

(4) Payments

(4.1) Broilers

The size of the payment the firm makes to each contract farmer depends on the farmer's demonstrated ability in raising chickens. Two major factors are taken

⁷¹ Field surveys.

⁷² The Farmers Welfare Fund is raised mainly from export premiums, especially on rice.

into consideration: the feed conversion ratio (FCR) and the death rate. The standard FCR set by the firm is 2.05 kilogram of feed per one kilogram of chicken meat and the maximum death rate is 5% (the desired rate is 3%).⁷³ Farmers face losses if the FCR and the death rate are higher than the standards.

Compensation is also determined by the quality of the chickens.⁷⁴ Excessive residues also cause the wage to be lower. (The firm usually requires farmers not to use certain medicine with chickens two weeks prior to the sale in order to prevent excessive residues.)

(4.2) Pineapple, oil palm and asparagus

Pineapple : the size of pineapple preferred by canneries are neither too big nor too small. Pineapple growers in the south prefer single-row planting to double row planting because pineapples grown in double rows tend to be too small if production is not adequately efficient. Single-row planting requires less production cost per rai: only 3,000-5,000 crowns are needed per rai for single-row planting while twice that number are needed for double-row planting. Pineapples grown in single-rows are usually larger. However, if they are too large, the cores are too big and are not suitable for canning.

Pineapple canneries in the eastern region which have contracts with farmers also offer better prices if farmers sell their produce to them during the low season.

⁷³ Field surveys.

⁷⁴ Field surveys.

usually around 1.35 baht per kilogram. The offered price is reduced to 1.10 baht per kilogram during the peak season. This is to encourage farmers to avoid the overproduction period by using chemicals to regulate the flowering.

To ensure a consistent supply of pineapples in the open market, firms have imposed a quota system, which has proved to be very effective during the peak season when there is an excess supply. Under this system, the firm buys pineapples only from growers who have transaction records from the previous year. Farmers who do not have such records with any firm are in a difficult position during periods of overproduction because they will have trouble selling the perishable produce. Planters usually try to maintain their records with one or sometimes several firms in order to be able to keep their quotas. The quota system is especially popular in the south.

Middlemen play an important role under the quota system because they usually supply pineapples to the canneries on a regular basis and thus have good records at the canneries. Consequently, they can sell more produce to the canneries during the peak season when the quotas are in force. Small-scale farmers who do not have good records from the previous year must sell their produce to middlemen. The project margin of middlemen during the peak season will increase considerably because of their high bargaining power. Middlemen also provide special services to the farmers. They pay farmers in cash and are not too strict in grading their produce; they take responsibility if the pineapples are afflicted with disease. (Middlemen are usually good at grading or they will be in trouble if the purchased

pineapples are rejected by canneries.) They are also responsible for transporting the produce from the sale point to the canneries.⁷⁵

Farmers who sell their produce to middlemen do it on a regular basis in order to gain favourable grading. If they are not regular sellers, the middlemen will be strict in grading their produce, and during the peak season, the middlemen may not buy produce from them at all, or they may offer much lower prices.

Oil palm : In selling palm fruit to crushing mills, farmers are subject to two major determinants of the price of their produce, the size of the bunch and the ripeness of the fruit. Bunches of palm are divided into three categories according to the weight. "Large" bunches, for instance, must weigh over 15 kilograms.⁷⁶ Ripe oil palm nuts have red skin and will give more oil; their price will therefore be higher than for green oil palm nuts. In addition to good strains, the quality of oil palm depends on maintenance, i.e., whether farmers properly apply fertilizer and herbicide. Weather conditions are also an important factor.

Large crushing mills prefer to buy oil palm fruit in bunches. In the past these mills would not buy off-bunch palm nuts, but they are now forced to buy them be-

⁷⁵ The role of middlemen in purchasing pineapples from farmers to supply to the canneries has decreased in recent years. The export boom encouraged pineapple canneries to increase their production capacity and several new canneries were set up. Because of the increase in the demand, small-scale farmers can now sell their produce directly to the canneries. Although the profit margins of the middlemen have decreased, their earnings are still considerable because of high turnover rate. A mill-man who has been in the business for only a year reported during an interview that he gained about 2,000 baht daily from his business. He has already bought a 10-wheel truck to transport pineapples to the canneries and no longer has to hire a truck for this purpose. The middleman usually buys a truck load (about ten tons) of pineapples each day.

⁷⁶ Field surveys.

cause of the current supply shortage. On the contrary, small mills buy only off-bunch palm nuts because they still use traditional machines, modified from coconut oil crushing machines, which can handle only off-bunch nuts. This production process lowers the quality of the oil. Off-bunch nuts may be those which, because they are too ripe, fell off the bunch or sometimes those taken off the bunch manually.⁷⁷ Large-scale plantations do not aim to sell off-bunch nuts because it is difficult to find buyers (since large mills will not buy them) and because it would not be worth their time, hiring labourers to take off the nuts from bunches, although the prices of off-bunch oil palm nuts are higher. (The prices of oil palm nuts in bunches are about 65% of off-bunch palm nuts as the weight of bunches is not included.) Small-scale farmers sell off-bunch oil palm nuts to small mills or to middlemen. Another reason why small-scale farmers prefer to sell their produce off-bunch is that, because of poor maintenance, the oil palm bunches on their plantations are smaller and weigh less than those grown on large plantations.

The field survey revealed that farmers are tending to sell more produce through middlemen, especially those owning small plantations in self-help settlements or co-operative settlements because they do not have to arrange transportation to the mills. Oil palm fruit is highly perishable; if transportation takes too much time, the fruit may not be fresh and the sale price may fall. Selling through middlemen means the farmers are paid in cash and the grading is less strict.

⁷⁷ The wage for labourers to take off the fruit from the bunch is 0.25 baht per kilogram.

Middlemen also sometimes buy produce from medium and large plantation owners who choose this sale route in order to avoid taxes. Selling directly to the mills means they have to pay full taxes because all transactions are recorded. The profit margin of the middlemen normally amounts to 10-20% of the purchase price.

Over the past four years, the demand for palm nuts has risen because the government has banned palm oil imports. As a result, crushing mills are now faced with supply shortage and thus have to rely more on middlemen. Transportation inconvenience also seems to be a factor enhancing the role of middlemen because roads in the south are in poor condition while crushing mills are scattered here and there, from Satun, Songkhla, Hat Yai, Trang, Krabi, Surat Thani up to Chumphon and Prachuap Khiri Khan (altogether there are 34 mills).⁷⁸ Mills which are far from available palm fruit supplies will pay an extra premium to middlemen to compensate for their inconvenience.

Under the contract market arrangements in Khiri Ratthanikhom District, which is a tripartite agreement among the BAAC, the firm and oil palm farmers, the firm is required to make payment for fresh palm fruit through the BAAC. This transfer procedure is sometimes delayed, with serious effects on farmers because they do not have cash and because they continue to pay interest on the loan. In a bid to solve the problem, the firm later agreed to deduct an amount equivalent to the farmers debt to the BAAC (about 30% of the total sale price) and pay the remainder in cash to the farmers. This practice, however, caused a problem when

⁷⁸ The field surveys revealed that a crushing mill in Chumphon Province sometimes had to buy oil palm nuts in Krabi while another in Suratthani bought oil palm from farmers in Chumphon.

sales were made during the peak season because the amount deducted by the firm was more than 30% of the total payment, causing frustrations on the part of farmers. The firm agreed to allow farmers to sell their produce elsewhere if they thought they could find better prices. The farmers, however, had to repay their debts to the BAAC themselves.

Government protection of the oil palm industry in recent years has led to an increase in the demand for oil palm to the point that there is now a shortage. Because of the increased demand, the price of fresh palm nuts has risen considerably. As a result, farmers have more choices; they frequently sell their produce in the open market at a higher price than that offered by the firm.⁷⁹

Asparagus: Prices of asparagus are subject to several quality criteria set by the firm. Good quality asparagus should have large and straight trunk and the length should be 25 cm or 18 cm. There should not be any white part at the lower end. For grade A asparagus, of which trunk is 25 cm., it should have a diameter of over 1 cm at the lower end and weigh over 14 grams while that of grade B quality with the length of 25 cm should have a diameter of the trunk of over 0.8 cm and weigh over 8 gram.⁸⁰ Prices for Grade A and Grade B asparagus are as follows:

Grade A (25 cm long) 37.75 baht/kilogram

Grade B (25 cm long) 26.00 baht/kilogram

If the produce does not meet these criteria, its sale price will naturally be lower.

⁷⁹ Field survey.

⁸⁰ According to the contract between Taniguchi Siam Co., Ltd. and farmers.

As regards payment, a problem found is that the firm (Taniyama Siam Co., Ltd) usually makes payment in cheque which, for small farmers, is not convenient because they are not used to this system. Many contract farmers have turned to middlemen who pay cash mainly because of this problem.⁸¹

The firm is very strict in grading the produce, resulting in ill-feeling on the part of contract farmers. As a matter of fact, disputes concerning grading have led to the failure of CF arrangements for this crop.

(5) Timeliness of payments

Broilers: Payment is made two to six weeks after sale.⁸²

Pineapples, oil palm, and asparagus : Payment is made within one to two weeks after sale.⁸³

(6) Indebtedness

(6.1) **Broilers:** After being admitted into a CF arrangement, farmers borrowed money from commercial banks to use for constructing shelters and purchasing equipment.⁸⁴

81. Field surveys.

82. Field surveys.

83. Field surveys.

84. Construction of a shelter used to cost around 300,000 baht. The cost has now increased to approximately 500,000 baht.

using their land as collateral.

In order to attract farmers to the project, the firm initially offered a wage contract. Wages are paid according to the number of chickens raised or, occasionally, according to the weight of chickens. At first, most of the farmers earned a considerable profit, 2.30-2.70 baht per chicken or about 2.00 baht per chicken after deducting depreciation (about 0.50-0.70 baht per chicken).⁸⁵ Each farmer raised about 10,000 chickens per lot, which took about two months. Hence, they received a net earning of about 20,000 baht per lot.

The high returns attracted more farmers to the project. The firm gave priority to those with desired qualifications; especially those who owned a considerable amount of land (forty to fifty rai per household), and those who could devote their full time to chicken raising.

Because of the high returns during the initial period, participating farmers had no problem repaying their debts. Most of them could repay their entire debts within five to seven years. (The project was first launched in 1977.)

However, when the farmers had almost paid off the debt; the net profit they gained from wages began to decrease significantly to only about 1.00-1.10 baht per chicken. At this point, the firm proposed that farmers turn to a guaranteed price contract. Because the wage continued declining, the proposal was made more as a condition than an option.⁸⁶

⁸⁵. Depreciation cost is the money a farmer has to repay on installments to the bank for the loan obtained for this purpose (field surveys).

⁸⁶. From interviews with contract farmers in Si Racha.

Most participating farmers, including newly recruited ones, decided to accept the new system. (The firm tried to employ only one system in one area to avoid problems due to differences in benefits between the two systems which might lead to disputes.)

Initially, when the farmers turned to the guaranteed price system, they again made good profit - three to four baht per chicken (before depreciation cost).⁸⁷ They were therefore satisfied with the firm's arrangement. Toward the end of the first year, however, the rate of return began to fluctuate. Some farmers were faced with heavy losses, and eventually were indebted to the firm. For farmers who had a bank account (opened for them by the firm), the firm deducted a portion of the profit they had made earlier and deposited it in the account. When losses occurred, the money was withdrawn to pay for the debts. Farmers who ran losses for several successive flocks were penalized by the firm. Penalties ranged from simple criticism, suspension of supplies, to suspension from the project.⁸⁸

During 1985, when the chicken export boom began, farmers' returns varied wildly. The rate of return sometimes dropped to a very low level, even to negative values.⁸⁹ This was quite surprising, as the export boom led to higher export prices for chicken meat, which should have resulted in higher incomes for farmers raising chickens.

⁸⁷ From interviews with contract farmers in Si Racha.

⁸⁸ From interviews with contract farmers in Si Racha.

⁸⁹ From interviews with contract farmers in Si Racha.

A major reason why the export boom did not result in higher incomes for broiler raisers was that many other farmers were induced by high prices to begin raising chickens, causing a sharp increase in the demand for production inputs, especially chicks and chicken feed. Since the price of chicken feed was controlled by the government, there is a strong possibility that feed manufacturer used poorer quality materials than previously in producing feed. Consequently, as mentioned by most farmers interviewed during the field surveys, the quality of chicken feed after the export boom has become poorer. Furthermore, in the past few years, there has been a boom in prawn farming in Thailand, which has added to the demand for animal feed ingredients, particularly, good quality fish meal, which is an important ingredient in chicken feed production. Government protection of soybean farmers has also resulted in shortage of soybean. Although the government periodically allowed increases in the prices of animal feed, the adjustment did not correspond with the increases of prices of major ingredients. Changes in the formula of feed might have resulted in lower quality. Farmers were eventually the ones affected by the situation. The price of chicks has also fluctuated greatly in recent years.⁹⁰ When chick prices were attractive, hatcheries tried to increase their production. One method employed was to use hens which should not have been allowed to produce chicks any longer because of their old age.⁹¹ Chicks obtained from

⁹⁰ Sometimes it went up to 10-11 baht each (while the price set by firms in CP arrangement was only five to six baht each).

⁹¹ Hens which have laid eggs for over sixteen to eighteen months are usually not used for producing chicks.

these hens were unhealthy and had low immunity.⁹² In addition; quality control of chicks to be sold was relaxed because of the strong demand.⁹³ Normally, 5-10% of chicks from hatcheries are rejected because of poor quality. Unhealthy chicks may have gone to CF projects because firms could not raise the prices of chicks sold to contract farmers while chicks of good quality were sold in the open market at double the price; good chicks may also have been kept at the firm's own farms. Many farmers in CF projects complained to our researchers about the quality of the chicks they received, saying that they had no right to choose and had to raise whatever chicks delivered to them.⁹⁴

In addition, Japan, which is the largest market of Thai broilers, has now become very strict regarding chemical residues in imported meats. Exporters have in turn become stricter with farmers, who are not allowed to apply any medicine to chickens within two weeks before they are sold.⁹⁵ In some cases, chickens which were almost fully grown died from diseases, resulting in heavy losses to

92. From interviews with officials of a hatchery in Chonburi.

93. From an interview with officials of hatcheries in Chon Buri Province.

94. There was a case in which 500 out of 10,000 chicks died at the same time. The raiser complained to the firm but the firm made no acknowledgment of responsibility. In the next flock another 2,000 chicks quickly died because they were obviously unhealthy; this time the same raiser made a stronger protest and the firm agreed to pay compensation for the loss of 300 chicks, which was an exceptional case, as firms very rarely pay for any damages of this kind.

95. If the farmers were found to have given medicine to chickens, after the time limit, two baht per kilogram would be deducted from the price of the chickens. Such a penalty resulted in a sudden loss to the farmers. Prohibition of the use of medicine two weeks before the sale resulted in an increase in the average death rate from 3-5% to 5-10% (field survey).

farmers. The firm did not share these losses, although the chickens' death may have had nothing to do with the farmers' performance.

Many farmers found it was not worthwhile to continue and decided to leave the project. The turnover rate for the CF project of a major company in Si Racha has been as high as 50%. Some decided to leave the project although they had not paid off the debts to the bank. Their way out was to sell their land to pay off the debt. Luckily, land prices in the eastern region have risen sharply, enabling the farmers to make quite an easy decision to sell their land. After leaving the project, most farmers decided to give up chicken raising, selling chicken shelters to others, normally at only half price.⁹⁶

The major firm in Si Racha had planned to expand its CF project by 10% each year. However, the number of contract farmers in the project has remained around 150. (These contract farmers raise about two million chicks per flock.)

Besides their refusal to share risks with farmers, which resulted from the quality of chicks and the death of chickens from causes beyond control, the firms also created a system to reduce their risks. That is, they deduct a sum from the payments paid to the farmers whenever farmers gain much profit. The deducted money is deposited in an account opened for the farmers, on the condition that the firm can withdraw the money to compensate for loss in subsequent flocks they raise. In addition, the firms require newly

⁹⁶ Field surveys.

recruited farmers to make a deposit of 55,000 baht for every 10,000 chicks as insurance. Farmers have to pay to the firm in cash, but the firm does not pay interest to them.⁹⁷

(6.2) Pineapples, oil palm and asparagus

Small-scale and medium-scale pineapple growers who are BAAC clients can usually pay their debts to the BAAC when they are due. The export boom, which began in 1985 has enabled pineapple growers to sell their produce at relatively good prices.⁹⁸

Small-scale oil palm growers who joined contract market projects in two southern districts were granted a monthly loan of 600-1,000 baht during the first four years when oil palm trees are young. This scheme helped lessen the hardship of new planters to a certain extent.

Immediately after the end of the initial four-year period, the BAAC stopped providing the monthly loans, assuming that the farmers would have an income available and should be able to start repaying the debts. (Farmers had been given loans worth 130,000-160,000 baht each for the initial investment.) The cut in financial resources meant that the oil palm trees were not properly maintained, resulting in low yields.⁹⁹ In terms of repayment, farmers par-

97. Field surveys.

98. Field surveys revealed that small-scale farmers (who grow pineapple on an area of twenty-five rai or less) are able to buy pick up trucks of their own. Fifty percent of the members of two settlements in pineapple growing areas, the majority of whom cultivate on twenty-five rai or less, have their own pick-up trucks, mainly to show off their financial status. Rather than using them for transporting pineapples, they hire other trucks to transport the produce for fear that if they use their own trucks, the vehicles might become scratched.

99. The average annual yield per rai of small-scale growers is less than 2 tons per rai while those of average large plantation owners are about 2.7 tons/rai.

ticipating in the contract market operated jointly by a private crushing mill and the BAAC in Kiriratnikom District have been able to pay back 80-90% of the loans plus interest.¹⁰⁰ A major reason why they could repay their debts to this extent is that at the time oil palm nuts were sold to the market, the price of oil palm was very favourable. Contract farmers could sell their produce either to the contracting firm or in the open market, depending on which price was better. In addition, the BAAC staff (whom the farmers had to obey for fear that their loans might be suspended) strictly followed up on the repayments.

By contrast, repayments by farmers who are members of co-operative settlements to the BAAC have been much lower despite the market boom; only 30-50% of the principal and interest due have been paid.¹⁰¹ Many farmers breached their contract, selling their produce in the open market to avoid the payment deductions that would have been sent to the BAAC. In addition, as co-operatives are organizations under close governmental supervision, their operations are not flexible. They are notoriously slow in adjusting their palm oil purchase price to follow the market. These farmers, therefore, sold a portion of their produce to the open market at a better price. A managerial-level officer of a co-operative estimated that about 20% of the members secretly sold their produce in the open market.¹⁰² Furthermore, because the co-operative is subject to numerous regulations laid down by governmental agencies involved, ad-

¹⁰⁰. From interviews with the manager of the BAAC branch in Surat Thani.

¹⁰¹. From an interview with the Chief of Ao Luk Co-operative in Ao Luk District of Krabi.

¹⁰². Ibid.

ministration of repayment is ineffective. Also, members of several co-operatives (such as the Self-Help Settlement in Phra Saeng District of Surat Thani) are monoculture farmers, relying on only oil palm; they have only a single source of income. The lack of alternative occupation resulted in indebtedness. When faced with losses, they had to sell their rights in their land to repay debts.¹⁰³

Asparagus farmers, meanwhile, do not have much difficulty repaying their debts to the BAAC because most of them obtained loans in joint liability groups; their loans are therefore not for large sums (10,000 baht each on the average).

(7) Management Efficiency and Cost.

(7.1) Broilers: The firm has to pay special attention to management efficiency in contract farming because the low elasticity of the inputs and outputs. As an example, day-old chicks has to be sent to raisers before they have to be fed. This is the reason why contract farmers are necessary. - For independent raisers to be supplied with good quality chicks at special price, they have to be regular clients of the firm. Walk-in clients can buy only chicks which are left after the firm has sold good quality chicks to regular clients and they have to pay higher prices (e.g. 0.50 baht more per each chick).¹⁰⁴ On the part of output (that is, adult chickens), they must be caught im-

103. Field surveys at the co-operatives of the self-help resettlements in Phra Saeng and Ao Luk Districts.

104. Field surveys.

mediately when due, otherwise farmers will have to pay for increased raising cost while the chicken weight will increase at a slower pace.

The screening of farmers joining the CF Project must be done with particular care. Apart from economic status (e.g. owning enough land for use as collateral), farmers must have sufficient available labourers to raise chickens as a full time job.¹⁰⁵ They must also be diligent and honest. Firms attach special attention to honesty in screening farmers for wage contracts as farmers are required to raise only firms' chickens.

Since farmers in the guaranteed price CF projects have to rely heavily on the firm, both for input supply and output purchase, firms have to deliver chicks and collect the produce punctually. The shifting cost¹⁰⁶ of farmers is therefore high. If farmers sell chickens to other buyers, the firms may punish them by delaying or stopping delivery of chicks. Shifting to animal feed agents may not be as good as making contracts with firms directly in terms of security. The high investment on fixed cost (constructing shelters) also limits farmers' flexibility.

105. It is noticeable that firms usually encourage CF in areas where farmers tend to have free time available, by observing from career choice. In almost all of the chicken raising areas in the eastern region, the farmers in the projects make their living growing cassava and coconuts, which shows that the terrain is rather arid and infertile. Farmers who join the projects therefore have more time to devote to chicken raising.

106. 'Shifting cost' is a farmer's cost in changing from one buyer to another. For detail discussion of the concept, see Ammar Sisawalla, 'Farmers and Middlemen: Aspects of Agricultural Marketing in Thailand', Economic Bulletin for Asia and the Pacific Vol XXIX # 1, (June 78).

Firms regularly send extension staff to visit the approximately 150 participating farmers in Si Racha. One manager and three extension officers are used for this purpose.¹⁰⁷

In order to increase management efficiency, firms dealing with CF are generally vertically integrated. They normally have animal feed mills, hatcheries, and processing plants, each of which requires a large sum of capital. Without these facilities, vertical co-ordination will not be efficient. An example was the arrangement between animal feed agents and big independent farmers who bought animal feed and chicks from firms and released to farmers (who made CF with agents and not directly with firms). These agents took the risks in fluctuation of the prices of both inputs and output. Over the past 2-3 years, despite the export boom, several agents in the eastern region have suffered losses, as the prices of both the inputs and output have changed rapidly and these agents failed to adjust themselves in time. A numbers of agents had to join hands and made their own hatchery. They also plan to extend to other stages of this business, such as establishing a processing plant and animal feed mills in order to survive in the business.

The above serves as a good explanation as to why agricultural co-operatives which have poor management efficiency and limited capital failed in their CF projects and finally had to abandon the projects.

¹⁰⁷. From an interview with the manager of the CF Project of a firm at Si Racha.

(7.2) Pineapple, oil palm and asparagus

CF of these three crops is difficult as management efficiency is poor, resulting from low shifting costs of both firms and farmers.

On the part of firms, shifting from contract farmers to the open market when the price in the open market is lower than the guaranteed CF price is not difficult. As a matter of fact, it is frequently practiced (as in the case of pineapple canneries and oil palm crushing mills) because it has no difficulty buying raw materials, both directly from farmers and through middlemen.

As for farmers, shifting (from selling their produce to contracting firms) to the open market (e.g. selling to middlemen or to other firms) is not difficult to do either, and, as a matter of fact, is also generally practiced. It therefore may not be worthwhile for firms to supply input credits, as well as technical and extension services to farmers, as the latter may easily sell their produce to the open market. In fact, such backward linkage contracts may even cause farmers to avoid selling to the contracting firms because they do not want their payment to be deducted. Consequently, firms normally cannot expect to ensure a supply of raw materials through CF.

To avoid the occasional problem of supply shortage, firms have to find ways to better ensure material sources. One method used is offering guaranteed minimum prices. (a contract market), without backward linkage contracts. Firms may also strengthen the contract market system by increasing farmers' flexibility, allowing them to sell part of their produce in the open market. For example, pineapple canneries in the eastern region estimate that the

fresh pineapple market demands about 20% of the total pineapple production. They therefore require contract farmers to sell the agreed amount of produce to them, $\pm 20\%$. The fresh market is not the major concern of pineapple canneries, however. It cannot absorb more than 20% of the total production and demands different types of produce. It is too time and labour consuming for farmers to select the kinds of pineapple for selling in the fresh market. A cannery's buying competitors are therefore other canneries, not the fresh market.

For each kilogram of pineapples bought, canneries in the eastern region pay 0.03 - 0.05 baht as the cost of handling contract markets, e.g., for hiring extension officers.¹⁰⁸ (A cannery in the eastern region which has a production capacity of 100,000 tons per year spends about three million baht in contract market handling.)¹⁰⁹

(8) Opportunity for Farmer Participation

(8.1) Broilers: Farmers in neither guaranteed price nor wage broiler CF form themselves into farmer organizations in order to deal with firms. As firms supply inputs and technical knowledge, as well as handle marketing of chickens, their roles are actually similar to those of farmer organizations. Also, as the prices of both inputs and output are fixed in advance, there is no need for farmers to follow price movements. Their returns are determined by only a few factors, namely the FCR, the death rate and the quality of chickens raised. CF therefore has made them "producers"

108. The guaranteed minimum price of pineapple is 1.10 - 1.25 baht a kilogram, depending on the season.

109. From an interview with the manager of the pineapple purchase department of a cannery in the eastern region.

rather than "entrepreneurs". It was found in field surveys that firms' officers tried to discourage farmers in the project from associating with one another, telling them that diseases might easily spread from one farm to another. They also appeared to be displeased with some farmers who asked questions when their returns declined, resulting either from too high FCR or death rates.

In its accounting for the guaranteed price CF system, after grown chickens are caught for sale, the firm gives farmers records of their performance, which indicate the number of chickens raised, the chicken death rate, the quantity of feed consumed, the types and amount of medicine used, and the payment for each flock. Such simple recording does not give farmers much knowledge in accounting. In the wage CF system, accounting is of much less detail. In both systems, farmers commonly say they are afraid to challenge the accounting figures for fear that the firm will retaliate by delivering future inputs late or supplying poorer quality inputs.

Under these conditions, farmer organizations commonly do not exist in CF projects for chicken raising. Some agriculture co-operatives have tried to encourage their members to raise chickens by acting as intermediary between firms and farmers. These attempts have generally failed, however, because input supplies and output sales were not arranged punctually and technical and extension services were not adequately provided to farmers, leading to farmer losses.¹¹⁰

¹¹⁰ From an interview with the managers of Chonburi Co-operative and the Agricultural Co-operative of Si Racha District.

It is virtually impossible for co-operatives to solve the problem of input quality by producing chicks and feeds themselves, as it requires a lot of capital and the economy of scale can hardly be reached. It is equally difficult to reduce the risks involved in marketing chickens by establishing their own processing plants, which also require heavy investment. (A medium-sized processing plant requires about eighty million baht investment.)

(8.2) Pineapple, oil palm and asparagus

Pineapple: In contract markets which are popular in the eastern region, firms do not like to deal through farmer organizations, but prefer dealing directly with farmers, as they want accurate information on production, and they can control farmers, especially in production planning.¹¹¹ Buying through farmer organizations may also increase the bargaining power of farmers, and makes it harder for canneries to deal with farmers. It is therefore not surprising that the cannery of Dole (Thailand) at Hua Hin District hardly buys pineapples through the farmer organization, of which the majority of the members grow pineapples near the cannery. It often buys pineapples from farmers living farther away, but within a radius of 100 kms, although it has to pay additional transportation cost at 0.10-0.20 baht a kilogram.¹¹²

111. From an interview with the manager of the raw material purchase department of the firm at Chonburi Province.

112. From an interview with an official of Hua Hin Pineapple Farmer Co-operative and farmers who have farms near the Dole (Thailand) cannery.

During the past 2-3 years, however, there was an export boom, causing the demand for fresh pineapples to increase. Existing canneries expanded their production and several new ones were established. Canneries therefore have to ensure the supply of raw material by various means. The largest cannery in Thailand which is located at Pranburi District of Prachuap Khiri Khan started to buy through the pineapple planter co-operative which was newly established, giving various privileges to the members, such as paying another 0.10 baht a kilogram, and giving farmers the right to sell to the cannery first during the peak season. The pineapple planter co-operative appears to be quite successful. It has made considerable profits (2 to 3 million baht per year),¹¹³ and the number of members is increasing. Most of the present members are large-scale farmers who normally are considerably powerful.¹¹⁴ However, the co-operative administration is done as if it were a family business i.e., many of the co-operative staff members are relatives of influential members. During the peak season, while the purchase of raw materials for the factories is governed by a quota system, the large-scale farmers who have control over the co-operative may obtain the first priority to utilize the quotas for their own benefits.¹¹⁵ In addition, the number of pineapples sold through the co-operatives is still low - less than 10% of the total production of pineapples in the south.

113. Most Agricultural Co-operatives in Thailand often run losses.

114. These large-scale farmers have various production activities, both agricultural (e.g., sugar-cane plantations) and non-agricultural.

115. Field surveys.

Buying pineapples through co-operatives is, therefore, only a means to ensure the supply of raw material for the firm. Most firms use various means to ensure the supply, in order to minimize the risk of depending on any particular means. For example, a cannery in the eastern region, famous for its effective contract market arrangements, is presently encouraging farmers in remote areas (in Chanthaburi and Trat) to grow pineapples for supplying to the cannery. It has formed farmers into groups for administrative convenience. The principal reason why the cannery promotes pineapple growing in farther areas is that it is afraid that in the long run it will be affected by the eastern Seaboard Development Project, which is now affecting the prices of land near the cannery. Thus, it is possible that nearby farmers will soon give up pineapple growing.¹¹⁶ However, in the short run, the nearby farmers, who have been encouraged to grow pineapples by the extension staff of the cannery, are in trouble, particularly during the peak season, when over-production occurs and the cannery is unable to absorb all of the pineapples under contract. Although the minimum guaranteed price commitment is honoured, the grading of pineapples is very strict. Thus, a large number of pineapples produced are rejected,¹¹⁷ and the net price obtained by the farmers is sometimes as low as 50-60% of the minimum guaranteed price. Contract markets which once went well in the eastern region are now faced with difficulties resulting from the unbalanced demand and supply.

116. There is a report that even the cannery itself plans to cut down or stop operating its own plantations in order to use land for other purposes which yield better returns, e.g. a rubber estate.

117. From field surveys, it was found that during the peak season in 1968 (May-June) the rejection rate was as high as 50%, although normally it should not have been more than 20%.

Oil palm: The role of the oil palm planter organizations in market contract between small oil palm planters and private crushing mills is negligible. This is because planters can deal directly with the mills, and can turn to the BAAC for investment loans.

Normally, the BAAC prefers granting loans directly to farmers. For small farmers who lack collateral, they will be formed into groups of 10 - 20. Each member is entitled to a maximum loan of 30,000 baht, guaranteed under the joint liability group arrangement. (On the average, however, the farmers obtain loans of 10,000 baht per person only.) These are short-term loans that the farmers must pay off within March of each year. The organization of such group is aimed principally at facilitating the administration of BAAC loans only. The groups do not perform any other functions of farmer organizations (e.g. providing inputs, and technical and extension services to and selling the produce for members).¹¹⁸ Farmers who wish to apply for a loan of more than 30,000 baht are usually required to have collateral (e.g. land).¹¹⁹

The BAAC tries to grant loans directly to farmers in order to increase its efficiency in credit management. If loans are granted through farmer organizations, i.e. agricultural co-operatives and farmer groups, which are under governmental bureaucracy, loan administration will not be so efficient. It is shown from field surveys

¹¹⁸ The groups exist only insofar as their individual members are legally bound to one another and to the BAAC. The legal commitments cease once the loans are repaid. Therefore, they are conceptually quite different from co-operatives and farmer groups, which are more permanent.

¹¹⁹ Under some project, however, farmers are entitled to a BAAC loan of 50,000 baht without any collateral, such as pineapple contract market projects in the eastern region.

that the efficiency of the BAAC in loan repayment follow-up conducted under the contract market project, launched jointly by the bank and a private firm, under which loans were granted directly to farmers (at Khiri Ratthanikhom District, Surat Thani) is better than that in the case where the BAAC granted loans through agricultural co-operatives (as at Ao Luk District, Krabi).

Although granting loans directly to farmers enables the BAAC to achieve its business goal, it causes farmer organizations - the main business of which is to obtain loans from the BAAC and re-lend them to farmers - to lose a major source of funds for re-lending.¹²⁰ The role of farmer organizations has therefore been lessened, as the most important motivation for farmers to join such organizations is an opportunity to obtain loans. (During 1984-87, while the BAAC Branch Office in Prachuap Khiri Khan granted loans totaling 85-135 million baht per year directly to its clients, the amount of BAAC loans granted through agricultural co-operative was only 3-6 million baht per year.)

In short, the tripartite contract market agreements between private firms and farmers, with direct financial support from the BAAC, has lessened the role of farmer organizations.

In early 1988, large oil palm farmers and oil palm crushing mill owners jointly established an association to protect their interests. The principal objective is to lobby the government to adopt a policy that is in line with their benefits - such as protection of farmers and domestic oil palm crushing industry by limiting or banning

¹²⁰ Most of the executive staff of agricultural co-operatives interviewed seemed to be dissatisfied with such a loan policy of the BAAC.

imports of palm oil products and suppressing smuggling of palm oil products. In addition, the association plays a major role in negotiations with palm oil refineries, their important business competitors, for better crude palm oil sale prices, which will in turn increase the price of oil palm nuts for farmers.¹²¹ At present, the role of the association in protecting the interests of the members is quite active.

Asparagus: Most of the asparagus farmers under contract markets make contracts directly with the firm. They obtained BAAC loans in joint liability groups. Although the farmers have formed themselves into farmer groups, the members are loosely tied together. The main activity is the monthly meeting which is sometimes attended by the firm representative to clarify questions.

(9) Resettlements

In Thailand, most of the CF and contract market projects are arranged by private firms, and the firms deal directly with farmers. Thus, CF and outgrower schemes are not for purposes of resettlement.

However, the Thai government used land ownership as a motivation for landless farmers to join resettlement projects, such as Phra Saeng Self-Help Settlement at Phra Saeng District of Surat Thani, Ao Luk Settlement Co-operative at Ao Luk District of Krabi, Mab Kha Self-Help Settlement of Rayong and Self-Help Settlement of

121. The formula for calculating palm nut buying price is : fresh palm nut price = (crude palm oil price-2)/5
(Normally, 5 kgs of fresh palm nuts yield 1 kg of crude palm oil, and the production and marketing costs charged by the palm oil crushing mill are 2 baht per kg of crude palm oil).

Prachuap Khiri Khan. Most of resettlement projects were launched 20-30 years ago. In the early stage, the members of these settlements grew several kinds of crops, such as sugarcane, cassava, rubber-trees, and coconuts, as well as oil palm and pineapples which were relatively new. The government administrative officers of the settlements in the south subsequently promoted oil palm planting, by promising the joining members land right documents.¹²² This project is in the course of implementation. Therefore the evaluation on promoting monoculture of oil palm cannot be made yet. It was found from the field surveys, however, that there were many problems. For examples, some members failed to fulfill repayment requirement. Some avoided payment deduction by secretly selling their produce in the open market. Low yields of oil palm also caused the farmers to be unable to make repayments. The reason why the yield is low in settlements is that the plantations are small and are not properly maintained, as farmers cannot afford to buy fertilizer and pesticides which are essential to increasing the yield.

In pineapple settlements, most of the members diversify their production by growing various kinds of crops and plants. At the same time they also try to earn some off-farm incomes. The contract market arrangement is made directly between the farmers and the firm. The standard of living of the members of these settlements is much better than that of those growing oil palm.¹²³

¹²² From interviewing members of Ao Luk Self-Help Settlement of Krabi.

¹²³ It is found from field surveys that 50% of the members of the Self-Help Settlements at Rayong and Prachuap Khiri Khan have pick-up trucks of their own.

b) CF and the Achievement of Objectives of Parties Involved

(1) Broilers

1.1) Firms : Ever since the animal feed production companies began CF for their chicken raising projects in 1977, their businesses have been very successful. Most of them have expanded their chicken raising activities and diversified into other areas. Companies dealing with broilers have increased their animal feed producing capacity and the numbers of hatcheries and processing plants.

In the early stages, the principal business of the companies was the production of animal feeds for both the farmers under their CF projects and the open market. As the animal feed production process requires complicated technology, mills are sophisticated, computerized and thus very capital-intensive.¹²⁴ Animal-feed production proved to be very profitable and was used as the "spearhead" for expanding the broiler business.

The technical knowledge of animal feed production subsequently became widespread, and many new feed mills were set up. Large animal feed mills could no longer make so much profit out of this business. (Presently, there are tens of animal feed mills of different scales.) Large-scale, fully-integrated broiler companies then turned to other production inputs during the past five to six years. Hatcheries producing chicks for sale became a major business. The market could be controlled, to a considerable degree, by some firms which have royalty rights in producing parent stock and in selling chicks domestically.

¹²⁴ From an interview with the manager of a feed mill in Si Racha.

The expansion of both domestic and export broiler markets during the past 3-4 years resulted in the increase of the demand for chicks. The price of chicks has therefore become much higher, although there were periodical fluctuations. Sometimes the price of a chick went up to ten to eleven baht while the production cost was only four to five baht.¹²⁵ Thus, some hatcheries could make hundreds of million baht profit within only one year.¹²⁶

The chick price fluctuation is a principal risk for large independent chicken raisers in the eastern region. Some of them jointly set up their own hatchery, from which about 30% of the total chicks supplied to their farms will be supplied. These raisers feel that they should not produce more than 40% of their total demand for chicks in order to maintain flexibility; otherwise, they would not be able to adapt to a situation of overproduction of chicks, when large firms often put their chicks for sale at a low price.¹²⁷

The export boom of the chicken meat products during the past two to three years enabled the large processing plants (most of which belong to vertically integrated broiler companies and are Thai-Japanese joint-ventures) to export large volumes, especially to Japan. Having chickens from CF or from their own farms increased the firms' flexibility in exporting chickens, as the price of chickens from CF projects was fixed. These firms need not

¹²⁵ From interviewing businessmen dealing with hatcheries

¹²⁶ From interviews with large-scale independent raisers and hatchery operators.

¹²⁷ From interviews with large-scale independent raisers who started their own hatchery

rely in the open market for the supply of chickens (the price of which became much higher due to the increase in the foreign demand).

(1.2) Farmers: The aim of farmers in joining the CF is to have more secure and higher income. They were quite successful, particularly during the early stages of their participation in the projects as the net profit per chicken was about two baht, which was considerably high. One full-time farmer could raise 10,000 chickens in a lot which took two months.¹²⁸ He could thus earn about 10,000 baht per month, which was quite high compared to the incomes of general farmers. (The average income of farmers in the eastern region, where most chickens were raised, was 15,000-40,000 baht per year.) Therefore, many farmers wished to join the project, enabling firms to have a chance to screen them.

However, the income of chicken raisers, under both guaranteed price and wage contracts, subsequently began to decline. Ironically, their return was particularly low during the export boom. Many farmers experienced losses or found the profit not worth their efforts, causing the turn over rate of the farmers under the project to increase.

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Guaranteed price CF (which is more in line with true CF), during the past 2-3 years, has been obviously decreasing. It is believed that direct farming will increase to 60-70% of the total broiler production in

¹²⁸ It normally takes fifty to fifty-two days to raise a flock of chickens. After that the shelters will be cleaned and left closed for 1-2 weeks before the next flock is brought in.

¹²⁹ Generally, if farmers run losses for four to five consecutive flocks, the firm will instruct them to stop raising chickens (field survey).

the future, as several large firms have been expanding their direct farming for the past 2-3 years (C.P., for example, has constructed its own farm in Saraburi for raising one million chickens per flock). In addition, foreign companies have entered joint-venture contracts with local companies for doing vertically integrated chicken raising business.

(1.3) Government: Most of the chicken CF projects were initiated by the private sector. The government has played virtually no roles in this regard.

(2) Pineapples, Oil Palms and Asparagus. True CF does not exist in either of these crops because of factors cited earlier. Moreover, although firms have introduced the guaranteed minimum buying price system (contract markets), the open market still plays a dominant role.

7. Key Determinants of Success, Failure and Other Outcomes

a) Management Efficiency

For commodities to be successfully produced through CF, supplies of both inputs and outputs must be inelastic. For broilers, on the input side, day-old chicks must be sent to raisers as soon as they are hatched, while the grown chickens must be sold at a specified time. Besides, chickens are very vulnerable to diseases, requiring costly technical and extension services. Planning and administration of both production and marketing are therefore important, making the shifting cost of farmers in the project very high. If farmers fail to fulfill their con-

tract or follow the recommendations of the firm, causing the firm to use punitive measures, they will have severe losses, as they cannot easily shift to another firm. Apart from this, the fixed cost (constructing chicken shelters) of the farmers is high. If they quit raising chickens, the shelters will be of little use for anything else.

For the other three crops studied, farmers have lower shifting costs. Input supply elasticity is not as low as for broilers since inputs such as seed, fertilizer, pesticide are readily available. (There are several companies selling these inputs.) Technical and extension services are not as complicated and costly. Besides, there are many buyers available (both other firms and middlemen). The fixed production cost is also not high (except for oil palm). Farmers enjoy greater flexibility and more production and marketing options. CF of these crops has therefore not been as successful.

For crops for which farmers have low shifting cost, during the time of raw material shortage, firms will engage in market contract without making backward linkage contracts to ensure the supply of raw materials. However, the market contract is only one of the various means that firms use (such as buying from the open market, buying through farmers organization and running their own plantations). These means may be changed regularly as firms wish to maintain their flexibility, both in finding inputs and in marketing their outputs.

(1) Dealing with farmers. Most Thai farmers are very flexible: the majority have small farms and diversified production activities. They traditionally grow annual crops which require low fixed costs.

(2) Dealing with other firms. Different firms may use different strategies for ensuring the supply of raw materials and markets of their output. Some make direct sales, or sell through trading companies, while others sell through a parent company based elsewhere. Moreover, marketing of these firms has also been influenced by marketing strategies behaviour of both the trading partner and competitors in foreign countries, whose characteristics are flexible. Firms in Thailand have to increase their flexibility in order to compete with foreign competitors in efficiency terms. An important way to increase efficiency is to reduce production costs, which are directly related to the means of purchasing production inputs. Thus, CF arrangements (fixing in advance the price of raw materials to be purchased) may not be a good way to reduce production cost.

b) Government policies

Government policies may have both positive and negative impacts on CF. There have been frequent changes in relevant government policies in past years due to the lobbying of various interest groups. Firms have to adjust themselves to minimize the adverse impact of policy changes. Flexibility in operation is therefore of great significance.

Since the Thai parliamentary system is still in an early stage of development, there are problems of stability, with frequent dissolutions of Parliament and changes of the administration. These changes can directly affect contract farming. For example, under the previous administration, the Agriculture and Co-operatives Ministry paid a great deal of attention to the development of CF, and

went so far as to set up the Four-Sector Cooperation Plan to Develop Agriculture and Agro-Industry, to promote CF of various commodities, such as asparagus. Since the change of government in 1988, however, this plan has been neglected. This is one of the reasons for the failure of CF in asparagus production. Although the government has laid down a policy to promote CF, stating it specifically in a plan, no serious implementation is evidenced.

At present many businessmen participate in politics, both openly (running in elections) and indirectly (giving financial support to political parties). To a considerable degree, these businessmen influence the make-up of governments, and hence the formulation of policies.

c) Problems in Co-ordinating Government and Private Agencies

(1) Co-ordination problems among government agencies.

The government agencies related to CF are placed in several ministries and departments. These agencies include the Commerce Ministry, the Office of the National Economic and Social Development Board, and the Agriculture and Co-operatives Ministry. Their operations are sometimes in conflict with one another.

The size of each agency's budget depends on its responsibilities and performance. This results in several agencies fighting for the rights to certain activities so as to obtain a larger operating budget.

(2) Co-ordination problems within the private sector

Firms engaging in agricultural business in Thailand have a clear division of labour. Processing plants buy farm produces (making only forward linkage contracts with farmers, if necessary): financial institutions (such as the BAAC) give credit (both in cash and in kind) to farmers: while companies which sell production inputs often give technical and extension services as well.

Though there are loose multipartite arrangements among private agencies to promote contract farming, co-ordination is quite haphazard. Each agency naturally focuses on protecting its own interests.

Co-ordination between firms and farmers and even between departments in the same firm also frequently encounters difficulties. Sometimes, the co-ordination is not adequately effective. There have been cases, for example, where a firm's extension staff encouraged farmers to expand production until the supply of produce exceeded the demand of the firm's factories.

(3) Co-ordination problems between government and private agencies.

Government agencies are intended to supervise and to promote private agencies. Their operations may sometimes jeopardize the CF system, however. For example, farmers participating in CF can more easily be taxed because there are records of their income at the contract firm. This tends to discourage farmer participation.

In short, government and private agencies may have conflicts of interests, causing co-ordination problems which can affect CF.

d) Nature of Crop Production

Spreading production throughout the year is another factor that contributes to the success of CF. Broiler production, for example, is not subject to seasonality.¹³⁰ Production planning and output marketing is therefore more effective. Production of the other three crops is seasonal, however. For example, making pineapples bear fruit off season is effective only to a certain limit, and requires considerable investment. Although oil palm and asparagus give yield through most of the year, there is still a peak period. Overproduction is inevitable at this time, as firms cannot absorb all the produce available. Firms therefore have to be strict in grading to keep costs down. The buying price according to the guaranteed minimum price contract may then be almost the same as that in the open market, leading to disputes between farmers and firms that obstruct the success of CF.

e) Economic dynamism

Thailand's economic dynamism during the past 3-4 years has been great. Apart from offering more off-farm employment opportunities to farmers, this has also caused land price to soar.¹³¹ The increase of land prices has been attributed to both economic growth and speculation.

¹³⁰ During the hot season, however, chicken raising is not as profitable as during the cold season, because of the death rate and FCR are high.

¹³¹ The price of land in the eastern region that was used for producing chickens and pineapple increased by eight to ten folds, from 10,000 - 20,000 baht to 100,000 - 200,000 baht a rai only in 1988 alone.

During the past 2-3 years the price of land throughout the country has risen unusually fast, especially land close to communication networks and large cities.¹³² This land is also suitable for contract farming, since most agricultural produce suitable for CF are perishable, requiring careful planning and high management efficiency. Good communication and transportation systems and convenient location are therefore of great importance.

The impact from the increase of land prices on CF is reflected clearly in the case of chicken raising and pineapple production in the eastern region. Several firms plan to relocate production to areas where land is cheaper, moving chicken raising operations from the eastern region to the upper part of the central plain (Saraburi and Nakhon Nayok, for example), and lower north-eastern region (e.g. Nakhon Ratchasima). When investing in new locations, firms initially place more importance on direct farming, so that they can benefit more from the export boom in chicken meat products; direct farming production can be accomplished faster than recruiting farmers to join contract farming projects. Quality control can also be conducted more efficiently, so that chicken products are more in line with specifications of importers. Furthermore, direct farming allows more intensive use of increasingly costly land.

f) Middlemen The middleman system in Thailand is very strong. Many middlemen are owners of commodity shops. Some own trucks, allowing them to buy produce at the farm gate. The more roads are developed, the more easily

¹³² Other lands for which prices are particularly high are in areas suitable for construction of tourist resorts and hotels.

these middlemen can drive their light trucks to buy produce from farmers. Competition among middlemen give more selling options to farmers, reducing the cost of shifting from one buyer to another.

In order to consolidate patron-client relationship with their farmer clients, local middlemen visit them regularly, bringing gifts, providing occasional interest-free loans (generally not exceeding 5,000 baht) etc. This type of relationship increasingly becomes an obstacle to the promotion of a more formal CF relationship between firms and farmers.

g) **Security** Farmers joining CF and contract market projects do not receive adequate security regarding their returns. In the case of broilers, although firms supply input credit and technical and extension services and fix the price of grown chickens in advance, the quality of other inputs is also a crucial factor determining farmers' income. For pineapple, oil palm, and asparagus, although firms offer minimum price guarantees, their grading criteria can greatly affect farmers' returns.

8. Constraints to Replicability and Policy Implications

a) Constraints to Replicability

(1) It should be kept in mind that contract farming is only a means of ensuring the supply of raw materials of the firms; it is not an end in itself. There are several other means that can be used and that may be even better than contract farming.

(2) Contract farming is not a means to solve the poverty problem of rural farmers in developing countries who are used to traditional or staple crops. It works well with only certain farm products and only in certain areas. Farmers with potential can benefit from contract farming, but they are not necessarily poor. However, through contract farming, poor farmers can also have access to export market; for example, those engaging in pineapple and asparagus growing (although the arrangements were merely contract markets and not contract farming in the real sense). Nevertheless, contract farming may help, to a certain extent, poor farmers who grow staple crops in that it may make them reduce production of staple crops; therefore, the supply of staple crops will decrease, making their prices higher; for example, rice farmers in the central plains who now use part of their land for growing other cash crops.

(3) Contract farming can be applied only to crops which have suitable production and marketing qualities; it cannot be used with general agricultural products, especially those which are staple crops.

(4) Contract Farming is contradictory to farmers organizations in that it tends to reduce entrepreneurship of farmers; what they gain is more produc-

tion specialization; participating farmers pay no attention to accounting systems or the markets of both inputs and outputs.

(5) Although firms give technical and extension services to farmers in their projects, which increase production skills of farmers (for example, chicken raising skills), farmers can not apply their knowledge in other types of agricultural production.

b) Policy Implications

(1) The government should not promote contract farming across the board (as being done by the Ministry of Commerce and the Ministry of Agriculture). CF should be promoted only for specific crops with appropriate qualities.

(2) For crops which are appropriate for contract farming, the government should have a policy to promote them on a long term basis. This means the government should review existing regulations concerning both inputs and output so that they are consistent with one another. In addition, it is of great importance that government policy be pursued continually, if CF is to be strengthened.

Moreover, the government should use some instruments to encourage contract farming of suitable crops. For example, farmers are presently reluctant to join contract farming arrangements for fear that they may have to pay more taxes. The government therefore should adopt a tax policy which remedies the situation. It may, through BOI, grant certain privileges to the firms engaging in contract farming of suitable crops.

(3) Co-operation of government agencies concerned should be improved. Re-organization and orientations aimed to make government personnel understand the concept of contract farming should be carried out.

Co-ordination between government agencies and the private sector is also of importance, particularly in improvement of production efficiency, enhancement of homogeneity and improvement of farm-level production. If farm produce is not homogenized, and there are quality problems, disputes over grading will be inevitable.

It is recommended that there be independent organizations to resolve grading disputes between firms and farmers, a major cause for failure of contract farming, although it will not be easy to set up such independent bodies to carry out the complicated task efficiently.

(4) The government should not encourage small-scale farmers to grow a single crop (monoculture) because they will have high risk if the price of that crop decreases due to overproduction. Small-scale farmers should be free to diversify both their in-farm and off-farm activities in order to reduce their risks. Diversified activities may be either for commercial purposes or for subsistence.

(5) The government should make use of its existing instruments to discourage land speculation, such as progressive tax rates on land. The unusually high prices of land can affect agricultural production which also includes that under contract farming schemes.

(6) Insurance firms should be encouraged to extend more services to farmers. That is, they should have a program to insure farm produce to reduce risks both on the parts of firms and farmers. This will contribute to the development of contract farming.

(7) If the government wishes to promote contract farming of crops with low shifting costs, it should shoulder more expenses in terms of technical and extension service. For crops with high shifting costs, it may let the private sector take full responsibility for backward linkage activities; the government need not subsidize them.

(8) The promotion of farmer organizations should be carried out step by step. Initially, large-scale farmers who possess a high level of entrepreneurship, such as large-scale oil palm or pineapple farmers, should act as the spearhead. Small-scale farmers will benefit from the increased bargaining power of farmer organizations. (Large and small-scale farmers usually do not have any apparent conflicts of interests.)

(9) The government should facilitate efforts to increase information efficiency of parties involved in contract farming in order to enhance vertical coordination among them.

(10) Government agencies should not interfere with produce markets, including contract farming, unless it is necessary, because the interference is likely to affect the efficiency of the various parties involved. Committees set up by the government, comprising people from several circles, to find solutions to existing problems, are often unable to solve any problems, and become problems themselves.

APPENDIX A

The Economic Analysis of Field Survey Data by Commodity

(a) Broilers

(1) Vertical coordination of broiler raising in the east is divided into several types:

(1.1) Guaranteed price Contract Farming. Companies or their representatives who run integrated chicken businesses, start by selling chicks, feeds, and veterinary supplies to farmers at fixed prices. The companies also give advice on farming and management techniques. When the term of the contract is completed, the company buys back all birds raised, deducting the amount that farmers are indebted to the company. Farmers under this system have full rights to the poultry, which means they are responsible for all expenses incurred, and are, of course, subject to possible losses should farming expenditures turn out to be higher than the guaranteed prices.

(1.2) Wage Contract Farming. Under this system, farmer responsibility is limited to expenses related to chicken housing, water, electricity, labour and required materials. The contracting companies or their agents or large independent farmers provide contract farmers with chicks, feed and veterinary supplies, and also handle the marketing. After the term of the contract is completed, the farmers are paid for the work done.

(1.3) Direct Farming. At present, companies who run integrated businesses have expanded their ventures by investing in their own farms, at the same time,

contracting with farmers to raise broilers for them. Company farms are generally large-scale, and are mainly export-oriented.

CF was first introduced by the Charoen Pokphand Company (CP) in 1973, and was originally designed with an aim to create demand for broiler feeds. The company initially adopted the wage contract farming system, and subsequently added guaranteed price contracts. The patterns established by CP were later followed by other large companies. The nature of contract farming in the poultry industry is closer to the technical meaning of "contract farming" than is the contract farming found in the pineapple, asparagus and oil palm industries, which would be more accurately described as "contract markets."¹

(2) Benefits expected by the company and farmers from the contract:

(2.1) Creation of markets for the company's main products: chicks and feeds. The latter is the chief input in producing grown broilers, accounting for 70-80% of costs. Only 10-20% of production cost is for chicks.

(2.2) Benefits from buying back grown broilers for export.

(2.3) Greater stability. Vertical integration is complicated if companies attempt to raise chickens themselves. Both fixed costs (land, chicken house construction) and variable costs (labour, management) are high. Selling chickens also involves risks. Workers employed to look after the farms may not be adequately motivated in per-

1. A contract market means an arrangement in which firms guarantee the minimum quantity of produce that they will buy from farmers. Firms, however, are not obliged to provide backward linkage services (e.g. credit, extension services) to farmers.

forming their duties because their wages are fixed. Application of contract farming to the poultry raising step (while the company still controls the process of production, and hence the quality) is a substitute for vertical integration. As long as contract farmers feel that they are the owners of their chicken raising businesses, and are responsible for all the risks involved, they will be motivated to work to the best of their ability.

(3) Broiler Production & Market Structures.
The broiler industry is composed of the following:

(3.1) Independent farmers. At present, there are few small independent farmers.² Most independent farmers are large-scale entrepreneurs who bring into their farms about 20,000-150,000 birds/week.³ They may be agents for nearly 20 animal feed companies.⁴ Upon receipt of feeds and chicks, only a few of them raise the chicks on their own farms.⁵ The majority pass what they have received on to farmers who work for them under a wage farming contract or to farmers who work under a guaranteed price scheme. The farmers use their own money for construction of chicken houses, and for other materials required.

2. In areas where farming is meant for markets in Bangkok and for export, such as areas in the eastern region.

3. The biggest farm at Muang District of Chon Buri houses more than 1,000,000 at one time. It turns out about 20,000 birds each day. Of these, 10% are supplied to retailers in Chon Buri. The rest are sent to Bangkok. (Field survey.)

4. There are 7 vertically integrated companies whose businesses range from selling chicks and feeds to exporting.

5. From observation, the chicken farms were built by the contract farmers of both types, who subsequently gave up their farms due to losses and sold them to large independent farmers.

Large vertically integrated firms, other than CP, do not generally enter contracts directly with farmers,⁶ but release their products (chicks and feeds) through their agents (who are usually independent farmers) and let those agents deal with the farmers. In most cases, the agents or independent farmers buy inputs such as chicks and feeds from more than one company to increase their flexibility and bargaining power.⁶ They also sell grown broilers to more than one buyer. There are altogether seven companies which run processing plants and are major buyers. Broilers are also sold at the central markets at Klong Ton and Klong Toey.⁷

Independent farmers are regularly faced with the uncertainties of the markets of both inputs and outputs. As the seven integrated firms can, to a certain degree, control the markets, they sometimes employ marketing tactics to influence the prices of both the inputs and broilers in order to increase their affiliated firms' profit margin. Other companies which are not fully integrated, such as those raising chickens, without having their own incubators or animal feed factories, are naturally in a disadvantageous position.

6. The suppliers of chickens are large companies and local hatcheries. (The latter are usually of smaller scale, turning out an average of 300,000 chicks per week each; while the large companies produce over 1,000,000 chicks per week. Feeds are mostly supplied by the largest seven firms; the balance are supplied by smaller feed companies. There are about 10 smaller companies which do not engage in other stages of the poultry business.)

7. About 70 % of chickens from the eastern region are sold to big companies. The remaining 30 % are sold to central markets located mostly in Bangkok. (Field survey).

A useful illustration of this point can be drawn from events during the early stages of the chicken export boom in 1986, which resulted mainly to the appreciation of the yen. Chicken prices significantly increased. Farmers in the eastern region gained handsome profits.⁸ However, in the following year (1987-88) the prices of chicks and feeds rose sharply (especially that of chicks, which almost doubled), causing losses to independent farmers.⁹ In our field survey in 1988, it was found that as a result of consecutive losses in 1987-88, the outputs of independent farmers dropped by 20-30 %.¹⁰ Furthermore, these independent farmers realized that, in order to survive, they had to try to integrate their businesses by relying more on themselves, especially with regard to chicks, which was the input which had the greatest effect on profit and losses. Some independent farmers in Chon Buri invested 30-40 million baht in the construction of an incubation house, with a capacity of 100,000 chicks per week. This number of chicks could fulfill 25-30 % of their demand.¹¹ The cost of each chick was about 4.50-5.50 baht. (The market price of each chick when the field survey was conducted in the middle of 1988 was 9.00

8. Some made profits of well over 10 million baht in that year. (From an interview with a major independent farmer.)

9. The same farmer, in the following year, suffered a loss of about the same amount.

10. From an interview with a big independent farmer.

11. The interviewee felt that this quantity of chicks was most suitable for the time being. To produce more would be too risky because integrated companies might dump chicks on the market or an over-supply situation might occur for other reasons. This has happened in the past; towards the end of October 1988, for example, the price of chicks in the market dropped sharply to 3 baht.

baht.) The investment was made mainly to increase their bargaining power in dealing with companies which were vertically integrated.

This group of independent farmers also plan to build their own processing plants, because, when the price of chicks drops, that of grown broilers often does too.¹² Some independent farmers have gone so far as to try to build their own feed mills.

In addition, about twenty independent farmers have grouped themselves together to form the so-called "Eastern Poultry Raisers Group" in order to increase their bargaining power.¹³ They meet every month to exchange information, and to solve problems they have encountered. For example, when the price of chicks was very high, they tried to force suppliers, especially the seven big companies, to lower their prices. They lobbied their position through an M.P. of Chon Buri, who was the secretary to the Minister of Commerce, which is responsible for enforcing the anti-monopoly law. Using politics as leverage is an important measure the group has taken to protect their own interests.

The role of independent farmers has therefore tended to decline¹⁴ while that of integrated firms is becoming greater and greater.¹⁵

12. These independent farmers have approached Japanese investors for a joint venture in building a processing plant, as Japan is the largest broiler market. An obstacle is that the Japanese set conditions that their Thai partners be of good credit standing and have their own hatching facilities. The second condition has just been fulfilled. Investment on a processing plant is quite large. A medium-size one requires between 50-100 million baht. (From an interview with an independent farmer at Chon Buri.)

13. At present, the members of the group supply about a million chickens per week, accounting for over 10% of the country's total supply.

14. Broilers produced in the eastern region account for less than 20% of the total output at present.

It should be noted that independent farmers in the eastern region have little or no direct business dealings with CP. The company is viewed by them as a rival.¹⁶ In their opinion, CP has set too many strict conditions that are difficult to comply with. For example, the chicken death rate must not exceed 3% of the total number of chickens raised and the feed conversion ratio (FCR) must not be over 2.05 (2.05 kilograms of feed for 1.00 kilogram of meat). No medication is allowed for broilers fifteen days before selling, to prevent chemical residues.¹⁷

(3.2) Farmers under CF

(3.2.1) Guaranteed price contract farming. This was initiated around 1976 by a leading livestock company, at Siracha, Chon Buri.

The company's concept of contract farming is a tripartite venture, comprising farmers, commercial banks and the company.¹⁸

(3.2.1.1) Participating parties.

The Farmers

A. Must own land suitable for poultry farming.

B. Must be honest and determined to participate in the project

15. Most of the large independent farmers interviewed are of the opinion that the trend will continue.

16. CP Group was the pioneer in the country's poultry industry. It enjoys the largest market share in all products related to the industry, i.e., chicks, feeds and broilers.

17. From an interview with an independent farmer.

18. From the company's information brochure.

C. Must have proper behaviour and clean records.

Commercial Banks

A. Extend credit to farmers for chicken house construction and necessary materials.

B. Provide the farmers with revolving funds necessary for poultry farming (charges for chicks, feeds, medicines, etc.).

The Company

A. Acts as the guarantor for the money loaned by the banks to the farmers.

B. Provides the farmers with technical advice, and procures chicks, feeds and medicines for the farmers.

C. Buys chickens from the farmers at agreed prices.

(3.2.1.2) Production Costs. the largest fixed cost is chicken houses; the construction cost for one which can house 10,000 chickens is about 270,000 baht.¹⁹ Another 40,000 baht is needed for equipment, and for variable costs. The company prices each chick between 5.50-6.50 baht, depending on its grade.²⁰ The costs of feeds and medicines are as quoted. (There are many formulas, depending on the age of the chicks.)

¹⁹ Costs estimated eleven years ago. The present costs have risen to around 500,000 baht/house.

²⁰ For selected male chicks, the price is 6.50 baht each, because they are fast growing and hence provide good weight. For selected mix (grade A), the price is 6.00 baht each, and for non-selected mix (grade B) 5.50 baht each. (Field survey.)

(3.2.1.3) Contract Farming Procedures. In order to attract farmers to participate in the project, the company began by introducing wage contract farming to ensure steady incomes for farmers. At the beginning, the farmers could expect about 2.60 baht per chicken on average.²¹ At this rate, they could earn about 26,000 baht per 10,000 chickens over a farming period of two months.²² Although they have to pay for some expenses, such as labour costs, and charges for utilities, the return (about 13,000 baht per month), was quite attractive. More and more farmers joined the company. Later on, the return to farmers gradually went down. After the farmers were able to pay back their bank loans (about 15,000 baht per month, interest inclusive, for a house for 10,000 chickens), the company gradually lowered the wage to 2.30 baht/chicken, 1.70 baht/chickens, and finally 1.50 baht/chicken.²³ When the farmer loans were paid off or nearly paid off (normally five to seven years after the start of the project), therefore, the company would advise (or virtually force) the farmers to change from wage contract farming to guaranteed price farming,²⁴ and definitely fix the prices of inputs as well as the price per kilogram of chickens.

21. Interview with farmers under the company project.

22. The time usually needed for poultry farming is between 48-50 days per flock, (plus) 10-14 days for house cleaning between flocks.

23. When wage contracts were in effect, the company did not provide the farmers with a record of costs. After the chickens were sold to the company, it would pay the balance to the farmers. Hence, the farmers could not understand the company's accounting procedure.

24. From interview with farmers under the project.

From 1986-1988, during a boom in chicken product exports (especially to Japan, because of yen appreciation), the return to farmers from broiler raising actually went down.

Several farmers complained about their declining returns. Some even experienced heavy losses. As a result, many left the project. It was recently estimated that the turnover of farmers under the project since the time it was initiated has been 40-50%. This rate has been remarkably high for the past four to five years.

The reason given by farmers for their smaller profits or, in some cases, losses was that the chicks and feed were of poorer quality, causing high death rates.²⁵ The death of chickens sometimes cannot be prevented, no matter how hard the veterinarians of the company may have tried,²⁶ but the loss was entirely the responsibility of the farmers. The risk was not shared by the company.

Some farmers left the project because of disputes with company employees. On one occasion, the company sent employees to collect chickens during a very hot afternoon, causing the death of 600 chickens. The company refused to accept any responsibility for the death. In other cases, farmers have had to bring the dead chickens to the company (to confirm the deaths) and were required to pay for transportation.²⁷

25. By contract, the acceptable death rate is not more than 5% of the total chickens raised. Normally, the death rate should not be over 3% for farms run by farmers under the project. But in the past two years, the death rate has almost always exceeded 5%.

26. One desperate farmer, finding no way out, even treated his chickens suffering from liver disease with syrup. (Field surveys.)

27. Field surveys.

The high death rate in the past few years may have been caused by the quick expansion of poultry farming due to the export boom, which increased the demand for chicks. Chick producers hence exploited the opportunity by selling unqualified chicks which should have been rejected. Because of attractive prices, some even used old breeders which should have been eliminated to produce chicks.²⁸

As for feeds, prices had been increasing throughout 1987-89. There were five to six price adjustments in 1987 alone. The rise in animal feed prices was due to the rising prices of raw materials.²⁹ Feed producers may have lowered quality in order to maintain their profit margins and shifted the burden to farmers, especially those who, under the contract, were obligated to buy feeds at fixed prices. Besides refusing to take any responsibility for the death of chickens from whatever cause, the company, in order to gain more benefits, has invented some other methods to lower its risks. Farmers who make a high profit from one flock are required to put a sum of money in a bank (in their own name) to use as compensation for losses from future flocks. The company requires new members to use cash as the guarantee for chicks (5-6 baht each). No interest is paid for the cash deposit.

28. Field surveys.

29. Chicken feeds can be produced from 30 kinds of raw materials; the essential ones number seven or eight, and usually include maize, soybean cake, fish meal, and brand. Feed mills will consider prices as a criterion for the selection of raw materials to use. They usually prefer cheaper ones when they can be substituted for more expensive kinds. Prices of soybean cake and fish meal rose considerably in the past two years because prawn farming also boomed and the government protected local soybean production, leading to shortage of supply for domestic use.

The company planned to expand the above-mentioned project by 10% each year. However, in the past few years, there has not been any expansion. The company merely recruited new farmers to replace those who had left the project.

After leaving the farming contract with the company, farmers have two alternatives : one is to join other CF projects arranged through local agents, the other is to give up chicken raising.³⁰ Those who are still unable to clear their debts with the banks must sell their chicken houses (the chicken houses are priced around half of the amount invested) or sell part of their land (at present, the price of land is ten times as high as it was ten years ago when the project started). Most farmers under the company project are relatively well-to-do and have secure assets. The majority of them hold over 40-50 rai of land per family. The price per rai at present is between 100,000 and 300,000 baht.

Apart from the company, contract farming is also conducted by feed agents (representing large firms). One difference between the company and other agents is that the latter operate on a smaller scale of only 3,000 -5,000 chickens per farmer. Chicken raising is therefore considered only a supplementary venture,³¹ whereas with the company

30. From an interview with a company employee, the company no longer needs to extend its project at Siracha. In the past three years, the Siracha project raised 2 million chickens per flock, with 150 contract farmers. At present, the number of chickens per flock is 1.8 millions, operated by 145 contract farmers (from the company's information handout). Altogether, the company has 6 million chickens per flock, producing around 30 million chickens per year, and all are slaughtered in its own processing plants.

One reason for the company's declining contract farming in the eastern region is that the region is now becoming an industrial centre. The price of land in the region has soared. Farmers now have more options for their land and may give up chicken raising. At present, the company is turning its attention to other areas such as Saraburi and Nakhon Ratchasima provinces.

there are 10,000 chickens per flock, requiring full time commitment. Some chicken feed agents do their own farming, considering themselves to also be independent farmers.

In the guaranteed price contract farming, the farmers know practically nothing about the markets of both the inputs (feeds, chicks, and medicine) and the output (grown chickens) because the company wants them to concentrate only on their farming. Furthermore, the company does not like to see the farmers grouping themselves (in the form of farmer organization). Most farmers would not communicate among themselves for information about poultry raising because all aspects of the market are already run by the company (some farmers asserted that chicken diseases could also spread through visiting one another). The farmers have essentially become mere skilled labourers. They are not trained in entrepreneurship.

(3.2.2) Wage Contract Farming

In the past five to six years, the company opened up the wage contract farming system in Phanom Sarakham district, Chachoengsao province and in Prachinburi province.³² There are 2 types of wage contract farming:

31. The majority of farmers also engage in other activities, such as planting cassava; pineapple and coconuts; some also grow paddy rice for their own consumption. Although some may have adopted poultry farming, the majority who normally grow paddy rice still carry on the activity because they have their own land for that purpose. When in need of labour they hire labourers to help them (paying wages of forty to fifty baht/day) and this is only be required in the peak seasons, sowing and harvesting.

32. A large independent farmer said the company used to sell chicken feeds and chicks through local agents; however, these agents later joined hands to ask for higher compensation. Five to six years ago, the company then decided to adopt the wage contract farming system to counter the agents. In this area, which is rather arid, the farmers grow cassava as the main cash crop.

(3.2.2.1) Contract farmers are owners of chicken houses and equipment. They must invest in much the same manner as those under the guaranteed price system. The company will then provide them with chicks, feeds, and medicines. The farmers will be paid in accordance with the kilograms of chicken they produce, generally at the rate of 0.90-1.00 baht/k.g. The factor determining the wage are the chicken death rate and the feed conversion ratio (FCR).³³

The field survey indicated that the trend of wages paid to farmers under the project was similar to that of the guaranteed price system. That is to say, the farmers would receive rather generous compensation, at the beginning, but this would gradually decrease as time passed.³⁴ Farmers said in interviews that poorer quality chicken feeds and chicks were the reasons for the high death rates and FCR.

In this kind of wage farming, the company is quite strict about the use of production inputs by their members. For example, it brings to farmers set amounts of chicken feeds, for fear that members might sell their feeds to others outside the project.³⁵ When chickens die, they must keep the remains for a company employees to check.³⁶

33. To attract farmers to join the project, in the first one or two years, the company paid wage contract farmers fixed wages of about 2.00 baht per chicken. This enabled the farmers to make steady substantial incomes. After that the company changed the payment basis and paid farmers by the kilograms of chicken they produced. In some areas where fixed wage contract farming is used, the company may ask the farmers to raise large chickens, which requires sixty days.

34. Some received only 0.10-0.30 baht for a chicken they raised. By contrast, when they first joined the project they used to make more than 2.00 baht per chicken. (Field survey.)

35. Company employees who are involved with contract farming tend to dislike the wage contract farming system, saying that the farmers can easily cheat the company and are rather careless in farming. At the beginning of the project, there were therefore some managerial problems as they tried to select only qualified members.

In addition, member farmers must keep records of the use of feeds and the number of chickens dying each day, and report to the company employee periodically.

By contrast, the company shows no records of costs and revenues to the farmers after raising each flock of chickens, telling them only how much they will receive per flock.³⁷ The farmers, therefore, do not understand the company's accounting system and never made any objections for fear that the company might blacklist them. It is notable that farmers in the areas have limited chance to choose their career options because the area is rather arid. However, the price of land in this area has recently increased greatly, as a result of the policy to develop the eastern seaboard into an industrial zone.

(3.2.2.2) For wage contract farmers who have no chicken houses and equipment, the company provides both. The members must pay rent for the chicken house (about 0.30 baht per chicken) and pay for electricity and water themselves. For the chicks the company provides to them, if they are selected male chicks, the company charges an additional 0.40 baht each.³⁸

From the field survey, it was found that the company liked to provide selected male chicks to farmers under this project,³⁹ resulting in the lower death rate than

36. Usually, the veterinarians of the company inspect the farms twice a week (similar to the practice under the guaranteed price system).

37. This differs from the guaranteed price system in which the company provides records in writing for the farmers for every flock they raise.

38. Selected male chicks grow 10-15% faster than female ones. For the same period of raising time (about 50 days), the average weight gained is 1.8 kilograms for a female and 2.1 kilograms for a male. (Field survey.)

39. In the project, there are about 300,000 chickens/flock. Each farmer raises about 5,000-15,000

in other projects. The death rate was never over 2-3% on average. It appeared that the wage for farmers under this project was quite low. They received 0.50-0.70 baht per chicken and for the last few flocks (mid-1988), most farmers under the project suffered losses.⁴⁰ The company was also rather slow in paying farmers, normally taking about one month after the delivery of chickens.

(4) Agricultural Cooperatives. Agricultural cooperatives have a rather insignificant role in poultry farming. Some have tried but failed, to create poultry farming projects. The case study under this research project is the Agricultural Cooperative at Siracha.

(4.1) Background. Established in 1974, this cooperative began with 207 members.⁴¹ At present, there are more than 800 members, down from a high of over 900. With an average of 30 rai of land per household, the members grow cassava as their main crop, while other crops include coconuts, pineapple, and rice (about 20% of the members engage in growing rice of 4-5 rai each for their own consumption). About 60 members engage in poultry farming, mostly with private firms. The majority of the members have more than one farming activity.⁴²

chickens/flock. (Field survey.)

40. In one case, the loss was 900 baht from total of 6,000 chickens with a 5% death rate.

41. From an interview with the manager of the agricultural cooperative.

42. Although the members have many production activities, those with land suitable for paddy rice (low land) still adhere to their paddy rice farming. If the household work force is insufficient, they usually employ others (paying the wage of about 40-50 baht per day).

(4.2) Sources of loans: The cooperative mostly uses the credit facilities of commercial banks (especially the Bangkok Bank Ltd). It rarely uses the services of the BAAC.⁴³ The interest rate charged by commercial banks is 12.5%. The cooperative then lends the money to its members at the rate of 14.5%. So far, the cooperative has had no problems about the loans because its members had secure assets.⁴⁴ (The price of land possessed by the farmers now is as high as 100,000 - 300,00 baht/rai.)

Besides taking no loans from the BAAC, the cooperative views the BAAC as a rival in releasing loans to members and in doing other business (such as selling farming equipment to the farmers), because the BAAC can turn good cooperative members to become BAAC's clients. This is one of the reasons why the cooperative declined to use the BAAC's services.

However, members with good financial standing do not like to borrow from the cooperative since the cooperative limits loans to a maximum of only 80,000 baht/case.⁴⁵ Members who need more money turn to commercial banks. The fact that the cooperative has to give loans to less qualified members has resulted in some problems of repayment; in the past, the repayment rate was as low as 40% while the maximum rate has reached 83%.⁴⁶

43. The BAAC is the main source of loans for most other agricultural cooperatives.

44. Cooperatives can easily obtain loans from commercial banks (if their members are of good credit standing) because the banks want to lessen their risks in extending agricultural credits required by the Central Bank by lending to farmers through cooperatives.

45. Except for loans for other special purposes which can exceed the limit of 80,000 baht.

46. The years in which the members had low repayment rates were those in which the price of cassava, their main crop, was low. (From an interview with the Manager of Siracha Cooperative.)

(5) Evaluation of the Poultry Farming Project of the Siracha Agricultural Cooperative.

The cooperative started a poultry farming project in 1985, the year poultry farming began to boom with 24 participating members.⁴⁷

The cooperative gave loans to each member of up to 120,000 baht (60,000 baht for chicken house construction; 10,000 baht for farming equipment and 50,000 baht as a revolving fund). The funds released were from the Bangkok Bank which allotted around 14.5 million baht to the project. Most members who joined the project were expected to raise around 3,400 chickens per family as a supplementary job.

The cooperative obtained production inputs from three or four large companies on credit. After the chickens were fully grown, they were sold to these companies.

The project was a failure. Most members gave up their farming in two years, mainly because the return was too low. Most of them made 2,000-8,000 baht per flock (excluding labour costs, electricity and water charges, and the interest on their loans). From calculations based on data recorded by 24 participating farmers, the initial returns per flock were 4.66% and 0.9% of variable costs (chicken feeds, chicks and medicines) in 1985 and 1986 respectively.⁴⁸ During the same period, the farmers had to pay interest on loans from the cooperative at the rate of

47. From an interview with a Chon Buri Province Cooperative officer.

48. Considering the raising period of 2 months per flock (5 flocks/year), the annual returns were 23% and 4.5% in 1985 and 1986 respectively.

14.5% per annum. The return to farmers in the second year (4.5% per year) could not even cover the interest they had to pay for their loans.

With regard to costs, it appears that the initial cost per kilogram of poultry raised by members of the cooperative was 6% and 15% higher than those of the private company guaranteed price farming project in 1985 and 1986, respectively.⁴⁹

When all costs are taken into account, the members of the cooperative clearly made losses in poultry farming. For 1985, the loss was 0.91% of farmer investment; for 1986, the loss was 8.9%.

(5.1) There were two main reasons for these losses:

(5.1.1) Production inputs, both feeds and chicks were not of standard quality. Such inputs are very important in the determination of profits and losses.

(5.1.2) Management inefficiency:

(5.1.2.1) Problems were caused by the farmers themselves. They raised chickens only as a supplementary job, meaning the number of chickens raised in each case was too small.⁵⁰ As other jobs were their main occupations, they paid less attention to poultry farming.

⁴⁹ The cost per kilogram for cooperative's members was 16.66 and 19.21 baht while that of farmers under the company project was 16.69 and 16.74 baht per kilogram in 1985 and 1986 respectively. (Field survey.)

⁵⁰ Members of the project raised 3,400 chickens per flock while the lowest viable number for profitable farming is at least 5,000 chickens per flock (the optimum is 10,000 chickens per worker). (From an interview with a company employee.)

(5.1.2.2) Problems were caused by the cooperative system. The operation of the cooperative is overseen and controlled by the Cooperatives Promotion Department, Ministry of Agriculture and Cooperatives, which leads to clumsiness and inefficiency. The fact that members had to contact the company through the cooperative created more red tape and inflexibility. When problems such as chicken diseases arose, farmers had to contact the cooperative, which would then contact the company veterinarian to examine the stock. In many cases, it was then too late. Also, when the cooperative called the company to collect grown chickens, company employees often came later than the time agreed upon, causing the farmers to bear additional costs of keeping the chickens.

(5.1.2.3) Problems came from the companies joining the project. The companies tried to play a passive role, not providing technical services such as husbandry and veterinary services to the cooperatives. When it was time for chickens to be sold, the companies also gave higher priority to chickens under their own CF and were too strict in grading chickens from the cooperative.

Large companies tend to have negative attitudes toward the cooperative, claiming that it is inefficient and there is corruption among the elected executive members. There is also interference from government agencies. Furthermore, major activities conducted by the cooperatives, such as provision of agricultural equipment and marketing, are already done by the companies. They therefore feel there is no need to conduct business through the cooperatives.⁵¹ In such a situation, the CF system for

⁵¹. From an interview with the administrator of a company which is involved in integrated poultry business.

poultry developed by the private sector works against the development of farmer organizations, as the companies incline to deal directly with individual farmers.

(6) Grouping of Large Independent farmers

The purpose of the grouping is to counter the oligopolistic power of large companies which operate integrated poultry businesses. Large independent farmers grouped themselves together, as in the eastern poultry farming group which consists of feed agents who are also independent farmers. Another group of independent farmers consists of layer, broiler and swine raisers. They have built their own feeds mills and supplied the technology for feed production to the members themselves to counter large feed companies. Twenty large independent farmers of the eastern region co-invested in an animal feed mill, which mostly produced scarce pre-mixed feeds and raw materials. The firm was called "Animal Farm Enterprise" (AFE) and was registered in 1983 with a capital of 100,000 baht; this increased to six million baht in 1984. At present, 60 big farm operators hold the shares of this company.⁵²

(7) Roles of MNC's in Broilers Raising.

MNC's are not directly involved with broiler raising but sell their know-how to local businesses.⁵³

For example, Arbor Acres Company (partner in a joint-venture with the Charoen Pokphand Group) sells grandparent stocks and parent stocks to various companies in Thailand. At present,

⁵² In raising layers and swine, farmers have been able to rely on feeds which they mix by themselves. In broiler raising, however, pre-mixed feeds from large mills are still popular among raisers, because there are different formulas depending on the ages of the chickens.

⁵³ In the near future, Cargill, which produces seeds and grains (especially maize) and various kinds of medicine for animals, has a plan to build a chicken processing plant and enter into CF as well.

Arbor Acres Company holds about 60% of the total chick market in Thailand. (The rest are supplied by breeders from Europe.)

(8) Employment

Farmers who have insufficient labour available hire workers to assist in their farming.⁵⁴ Normally, one worker is required for each 10,000 chickens. Wages are paid at the rate of 3,000 baht per flock, with each flock taking fifty to sixty days. Hence, the daily wage rate of each worker is about 50 baht.⁵⁵

In order to motivate the workers to be more productive, the farm owners try to establish a patron-client relationship. The owners on some occasions provide the workers with food and necessities, and allow them to use diseased chickens for their own meals, though selling them is not allowed.⁵⁶

Most workers hired come from other regions, especially the northeast.

(9) Conclusions on the Problems of Broiler Farming.

There are many deficiencies in present contracts which have placed farmers in a disadvantageous position. These deficiencies can be summarized as follows:

⁵⁴ Large companies expressed their desire to have their contract farmers do poultry farming by themselves. In case they employ workers, they must devote adequate time supervising the performance of their workers. (Field survey.)

⁵⁵ The workers take care of their own food, while the owners provide them with shelter.

⁵⁶ Diseased broilers can be sold at 6-10 baht each. The income from the selling belongs to the owner.

(9.1) Under the guaranteed price farming scheme, the company does not have to share any responsibility when broilers die, even when deaths are the result of uncontrollable circumstances such as an epidemic, which is the most important cause of farmer losses. This condition of leaving all responsibility to farmers, under all circumstances, is against the general principles of contract farming. A proper contract should stipulate that the cosigners share both risks and profits.

(9.2) Although there is a price guarantee in CF, this does not prevent income uncertainty among farmers. Such uncertainty is the result of fluctuation in the production costs of broiler farming, due to the variable quality of production inputs for which farmers again have to take full responsibility.

(9.3) In wage contract farming, the farmers lack understanding of how their return is calculated, and of how to calculate such vital figures in poultry farming as the FCR, income and expenditures. The company prepares all of these alone. This may lead to corruption on the part of the company's representatives in the area.

(9.4) In contract farming in the poultry industry, under both wage farming and price guarantee schemes, farmers are in effect employees of the contractor, earning relatively fixed incomes. However, farmers have to bear full responsibility for all the cost of production which is highly sensitive to changing environmental conditions. Moreover, most farmers do not have adequate knowledge of how to take good care of their chickens. Chances are that farmers will, therefore suffer losses. This can be clearly seen in the case of wage farming under company projects.

(9.5) The Government has practically no role or involvement in the making of contracts between farmers and the company or the company agents. There is therefore a possibility that farmers may be exploited and that contracts may be deficient. If CF is to be promoted in the poultry industry and justice observed between the contracting parties, the Government should take the following steps:

(9.5.1) Under the price guarantee scheme, the Government should have the two parties to the contract share responsibility in the case of losses due to uncontrollable circumstances such as epidemics or other abnormalities.

(9.5.2) The Government should establish effective measures or mechanisms to check the quality of chicks and feeds supplied to farmers by the company and the quality of broilers supplied to the company by farmers.

(9.5.3) For wage contract farming, rules and regulations concerning wages should be clearly stated in writing.

(b) Pineapple

To present a clearer picture, this research focuses on two main areas as of pineapple production, in the southern region (Prachuap Khiri Khan and Phetchaburi provinces) and in the eastern region (Chon Buri and Rayong provinces).

(1) The southern region

The south has the biggest area of pineapple plantation in Thailand. Its pineapple production accounts for 60% of the country's total production.

(1.1) Production nature

80% of production is sent to canneries. The remainder goes to the fresh market.⁵⁷ 70% of the planting is done in single rows, the rest in double rows.

Canneries normally prefer double row planting because pineapples will be of good shape, proper size (1.7-2.0 kilograms/fruit) and acceptable sugar levels. Pineapples which are too big and sugary are not suitable for canning because they tend to ferment easily. Canneries encourage farmers to do double row planting and are getting good response from large plantations. In 1987, there were only 30,000 rai of double row planting, but in 1988, this number increased to 160,000 of the total 400,000 rai of pineapple planted.⁵⁸ However, most farmers, especially small ones prefer single row planting.

⁵⁷. Field survey.

⁵⁸. Field survey.

The main reason small farmers prefer single row planting is the lower investment costs required.⁵⁹ In addition, single row planting does not require as much care as does double row. For the latter, if fertilization is insufficient, the pineapples produced will be too small for the canneries. Because of irrigation problems, pineapple farms are mostly rainfed. Therefore, it is quite risky for small farmers to choose double row planting as drought may occur. Single row planting yields good, large fruit even during drought and farmers can sell their produce in the fresh market at better prices, 20-30% higher than the prices offered by canneries.⁶⁰

Calculation shows that the cost per kilogram of double row planting is lower than that of single row. The cost of double row planting is 0.85 -1.00 baht/kilogram, while that of single row is about 1.20 baht/kilogram. This is because double row planting yields 8-9 tons/rai, while single row planting yields only 3-4 tons/rai.⁶¹ The average pineapple yield for the whole country is 4.9 tons/rai and the average cost is 1.10 baht/kilogram.

59. Single row planting requires much fewer crowns (about 50%) than double row planting. Shoots are the most expensive of all inputs for planting. Single row planting also requires less fertilizer and pineapples consume a lot of fertilizer. According to the survey, farmers put in 30 - 150 kilograms of fertilizer per rai, depending on the selling prices of the previous season.

60. At present, the fresh or table market's role is not so important for pineapple plantations, because it absorbs only about 20% of the total production. Besides, its quality requirements are different from those of canneries. Farmers can send only large, sugary fruit to the fresh market. It takes time and labour to select these. Large farmers therefore do not like to sell their produce to fresh markets.

61. Field survey.

It is expected that the number of plantations using the double-row method will continue increasing because land for plantation is becoming limited. Additionally, in the past two years several more new canneries have been established, while the production capacities of older canneries have been increased.⁶² The double-row planting method is therefore becoming more popular.

(1.2) Buying and selling

(1.2.1) Farmers.

Most pineapple farmers are small scale operators, cultivating not more than 30 rai per household. However, the combined planting area of medium sized (31-100 rai) and large (100 rai up) farmers is greater than that of small farmers.⁶³ Small farmers who do not have trucks of their own usually either sell their produce to middlemen at the farm gate, or bring their produce by pushcarts to the buying sites, which are usually on road sides. Canneries do not buy pineapples directly from small farmers because it is relatively costly to deal with them as their produce is too small in quantity.

During over-production periods, small farmers suffer from low buying prices offered by middlemen, who are their only buyers. It was found from interviews that during the over-production period of late 1985-86, small

62. Field surveys showed that almost every large cannery expanded its production capacity by 25-30% in the past 1-2 years.

63. A large plantation with one owner is usually not larger than 500 rai. If the plantation is larger than this, management problems will occur. Most of the large plantations have an area of 100-400 rai. (Field survey.)

farmers sold their produce at only 0.40 baht/kilogram to middlemen who later resold it at 1.00 baht/kilogram to canneries.⁶⁴ This situation forced some farmers to cut their planting area from 30-50 rai to about 10 rai at present.⁶⁵

Hence, small farmers cannot concentrate on any particular cash crop. They must diversify their production activities by producing other cash crops (such as other fruits, maize, coconut, and bananas), and raising animals, both for their own consumption and for sale. This makes their production semi-commercial and semi-subsistent.

Fortunately, for the past two years, the demand for pineapple in the world market has been much stronger.

The export of pineapple has increased and canneries have bought more produce from farmers. At present, small farmers who have their own pick-up trucks can sell their produce directly to canneries. If they sell it to middlemen, prices are also not as low as they used to be, because middlemen also have to compete among themselves in buying from farmers and selling to canneries.⁶⁶ The middlemen's profit margin is about 10-30% of the price paid by canneries.⁶⁷

Medium and large farmers usually have their own trucks to transport their product to canneries.⁶⁸

64. Planting cost is around 1.00 baht/kilogram.

65. Field survey.

66. From an interview with a middleman.

67. During over-production periods, (normally occurring every 3-4 years), middlemen's profit margins increase to 40-50%.

68. In the past two to three years, this group of farmers has preferred to sell their product through co-operatives. (More details will be discussed later.)

Some of them sell their produce to more than one cannery to increase their bargaining power. Selling prices are in accordance with the current market prices. The most important determinant of price for fresh pineapple is the quantity of output that year. Canneries can foretell prices by sending out their officers to check the volume of production periodically.

Large farmers are usually well-to-do and have other agricultural or non-agricultural businesses in addition to pineapple planting.⁶⁹ Most of them obtain their loans from commercial banks, instead of from the BAAC. Small farmers usually obtain their loans from the BAAC. Large farmers therefore have relatively strong bargaining power in dealing with the canneries.⁷⁰

From the field survey, it was found that farmers sold their produce at 1.70 baht/kilogram on average,⁷¹ while their production cost was 1.10 baht/kilogram. They had a profit margin of 0.60 baht/kilogram (or 55% of the production cost) after spending one year on production. A farmer whose average production is 4.9 tons/rai can make a profit of 2,940 baht/rai. Thus, a small farmer who owns 25 rai of land can earn a total profit of 73,500 baht per year.

(1.2.2) Middlemen

69. Another major agricultural business for large farmers is sugarcane planting.

70. Many large farmers are involved in local and national politics. After the last election, an MP from a pineapple planting area who is also a member of the committees of the sugarcane and pineapple associations was appointed Deputy Minister of Agriculture and Cooperatives.

71. Cannery-gate prices.

During the over-production periods which occurred frequently prior to 1986, middlemen played an important role in the fresh pineapple market because they had good relationship with canneries and could obtain greater buying quotas.⁷²

Most of the middlemen are truck owners who transport pineapples to canneries. Some are large and medium-sized farmers who have obtained large buying quotas from canneries; and some are villagers who have received buying quotas and simply set up buying sites on the road-side near pineapple plantations.

Small plantation farmers prefer selling their produce to middlemen for the sake of convenience. Besides, middlemen usually pay them in cash upon delivery. If they sell their produce to canneries, the soonest they receive their money is three days after delivery. Normally, however, they are paid much later than three days.

However, in the past two to three years, the role of the middlemen has decreased as the number of canneries has increased. Canneries thus have to compete to buy pineapples directly from small farmers. According to the field survey, middlemen make a profit of about 0.25 baht/kilogram or 15-20% of their buying price. Each middleman buys one or two truck loads a day⁷³ at eight tons per truck, earning 2,000 - 4,000 baht a day,⁷⁴ which is a very

⁷² During over-production periods, canneries only buy pineapple from persons with quota slips. Canneries issue quota slips to those who provided good and stable supplies in the previous season. Therefore, most of the buying quota receivers are middleman and large farmers who can supply pineapples to canneries in large quantity. The buying quota system provides canneries with a dependably high quality supply of raw material.

⁷³ During peak period.

good return.

(1.2.3) Agricultural Cooperatives.

Agricultural cooperatives started to play a role in the pineapple market only a few years ago when the number of canneries increased to meet the higher foreign demand for canned pineapple.⁷⁵ Among active ones in the south are the Cooperative of Sam Roi Yod Pineapple Farmers and the Cooperative of Hua Hin Pineapple Farmers.

The Cooperative of Sam Roi Yod Pineapple Farmers was established in 1986, by a group of large farmers, following the 1985 slump in pineapple prices. In 1987, this cooperative had 400 members; the number increased to 432 in 1988. Most of the members own large plantations of hundreds of rai each.⁷⁶ Their plantations are quite far from canneries. Selling through the cooperative is therefore more convenient for them. In 1987, the members of the cooperative sold 90,000 tons of pineapples through the cooperative and the cooperative earned 3.4 million baht in profit; this came largely from charging members for sales management at a rate of 2% of the sale price.

74. One of the middlemen interviewed said that he was able to pay off a truck he bought for 200,000 baht within one year. People living near buying sites said that middlemen earn good income. Some of them are able to own buildings, to buy cars, etc. (Field survey.)

75. In 1988, Thailand was the world's largest pineapple producer with a total production of 270,000 tons, followed by the Philippines - 214,000 tons). The export value of pineapples in that year was 3,920 million baht.

76. The chairman of this cooperative has thousands of rai of pineapple plantations and many sugarcane plantations. He is also an active member of the Sugarcane Planters' Association, the most active farmer organization in Thailand.

The Cooperative of Hua Hin Pineapple Farmers was established in 1987 with 250 members, 30-40% of whom are small farmers owning 10-30 rai each. The average land holding of farmer members is 70-80 rai. In 1988, the number of members increased to 350.⁷⁷ In 1987, the members sold a total of 44,000 tons through the cooperative. It was expected that the figure would increase to 60,000-70,000 tons in 1988.

Most of the cooperatives' produce was sold to the Thai Pineapple Cannery Company (TPC), the biggest cannery in this area. It should be noted that the plantations of most members are very close to the Dole (Thailand) Ltd.'s cannery but the cooperatives rarely sold their produce to Dole. Dole purposely tries to buy pineapples from far away plantations to counter the influence of owners of nearby plantations.⁷⁸

In 1987, the Cooperative of Hua Hin Pineapple Farmers made a profit of 1.6 million baht from service charges.⁷⁹

It should be noted that both cooperatives started to make profits immediately after their establishment. This might have been due to the entrepreneurship of their administrators who themselves are large farmers and

77. It was expected that the number of members would increase to 400 by the end of 1988.

78. Dole did so although they had to pay an extra 0.10 - 0.20 baht/kilogram for transportation. Administrators of the cooperatives suspected that Dole did not want the cooperatives to be strong and use bargaining power against it, and they therefore did not buy pineapples from the cooperatives. According to an argument of Dole's officials, however, the cannery's refusal to buy pineapples from the cooperatives was because, during the low season, the cooperatives would often set additional conditions for the purchase. Such a practice caused doubts among Dole's executives as to whether the administrators or the members of the cooperatives would benefit from the extra conditions.

79. The cooperatives pay 50% of the profit to members and a 13% dividend to share holders.

have extensive experience in running other businesses as well. (For example, the chairman of the Cooperative of Hua Hin Pineapple Farmers is also the owner of a gas station.)

The quantity sold through the cooperatives is still considered very small-less than 10% of pineapples produced in the south.⁸⁰ However, there is a tendency that both cooperatives will keep growing.⁸¹ Besides management capability of the administrators, another factor which promotes the role of the cooperatives is the expansion of canneries and thus higher demand for pineapples. With good supplying records, the cooperatives obtain good buying quotas from canneries to be divided according to the quantity supplied by each member in the previous year.

However, there are several problems in running cooperatives. During over-production periods, the cooperative committee members tend to practice favouritism in dividing quotas. Other members have less opportunities to secure buying quotas. In addition, cooperative officers are mostly members of the families of cooperative committee members. The cooperative management has thus become more or less family-oriented.⁸²

(1.2.4) Pineapple canneries.

In 1988, Thailand had 15 pineapple canneries. Seven of them were granted promotional privileges by the Board of Investment. The country's total production capacity was 255,000 tons. In the past 2-3 years, every can-

⁸⁰. Field survey.

⁸¹. Besides selling produce for members, the cooperatives provide cheaper agricultural inputs for members as well.

⁸². Field survey.

nery operated at full capacity because of the high demand for Thai canned pineapple in the world market. In that year Thailand was the world's largest exporter of canned pineapple. Over the same period, the capacity of several canneries was expanded and new ones were established.

Canneries can be divided into two types according to their buying patterns: those with their own plantations and those without their own plantations. In the south, Dole (Thailand) Ltd., is the only cannery with its own plantation, with an area of about 26,000 rai.⁸³

(1.2.4.1) Canneries with their own plantations.

Dole Thailand Co., Ltd. operates under license from the multinational corporation system of Castle & Cooke Co., Ltd. of the United States. It was established and registered in 1967 and started its business in 1972 under the promotion of the Board of Investment (BOI),⁸⁴ which granted privileges on landholdings and tax exemption because it was expected that Dole operation in Thailand would create more employment and provide a transfer of technology.

The plant of Dole Thailand Co., Ltd. is located in Hua Hin District, Prachuap Khiri Khan Province. Around the cannery is the vast land of the pineapple plantation. Dole produces canned pineapple and sends the product directly to its parent company in the United States.

Dole's pineapple plantation is quite capital-intensive. That is, many machines are used in the plantations and only 400-500 workers are employed. Dole's

⁸³. There is another cannery with its own plantation, the Cha-an Pineapple Cannery Co., Ltd., but its production role is very small because it has been running losses.

⁸⁴. At present, Dole (Thailand) Ltd. ranks second in the south in terms of canned pineapple production.

planting method is also different from most other plantations. 12,000 crowns are planted per rai in order to produce pineapples weighing two pounds each, which is in accordance with the specifications of the cannery.⁸⁵ Average yield per rai of Dole's plantation is about nine tons.⁸⁶

With modern techniques and equipment, Dole's plantation cost per rai is much higher than other plantations, but its yield per rai is also much higher. In addition, it can produce of proper size pineapples, which eliminates production loss and thus reduces production cost. The average cost per kilogram of Dole's pineapple is slightly higher than for other plantations.⁸⁷

However, Dole's plantation has more problems than most other pineapple farms, especially of theft. Workers sometimes steal farming materials and pineapples from the plantation. Dole used to use one-gallon containers for insecticide but many were stolen because they were easy to move. The cannery had to switch to drums to prevent theft. This was less convenient, which meant an increase in production cost.⁸⁸

In the past, 60-70% of the pineapples required for Dole's cannery came from its own plantations; now that the cannery has been expanded, however, the proportion has declined to only 40%.⁸⁹ Dole purchases the rest of its

⁸⁵. Generally, 8,000 - 9,000 crowns are planted in each rai for double row planting and 4,000 - 4,500 crowns for single row planting.

⁸⁶. About twice as much as that of general plantations (4.9 tons/rai).

⁸⁷. Field survey. (From interviews with executives of Dole).

⁸⁸. From interviews with salesmen of agricultural materials.

⁸⁹. Field survey.

pineapple from particular farmers on a quota basis. Farmers who supplied their produce to the cannery regularly in the previous year will be given first priority on the buying quota list, especially during over-production periods. 30% of the total pineapple requirement comes from these planters. When the other 40% (from its own plantations) is included, this arrangement enables Dole to ensure 70% of its optimum pineapple supply and rely less on general farmers.⁹⁰ During over-production periods, the company buys virtually no produce from farmers, even its regular suppliers have to find other markets.⁹¹

In terms of transfer of technology to other farmers, Dole uses different techniques which require greater capital investment and Thai farmers cannot afford to follow suit. Moreover, Dole is quite possessive about its techniques and does not allow outsiders to visit its plantation.⁹²

(1.2.4.2) Canneries without their own plantations.

90. To increase its bargaining power, Dole buys the rest of its pineapple from plantations located farther away (but within a radius of 100 kilometre). It has to pay an extra 0.10 - 0.20 baht per kilogram or 10% more. Cooperative's officers and general farmers have negative attitudes towards Dole due to its strict buying criteria. To date, Dole has almost never bought pineapples from the cooperative. The cooperatives have to sell the produce to canneries farther away. On the road leading to the Dole cannery, there are tens of pineapple buying sites set up by middlemen but most of these middlemen, sell the produce to other canneries. The conflict might have been caused by the local staff of Dole and the cooperatives, and not intentionally by Dole's high-level executives.

91. Field survey.

92. A group of agricultural students once asked to visit Dole's plantations but their request was turned down.

At present, no canneries in the south other than Dole have plantations. Some canneries used to operate plantations but ceased farming operations three years ago because of high production cost.⁹³ Buying from farmers is cheaper.⁹⁴ Operating their own plantations means having to hire permanent workers, and permanent staff, etc. Besides, inefficient management created theft problems. Another reason was that the supply of pineapple has become more steady. Farmers have learned to use chemicals, which results in better and steady production all year round, rather than only during the peak period (April-June). Furthermore, they have expanded their plantations, which ensures a steady supply to canneries. This is in contrast to the period before 1985, when the quantity and prices of pineapples fluctuated wildly and canneries had to operate their own plantations to minimize the uncertainty in supply.⁹⁵

At present, every cannery ensures its supply of pineapple by assigning buying quotas to farmers who had good supplying records with the cannery the previous year.⁹⁶ However, over the past few years, the production capacity of the canneries has been greatly increased; hence, the canneries have to find more ways to ensure their pineapple supply. A new buying system called the contract

93. One cannery which used to have its own plantation in the past was TPC, the biggest pineapple cannery in Thailand. Before 1985, TPC had a plantation of about 10,000 rai.

94. The production cost per kilogram was twice as much as that of buying from farmers. (From an interview with the raw material purchasing manager of TPC.)

95. TPC started its plantation in 1972 and stopped it in 1985.

96. Some canneries set up monthly buying quotas by checking monthly supply records of farmers over the past year. To maintain their good records, farmers who are afraid of not having selling outlets during the peak season have to find ways to supply canneries steadily every month.

market has been introduced in the past two years to the south, along with buying through pineapple farmer cooperatives.

(1.2.4.3) Canneries using the contract market:

The Thai Pineapple Co., Ltd. (TIPCO) is the only cannery in the south using the contract market,⁹⁷ in which the following conditions have been in effect.

- The minimum buying price is set at 1.10 baht/kilogram.

- A pledge to buy the whole quantity produced by members.

- Priority of delivery to members, who have the right of precedence over other suppliers during over-production periods when trucks have to wait in a long line for delivery.

In 1987, TIPCO had about 300 members, who altogether owned about 30,000 rai of pineapple plantations; this represented 7-8% of the total pineapple plantation area in the south. Most of the members owned 200-250 rai each. There were only a few with plantations of less than 50 rai.

To ensure that the reported supplies from registered farmers are correct, the cannery sends five officers with educational backgrounds in agriculture to visit

⁹⁷ The production targets for 1988 were 150,000-180,000 tons of fresh pineapples and eleven production months. The cannery employed 1,800-2,200 local workers during the regular period and 20% more from outside during the peak season, mostly from the northeast. (From an interview with a raw material purchasing officer of TIPCO.)

the farmer members periodically. The real purposes are to check members outputs, to discourage them from selling their produce to other buyers and to gather information for setting purchase prices. These officers sometimes provide information on planting techniques to farmers such as application of fertilizer and insecticide. However, the cannery has no policy of giving credits to members, either in cash or in kind. Members may be advised to use some particular brands of fertilizer and insecticide, but they have to buy the products themselves.⁹⁸

Sales promotion of various farming inputs is done by the suppliers, which send their own extension officers to planting areas to persuade farmers to use their products. Several promotion techniques are used, such as holding exhibitions and meetings, and setting up demonstration farms. Companies usually spend 1.5-2.0% of their total sales on promotion activities.⁹⁹

Operation problems: During the peak season of 1988 (April-June), the general cannery buying price came down to 0.80 baht/kilogram, making it difficult for

TIPCO to buy from members at the guaranteed price of 1.10 baht/kilogram. As a result, TIPCO was unable to absorb all the produce of members. 25-50% of members' produce was unsold and perished.¹⁰⁰ TIPCO claimed that the problem occurred because members had underestimated their production.¹⁰¹ Also, during that same peak season, some machines at the cannery broke down, lessening the production capacity and thus the quantity of pineapple to be purchased.

After experiencing the above problems, the cannery decided to limit the number of contract market members to not more than 300, with plantation area of not more than 33,000 rai. The produce from members was not to exceed 40% of the cannery's pineapple demand. In 1988, members supplied about 30% of the cannery's total demand.¹⁰²

TIPCO's failure to absorb all the produce of contract market members forced many members to cancel their agreement with the company and sold their produce to other canneries.¹⁰³

The company also refused to extend credit to farmer members for fear that they would sell their produce to its competitors, in order to avoid repayment of their debts.¹⁰⁴ As a result, the cannery did not play any sig-

98. The cannery did not provide loans to contract farmers for fear of bad debts; in such cases, the farmers might sell their produce to other buyers.

99. From an interview with a sales promotion officer of a company selling insecticide.

100. From an interview with an extension officer of TIPCO and its contract farmers.

100. 100. From an interview with an extension officer of TIPCO and its contract farmers.

101. According to a TIPCO estimate, about 20% of contract farmers, mostly large plantation farmers, are not honest in reporting the amount of their produce for fear of not being offered good buying prices from the cannery. Such large farmers usually have a better chance of selling their produce to other canneries than do

nificant role in improving farmer's production techniques. Pineapple farmers in general do not receive technical assistance from either canneries or government agencies. During our field survey, pineapple farmers complained of a disease which made some of their pineapple stunted (at some plantations 30-40% of the produce were stunted), which resulted in much lower profits. They said they could not rely on any party for assistance, even relevant government agencies such as the Department of Agricultural Extension.¹⁰⁵ Since farmers have no one to turn to, they face continual quality problems. This causes conflicts between farmers and canneries. Canneries are usually in a more advantageous position, however, because fresh pineapple is highly perishable, while canned pineapple can be stored for years.

(1.2.4.4) Canneries buying through cooperatives.

Because of the higher demand for raw materials on the part of canneries over the past few years,¹⁰⁶ farmers now have more buyers to choose from than during the over-supply period before 1985.¹⁰⁷

With the use of chemicals, farmers can now control their production to a certain extent, resulting in more stable production.¹⁰⁸ They do not have to rely so

small farmers.

102. From an interview with a raw material purchasing official of TIPCO.

103. About 100 contract farmers have stopped selling their produce to TIPCO. (From an interview with TPC's raw material purchasing manager.)

104. TIPCO previously granted loans, both in cash and in kind to contract farmers, but some farmers sold their produce to other canneries to avoid repayment of their debts.

105. Technical services mostly come from companies selling farming inputs. They compete with one another by using non-price measures (e.g. by heavy advertising, which in some cases creates confusion among farmers).

much on buying quotas given by canneries, as they did in the over-supply period. According to the field study, during the past two years, farmers usually did not rely on any particular cannery. They frequently changed their buyers and sometimes sold their produce through cooperatives (which are playing a more significant role in selling members' produce), or sold to new canneries.¹⁰⁹ Therefore, canneries have to find ways to ensure their supply. Among these is buying pineapples through cooperatives which gather produce from their members. The biggest buyer from the cooperatives is TPC, followed by TIPCO. Later, after the introduction of the contract market, TIPCO was able to ensure 30% of its demand for raw material and now buys less from cooperatives and general farmers.¹¹⁰

Besides buying through cooperatives, TPC plans to send its extension staff to persuade farmers to sell their produce to its cannery.¹¹¹ If the shortage of raw material becomes worse in the future, TPC may also establish contract markets as well.

(1.3) Employment systems

106. In the past few years, almost every cannery operated almost year-round, with only one month closing period for machine maintenance, (usually in July or August when farmers' production was low).

107. At present, the over-supply problem still exists, usually in the peak season (April-June).

108. Using activating chemicals to control production works to a limited extent because pineapple planting still depends mainly on rain water. In using activating chemicals, control of the water supply is necessary to ensure the chemical's efficiency.

109. From the interview, the raw material purchasing manager of TPC revealed that the number of TPC's regular suppliers had declined from 1,000 to 500 last year.

110. From an interview with farmers.

(1.3.1) Employment in pineapple plantations

(1.3.1.1) Dole plantation (26,000 rai) employs about 400-500 workers. More workers are employed during the planting and harvesting periods. Daily wages of workers are 50-60 baht, and 60-70% of the workers are from the northeast. Almost all of them are employed on a temporary basis. Their employment contracts must be renewed every three or four months.

(1.3.1.2) The number of workers employed on other plantations depends on the plantation size. Large plantations hire more workers and usually let some of these stay permanently at the plantations. The majority are employed only during planting and harvesting periods. Most of these workers are also from the northeast, coming to seek jobs during their post-harvest season. The daily wage for this group is about 40 baht. Plantation owners provide temporary shelters for them at the plantations. Workers from the northeast do not stay permanently; they go back whenever their families need them to work in their rice fields.

(1.3.2) Employment in canneries

(1.3.2.1) Employment in most canneries: In the past the production period of canneries lasted no more than six months (four to five months on average). Moreover, employment in each month of the production period was not consistent. During the peak month (May), for example, workers were required to work overtime while the amount of labour hired for other months would fluctuate according to the level of production. To adjust to this situation, most

of the canneries hired temporary workers, who constituted over 80% of the total workers hired. Only foremen and administrative staff were hired on a permanent basis.¹¹²

Most of the workers are locals. Canneries hire workers from other regions (especially the northeastern region) only during the peak season (May-June). The reason for hiring few workers from other regions is that workers from the northeast can be employed only seasonally. They can work only when they are free from their farming activities, making the canneries uncertain of labour supply during the time of the available production.

Although canneries mostly employ workers from nearby areas, they are sometimes faced with labour shortage. Because workers are employed temporarily, they have to depend on other occupations as well. Canneries, therefore, have established a system to ensure the labour supply by relying on employment agents. The employment agents supply workers to the canneries in accordance with their daily requirement which depends on the level of production at that time. For each worker supplied, the employment agents receive 2 baht per day as a service charge.¹¹³ Through this method, canneries do not have to hire more workers than necessary, and can thus reduce their labour cost. Employment agents also oversee workers' conduct, solve conflicts among workers, and manage the payment of wages to workers under their control.¹¹⁴

111. At present the cannery has only two extension officers. Their job is to check farmers' production per hectare and other relevant information for the purpose of determining the buying price. The periodic checking is necessary because farmers' production may vary according to several factors such as the level of rainfall.

112. The cannery reviews contracts every three or four months. Because these workers are hired on a temporary basis, they are not entitled to welfare benefits under the labour law. From interviews, it was found that many workers (mostly women) had been working for the cannery for over ten years but were still 'temporary' workers.

Presently, canneries pay each worker 50 baht per day.¹¹⁵ (The daily wage was 48 baht in 1987, and 40 baht five years ago.) The daily wage is forfeited if a worker works for half a day and takes leave for the other half. If there is work for only half a day, only half the daily wage is paid.

During the past two years, although factories have been able to operate eleven months out of the year, workers are still hired on a temporary basis in order to avoid paying the legal minimum wage and providing fringe benefits, which would be the case if workers were hired as permanent employees.

(1.3.2.2) Employment in Dole's cannery: Since the cannery belongs to a multinational corporation, the workers hired in the beginning were all permanent employees and came from all regions. The company paid 50 baht to employment agents for each worker procured. These workers received wages only when the cannery was in operation.¹¹⁶ The cannery lent each worker 1,200 baht when there was no work and offered many forms of welfare benefits to workers, such as transportation to and from the cannery and monthly movie shows.

Five years ago, Dole workers went on strike, demanding compensation from the company for periods when there was no work. The company laid off all the workers and gave them six months' compensation. Those who reapplied

113. Each agent has 100-200 employees under his supervision.

114. From an interview with the personnel manager of the cannery.

115. Permanent employees receive a daily wage of 61 baht (the minimum wage). (From an interview with employees.) Transportation is provided for workers.

for jobs received three months' compensation, but the new hiring was temporary, except for those in administration and the mechanical department. The employment contract is renewed every three months and the daily wage is 61 baht, but workers have to pay for their own transportation (about four to eight baht a day). The cannery removed all other welfare schemes and refuses to guarantee the safety of workers, even during the night shift.¹¹⁷

It can be seen that Dole has changed its employment system from a western style, hiring permanent employees, to the style employed by local canneries, which gives more advantages to the cannery. In the past two years, although the cannery has been in operation almost year-round there has been no sign that it will turn back to the permanent employment system to provide greater welfare and stability to workers.

(2) The eastern region:

Pineapple planting in this region is second only to that of the southern region (approximately 20% of the country's production).

(2.1) Nature of production: Produce is largely supplied to canneries. Pineapples are normally planted in double rows.

(2.2) Marketing: Marketing is categorized according to buyers and sellers as follows:

¹¹⁶. Dole's operation period is longer than that of other canneries, because, in addition to raw material bought from general farmers, it owns a plantation which in the past could supply 60-70% of its requirements. In the beginning, however, the plant was operated only for six months.

¹¹⁷. The company has provided rooms for female workers, requiring them to pay only four to five baht a month

(2.2.1) Planters: Compared to those in the south, pineapple planters in the east are newcomers, who started planting only about ten years ago, after pineapple canneries started their operation in the area. Both large and small planters sell their produce through the contract market.

Apart from pineapple growing, planters also have other occupations, such as growing coconut, sugarcane, rubber, cassava, and rice, and raising chickens and swines.

(2.2.2) Middlemen play a less important role than in the south, because the quantity of pineapple produced in this region has not yet met the demand of canneries. Planters usually sell their produce directly to the canneries. In the past two years; however, the price of pineapple has therefore increased considerably; pineapple planting in this region has also therefore increased. Some canneries also promote pineapple planting in other provinces such as Chanthaburi and Trat, causing a surplus of pineapple that has to be shipped and sold to the south. The role of middlemen in this process is becoming more important.¹¹⁸

(2.2.3) Agricultural cooperatives and farmer organizations play a minor role in the business. Their major function is to act as brokers, selling pineapples for planter members.

(2.2.4) Pineapple canneries. There are two large canneries that buy almost all pineapples in this region: Siam Agro-Industry (Pineapple) Co., Ltd. (SAICO) and

for electricity. Three to four workers live together in a room. However, the company is considering cancelling this housing arrangement in order to use the land for cattle raising (because pineapple skin can be used

Siam Food Products Co., Ltd. (SIFCO). These two canneries have similar systems for pineapple procurement, except for some minor details.

(2.2.4.1) Siam Agro-Industry (Pineapple) Co., Ltd. (SAICO): The cannery was established in 1978, a year and a half after the company's plantation had been started.¹¹⁹ The company suffered losses during the first five years of operation because of lack of raw material. Most farmers in the area were still growing sugarcane and cassava, which brought in good income then. The cannery depended on its own plantation for raw material, but this was often insufficient. Pineapple sometimes had to be bought almost entirely from the south, leading to high transportation costs.¹²⁰ In 1984, the cannery reached the break-even point in its investment, and it began to make a profit in 1985.¹²¹

The cannery now has its own plantation and is able to grow enough pineapples to fulfill 15-20% of its total demand; the rest is purchased from about 3,500 contract farmers. About 80% of the contract farmers are small planters owning not more than 25 rai each, about 15% own about 25-200 rai and the remaining 5% own more than 200 rai.¹²² In terms of total land holdings, however, medium and

as animal feed). In mid-1988, Dole was raising 3,000 cows and it plans to increase the number.

118. Before 1985-1986, most canneries in the east purchased pineapple almost entirely from the south.

119. From an interview with the Deputy Managing Director of SAICO.

120. Transportation cost about 0.30 baht/kilogram.

121. The improved situation may have resulted from increased foreign demand.

large planters have more land than all the small planters combined.

There are certain advantages and disadvantages to entering contracts with large and small farmers. Contracts with large-scale planters are more easily managed (since there are only a few of them), but the canneries do not feel as secure, because large planters are usually well-to-do, and their large-scale production tends to give them more choices and hence more bargaining power. These farmers may always turn to other canneries. Making contracts with small planters, on the other hand, is rather complicated because of their number, but they are usually more cooperative and loyal to the canneries.¹²³ The cost which the canneries presently spend in promoting the contract market system is about 0.03 baht/kilogram (about 2-3% of the price paid for the produce).¹²⁴

The cannery adheres to the following principles in making contracts with planters:¹²⁵

-Production: The canneries provide technical know-how in planting as well as services in tending and soil

tlers to grow pineapples. About 1,000 are now contract farming for the company.

123. From the viewpoint of cannery executives, small farmers in the east, most of whom have just planted pineapple, are obedient and willing to take the cannery's advice, particularly on planting methods. It should be noted that farmers in this region prefer double-row planting. In the south, by contrast, farmers have been planting pineapple for a long time, and resist any change in planting techniques, believing that they have sufficient experience themselves.

124. Companies limit the cost to 0.05 baht/kilogram. At present, companies may each spend three million baht annually for this purpose.

preparation for members at a low price.

-Providing transportation service for members at low price.

-Guaranteeing the minimum buying prices at 1.10 baht/kilogram during the peak season and 1.35 baht/kilogram during the low season. This measure is aimed at enhancing farmers' confidence.

-The cannery allows contract farmers to sell their produce at agreed amount plus or minus 20% during the peak and low seasons respectively. Such flexibility gives contract farmers an opportunity to sell part of their produce (which normally does not exceed 20%) to the fresh or table market.¹²⁶

-It should be noted that the canneries in this region are able to estimate planters' production better than those in the south, because when making contracts with planters, the canneries will make a production

125. From an interview with SAICO Deputy Managing Director.

126. Usually, fresh market prices are 30-40% higher than prices offered by the company. However, the fresh

estimate in terms of the number of pineapple plants rather than the size of area (in which the number of pineapple plants may vary greatly).¹²⁷

The cannery does not have a policy of providing credit to members, either in cash or in kind, for fear of contract terminations because those receiving credit may sell their produce to other buyers in order to avoid paying back their debts. Hence, the extension of credit rests with financial institutions, meaning the BAAC and commercial banks. The BAAC usually extends loans to small planters, while commercial banks services large planters. When farmers sign a contract with the cannery, they can use it in applying for a bank loan of up to 60,000 baht without having to use their land as collateral.¹²⁸

SAICO has more than ten extension officers to deal with its 3,500 contract farmers. These extension staff now do not have to provide much technical service to the farmers, who have engaged in pineapple growing for over ten years and are now quite skillful. The extension staff's present duties are mainly to inspect the supply of produce of contract members (in order to make a production estimate and a basis for setting the buying price) and

arket requires pineapples of better shape and absorbs only 20% of the total out-put at the most.

¹²⁷. At present, 250 million pineapple shoots come from contract farming and 35 million shoots from plantations.

recruit more contract farmers. The latter duty has recently been their main responsibility especially when the cannery has had an insufficient supply of raw material.

That the cannery has continued increasing the number of contract farmers has created some problems, especially during the past two years, since it has led to over-production.¹²⁹ During the recent peak season (April-June 1988), although the cannery could buy produce from farmers at the guaranteed price of 1.10 baht/kilogram, strict criteria were applied in selecting and grading the pineapple.¹³⁰ Moreover, the cannery claimed that its machines had broken down, causing it to buy less produce from farmers.¹³¹ Some farmers, in their anger, allowed people to take their ripe pineapples for free before they became rotten.¹³² This problem forced some contract farmers to sell their produce to other buyers, such as other canneries or the fresh market, in order to minimize their loss. Some large planters began trying to diversify their markets instead of entering into contract with any particular cannery.¹³³

128. Farmers usually do not have land titles to be used as collateral and therefore can obtain loans of only up to 10,000 baht each from the BAAC.

129. Plantations are now located far from the canneries, resulting from the rising land prices. In the first seven or eight months of 1988, 25,000 tons out of 70,000 tons of pineapples, or about 35%, came from other provinces (Trat and Chanthaburi). Land prices in Rayong, where the cannery is located, have been soaring after the Government launched the Eastern Seaboard Development Program, which also offers more job opportunities to local residents.

130. 35-40% of some farmers' produce was rejected.

131. This was the same excuse TIPCO used during the peak season when it could not buy all produce from farmers.

132. Field survey.

133. An interviewed farmer, who has 600 rai of pineapple plantation, had to sell their produce to three sources: fresh markets (20-30%), SAICO and SIPCO (under contract). This farmer had a serious conflict with

The reason the cannery can use stricter measures with contract farmers is that it can, to a certain degree, guarantee its own supply. Apart from raw material from its plantation, the cannery also promotes planting of pineapples in Chanthaburi and Trat provinces which are farther away, meaning farmers there are more likely to sell their produce to the company. Moreover, because of the increases in planting over the past two years, there is an abundant supply of pineapples in the area. (For the past two years, SAICO has not been dependent on supplies from the south, as it had been in the past.) It is estimated that the pineapple planting area in the eastern region has grown over 60% over the past two years.¹³⁴

Strict grading and failure to absorb all the produce of contract members on the part of the cannery have made some contract members feel that they are in a disadvantageous position. Although they could supposedly sell their produce at the agreed minimum price of 1.10 baht/kilogram, after taking out all the above-mentioned losses, the actual price they received for their produce fell to only 0.50-0.60 baht/kilogram.¹³⁵

Small contract farmers have expressed their opinion that extension staff of the cannery encourage planters to grow pineapple and participate in the project without considering whether the cannery can buy all of the produce. Though the cannery does offer production and transportation services, small planters enjoy few benefits from these. For example, the cannery uses big trailers which

SAICO a few years ago, because much of his produce was rejected and the company delayed the payment. He, therefore, turned to SIPCO, which is located far away, and persuaded others to follow suit. Finally the executives of SAICO had to become reconciled with him.

are not appropriate for transporting the small quantities produced by small-scale planters; moreover, using such big trailers can also damage the produce.

Under the company's system, produce from both small and large contract farmers has to be delivered to the cannery directly by their own trucks or hired ones.¹³⁶ The cannery encourages planters in farther areas (Chanthaburi and Trat) to form themselves into farmer groups, collect their produce and sell it to the cannery. SAICO presently buys 10% of its raw material from such groups. For farmers whose plantations are near the cannery, SAICO does not buy produce through farmers' groups.¹³⁷

Interviews with executives of canneries engaging in contract farming indicate that sincerity and openness toward the contract farmers are very important for the success of the scheme. The canneries, nevertheless, may express sincerity and openness to farmers only during periods when they are desperately in need of raw material. After farmers grow more pineapple (as a result of cannery promotions) to the point of oversupply, less sincerity and openness on the part of canneries may be expected.

To improve the contract market system in the long run, cannery executives believe that the following measures are necessary.¹³⁸

134. Field survey.

135. Field survey.

136. Some small farmers, owning only 20-30 rai of land, can buy pick-up trucks because their financial status has much improved as land prices have risen. Some farmers have sold part of their farmland and used the money to buy houses and trucks. Such expenses very often are not part of the production cost but resulted from the demonstration effect. Some farmers will not use their trucks when transporting their produce for fear that the trucks would be damaged too quickly. (From interviews with truck drivers).

- The Government should give incentives to canneries operating under the contract market system, such as giving tax reductions or BOI investment privileges.
- The Government must prevent price wars among canned pineapple exporters, which put canneries operating under the contract market system in a disadvantageous position, since their raw material is bought from planters at a guaranteed minimum price, while other canneries can set their own buying prices in order to lower production costs.¹³⁹

These executives believe that the problem of international competition in the pineapple market is not as serious as competition among Thai exporters themselves.

(2.2.4.2)SIAM FOOD PRODUCTS CO.,LTD.(SIFCO)¹⁴⁰

Established in 1975 in Chon Buri province, the cannery has its own plantation of about 20,000 rai. Another 40,000-50,000 rai of plantations are operated by 535 contract farmers, 300-400 of whom own small farms (40-50 rai each). Though small farmers are the great majority, their combined area is only about half the area of the whole project. The cannery had not admitted any new contract farmers for over a year before the survey was conducted.¹⁴¹

¹³⁷. From an interview with senior officials of SAICO.

¹³⁸. From an interview with the Deputy Managing Director of SAICO.

¹³⁹. The government has tried to solve this problem by setting floor prices for pineapple exports. However,

In the past, the company plantation supplied 60% of the cannery's raw material. Since the contract market has been promoted and farmer production has expanded significantly, the proportion of raw material from the company plantation has declined to about 30%.

The cannery has been seriously involved with the contract market for about five years, spending 3-4% of total production cost on the scheme (about 0.05 baht/kilogram). In 1988, it sent five extension officials (each responsible for 10,000 rai) to visit contract farmers every one or two months.

The main responsibility of these extension officers is to obtain data for use as a basis in setting buying prices, as planters now need little technical advice.¹⁴² The principles SIFCO uses in making contracts with planters are similar to those used by SAICO.¹⁴³ No credit is given to contract farmers;¹⁴⁴ this responsibility falls on the BAAC and commercial banks. Each contract farmer can get a 60,000 baht loan from the BAAC without

the measure has so far been rather ineffective.

140. The capacity of the company is 150,000 tons of pineapple/year.

141. The raw material purchasing manager of SIFCO said the company has not increased the number of contract farmers because it is afraid that there might be an oversupply of raw material.

142. The company used to hold meetings of 30-40 members at a time to provide information about new production techniques. However, at present, these meetings are held mostly to explain the company policy (e.g. how much the company can buy), so that contract farmers can plan their production accordingly.

143. Contract farmers have to supply an agreed quantity (plus or minus 20%) to the company. If they cannot fulfill the requirement, they are subject to quota cuts the next season.

144. The company used to give credit to farmers when it had just begun operating the plant but ceased the

security. Each contract covers particular plots on farms (not the entire farm) and the contracts are made on a yearly basis.¹⁴⁵ The contract can be used as supporting evidence when applying for loans from financial institutions.

The BAAC recently wanted the cannery to establish a longer-term contract market with farmers (five years), but the cannery felt this would involve too many management difficulties.¹⁴⁶

During the past two years, the cannery was able to operate almost all year round (ten to eleven months), since there was an abundant and steady supply of pineapple.¹⁴⁷ There is also now no need to depend on raw material from the south. In 1988, there was an oversupply of pineapple during the peak season (May), enabling the cannery to be strict with quality grading. As much as 35% of contract farmers' produce was rejected. The rate of rejection during periods when demand was high had never been greater than 10-15%.¹⁴⁸ Moreover, produce was stuck in line in front of the cannery for 30-48 hours during delivery, which lowered the quality of the pineapple and thus its price.

Large planters therefore usually reduce their risk by entering into a contract to sell only part of their produce. The rest is sold to other buyers.

practice following the increase in the number of pineapple farmers. In the past two years, however, the company has sold shoots to contract farmers on credit.

145. Two years/plot at most.

146. From an interview with the raw material purchasing manager of SIFCO.

147. Using activating chemicals in the east is relatively more effective than elsewhere.

SIFCO does not buy raw material through agricultural organizations because of managerial complication and difficulties in controlling the production,¹⁴⁹ which might widen the gap between the supply of members' produce and the cannery's demand for raw material.¹⁵⁰

(2.3) Employment System

Employment in pineapple plantations and canneries in the eastern region is similar to that in the south, with the difference of more intense labour shortages in the east, resulting in higher wages. The average daily wage of plantation workers is about 50 baht.¹⁵¹ Most of the workers come from the northeast.

The wage of cannery workers during the first three weeks (training period) is about 50 baht per day, and 67 baht per day after that. The cannery provides free transportation to and from work. Almost all of the workers are employed on a temporary basis.¹⁵² The contract is renewed every three or four months. Any worker who is absent for more than three weeks must start at 50 baht per day again.¹⁵³ The cannery presently has a project to build living quarters for workers.¹⁵⁴

148. From interviews with farmers.

149. From interviews with the raw material purchasing manager of SIFCO.

150. SIFCO said that so far they could achieve 70-80% of the target in the production control and delivery.

151. As compared to 40 baht/day in the south.

152. From interviews with executives of SAICO and SIFCO.

153. From interviews with executives of SIFCO.

154. At present, the eastern region is being developed into an export-oriented industrial zone and a deep sea

c). Oil palm

(1) Types of Farmers

Oil palm planters are divided into three main groups. Each group has its own marketing channels for distribution of oil palm nuts.

(1.1) Up to the end of 1987, oil palm planters who registered their businesses as juristic persons (both with and without BOI promotional privileges) had a combined planting area of 614,955 rai. Of this total, 349,913 rai, or 59% were planted by companies. While the number of companies was only about 1.5% of the total number of planters, the majority of oil palm plantations belonged to crude oil palm crushing mills. In general, the mills running oil palm plantations obtain 40% of their annual supply of raw material from their own plantations.¹⁵⁵ The rest is supplied by both planters under contract and independent planters. All fruit from a crushing mill plantation is supplied to the mill.¹⁵⁶

port. The demand for labour, therefore, has increased, and the company has to offer more welfare to workers.

155. Field survey.

156. It is notable that all oil palm plantations of over 10,000 rai operated by large companies have been granted investment promotional privileges by the government, as well as some other privileges such as exemp-

As for companies which are not the owners of oil-palm crushing mills,¹⁵⁷ most sell their produce to any buyers they can find. Some of these companies enter advance sales contracts with one or more oil palm crushing mills.¹⁵⁸ Most such advance sales contracts are apt to be minimum price guarantees for their produce and are not really in the form of contract farming. The reason for this is that the mill making the contract will not accept any responsibility for the production of oil palm nuts by the planting company; there are no credit arrangements or production inputs provided by the mills. Therefore, oil palm planting companies tend to use the credit facilities of commercial banks and rely on foreign experts, mostly from Malaysia, for technical services related to oil palm planting.

Since late 1986, the demand of oil palm crushing mills for palm nuts has surpassed the available supply. This has resulted in more choices for planting companies when selling their produce. Planters also obtain better prices; as a result, minimum-price guarantee contracts between factories and planters become void in practice. (As the price of fresh oil palm nuts in 1986 fluctuated wildly and tended to be very low, many oil palm planting companies entered into guaranteed price contracts with crushing mills.) From the field survey, it was found that oil palm planting companies and individual planters tended to sell their produce outside local areas. Instead of selling to nearby mills,

tion of taxes on the imports of machinery and other particular taxes. (Field survey.)

157. This type of plantation has planting area of over 1,000 rai.

158. Fairly large oil palm-planting companies usually sell their produce to two or more mills in order to gain bargaining power. However, most of these companies are unlikely to make regular sales to more than a few mills in order to maintain their management efficiency. On the contrary, they will be faced with difficulties

many of them sold to mills farther away which offered better prices because of raw material shortages, despite higher transportation cost.¹⁵⁹ At present, oil-palm crushing mills (both small and large) which do not have their own plantations must rely entirely on oil palm planters. These mills therefore seek ways to ensure their supplies of raw material. A popular means used by the mills is to offer "under-the-table" prices to oil palm sellers. Another frequent practice is to purchase raw material through middlemen. (Further discussion below.)

(1.2) Private Business Planters. Up to the end of 1987, the area planted by planters in this category was approximately 172,168 rai, or about 23% of the country's total palm planting area. Private business planters range from those without farm land of their own to those with thousands of rai. Most of them sell their produce independently; only a few of them operate under the contract farming system. Private oil palm planters make up about 15% of the total number of planters in the country. (More details about planters under the CF project discussed below.)

(1.3) Members of settlement cooperative or a self-help settlement. Up to the end of 1987, the area planted by planters of this category was 15% of the total area. However, these planters now make up 83.5% of the total number of oil palm planters in the country. This is because each planter owns only a small plot of land, about 25 rai per

and increased costs if they make sales to too many mills. (Field survey).

159. From the field survey, it was found that mills in Chum Phon Province purchased fresh oil palm nuts fr

family, which is allocated to them by government agencies responsible for the establishment and administration of settlement cooperatives and self-help settlements.¹⁶⁰

According to the field survey, Ao Luk Settlement Cooperative in Krabi Province has the largest oil palm planting area. Members of this cooperative began to grow oil palm in 1980; they obtained credit from the BAAC in the form of cash and production inputs with a total value of 140,000 baht a person.¹⁶¹ The BAAC provided advance money to the members of the cooperative (1,000 baht each per month) during the first 3-4 years to sustain them, pending the yield from their oil palm planting, on the condition that each grow oil palm on at least 20 rai (out of the total 25 rai). The BAAC gave loans to members of the cooperative for investment only during the first four years; after that they had to begin paying back both interest and principal.¹⁶²

According to the loan conditions, members had to sell their produce to the cooperative so that the cooperative could deduct 30% of the sale money to use as partial repayment to the BAAC.

Krabi Province, which is hundreds of Kilometres away.

160. Settlement cooperatives are under the supervision of the Cooperatives Promotion Department, Ministry of Agriculture and Cooperatives; while self-help settlements are under the supervision of the Department of Public Welfare, Ministry of Interior. Members of settlement cooperatives and self-help settlements are poor and landless families from all over the south.

161. There are 1,200 families (5.7 persons per family) in this project, and the total planting area is 29,000 rai (25 rai per family). In 1987 the cooperative produced 32,000 tons of oil palm, which was valued at approximately 69 million baht.

162. The BAAC gave loans to the cooperative with an interest rate of 11% per annum and the cooperative further

However, the rate of repayment was very low, (e.g. in 1986 and 1987, members paid back only 38% and 45% of the debt payments set in the loan conditions) despite the increase of oil palm prices and the fair prices members had received from the cooperative since late 1986.¹⁶³ This was largely due to the fact that many of them did not want their sales revenues to be deducted for loan repayment.

One of the main reasons why members avoided selling their produce to the cooperative was that they did not want their income from the sale to be deducted for payments of their debt to the BAAC. Hence, they tried to make secret sales of oil palm nuts to middlemen who owned shops near the cooperative.¹⁶⁴

The cooperative's inefficient, bureaucratic management is unable to motivate members to sell their produce to the cooperative, because the process of purchasing produce from members and selling it to the mills is very slow. After receiving oil palm nuts from the members, the cooperative delivers them to mills which win the contract to purchase produce from the cooperative. Once a year, the contract is awarded to the mill which offers the most favourable prices and sale conditions to the cooperative.¹⁶⁵ When the time of delivery arrives, conflicts on product quality occur between

lent the money to its members at 14% per annum.

163. From an interview with the headman of Ao Luk Settlement Cooperative, Krabi Province.

164. In an interview with a senior official of Ao Luk Settlement Cooperative, it was found that about 20% of its members had made secret sales with outside agents. Besides buying from members of settlement cooperatives, middlemen buy oil palm from independent planters, both large and small.

165. In late 1987, there were four crushing mills competing for a contract to purchase produce from the

the cooperative and the mill; sometimes, the conflict is so serious that the contract previously made has to be cancelled and a new bidding process carried out.

Another problem of the cooperative is that when BAAC loans are terminated (four years after the beginning of oil palm planting), members have no money to purchase production inputs, especially fertilizer, which are necessary for the increase of oil palm yield. This results in the decline of production efficiency, leading to the production of lower quality oil palm nuts.¹⁶⁶

These lower quality oil palm nuts constitute a problem for the cooperative in dealing with the mill which wins the purchasing contract, since the quality of nuts from the cooperative is normally 10% lower than that of nuts from other plantations. Oil palm nuts from the plantations of the cooperative can give 18% of crude oil, compared to 20% of those from general plantations.¹⁶⁷

(2) Contract Farming (CF) in Oil Palm

A recent study revealed that very little contract farming has been conducted between palm oil crushing mills and oil palm planters. Although mills have tried to ensure their supplies of raw material by making advance purchases with major planters, arrangements have been made only in the form of minimum price guarantees for planters' produce. The period in which mills try to encourage planters to make ad-

cooperative and the winner was Siam Palm Co., Ltd., whose major share holder is UNILEVER.

166. An area of 20 rai is normally fertilized three to four times a year and the cost of fertilizer used each time is 10,000 baht. (According to an interview with the Manager of the Raw Material Department of Siam Palm Co., Ltd., the appropriate rate of fertilizer used per year is 150 kilograms/rai.)

vance sales is between April and June, when most of the produce comes to market and the price of oil palm nuts tends to decline. Mills try to persuade planters to sell their produce by offering them special prices which are slightly higher than the market price. In the meantime, most mills also urge planters to conclude advance sale contracts with them.

(2.1) CF in Khirirat Nikhom District, Surat Thani

From the field survey, it was found that a form of contract farming which fits well with theory has been introduced by a crushing mill in Surat Thani province: Taksin Palm Company.¹⁶⁸ This mill has planted oil palm on an area of about 14,000 rai and plans to expand this to 30,000 rai.¹⁶⁹ It also buys oil palm from large private planters and from minor planters in Khirirat Nikhom district, where it has contracts for advance purchases.

The contract farming has come into existence as a result of the cooperation of three parties.¹⁷⁰ According to the contract, Taksin Palm Company would buy oil palm nuts from planters under the project at a minimum price guaranteed by the company; if the market price was higher than the guaranteed one, the company would buy the produce at the market price.

¹⁶⁷. From an interview with the manager of the raw materials department of Siam Palm Co., Ltd.

¹⁶⁸. This mill can crush 30 tons of oil palm bunches per hour.

¹⁶⁹. At present, raw material from its own plantation supplies 18% of its total demand; the expansion would increase this to 40% of total demand. No further expansion will be made.

The company was also obligated to provide technical services (such as oil palm strains, treatment of oil palm diseases, and the use of fertilizer), transportation services and assistance in making credit arrangements with financial institutions. In most cases, the company acted as the guarantor for 10% of the loan given to each planter.¹⁷¹

The financial institution joining the project was the BAAC, which gave loans to about 220 oil palm planters under the project. Each planter was eligible for a loan of 130,000-160,000 baht for use in his oil palm planting, which is 18-25 rai per household (the total area of the CF project is about 5,000 rai).¹⁷² The credit given to planters was in the form of both cash and farming inputs, such as insecticide, fertilizer, and planting tools. Furthermore, the BAAC paid subsistence money of about 600 baht per month to each planter during the period before oil palm yields began (the first four years after planting).

However, out of the loan target of 44 million baht which the BAAC set for the project, only 23.8 million baht or 54% was realized.¹⁷³ Moreover, only 250 planters of the total 480 obtained credit. An important problem preventing planters from participating in the project to the degree

170. This contract farming project began in 1982.

171. From an interview with Taksin Palm Company's manager and the BAAC's manager, Surat Thani branch.

172. From an interview with the manager and staff of the BAAC, Surat Thani branch.

expected was that some planters lived too far away from the mill, causing administrative inconvenience to both the mill and the BAAC.¹⁷⁴

After the grace period of four years ends, the borrowers have to pay back all principal and interest to the BAAC within 10 years.

Most planters use their land as collateral for their loans from the BAAC. However, Taksin Palm Company helped planters who had insufficient land to guarantee their loans by being a guarantor for them.

In participating in the contract farming project, planters must abide by the following conditions:

(2.1.1) They have to pay the company for land preparation at the price agreed after the joint survey.

(2.1.2) They have to buy oil palm strains from the company at the price agreed upon.

(2.1.3) In maintenance and care of oil palm, they must follow the instructions given by the company.

(2.1.4) They have to sell their fresh oil palm nuts to the company at the market price.

(2.1.5) In each sale, they must allow the company to deduct 30% of their sales revenue for debt payments to the BAAC.

173. From an interview with the manager and staff of the BAAC, Surat Thani branch.

(2.2) Evaluation of the CF Project

Most villagers who joined the first phase of the CF project were former workers of a timber company belonging to owners of the Taksin Palm Company, including local leaders such as Kamnan¹⁷⁵ and village headmen. Therefore, the first group of planters who joined the project already had fairly good relations with the company. With BAAC loans as an attraction, people from other villages then joined the project.¹⁷⁶ The other principal reason (less important than the loans) for their participation was the availability of a new market for their oil palm nuts.

The company provided little technical service for the production of oil palm, although it did hire a Malaysian expert to give advice on planting techniques to planters.¹⁷⁷ At first, there were some communication problems. Planters under the project normally held a meeting on the 25th of every month, but company staff rarely attended the meeting. Those who provided assistance to planters under this project were BAAC-officials; they provided credit to planters in the form of farming inputs. This was a new approach in credit management by the BAAC; it attempted to get farmers who borrow money to use it in accordance with the stated objective. If the farmers fail to comply with the BAAC conditions, the loans are cut off.

¹⁷⁴. Planters in the project must not be more than 50 kilometres away from the mill.

¹⁷⁵. "Kamnan" is the head of "tambon" which is a group of villages.

¹⁷⁶. Field survey.

Giving credit in the form of farming inputs, although it can increase the efficiency of BAAC supervision, still presents some difficulties in administration. Most BAAC officials specialize in lending, not farming techniques. Moreover, their jobs are made to overlap with those of other government agencies, such as the Agricultural Extension Department, Agriculture Department, and Cooperatives Promotion Department.

The fact that the BAAC gives credit in the form of farming inputs has to a certain extent discouraged the development of farmer organizations in Thailand, especially that of agricultural cooperatives, which have had some disagreements with the BAAC. Agricultural cooperatives used to depend on BAAC loans, which they redistributed to their member farmers. Later, the BAAC itself tried to give credit directly to farmers by organizing its own groups of customers, on the condition that members of these groups must not at the same time be members of agricultural cooperatives. This was to prevent the problem of obtaining loans from multiple sources.¹⁷⁸ The BAAC argues that it provides credit, both in cash and in kind, directly to farmers because agricultural cooperatives are inefficient in their credit management, resulting in a large amount of bad debts and accounts receivable.¹⁷⁹ Giving these forms of credit has made the BAAC overlap roles with the agricultural cooperatives, which also sell farming inputs to their member farmers.

177. Field survey.

178. From an interview with a BAAC officer.

In addition to depending on the BAAC, farmers under this project can depend to a large extent on themselves in regard to farming techniques, as most of them used to grow rubber trees (and some still do).¹⁸⁰ The techniques of planting oil palm and rubber trees are similar; after a few years of planting experience, farmers can transfer some of their knowledge of planting and maintenance, as well as of the application of fertilizer and insecticide. According to a recent study, the important determinants of yield per rai are the quality of palm seeds, the amount of water, and, especially, the use of fertilizer. When small farmers are short of funds because of the cancellation of BAAC credit or the decrease of oil palm prices, they will terminate or lessen the use of fertilizer. This can badly affect the yield of their palm.¹⁸¹

Most of the palm nuts grown under this project are sold to the Taksin Palm Mill, which is the closest. However, for farmers, the most important thing to consider in the sale of palm nuts is the price. Whenever the company under this project offers prices lower than those of the market, the farmers avoid selling their produce to the company; they usually sell to middlemen instead.¹⁸² Alternatively, some load their produce on trucks to sell to crushing mills in Chumphon Province.¹⁸³

179. This can be seen, for instance, from the case of Ao Luk Settlement Cooperative.

180. According to a field survey, most farmers under this project have other jobs such as animal raising and growing other crops, such as rubber trees and fruit trees.

181. Field survey.

182. According to a field survey, some farmers may invite outsiders to buy the produce at their plantations to

That the price is such an important factor in farmers' selling decisions has discouraged other crushing mills from formally promoting the contract farming system. If they promote palm production by farmers under the project (giving credit, farming inputs, technical services, etc.), they still have to buy the palm nuts at market prices, or the farmers will sell to other buyers. For this reason, crushing mills have to find means to ensure a supply of raw material for themselves, either by setting up their own plantations or by making advance purchases, with a provision of guaranteed minimum prices, from planters who are their regular customers. Besides, the middleman system has expanded. When the mills run short of raw material, they must turn to middlemen. Normally, middlemen are local people and familiar with the farmers; they can use both price and non-price incentives to persuade farmers to sell their palm nuts from farmers at a price slightly higher than that of the market, and may be less strict in grading. Middlemen may also build patron-client relationships with their regular farmer clients; they will frequently visit plantations, give small gifts, and provide assistance whenever possible.¹⁸⁴

It was learned from the survey that those mills which have no plantations of their own buy palm nuts mostly through middlemen (by offering prices slightly higher

increase their bargaining power.

183. These are mostly small factories which used to refine copra before.

184. According to an interview, middlemen try to avoid giving credit or loans to farmers, because when farmers are in debt, they tend to sell their produce to others to avoid deductions from their sale revenue to repay the debts.

than the market price or by paying for transportation fees, etc.). Some mills even hire employees to build a relationship with farmers; these employees periodically visit farmers to persuade them to sell their produce to the mill. They also give advice to farmers on how to take care of the palm trees, to strengthen the acquaintance as well as to collect information on palm production for use in the determination of buying prices.

For the above reasons, the formal CF system does not have much of a role to play. At present, the area under the CF system is less than 1% of the total palm planting area.¹⁸⁵

Large palm plantations operated by companies, which presently account for 60% of total palm planting area, will likely expand further in the future, as the Government has allowed the use of forests which used to be national reserves for palm planting. Those who have "access" to the government agencies concerned and can secure concessions for the use of such large pieces of land are major businessmen who already own large plantations. At present, small farmers who are poor, local people can legally own land only through membership in settlement cooperatives and self-help settlements, but there is unlikely to be more expansion of such settlements.

(2.4) Other Causes of the Problems in the Oil Palm Contract Farming System

185. The total CF area in Surat Thani operated through the cooperation of the BAAC, Taksin Palm Company, and some farmers is about 5,000 rai, while in 1987 the total palm planting area in the country was over 600,000 rai.

(2.4.1) Complexity of the Market Structure: In the past, the oil palm and palm oil market systems were changing constantly and very confusing. This was caused by the complexity of the market structure, which resulted from the following factors:

(2.4.1.1) There are several sizes of oil palm planters, ranging from those with large plantations to those with only a few rai. Plantations may be owned by crushing mills or independent planters, who may operate in the forms of both legal entities and individual proprietors.

Planters (especially those with large plantations) have close links with crushing mills.¹⁸⁶ This is not only because most crushing mills have their own plantations, but also because both planters and mills compete in doing business with palm oil refineries.

In 1988, oil palm planters (large plantation owners) and crushing mills joined hands in setting up the Oil Palm and Palm Oil Association of Thailand. At present the Association plays an active role in protecting its members' interests (as further discussed below). The Association's Executive Committee is working to persuade small palm planters to also be members of the Association, since the more members the Association has, the more bargaining power it has.¹⁸⁷

186. Most crushing mills are located in the palm planting area, as oil palm products are perishable, requiring speedy delivery to the mills.

187. From an interview with the President of the Oil Palm and Palm oil Association of Thailand.

(2.4.1.2) Crushing mills are of both small and large size; they compete with one another in procuring raw material from planters.¹⁸⁸ Small mills are often in conflict with large plantations, as the latter's large work force and work means difficulty in preventing theft by both workers and outsiders. The stolen palm nuts are sold to the small crushing mills.¹⁸⁹

(2.4.1.3) Middlemen cooperate closely with small and medium-sized oil palm planters, whose produce they collect to sell to crushing mills, while offering prices equal to or greater than the market. Crushing mills which do not have their own plantations rely heavily on middlemen. Large planters and crushing mills which have their own plantations dislike middleman, because they are the outlets for palm nuts stolen from them. These outlets in effect enhance the bargaining power of palm planters (especially small and medium-sized ones), while depriving the crushing mills of some of their benefits.

(2.4.1.4) Palm oil refineries have the most complicated marketing structure; this can be considered on both demand and supply sides.

188. Normally, small crushing mills buy off-bunch oil palm nuts as raw material and offer better prices than those of large mills. Small mills are able to operate at lower costs because they use simple production techniques and operate closer to their capacity than large ones, resulting in a lower unit cost of production.

189. Discussions of oil palm plantation owners at a seminar on 'The Prospect of the Development of Contract Market for Oil Palm' organized by the Domestic Trade Department in Muang District, Krabi Province on 16 June 1988.

The demand side: Before imposing controls on palm oil imports to protect the domestic palm oil industry in 1982, palm oil refineries preferred to order crude palm oil from Malaysia.¹⁹⁰ As the price of imported oil was much lower than that of the domestic product, refineries tried to convince the government to relax the import control. This often resulted in a conflict between crushing mills and planters. The conflict was apparent in early 1987, when the refineries submitted their requests for the importation of crude palm oil to the Ministry of Commerce, claiming that the policy of banning palm oil imports announced in late 1986 had made the price of domestic crude palm oil soar so high that it was unbearable for the refineries. The Minister of Commerce was at first in favour of the request for palm oil imports,¹⁹¹ but the move was later strongly opposed by the planters and crushing mills, who sought assistance from Members of Parliament from the south (the most important oil palm producing region), most of whom belong to the Democrat Party.

These Members of Parliament then lobbied for assistance through Mr. Prachuap Chaiyasan, the then Deputy Minister of Commerce. This led to a serious conflict between the Minister of Commerce and his Deputy. After

190. Despite the existence of the policy to control palm oil imports since 1982, smuggling of palm oil from Malaysia has continued.

191. The then Minister of Commerce was Mr. Montri Phongphanich of the Social Action Party. It is notable that this political party is supported by national-level capitalists, including those in the palm oil refinery business and industries which use palm oil products.

several months the planters and oil crushing mills won the palm oil war; the Ministry of Commerce resumed the policy of banning palm oil imports.¹⁹²

The palm oil import ban pushed the price of fresh oil palm nuts up to 5 baht/kilogram in January 1988, which was the highest price ever.¹⁹³

As a result, palm oil users then voiced their problems to government authorities. Finally, after the Thai Prime Minister negotiated with his Malaysian counterpart in Chiangmai in late February 1988, the Government agreed to relax its policy, allowing the import of 5,000 tons of palm oil from Malaysia. This caused the domestic prices of fresh palm nuts and palm oil to decrease rapidly, sparking strong opposition from palm planters and crushing mills. Since then, the Government has not allowed any import of palm oil.

The supply side: There are at least 200 industries using palm oil products, both for direct consumption¹⁹⁴ and the production of cosmetics (soap, shampoo, skin lotion, etc.).

192. This incident led to the establishment of an association to protect the interests of palm planters and crushing mills in early 1988.

193. In that same period, the price of crude palm oil and pure palm oil (edible) went up to 23 baht and 29 baht per litre respectively, while the Ministry of Commerce had a policy of controlling the price of crude palm oil at not more than 13 baht per litre and the price of pure palm oil at not more than 30 baht per litre.

194. The market share of palm oil is 40% of total cooking oil.

After the ban on palm oil import in 1987, UNILEVER, a multinational company and the largest cosmetics producer in Thailand, entered into a joint venture with one of the most prominent businessmen in the palm oil industry to open a palm plantation and a crushing mill.¹⁹⁵

Employing experts from UNILEVER plantations in Malaysia to give advice on production techniques, the plantation has a total area of about 30,000 rai. The crushing mill, named "Siam Palm Company Limited", is located in Ao Luk district, Krabi province.¹⁹⁶

At present, the company can produce about 60,000 tons of crude palm oil per year, or about 60% of the mill's full capacity.¹⁹⁷

At first, the company offered oil palm planters credits in the form of farming inputs such as fertilizer. After the harvest, however, the planters sold their produce to other buyers. At present, no credit is given.

Most of the workers employed by the plantation and the mill are from various province in the south; most of the rest are from the northeast. Most of them are also employed on a temporary basis. According to the

¹⁹⁵. UNILEVER holds 51% of the mill's capital and the rest is held by the Vanich family.

¹⁹⁶. This crushing mill receives 40 - 50% of its raw material from its own plantation; the rest is purchased from other planters.

¹⁹⁷. From an interview with the Manager of the Raw Material Department of the Siam Pala Company.

field survey, the plantation and the mill do not have serious labour supply problems. The daily wage rate for a worker in the plantation is 50-60 baht.

Besides the trading partners mentioned above, palm oil refineries also have competitors in both the cooking oil and palm oil products markets. For cooking oil, major competitors include soybeans, rice bran, kapok seed, and others. The competing parties each try to increase their market shares, using both price and non-price tactics.

In 1987, palm oil and soybeans competed strongly through non-price tactics in the cooking oil market. The companies selling both products employed advertising agencies to launch campaigns in the mass media charging that the products of the other were hazardous to the health of consumers. For example, the soybean oil producers charged that palm oil had high saturated acids which cause high cholesterol levels in the blood, while the palm oil producers denied this and counter-charged that soybean oil had aflatoxin content, which can cause cancer.

Because of the complexity of their market systems, the prices of fresh oil palm nuts and oil palm products have fluctuated greatly; this is not conducive to the development of the contract farming system.

(2.5) Guidelines for the Development of Contract Farming in Oil Palm Planting.

A number of oil palm planters and crushing mills are of the opinion that the CF system will benefit the marketing of palm oil and the palm oil industry as a whole, because the present system is confusing, uncertain and increasingly costly to all parties concerned.¹⁹⁸

They have asserted that, if the development of CF is to materialize, the following policies and procedures must be established:¹⁹⁹

(2.5.1) A lasting policy has to be set for the importation of palm oil. In the past, when the Government allowed imports, the prices of domestic oil palm nuts and palm oil products were immediately affected. This would also affect the CF system. Some large plantation owners have proposed that the Government ban oil imports for three to five years, so that oil palm plantations and palm oil industries in the country can develop and become firmly established.

(2.5.2) Contract markets between the palm oil refineries and the crushing mills must first be systematically developed, so that the latter can effectively develop the CF system with planters.

¹⁹⁸. Transportation costs are unnecessarily high in the present system, where planters transport their produce to mills farther away. The transportation cost is sometimes 20-30% of the final sale price. (Field survey)

¹⁹⁹. Opinion of the marketing manager of the Yoo Vanich Group of Companies expressed at the Seminar on the Prospect for the Development of the Contract Market of Oil Palm, organized by the Domestic Trade Department in Muang District, Krabi Province on 16 June 1988.

(2.5.3) There should be an organization of oil palm planters and crushing mills so that they can effectively control and supervise the CF system.

(2.5.4) Arbitrators or "judges" should be appointed to settle disagreements with regard to the quality and prices of oil palm nuts.²⁰⁰

(2.5.5) Advance markets must be developed both for the sale of oil palm nuts by planters to crushing mills and the sale of crude palm oil by crushing mills to refineries.²⁰¹

(2.5.6) Some other parties need to share the risks of both planters and crushing mills during times of price fluctuations, natural disasters or the spread of diseases. These parties can be speculators and insurance companies.

(2.5.7) Rules and regulations in the contract farming system should not be too rigid, as the buyer (mills) may be too strict in screening the contracting party (planters); this may make it difficult to implement the rules and regulations, leading to violation of contracts. For example, instead of setting a fixed price, the volume to be

200. In our opinion, however, this recommendation is not so practical as it would be very difficult, if not impossible, to find such arbitrators or judges to carry out the task efficiently and fairly to all parties.

201. It would not be realistic, however, to set up advance markets for farmers before harvest because the great number of farmers involved will make it difficult to manage such markets efficiently.

purchased by the contracting mill should be set; when set prices are too different from those of the market, breaches of contract may occur.

(d) Asparagus

(1) General Condition of Asparagus Farmers

According to our field survey, farmers allot only two to three rai of their land for asparagus growing on average, much less than that for other cash crops. This is due to the fact that investment for asparagus farming is high. The money required per rai is about 7,000 baht/rai for the first year and 12,000 baht/rai in later years. Asparagus farming is also a labour intensive venture, requiring at least one worker per rai.²⁰² Harvest season is the period which requires the most workers, and harvesting has to be done every day; otherwise full-grown shoots will bloom and be rejected by buyers. Farmers can pick asparagus shoots only from 6.00 a.m. to 12.00 a.m.; otherwise it will be too late to transport the produce to the market.²⁰³

(2) Returns from Asparagus Farming.

The survey showed that on average each asparagus farmer earns between 16,000 and 18,000 baht/rai per year.²⁰⁴ Those who are within the contract market system earn slightly more than those who are not.²⁰⁵ After deducting the cost of

202. Field survey.

203. Field survey.

204. Field survey.

205. The Taniyama Co., the purchaser under the contract system paid 40 baht/kilogram for grade A shoot, with the length required for each shoot being 10 inches, while middlemen will pay baht 30/kilogram but the required length is 12 inches. (Field survey.)

investment (about baht 10,000. per rai/year), those who grow asparagus on two to three rai of land earn between 34,000 and 51,000 baht per year. This is quite high considering the small amount of land required.

(3) Marketing Patterns

(3.1) Market

Parties playing an important role in the asparagus market are the following:-

(3.1.1) **Farmers:** Characteristics of asparagus trading depend largely on the types of buyers who may be local middlemen or collectors, farmers, institutions, or exporters.

(3.1.2) **Local middlemen or collectors:** Collectors are the main purchasers of asparagus, especially in the Kui Buri District of Prachuap Khiri Khan Province, where the asparagus farming area amounts to half of the country's total asparagus area. There are approximately fifteen middlemen operating in the district. Almost all of them started their business on a part-time basis. They are mostly government officials, teachers, land owners, village headmen, and truck owners.

The majority of the middlemen have between 20 and 50 farmer clients.²⁰⁶ Each employs a patron-client relationship system with his/her clients, visiting

206. Field survey.

their clients regularly and providing them with interest-free loans. The amount of money loaned is between 1,000 and 5,000 baht per case. The client farmers can use the money for farming or for personal purposes. However, the price paid for asparagus of farmers who are heavily indebted to the middlemen will be reduced by 1-2 baht/kilogram (5-10% of the normal price).²⁰⁷

Asparagus is locally collected and then sent on to wholesalers in Bangkok. Here again, a patron-client relationship is established. The wholesalers in Bangkok provide advance money to the local middlemen; these loans can in some cases exceed 100,000 baht.²⁰⁸ Such close relationships also lead to greater flexibility in regard to produce grading; middlemen who are the wholesalers' regular clients also usually receive better prices than do walk-in produce sellers.²⁰⁹

(3.1.3) Wholesalers in Bangkok. Bangkok wholesalers mostly do their business at Pakklong Talad. There are six or seven asparagus wholesalers in Bangkok. Upon receiving the produce, they sell it to distributors who supply domestic markets, hotels, restaurants and exporters.

207. Field survey.

208. Field survey.

209. Field survey.

(3.1.4) Export companies. Export companies can be divided into two categories: those who buy from wholesalers at Pakklong Talad, and those who buy directly from farmers with whom they have contracts. Prices are guaranteed in the latter case, but no credit either in cash or in kind is extended to farmers. Companies also provide no technical services to their farmer clients. The Taniyama Thailand Limited, a Japanese concern, is an example of these companies.

(3.2) Contract Market System

Two years ago, the Taniyama tried hard to recruit asparagus farmers living in Kui Buri, the country's most important producing area to join in their guaranteed price scheme, offering attractive prices and more flexible grading methods. At first, they bought grade A shoots at 38 baht/kilogram. The best that local dealers could offer at that time for shoots of the same quality was 28 - 30 baht/kilogram. The Taniyama, however, did not actually offer better prices than local dealers because their grading methods in fact were stricter. They would accept only shoots which were 10 inches long, while local dealers would accept shoots up to 12 inches long.²¹⁰

Apart from offering farmers guaranteed prices, the Taniyama tried to reach more asparagus farmers through brokers. The brokers, whose assignment was to recruit

210. The Taniyama, nevertheless, should be regarded as a contributor to the asparagus industry. The market became more competitive after its entrance. Prior to that, the market was entirely dependent on local dealers, who could freely set prices much lower than those set by the Taniyama.

farmers for contract market, were remunerated by either monthly salary or commission (1 baht/kilogram, for example).²¹¹

At first, the Taniyama was very popular. Many farmers signed contracts with the company because of the more attractive prices it offered. Later on, farmers began to feel that the company's offer was in fact not so generous because it was very strict in regard to quality grading and shoot length. Shoots had to be at least 20% shorter than the length accepted by local dealers; this obviously made shoots lighter at sale.²¹² Another problem was with payment. The company made payment by cheque, causing inconvenience to farmers since the majority of them were unfamiliar with bank services.

Another point worth noting here is that the Taniyama introduced a rather formal relationship to farmers, at a time when farmers were used to the patron-client relationship system in which they always knew who to turn to when they needed interest-free loans.²¹³

Another problem the Taniyama was unable to deal with was how to force their clients to honour their contracts when the market price for asparagus was higher than the guaranteed price. When the market price was high,

²¹¹. Field survey.

²¹². The company's criteria were even stricter when they obtained more asparagus which caused some farmers to return to their old local dealers.

²¹³. Interest-free loans were a compensation for low prices and strict grading.

farmers would secretly sell their produce to local dealers. By contrast, when the market price was lower than the guaranteed price, shoots from both farmers and local dealers would find their way to the company.

This last problem caused the Taniyama to finally withdraw from Kui Buri district, claiming that shoots in the area were of low quality, with a high level of unacceptable residues.²¹⁴

Having learned a lesson, the Taniyama later adopted new tactics. Instead of direct contract market dealing with the farmers, the company made an indirect approach through local authorities, usually district officers and district agriculture officials, for recruiting contract market members. Areas selected for this approach were those in which the asparagus market had never been introduced.²¹⁵ This approach helped the company to do away with the problem of competition. For easier supervision,²¹⁶ all persons promoting asparagus urged the farmers to form themselves into groups (Details of this are located in "Roles of the 4 Section Cooperation Plan to Develop Agriculture and Agricultural Industry" in Appendix B.)

214. Field survey.

215. Location surveyed: Bang Len District, Nakhon Pathom Province.

216. The company also employed people to work at farming locations to give advice to farmers, check their yields, and act as financial clerks.

After the guaranteed price system was introduced by the Taniyama, hundreds of farmers turned to asparagus because of its profitability. On average, each family grew asparagus on a plot of 2-3 rai.²¹⁷

Just as in Kui Buri district, the Taniyama was at first very flexible with farmers regarding grading and pricing, in order to encourage farmers to work with the company.²¹⁸ When the supply of asparagus became sufficient, however, the company began to apply stricter grading criteria. This led to disputes between farmers and company employees. The latter usually claimed that they were only implementing company policy. It should be noted that the company, with its head office in Bangkok, had formerly dispatched their representatives to meetings between farmers and the company. When these disputes occurred, however, the company stopped sending representatives to the meetings.²¹⁹ Dissatisfied with the company, the farmers increased their complaints. Some of them openly declared that they would nullify their contracts if the situation is not corrected.

217. A shortage of labourers was the main reason why farmers restricted their asparagus farming area to a few rai of land. They had to rely entirely on their own family members for labour. Hiring causes problems since labourers are needed only between 6.00 a.m. and 12.00 a.m. During the harvest season, the labourers hired are paid only about half of a full day's wage (40 - 50 baht), which is unattractive for them. Besides, if the labourers are recruited from outside the local area, there is also the problem of food and lodging for them. In addition, farmers do not have much confidence in the future of asparagus. They therefore feel that it is not worth hiring outsiders permanently. According to the field survey, those who used to grow up to 20 rai of asparagus had to gradually decrease the area to the point where their own family members could manage.

218. Guaranteed prices of the company for A+, A, B+, B and C were 40, 30, 26, 21, and 6 baht respectively (an average of 28 baht/kilogram).

219. Survey period, August-September, 1988.

During the survey period, local dealers seemed to play an increasing role in asparagus buying activities. These dealers obtained advance money from wholesalers in Bangkok and lent the money to farmers. Nearly half of the local produce was already in the hands of local dealers; the rest was left for the Taniyama.²²⁰ There seemed to be a high possibility that farmers who were members of the company's contract market project would return to local dealers, and hence to the old patron-client relationships.

It was also learned from the field survey that the company priced grade A+ (or AL) shoots as much as 10 baht.²²¹ higher than grade A, and that grade AL asparagus accounted for about 26% of the shoots produced by each family, whereas the quantity of grade A shoots was about 32%. Should the company lower grade AL to A, contract farmers would receive less from the company for shoots of grade A quality, than they would from local dealers, although the dealers offered them only 30 baht/kilogram. This is because farmers could sell 12-inch shoots to local dealers, 20% longer than the company's limit.

The Taniyama is now in the process of constructing cold storage facilities for asparagus at Tambon Lan Kha, Nakhon Pathom, with an aim to promote asparagus farming within a radius of 150 kilometres. Provinces within this

220. At Bang Len District, Nakhon Pathom province, 100 out of 230 members of contract market projects sold their asparagus to about ten local dealers at 30 baht/kilogram for shoots of grade A quality (12 inches in length). The net price offered by local dealers was only slightly lower than the Taniyama prices.

221. Grade AL = 40 baht/kilogram, Grade A = 30 baht/kilogram.

radius are Nakhon Pathom, Ratchaburi and Pathum Thani. The cold storage plant costs 20 million baht and its capacity is 10 tons/day.

Upon receipt of asparagus, the Taniyama grades it, selecting the best quality shoots (less than 20% of the total is classified best quality) for export to Japan. Shoots of lower quality will be exported to other destinations such as Hong Kong and Singapore, or sold to local. One such company is the Krati Chao Koh Company. It should be noted here that the Taniyama initially expected to buy up to 50 tons of asparagus per day. At present, however, the company can procure less than 5% of the requirement.

(3.3) Marketing Channels

(3.3.1) The Channel for Green Shoots. Green asparagus amounts to about 90% of the total output; the other 10% is white. 78% of the country's total asparagus output is sold to local dealers, who in turn sell it to wholesalers in Bangkok; 15% is sold to the Taniyama, which is an exporting company, and the rest to an agricultural cooperative (at Hoop Ka Pong, in Phetchaburi province, which is also an important asparagus farming area).

(3.3.2) The Channel for White Shoots. All white asparagus is sold to the canneries which promote asparagus farming. It should be noted that most white asparagus is grown on the canneries' own plantations, especially in Rayong and Chon buri provinces, which produce more canned asparagus than any other regions in the country. White asparagus is grown in insignificant amounts compared to the country's total asparagus production.

(3.4) Trading Procedures:

(3.4.1) The procedures adopted by local dealers

(3.4.1.1) Purchasing. In most cases, dealers set up collection points in areas where asparagus is produced. These collection points may be in their own houses or in shacks set up on roadsides. Farmers bring their produce in paper boxes to the collection points, using their own bicycles or motorcycles for transport.

Trading time is usually from 8.30 a.m. to 11.30 a.m., when farmers have just finished their daily reaping activities; the weather is not yet too warm and the asparagus is still fresh. The quantity purchased depends largely on the volume each dealer can handle. The largest dealers in the district may buy up to two tons per day during the peak season. In general, however, each dealer buys 300-500 kilograms per day.²²²

There are two major groups of asparagus buyers: exporters (such as the Taniyama) who buy asparagus directly from farmers and local dealers who collect the produce from farmers and supply to exporters in Bangkok.

(3.4.1.2) Grading. Shoots have been separated into different categories by farmers before they arrive at the collection points. They are separated into grades A, B, and C; each shoot is 12 inches long.

Immediately after asparagus arrives at the collection points, dealers re-grade the shoots. The regrading can handsomely benefit the dealers since asparagus, like most agricultural produce, is not homogeneous. It comes in different sizes and forms. As the majority of farmers are regular clients of local dealers, with long-term patron-client relationships, they are often willing to accept the re-grading without making any serious complaints. During the low production period (November - January), dealers must compete with one another, and they are understandably more generous in their grading. But in the peak season (February - May), they are much less flexible; it is in this period that they gain most of their profit. Farmers usually have less bargaining power during the peak period, because asparagus is highly perishable; it cannot be kept at the farm after harvest for more than one day.

(3.4.1.3) Pricing: In the past, local dealers contacted wholesale dealers by telephone on a daily basis. The information obtained was used in determining the prices they would pay to farmers. Now that the number of local dealers has increased, they all price asparagus at a more or less the same level. Pricing is based largely on market prices in Bangkok. Local dealers are generally better informed of price movements than farmers. Besides information obtained by telephone, they also receive written information from wholesalers in Bangkok; this is conveyed to them by truck drivers. Easy access to information is extremely valuable to local dealers, especially when the price

of asparagus fluctuates. Farmers are much less informed, obtaining information only from local dealers of their neighbours.²²³

(3.4.1.4) Payment: In most cases, local dealers pay their clients seven to fourteen days after the purchase.²²⁴

(3.4.2) Selling Procedures

(3.4.2.1) Selling Procedures Adopted by Local Dealers :

- Packaging. After asparagus is graded, it is packed in paper boxes or plastic baskets. The average weight is 40 kilograms per container.

- Transportation. Local dealers must dispatch their goods to wholesale destinations on the day the purchase is made; otherwise the quality of the asparagus will deteriorate. If it is kept in cold storage, it can be held longer. By 12.00 a.m.-1.00 p.m., the asparagus has left Kui Buri; it reaches Pakklong Talad by 4.00-5.00 p.m. everyday. Transportation charge is approximately 30 baht per container.

Adopted By Wholesalers :

Wholesale dealers at Pakklong Talad play an important role in the pricing of asparagus, especially during the peak period. Local dealers, particularly those with few contacts, are in a disadvantageous position. Each local dealer sends his goods to his regular wholesale dealers in Bangkok. Between the local dealers and Bangkok wholesalers, there also exists a patron-client relationship; wholesalers advance money to their clients, the local dealers, who in turn lend it to their farmer clients to ensure that they will be regularly supplied with asparagus. This system enables the wholesalers to plan their marketing activities more efficiently.

The majority of wholesalers at Pakklong Talad sell their asparagus at their shophouses. They organize shoots according to grades and weights. Their clients are exporters, restaurants, hotels, supermarkets and market retailers.

For exporters, shoots must be arranged in accordance with the requirements specified in the export order. For example, shoots for the Singapore market must be cut to only seven or eight inches long and they must be of grades A and B. For Brunei, the required length is eight inches and grade C shoots are preferred, but all shoots must be of the same length. For Malaysia, the preferred length is twelve inches.

(3.4.2.3) Procedures Adopted by the
Exporting Company (Taniyama)

Produce purchased by the Taniyama mostly comes from farmers under contracts made through farmers' groups. Each group provides the company with a list of the names of its participants. When buying asparagus, the company sends its employees to buying points by refrigerated trucks, which reach these points between 8.00 a.m. and 11.00 a.m.. After the shoots are collected, they are taken to the cold storage centre for packaging.

In purchasing asparagus, the company gives special attention to the quality of the shoots, especially those of grades A and B; all must be 10 inches long, straight, firm at the tips, and not blooming.

In practice, however, the company also buys shoots of lower quality for local consumption, because of the limited amount of high quality produce. The company makes payment through the BAAC, seven to ten days after each purchase.

At present, only 15-20% of the shoots purchased meet export standards.

Apart from the Taniyama, there are at present about 12 exporters of green shoots; these buy asparagus from Pakklong Talad. Some of the wholesalers also export produce themselves.

(4) A preliminary study of the implementation of the asparagus production project under the Four-Sector Cooperation Plan.²²⁵

Up to the end of 1988, asparagus farming under the programme was still far below the target figure.²²⁶ Furthermore, the Taniyama has cancelled buying projects in many locations, especially in Kui Buri, the country's largest asparagus producing district. The company has now focused its attention on regions west and north of Bangkok, which are less than 150 kilometres from its cold storage plant at Banglen. These areas include Banglen and Sampran Districts of Nakhon Pathom Province, Lad Bualuang, Sena and Muang Districts of Ayudhya Province.²²⁷

From the preliminary study, problems are summarized as follows:

(4.1) Farmers still use traditional farming methods in production; new technology is rarely used and no advice is given by the public and private agencies concerned (including the participating companies).²²⁸

It should be noted that overlapping of responsibilities has occurred between the various government agencies implementing the programme, resulting in confusion and inefficiency.

From the field survey, it was found that asparagus farmers are often faced with the problem of fungus disease; this is a cause of constant concern to them. They fail however, to bring this matter to the attention of local authorities or other participating agencies.

The lack of technical farming services has brought about problems concerning quality and grading, creating a series of disputes between farmers and the company.²²⁹

(4.2) It became obvious that the credit extended to farmers by the bank (BAAC) is much less than the quantity supposedly available. In most cases, the ceiling set for farmer loans is 10,000 baht per person, and the loans must be guaranteed by BAAC client groups. Even at Kui Buri, which is the most important district for asparagus production, only ten to twenty farmers are BAAC clients.²³⁰ Therefore, when farmers are short of funds, they have only two alternatives. One is to borrow money from local financiers, who offer loans with interest rates of 5% per month (the BAAC charges its clients about 1% per month).²³¹ The other is to

borrow from local dealers, and accept the obligation to sell produce to them during the harvest season. The latter is basically a return to the patron-client system.

(4.3) Problems on the farmers side: At the beginning of the project, farmers were encouraged to grow asparagus only as a supplementary cash crop for extra income. They therefore paid less attention to the farming of this crop, particularly since the prices of other cash crops were at that time more rewarding.²³²

(4.4) Problems on the company's side: The company is not really interested in making long-term contracts with farmers, as can be seen from the fact that it provides no credit or technical services of any kind. The only offer they make to farmers is the price guarantee.

The tactic the company used for recruiting farmers in the beginning was the flexible grading standard. The standard became less flexible as the number of participants increased and the farming went well. This practice caused numerous disputes between the company and the farmers, eventually forcing the company to cancel their projects in several areas. The same situation is likely to occur in Banglen as well.²³³

(4.5) Problems related to grading: Once problems concerning grading erupt, quick resolutions are unusual, both because of the non-homogeneous nature of the produce and because the company and the relevant government agencies consistently adopt indifferent attitudes toward the disputes.²³⁴

That the company has adopted such an attitude might be attributed to the fact that wide new areas for asparagus are now available because of recent government promotion, and that the company did not have much fixed investment in the project. Its facilities (cold storage, tractors, and trucks) are movable assets; they can be moved to other places at any time. On the contrary, farmers must be committed to their farms for at least four years after they begin planting.²³⁵

(4.6) Contracting. Although written contracts are made between the parties involved (i.e., the farmers and the company), neither party seems to be unduly concerned when the contracts are breached. No cases of breach of contract have ever been brought to court. Once a contract is violated, it is normally deemed terminated by both parties.

APPENDIX B

The Four-Sector Cooperation Plan to Develop Agriculture and Agro-Industry

Background

The Government, through Joint Public and Private Sectors Consultative Committee which was established to address economic problems, has clearly indicated in its policy statement that it would strengthen cooperation between the two sectors. In response to the said policy, the Ministry of Agriculture and Cooperatives, through the Agriculture and Cooperative Development Policy and Plans Committee set up a subcommittee to coordinate cooperation of agricultural development activities between the government and private sectors on December 17, 1986. The subcommittee was empowered to consider, approve, and promote agricultural development projects put forward by individual parties as well as to lay down formats, regulations, criteria, and other conditions for the cooperation on matters relating to government services, credits, etc.

Resolutions reached and agreed upon by the Subcommittee, are essentially as follows:

1. In order to ensure fair agreement made between private firms and farmers, it is agreed that contract farming be encouraged with the Government, acting as a coordinator.

2. Private firms involved are to supply their contract farmers with seeds, and fertilizers. The Government will intervene only when it is extremely necessary.

3. The Ministry of Agriculture and Cooperatives is authorized to borrow a total of 100 million baht from the Farmers Welfare Fund, under the Productivity and Food Project sponsored by the Japanese government, to assist farmers. The money will be channelled through local financial institutions which participate in the project, as compensation for the loss incurred to them because of the low interest rates they offer to farmers.

4. The Ministry of Agriculture and Cooperatives is authorized to borrow an additional loan of 150 million baht from the same source. This interest-free loan is to be deposited in a fixed account with the BAAC as for a period of 5 years. Interests gained will be used as a compensation for the banks which charge low interests on loans granted to participating farmers.

5. A committee is appointed to be responsible for fostering coordination between the government and private sector (by Approval of the Cabinet on November 24, 1987), based on the following justifications.

5.1 The scope of work was expanded and has involved several ministries. It is therefore necessary to set up a new committee to replace the sub-committee originally set up under the jurisdiction of the Ministry of Agriculture and Cooperatives.

5.2 To create confidence among those who participate in the project, namely farmers, financial institutions, private companies, including investors from abroad that the project is a continuous one.

5.3 To increase the role of the Government in giving more assistance to private firms and farmers in the form of technical know-how, credit and capital equipment including transportation and marketing of products and to harmonize the tasks of various government agencies concerned.

Direction for Coordination

1. Farmers must join in projects initiated by private companies on a voluntary basis;

2. Project initiated by private firms must provide participating farmers with opportunities to increase their income. The project initiator must have definite production and marketing plans which aim to ensure regular incomes of participating farmers.

3. The participating farmers must not lose property rights over their own land or lose the right to earn their living over their land to the private sector and are entitled to all assets, amenities accorded them by the Government.

4. The private firms will cooperate with the government in providing credit to farmers, as well as finding for them capital equipment of good quality at reasonable prices. Both sectors are to jointly and equally responsible for losses due to natural disasters such as flooding, and drought aridity, which may cause damage to produce, credit or capital equipment.

5. Participating private companies must have credibility in terms of marketing and other services relating to marketing so that farmers can trust in them.

6. The private sector in cooperation with the government sector will continuously introduce to the farmers new farming techniques, until the project is completed.

7. Projects initiated must not adversely affect the right of other farmers in adjacent areas in their using of facilities the government has provided for them.

8. The private firms should encourage participating farmers to form themselves into groups.

9. Projects initiated by the private sector must not be monopolistic by nature. The projects should, instead, encourage free and fair competition among private firms themselves.

10. Projects initiated by the private sector must provide the participants with a working guidance in how to run them, how to utilize the yields to further expand the agro-industry, and create employment opportunities among farmers and local people.

Roles of the Government Sector

1. Supporting and providing necessary farming inputs at reasonable prices for the farmers participating in the project.

2. Providing training for participating farmers.

3. Securing funds necessary for the project, allocating them to financial institutions and/or private companies, to enable them to offer low-interest loans to farmers.

• 4. Supporting the private sector, helping them create joint experimental plots for a thorough study and demonstration of farming techniques to farmers prior to fully implementing the project

5. Finding water resources within and without the established irrigation systems, appropriate to local requirements.

6. Joining private sectors in determining areas suitable for projects; selecting interested farmers; supporting the formation of farmers organizations in accordance with the Government's policy to reduce over-produced cash crops.

7. Launching public relations campaigns, advising farmers of their roles and the benefits they should receive from participation; providing them with relevant information and data.

8. Helping both sides (private firms/farmers) arrange for contractual agreements, supervising and monitoring them to see if both sides comply with their contracts.

9. Providing standard control services; examining the quality of shoots, certifying them and setting standards for agricultural produces including quality control of seeds and other inputs.

10. Granting privileges to attract private firms to invest in promoted areas. The privileges include rights to utilize land in deteriorated forests, tax exemption, which is a promotional instrument under the existing laws.

11. Joining private firms and other parties concerned with the project in planning, production, marketing, finding sources of funds, analyzing and evaluating the projects.

Roles of the financial Institutions

1. Coordinating with government agencies and private firms in determining locations for farming and selecting farmers wishing to participate in the project.

2. Providing farmers, or farmer groups with credit facilities, either in cash or in kind.

3. Cooperating with government agencies and private firms in administration matters and in implementing the projects to ensure that they are carried out efficiently and in accordance with the aims originally set.

Roles of the Participating Farmers

1. Forming into groups to create bodies for project implementation.

2. Cooperating with all agencies involved with the projects.

3. Ensuring that production, in terms of both quantity and quality, is in line with the plan and strictly conforms with conditions agreed upon.

Commodities to be Promoted under the Cooperation Plan

1. For import substitution : Dairy cows, paper pulp, wheat, barley, fast growing trees, cotton, oil palm, cocoa and silk.

2. For exporting: vegetables, fruits, flowers, artificial flowers, rice, beef cattle, goat, lamb, swine, chickens, cashew nuts, fishes, herbs, pepper, wax, honey, vegetable seeds.

The Joint Administration Organization

To run the project smoothly, a coordination centre was established at the Office of Agricultural Economics of the Ministry of Agriculture and Cooperatives. The centre is to coordinate agricultural development programmes with the private sector.

Expected Benefits from the Project

Farmers' risks will be reduced, both in terms of production and marketing. Farmers will be treated fairly and will earn higher income. For private firms participating in the project, they will be more confident in the quantity and quality of produces they purchase. The participating financial institutions will be able to expand their operations in extending credit services to needy farmers. Loans are granted at lower risk. The Government will be able to save expenditure in agricultural development.

Asparagus Production Project Under the Four Sector Cooperation Plan

1. Responsible agencies are the BAAC, Office of Agricultural Economics, Agricultural Extension Department, Cooperatives Promotion Department (only areas under cooperatives promotion programmes) and the Taniyama (Thailand) Co., Ltd.

2. Participating agencies include:

2.1 Agriculture Department

2.2 Land Development Department

2.3 Royal Irrigation Department

3. Objectives of the Project.

3.1 To promote the production of good quality asparagus with quality in accordance with the market requirements, especially in foreign countries.

3.2 To promote crop diversification among farmers to reduce their risks in production and marketing as well as to increase their income.

3.3 To strengthen the cooperation between the government and private sectors in agricultural development.

4. Project Locations

4.1 Cha-am District, Phetchaburi Province.

4.2 Kui Buri District, Prachuap Khiri Khan Province.

4.3 Tha Muang, Thong Pha Phum and Sai Yok Districts, Kanchanaburi Province.

4.4 Chom Bung and Suan Phung Districts, Ratchaburi Province.

4.5 Khao Kho and Lom Sak Districts, Phetchaburi Province.

4.6 Bang Len District, Nakhon Pathom Province.

5. Duration and Scope of the Project

This project is for a period of five years (1987-1991) ; areas targeted for the implementation of the project: 6,000 - 2,910 rai for 1987, and 3,090 rai for 1988. Expected number of participating farmers: 3,000.

6. **Production Pattern** Participating farmers are to grow asparagus under the project on a plot of 1-2 rai per household, relying on their family members as workers to increase their income.

7. **Loans for the project** It is estimated that total fund requirements are 268 million baht. Each participating farmer member will be entitled to loans of 44,640 - 89,280 baht.

8. **Price Guarantee** The company will buy produce from the farmers in the first three years at the following prices :

8.1 Grade A, 25 centimetres long at 38 - 40 baht per kilogram and 18 centimetres long at 45 baht per kilogram.

8.2 Grade B, 25 centimetres long at 26 baht per kilogram. and 18 centimeters long at 30 baht per kilogram.

8.3 Grade C, at 6 baht per kilogram

9. **Project Supervision**

9.1 The Department of Agriculture is responsible for provision of know-how. Its duty is to educate farmers joining the project, as well as providing them with seeds.

9.2 The Department of Agricultural Extension in cooperation with private firms is responsible for training, giving advice, introducing relevant information to farmers, screening farmers for the BAAC, screening applicants for loans and memberships in accordance with the rules and regulations of the BAAC, and acting as the mediator between buyers and agencies concerned.

9.3 The Department of Cooperatives Promotion has responsibilities similar to those of the Department of Agricultural Extension in areas under cooperatives promotion programmes, providing credits to farmers.

9.4 The Department of Land Development in collaboration with the Department of Agricultural Extension considers the suitability of land for asparagus farming under the project, promotes the conservation of land and water resources, provides the farmers under the project with water resources, as well as advising farmers on how to properly apply fertilizers and prepare land for farming.

9.5 The Royal Irrigation Department has the main responsibility in providing sufficient water for asparagus farming under the project.

9.6 The Office of Agricultural Economics works as a coordinating centre for all agencies concerned, follows up the work, periodically evaluates their performance, and prepares reports informing all agencies concerned of the outcomes of the project.

9.7 The BAAC works with other agencies responsible for public relations to make participating farmers clearly understand the purpose of the project from the beginning. The work includes screening applications for memberships put forward by the farmers; ensures that the farmers spend the money loaned as intended.

9.8 The Taniyama Thailand Company Limited is to purchase all asparagus produced under the project at prices, grades, and qualities stated in the contracts; works with the Department of Agricultural extension; supports and advises participating farmers in matters related to farming, maintenance, harvesting, preserving, etc., as well as training; makes available such facilities as cold storages, and packag-

ing equipment. The company is also required to have a bank guarantee for at least 500,000 baht to ensure that it will buy all asparagus produced by the farmers at agreed prices, quantity, and quality.

APPENDIX C
Data from Secondary Sources and Field Surveys

Table 1.1

Actual Frozen Chicken Production Capacity in 1985

Processing Plant	Production Capacity (tons/yr.)
1. Bangkok Livestock Industry (plant I)	13,500
2. United Farm	10,582
3. Laemthong Poultry	5,000
4. Bangkok Livestock(Plant II)	6,582
5. Centago Frozen Chicken	5,420
6. Srithai Frozen Chicken	5,000
7. Better Food	3,447
8. General Food Poultry	15,900
Total number of plants	65,349

Sources: 1. Industrial Works Division, Department of Industrial Works
2. Board of Investment

Table 1.2

GPS and PS Imports of Thailand

Unit: head

Year	GPS			PS			Grand Total
	Male	Female	Total	Male	Female	Total	
1977	4,551	11,139	15,690	101,639	680,196	781,835	797,525
1978	11,278	27,612	38,890	117,719	787,812	905,531	944,421
1979	14,952	36,608	51,560	260,574	1,743,839	2,004,413	2,055,973
1980	24,411	59,764	84,175	164,464	1,100,642	1,265,106	1,349,281
1981	28,648	70,137	98,785	126,101	843,907	970,008	1,068,793
1982	28,820	72,340	101,160	86,558	558,509	645,067	746,227
1983	38,188	91,370	129,558	102,603	656,267	758,870	888,428
1984	34,624	84,660	119,284	113,678	666,357	780,035	899,319
1985	34,101	81,823	115,294	84,922	569,898	654,820	770,744
1986	41,705	101,371	143,076	127,632	790,030	917,662	1,060,738
1987	38,312	94,690	133,002	173,951	996,150	1,170,101	1,303,103

GPS = Grand Parent Stock

PS = Parent Stock

Source : Livestocks Department

Table 1.3

Number of Animal feed Mills and Average Annual Outputs

Year	No. of plants	Annual output (million tons)
1978	30	1.153
1979	34	1.200
1980	35	1.432
1981	32	1.560
1982	32	1.500
1983	34	1.500
1984	34	1.800
1985	41	1.966
1986	39	1.873
1987	40	2.145

Source : Livestocks Department

Table 1.4

Average Price of Live Chickens Sold by Farmers
(Annual average 1977-1987)

Unit : Baht/Kg.

Year	Price
1977	16.93
1978	17.21
1979	18.39
1980	22.48
1981	21.81
1982	22.43
1983	23.38
1984	20.38
1985	18.68
1986	18.85
1987	19.15
1988 *	18.83

* Note : The price for 1988 is a half-year average.

Source : Office of Agricultural Economics,
Ministry of Agriculture and
Cooperatives

Table 1.5

Wholesale Prices of Live Chickens in Bangkok Markets
(Annual Average : 1979-1988)

Unit : baht/k.g.	
Year	Price
1979	18.25
1980	18.84
1981	20.43
1982	18.71
1983	20.91
1984	18.91
1985	17.69
1986	19.16
1987	19.88
1988*	19.31

Note : The Price for 1988 is a half-year average.

Source: Office of Agricultural Economics, Ministry of Agriculture and Cooperatives

Table 1.6

Production Cost, Selling Price and Returns on Chicken
Raising of Independent Farmers.
(Annual average : 1976-1988)

Unit: baht/kg.				
Year	Production costs	Selling Price	Returns (+/-)	profit (%)
1976	13.13	13.76	+ 0.63	4.80
1977	14.04	14.48	+ 0.44	3.13
1978	14.13	14.28	+ 0.15	1.06
1979	14.55	16.20	+ 1.65	11.34
1980	15.80	16.32	+ 0.52	3.29
1981	19.27	17.10	- 2.17	-11.26
1982	17.62	16.75	- 0.87	- 4.94
1983	18.31	19.97	+ 1.66	9.07
1984	18.44	17.48	- 0.96	5.21
1985	17.28	15.98	- 1.30	- 7.52
1986	16.85	18.47	+ 1.62	9.61
1987	17.51	18.61	+ 1.10	6.28
1988	18.91	17.89	- 1.02	- 5.39

Note : The Price for 1988 is a half-year average
Source : Office of Agricultural Economics,
Ministry of Agriculture and Cooperatives

Table 1.7

Production Volumes and Local Consumption of Chickens

Unit : million heads

Year	Production		Local consumption	
	Volume	change (%)	Volume	change (%)
1977	158		137	
1978	187	18.35	149	8.76
1979	185	-1.07	157	5.37
1980	367	98.38	171	8.92
1981	339	-7.63	187	9.36
1982	417	23.01	218	16.58
1983	363	-12.95	236	8.26
1984	403	11.02	259	9.75
1985	489	21.34	280	8.11
1986	504	3.07	303	8.21
1987	510	1.19	327	7.92

Source : Customs Department

Table 1.8

Volumes and Values of Frozen Chicken Exports (1977-1987)

Year	Volume (ton)	Change (%)	Value (million baht)	Change (%)
1977	4,254	-	157.50	
1978	9,287	118.31	333.70	111.87
1979	14,158	52.45	516.90	54.90
1980	18,503	30.69	656.20	26.95
1981	26,769	44.67	1,186.60	80.83
1982	33,216	24.08	1,310.00	10.40
1983	22,926	-30.98	946.30	-27.76
1984	34,217	49.25	1,419.70	50.03
1985	37,840	10.59	1,468.10	3.41
1986	64,796	71.24	3,121.30	112.61
1987	81,971	26.50	4,023.00	28.89

Source : Customs Department

Table 1.9

Average Unit Price (per ton) of Frozen Chicken Exports

Unit : 1,000 Baht

Year	1983	1984	1985	1986	1987
Month					
Jan	41.7	40.5	44.1	45.4	51.7
Feb	39.5	39.0	41.9	43.8	50.1
Mar	40.7	40.9	41.2	44.0	45.1
Apr	41.4	42.4	32.4	44.2	44.8
May	40.1	43.3	29.1	45.9	46.2
Jun	38.6	40.7	41.4	46.7	48.8
Jul	40.0	41.8	39.3	46.7	50.8
Aug	40.5	40.3	38.7	49.4	50.4
Sep	41.6	39.9	39.3	52.9	51.9
Oct	42.2	37.7	40.1	51.9	53.5
Nov	43.6	45.6	41.5	53.3	50.4
Dec.	41.7	44.6	41.5	53.1	47.5
Average	41.1	41.4	39.3	47.7	49.3

Source : Department of Business Economics,
Ministry of Commerce.

Table 1.10

Volumes and Values of Thai Frozen Chicken Exports

Country	1976		1977		1978		1979		1980		1981	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Japan	2,207	65.2	4,236	156.8	9,263	333.1	14,157	516.8	17,430	605.4	26,402	1,176.5
Singapore	-	-	-	-	-	-	-	-	-	-	-	-
Hong Kong	-	-	-	-	20	0.3	-	-	-	-	197	0.9
Uwait	-	-	-	-	-	-	-	-	-	-	98	4.9
West Germany	-	-	-	-	-	-	-	-	-	-	-	-
Others	4	0.1	19	0.7	4	0.4	1	0.1	1,073	50.8	72	4.3
Total	2,211	65.3	4,255	157.5	9,287	333.8	14,158	516.9	18,503	656.2	26,769	1,186.6

Table 1.10 (cont'd)

Volume and Value of Thai Frozen Chicken Exports

Country	1982		1983		1984		1985		1986		1987	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Japan	31,975	1,267.0	20,862	875.1	30,571	1,294.9	33,147	1,302.0	57,633	2,864.5	75,055	3,745.9
Singapore	683	17.0	1,362	37.1	2,815	90.1	3,611	126.4	4,314	159.5	3,889	155.3
Hong Kong	170	5.3	102	4.5	140	1.9	605	16.8	1,254	30.0	1,164	25.7
Uwait	214	11.5	467	23.0	560	25.7	239	10.3	554	27.0	500	26.2
West Germany	-	-	-	-	-	-	91	4.7	897	50.1	802	41.7
Other	174	9.2	133	6.6	131	7.1	147	7.8	144	8.2	561	28.2
Total	33,216	1,310.0	22,926	946.3	34,217	1,419.7	37,840	1,468	64,796	3,121.3	81,971	4,023.0

Source: Customs Department

Table 1.11

Volumes and Values of Frozen Chicken Imports of Japan

Country	1976		1977		1978		1979		1980		1981	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
U.S.A.	23,559	28.01	31,777	39.31	37,995	50.58	39,437	57.42	40,590	57.41	58,981	84.96
Thailand	2,030		3,916		9,159		14,187		15,930		24,694	
China	4,840		4,737		8,662		12,493		12,043		13,513	
Others	6,522		5,695		3,997		3,953		1,693		809	
Total	36,951	45.9	46,125	61.5	34,217	86.4	70,070	108.7	70,256	108.7	97,997	126.1

Table 1.11 (cont'd)

Volumes and Values of Frozen Chicken Imports of Japan

Country	1982		1983		1984		1985		1986	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
U.S.A.	55,328	75.0	64,121	82.41	46,566	70.7	46,566	57.0	75,472	86.9
Thailand	32,645	60.8	21,353	41.3	29,969	57.5	35,308	57.6	63,598	126.5
China	14,169	20.9	12,853	19.7	12,109	21.0	3,332	5.5	14,233	24.7
Others	785	0.9	2,248	3.0	15,081	17.7	15,249	22.8	21,126	33.0
Total	102,927	157.6	100,575	146.4	103,725	166.9	100,455	142.9	174,429	237.8

Source : JETRO

Table 1.12

Occupations of Eastern Broiler Raisers

Unit : Case		
Occupation	No. of Cases	%
Broiler raising	40	40.00
Broiler raising and trading	4	4.00
Broiler raising and paddy	8	8.00
Broiler raising and coconut planting	5	5.00
Broiler raising and cassava farming	40	40.00
Broiler raising and pineapple	3	3.00
Total	100	100.00

Source: Field survey

Table 1.13

Status of Eastern Broiler Raisers

Unit : Case		
Status	No. of Cases	%
Independent	70	80.00
Farmers' Group	3	3.00
Agricultural Cooperatives	17	17.00
BAAC clients	8	8.00
Others	2	2.00
Total	100	100.00

Source: Field survey

Table 1.14

Sources of Capital of Broilers Raisers

Unit : Case		
Sources	No. of Cases	%
Own	13	13.68
Borrow	82	86.32
Total	95	100.00

Source: Field survey

Table 1.15

Characteristics of Borrowings

Unit : Case		
Characteristics	No. of Cases	%
Cash	25	30.45
Production inputs	15	18.29
Cash and production inputs	42	51.22
Total	82	100.00

Source: Field survey

Table 1.16

Characteristics of Broiler Raising

Unit : Case		
Characteristics	No. of Cases	%
Contract	98	90.74
Independent	9	9.26
Total	108	100.00

Source: Field survey

Table 1.17

Types of Contract Farming of Broiler Raising

Unit : Case		
Type	No. of Cases	%
Guaranteed Price	58	59.18
Wage	40	40.82
Total	98	100.00

Source: Field survey

Table 1.18

Types of Broiler Farming Contractors

Contractors	No. of Cases	%
Feed companies	46	57.42
Company Agencies	51	52.58
Total	97	100.00

Source: Field survey

Table 1.19

Types of Contract Farming Desired by Chicken Raisers

Unit : Case		
Characteristics	No. of Cases	%
Individual	98	100
Group	-	-
Total	98	100

Source: Field survey

Table 1.20

Forms of Broiler Farming Contracts

Unit: Case

Form	No. of Cases	%
Written	3	3.06
Verbal	95	96.94
Total	98	100.00

Source: Field survey

Table 1.21

Agreed Guaranteed prices in Broiler Contract Farming

(Guaranteed Price Type)

Unit : Case

Price Received (B/kg)	No. of Cases	%
17.00	4	6.90
17.50	40	68.90
18.00	5	8.62
19.00	9	15.52
Total	58	100.00

Source: Field survey

Table 1.22

Wages Received by Chicken Raisers Under Wage Contract Farming

Wage (B/kg)	No. of Cases	%
0.90	30	75.0
1.00	6	15.0
1.10	4	10.0
Total	40	100.00

Source: Field survey

Table 1.23

Sources of Marketing Information of Chicken Raisers

Unit : case		
Sources	No. of Cases	%
Merchant	43	44.33
Company	40	41.24
Neighbour	10	10.31
Radio	3	3.09
Others	1	1.03
Total	97	100.00

Source: Field survey

Table 2.1

Production Costs of Pineapple Farmers in 1983-85

Unit: baht/rai						
Production costs	1983	% of produc- tion costs	1984	% of produc- tion costs	1985	% of produc- tion costs
1. Variable costs	2,950.44	90.34	3,412.99	90.87	3,520.65	91.83
1.1 Material	1,690.25	51.75	1,991.33	53.02	2,250.27	58.69
- seeds	687.50	21.05	730.18	19.44	923.94	24.10
- fertilizer	541.56	16.58	738.07	19.65	751.61	19.60
- activating substance	63.15	1.93	80.43	2.14	86.92	2.27
- insecticides	316.06	9.68	353.05	9.40	397.11	10.36
- other farm equipment	81.98	2.51	89.60	2.39	90.69	2.37
1.2 Labour costs	1,260.19	38.58	1,421.66	37.85	1,270.38	33.13
2. Fixed costs	315.61	9.66	342.78	9.13	313.35	8.17
Total cost	3,266.05	100.00	3,755.77	100.00	3,834.00	100.00
Average yield per rai (kg)	3,168		3,835		3,798	
Cost per kg (baht)	1.03		0.98		1.01	

Source : Office of Agricultural Economics

Table 2.2

Production Cost of Pineapple Farmers in 1986-87

Unit : baht/rai				
Production	1986	% of produc- tion costs	1987	% of produc- tion costs
1. Variable costs	4,180.85	92.80	4,546.79	93.07
1.1 material	2,868.61	63.67	3,195.20	65.41
- seeds	1,035.00	22.97	1,026.87	21.02
- fertilizer	1,129.44	25.07	1,284.88	26.30
- activating substance	169.67	3.77	290.08	5.94
- insecticides	386.97	8.59	390.46	7.99
- other farm equipment	147.53	3.27	202.91	4.15
- labour cost	1,312.24	29.13	1,351.59	27.67
2. Fixed costs	324.52	7.20	338.43	6.93
Total cost/rai	4,505.37	100.00	4,885.22	100.00
Average yield/rai (kg)	3,711.00		3,819.00	
Cost per kg (baht)	1.21		1.28	
Yield per rai (baht)	4,156.32		7,561.62	
profit/loss (baht/kg)	0.09		0.07	

Source : Office of Agricultural Economics

Table 2.3

Production Costs of Pineapple Farmers in 1988

Unit : Baht/rai		
Production Costs	1988	% of production costs
1. Variable costs	5,013.78	93.02
1.1 material costs	3,511.05	65.14
- seeds	1,095.25	20.32
- fertilizer	1,396.55	25.91
- activating substance	330.41	6.13
- insecticides	437.13	8.11
- other farm equipment	251.71	4.67
1.2 Labour costs	1,502.73	27.88
2. Fixed costs	376.22	6.98
Total cost/ rai	5,390.00	100.00
Average yield per rai (kg)	4,900.00	
Cost per kg (baht)	1.10	

Source : Field survey

Table 2.4

Production Costs of Canned Pineapple in 1983-85
Unit : baht/case

Production costs	1983	% of pro- duction cost	1984	% of pro- duction cost	1985	% of pro- duction cost
1. Fresh pineapple	76.95	44.20	85.05	46.68	64.40	41.32
2. Sugar	1.00	0.57	1.00	0.55	1.00	0.60
3. Labour	14.00	8.04	14.00	7.68	14.00	8.46
4. Energy	5.25	3.02	5.25	2.88	5.25	3.17
5. Cans	52.00	29.87	52.00	28.54	52.00	31.41
6. Packaging & labels	11.00	6.32	11.00	6.04	11.00	6.64
7. Machinery deprecia- tion	1.86	1.07	1.86	1.02	1.86	1.12
8. Maintenance	1.19	0.68	1.19	0.65	1.19	0.72
9. Other costs	7.85	4.51	7.85	4.31	7.85	4.74
Total costs	171.10	98.28	179.20	98.35	162.55	98.19
Export expenses	3.00	1.72	3.00	1.65	3.00	1.81
Total	174.10	100.00	182.20	100.00	165.55	100.00

Note : Production cost of 20-ounce canned pineapple
(1 case = 24 cans)

Source : Office of Agricultural Economics

Table 2.5

Production Costs of Canned Pineapple in 1988

Unit: baht/case		
Production costs	1988	% of production cost
1. Fresh pineapple	73.80	40.83
2. Labour cost	15.96	8.83
3. Fuel	6.04	3.34
4. Cans	57.00	31.54
5. Packaging & labels	14.00	7.75
6. Machinery depreciation	1.96	1.08
7. Maintenance	1.24	0.69
8. Other costs	6.75	3.73
Total costs	176.75	97.79
Export expense	4	2.21
Total	180.75	100.00

Note : Production cost of 20-ounce canned pineapple
 (1 case = 24 cans)
 Average price of pineapples bought at plant was 1.64
 baht

Source : Office of Agricultural Economics

Table 2.6

List of BOI-Promoted Pineapple Plantations, Capacities and Labour

	Name	Location	No. of rai	Investment (1000 B)	Employment	Starting date
1.	T.F.W. Agriculture Co., Ltd.	Chon Buri	3,500	4,504	132	Sep 23, 74
2.	Siam Pineapple Agro- Industry Co., Ltd.	Rayong	3,000	154,459	769	March 24, 80
3.	K.C. Agriculture Co., Ltd. (promotion certificate was revoked on Dec 11, 1985)	Kanchanaburi	40,000	40,000	95	Jan 18, 80
4.	Cha-am Farm	Petchaburi	20,000	200,000	1,595	-

Note : Statistics available for only Dec 10, 1987

Source : Board of Investment

Table 2.7

Volumes and Values of Canned Pineapple Exports
to Major Importing Countries in 1985-1987

Volume : metric tons
Value : million baht

Country	1985		1986		1987	
	Volume	Value	Volume	Value	Volume	Value
U.S.A.	100,265	1,744.6	109,572	1,583.5	127,021	1,829.5
West Germany	25,868	397.2	42,066	510.7	38,457	485.0
Canada	17,226	285.5	14,711	208.3	17,670	252.2
Netherlands	7,536	125.2	7,077	94.7	7,888	104.2
Japan	5,668	124.6	5,161	110.0	7,574	169.4
Saudi Arabia	5,417	81.9	3,049	37.4	2,553	32.5
France	4,313	71.9	5,873	115.7	12,375	160.1
Spain	2,695	48.9	4,561	65.6	5,234	74.9
Others	23,757	401.7	33,916	457.2	41,033	620.5
Total	192,745	3,290.7	225,986	3,183.1	259,805	3,728.3

Source : Customs Department

Table 2.8

Pineapple Canneries, Their Capacities, Investment and Employment

(As of May 17, 1988)

Name	Capacity (Million Cases)	Investment (1,000 B)	Starting date
1. Dole Thailand. (Thai 35.7% American 20% Hong Kong 44.3%)	3.6	448,237	June 22,71
2. Thai Canned Pineapple Industry (Thai 51% Japan 49%)	3.29	390,526	April 19,67
3. International Food (Wholly Thai)	0.8	59,968	Aug 25,71
4. Thai canned Food (Thai 96.36% Japan 3.64%)	1.3	191,000	Aug 1,70
5. Siam Food (Wholly Thai)	3.0	547,145	Oct. 1,72
6. Thai Pineapple (Wholly Thai)	1.6	174,792	Oct. 5,78
7. T.F.M. Chon Buri (Wholly Thai)	0.25 (operation ceased)	46,292	May 19,72
8. Siam Agro industry (pineapple) (Wholly Thai)	1.5	154,459	March 24,80
9. Ruam Lumlieng Transportation Pattana (Thailand) (Wholly Thai)	0.19	12,500	Aug 10,79
10. Cha-am Pineapple (Wholly Thai)	5.0	184,000	Jan 1,82
11. Thai Kamphaengphet Industry (Wholly Thai)	2.4	150,000	-
12. Unicord investment (Thailand) (Thai 75%, Taiwan 25%)	0.14	20,000	-
13. Malee Sampran (Wholly Thai)	0.73	34,800	July 1983
14. Canned Fruit (Wholly Thai)	1.3	25,000	July 22,1986

Source : Board of Investment

Table 2.9
Status of Pineapple Farmers

Unit : case						
Status	CM	%	Independent	%	Total	%
Independent	32	65.31	15	30	47	47.48
Farmers' Group	2	4.08	5	10	7	7.07
Agricultural Cooperative	5	10.20	14	28	19	19.19
Group of BAAC 'clients	6	12.25	13	26	19	19.19
Others	4	8.16	3	6	7	7.07
Total	49	100.00	50	100	99	100.00

Note: CM = contract market

Source: Field survey

Table 2.10
Sizes of Pineapple Plantations

unit : case						
Size (rai)	CM	%	Independent	%	Total	%
1-25	30	58.82	28	56.00	58	57.43
26-50	9	17.65	10	20.00	19	18.81
51-100	5	9.80	8	16.00	13	12.87
101-200	4	7.84	2	4.00	6	5.94
Over 200	3	5.88	2	4.00	5	4.95
Total	51	100.00	50	100.00	101	100.00

Source: Field survey

Table 2.11

Planting Methods Employed by Pineapple Farmers

Unit : case

Planting method	CM	%	Independent	%	Total	%
Single-row	6	12.00	35	71.43	41	41.41
Double-row	44	88.00	14	28.57	58	58.59
Total	50	100.00	49	100.00	99	100.00

Source: Field survey

Table 2.12

Sources of Pineapple Crowns

Unit : case

Source	CM	%	Independent	%	Total	%
Own	25	51.02	28	57.14	53	54.08
Neighbour	8	16.33	6	12.24	14	14.29
Merchant	7	14.29	5	10.20	12	12.24
cannery	6	12.24	7	14.29	13	13.27
Others	3	6.12	3	6.12	6	6.12
Total	49	100.00	49	100.00	98	100.00

Source: Field survey.

Table 2.13

Sources of Finance of Pineapple Farmers

Unit : case

Source	CM	%	Independent	%	Total	%
Own	24	48.98	22	44.00	46	46.46
Borrowing	25	51.02	28	56.00	53	53.54
Total	49	100.00	50	100.00	99	100.00

Source: Field survey

Table 2.14

Sources of Loans of Pineapple Farmers

Unit : case

Source	CM	%	Independent	%	Total	%
BAAC	10	40	11	39	21	39.62
Commercial banks	5	20	6	21	11	20.75
Agricultural Cooperatives	3	12	2	7	5	9.43
Merchant	3	12	5	18	8	15.09
Canneries	2	8	2	7	4	7.55
Others	2	8	2	7	4	7.55
Total	25	100	28	100	53	100.00

Source: Field survey

Table 2.15

Characteristics of Sales of Pineapples

Unit : case

Characteristics	CM	%	Independent	%	Total	%
Fresh market	3	6.00	2	4.08	5	5.05
Sold to Canneries	24	48.00	38	77.55	62	62.63
Sold to Canneries and fresh market	23	46.00	9	18.37	32	32.32
Total	50	100.00	49	100.00	99	100.00

Source: Field survey

Table 2.16

Selling Methods of Pineapple

Unit : case

Selling method	CM	%	Independent	%	total	%
Self selling	32	68.09	26	52.00	58	59.79
to middlemen	8	17.02	15	30.00	23	23.71
to farmer	4	8.51	5	10.00	9	9.28
organizations						
Others	3	6.38	4	8.00	7	7.22
Total	47	100.00	50	100.00	97	100.00

Source: Field survey

Table 2.17

Pineapple Grading conducted/not conducted by Farmers

Unit : case

Grading conducted	CM	%	Independent	%	Total	%
Yes	12	25.00	15	30.61	27	27.84
No	36	75.00	34	69.39	70	72.16
Total	48	100.00	49	100.00	97	100.00

Source: Field survey

Table 2.18

Pineapples Weighing

Unit : case

Weighing	CM	%	Independent	%	Total	%
Using farmers' scales	11	22.00	10	20.41	21	21.21
Using merchants' scales	15	30.00	16	32.65	31	31.31
Using factories' scales	21	42.00	21	42.86	42	42.42
Others	3	6.00	2	4.08	5	5.05
Total	50	100.00	49	100.00	99	100.00

Source: Field survey

Table 2.19

Payment Period for Sales of Pineapple Farmers

Unit : case

Days after sales	CM	%	Independent	%	Total	%
1 - 7	20	40.00	19	37.25	39	38.61
8 - 15	21	42.00	23	45.10	44	43.56
16 - 30	7	14.00	5	9.80	12	11.88
Over 30	2	4.00	4	7.84	6	5.94
Total	50	100.00	51	100.00	101	100.00

Source: Field survey

Table 2.20

Sources of Marketing Information of Pineapple Farmers

Unit : case

Source	CM	%	Independent	%	total	%
Merchant	9	18.00	12	24.49	21	21.21
Plant	24	48.00	25	51.02	49	49.49
Neighbour	14	48.00	10	20.41	24	24.24
Radio	2	4.00	2	4.08	4	4.04
Others	1	2.00	-	-	1	1.01
Total	50	100.00	49	100.00	99	100.00

Source: Field survey

Table 2.21

Problems Faced by Pineapple Farmers

Unit : case

Problem	CM	%	Independent	%	Total	%
Lack of market	-	-	12	24.00	12	12.00
Long queues	24	48.00	10	20.00	34	34.00
Delayed payment	10	20.00	8	16.00	18	18.00
Quality inspection not up to standard	14	28.00	13	26.00	27	27.00
Others	2	4.00	7	14.00	9	9.00
Total	50	100.00	50	100.00	100	100.00

Source: Field survey

Table 2.22

Occupations of Pineapple Farmers

Unit : case

Occupation	CM	%	Independent	%	Total	%
Pineapple planting only	7	14.00	23	46.94	30	30.30
Pineapple + chicken raising	8	16.00	-	-	8	8.08
Pineapple + cassava Planting	17	34.00	-	-	17	17.17
Pineapple + cassava+ planting + chicken raising	3	6.00	-	-	3	3.03
Pineapple + coconut	4	8.00	19	38.78	23	23.23
+ Pineapple + rubber	4	8.00	-	-	4	4.04
Pineapple + sugarcane	3	6.00	6	12.24	9	9.09
Pineapple + cassava+ coconuts	3	6.00	-	-	3	3.03
Pineapple + others	1	2.00	1	2.04	2	2.02
Total	50	100.00	49	100.00	99	100.00

Source: Field survey

Table 2.23

Characteristics of Land Holdings of Pineapple Farmers

Unit : case

Land Holding	CM	%	Independent	%	Total	%
Own	31	63.27	26	54.17	57	58.76
Rented	9	18.37	13	27.08	22	22.68
Own + rented	5	10.20	2	4.17	7	7.22
Others	4	8.16	7	14.58	11	11.34
Total	49	100.00	48	100.00	97	100.00

Source: Field survey

Table 2.24

Viewpoints of Pineapple Farmers Towards CF

Unit : case

Viewpoint	CM	%	Independent	%	Total	%
Useful	40	81.63	39	79.59	79	80.61
Not useful	9	18.37	10	20.41	19	19.39
Total	49	100.00	49	100.00	98	100.00

Source: Field survey

Table 2.25

Responses of Pineapple Farmers to invitation to enter into CF

Unit : case

Viewpoint	Number	%
Yes	37	75.51
No	12	24.49
Total	49	100.00

Source: Field survey

Table 2.26

Quantity of Produce Pineapple Farmers prefer to sell under CF

Unit : case

Quantity	Number	%
Whole	20	51.48
Part	19	48.72
Total	39	100.00

Source: Field survey

Table 2.27

Forms of Contracts Preferred by Pineapple Farmers

Form of contract	Number	%
Written	29	74.36
Verbal	10	25.64
Total	39	100.00

Source: Field survey

Table 2.28

Forms of CF preferred by Pineapple Farmers

Unit : case

Form of contract	Number	%
Individual	30	76.92
Group	9	23.08
Total	39	100.00

Source: Field survey.

Table 3.1

Prices of Palm Nuts at Farm Gate

(baht/kg.)

Month	Fresh Palm (over 15 kg.)		in Bunch (1)		off bunch (2)	
	1986	1987	1988	1986	1987	1988
January	1.50	2.35	4.60	2.78	3.75	5.80
February	1.50	2.42	3.20	2.65	3.80	6.18
March	1.00	2.25	2.35	2.15	4.10	4.20
April	1.05	1.82	-	1.90	3.60	3.30
May	1.10	1.53	-	1.85	2.95	2.80
June	1.10	1.50	2.40	1.75	2.55	3.13
July	1.00	1.75	-	1.78	2.70	3.80
August	1.10	1.90	-	1.70	2.75	-
September	1.45	2.43	-	2.00	3.30	-
October	1.85	3.03	-	2.80	4.30	-
November	2.45	3.75	-	3.55	5.30	-
December	2.20	3.97	-	3.75	5.60	-
Average	1.43	2.39	3.14	2.38	3.72	4.17

Sources : (1) Provincial Commerce Offices
 (2) Office of Agricultural Economics,
 Ministry of Agriculture and Cooperatives

Table 3.2

Cultivated Land, Yielding Land
and Volume of Oil Palm Production, 1968-1988

Year	Cultivated Land (rai)	Yielding Land (rai)	Production (tons)	Yield per rai (tons)
1968	1,540	-	-	-
1969	3,844	-	-	-
1970	10,000	-	-	-
1971	15,450	1,540	1,212	0.787
1972	20,413	3,844	3,821	0.994
1973	21,521	10,000	10,620	1.062
1974	23,546	15,450	19,096	1.236
1975	35,094	20,413	29,640	1.452
1976	47,571	21,521	37,253	1.731
1977	69,625	23,546	45,891	1.949
1978	94,390	35,094	58,291	1.661
1979	154,710	47,571	78,349	1.647
1980	226,705	69,625	107,431	1.543
1981	283,037	94,390	152,817	1.619
1982	332,842	154,710	254,034	1.642
1983	374,266	226,705	303,331	1.338
1984	430,607	283,037	393,705	1.391
1985	513,909	332,842	609,530	1.831
1986	561,076	373,881	694,716	1.853
1987	614,955	432,238	728,315	1.685
1988	655,109	516,444	882,188	1.708

Note : Estimated figures for 1988

Source : Agricultural Statistics Centre, Office of Agricultural
Economics, Ministry of Agriculture and Cooperatives

Table 3.3

Comparison of Oil Palm Yields between Thailand and Malaysia

Unit : Tons/Rai/Year

Age of Oil Palm	Oil Palm Productions in Malaysia	Oil Palm Productions in Thailand
3 years	-	0.08
4 years	1.20	0.64
5 years	2.01	0.17
6 years	2.65	1.53
7 years	3.05	1.68
8 years	3.17	2.02
9 years	3.25	2.37
10 years	3.25	2.46
11 years	3.21	1.98
12 years	3.21	1.98
13 years	3.17	1.96
14 years	3.13	2.36

Note : Oil palm trees reach their optimum yield at 8-10 years.

Source : Office of Agricultural Economics, Ministry of Agriculture and Cooperatives

Table 3.4

Oil Palm Yields per Rai at Various Ages

Age (Year)	1984	1985	1986
4	0.636	0.949	0.682
5	1.171	1.558	1.499
6	1.531	1.836	1.739
7	1.681	2.041	1.948
8	2.019	2.186	2.065
9	2.366	2.340	2.436
10	2.460	2.343	2.369
11	1.980	2.385	2.314
12	1.979	2.971	2.551
13	1.962	2.945	2.873
14	2.362	2.563	2.968
15	1.528	2.448	2.389
16	1.534	2.274	2.488
17	-	2.359	2.246
Over 17	-	1.225	2.205

Source: Office of Agricultural Economics, Ministry of Agriculture and Cooperatives

Table 3.5

Monthly Percentage of Oil Palm Production

month	1984	1985	1986
January	3.53	3.71	6.36
February	4.37	5.00	6.30
March	7.11	7.81	7.12
April	8.55	7.31	7.02
May	9.90	7.82	7.22
June	10.86	8.71	7.70
July	11.00	9.93	9.26
August	10.86	10.31	10.64
September	10.03	11.72	10.86
October	8.88	10.76	10.79
November	8.11	10.16	9.59
December	6.80	7.30	7.14

Source: Office of Agricultural Economics, Ministry of
Agriculture and Cooperatives

Table 3.6

Number and Production Capacity of Palm Oil Crushing Mills by Province

Capacity: Tons/hours

	1985						1986						1987					
	Large Mills		Small Mills		Total		Large Mills		Small Mills		Total		Large Mills		Small Mills		Total	
	Number	Production Capacity	Number	Production Capacity	Number	Production Capacity	Number	Production Capacity	Number	Production Capacity	Number	Production Capacity	Number	Production Capacity	Number	Production Capacity	Number	Production Capacity
Chumphon	2	25	8	10	10	40	2	25	7	9	9	38	2	30	6	13	8	43
Surat Thani	1	10	1	2	2	12	1	20	1	2	2	22	2	45	1	2	3	47
Krabi	3	55	1	1	4	56	3	55	1	11	3	56	5	90	3	7	8	97
Trang	-	-	3	5	3	5	1	10	3	5	4	5	2	20	3	5	5	25
Satun	2	30	-	-	2	30	2	30	1	1	3	31	2	30	1	1	3	31
Songkha	-	-	6	7	6	7	-	-	6	7	6	7	1	6	6	7	7	13

Source : A Survey conducted by the Agricultural Economics Analysis
Division, Office of Agricultural Economics, Ministry
of Agriculture and Cooperatives

Table 3.7

List of Palm oil Refineries in 1986-87 by Province

Province	Name of Refinery	Production Capacity (ton/year)	Established in
Bangkok	1. Banbou Oil and Fat	9,000	1979
	2. Lever Brothers company	18,000	1978
	3. Seng Tai Soap	18,000	-
Samut Prakarn	1. Bangkok Crop Oil (Lam Soon)	45,000	1980
	2. Thai Max Industry Company	32,760	1982
	3. Sin Charoen Vegetable Oil Industry Co., Ltd.	72	-
	4. Laothonsing Co., Ltd.	30,000	1986
Patum Thani	1. Patum Vegetable Oil Co., Ltd.	3,600	
Surat Thani	1. Standard Vegetable Oil Co., Ltd.	35,000	1986
Songkla	1. U.Seng-Tai Mill		1977
	2. Pouj Rungruang Co., Ltd.		1982

Source : Board of Investment

Table 3.8

Oil Palm Production Costs (1988)

1) Variable costs		baht/rai	
1.1 Labour		660	660
1.2 Material			
- strain		86	636
- fertilizer		316	
- insecticides		206	
- Farming equipment		25	
- others		3	
2) Fixed costs			
2.1 Land Use			250
2.2 Equipment depreciation			7
Production cost			1,553
Production cost per Kilogram of oil palm			
(baht) *			0.92

* Average yield per rai was 1.685 tons

Source: Field survey

Table 3.9
Crude Palm Oil Price and Refined Palm Oil Bangkok Prices

Baht/Kg.

Month	Crude Palm Oil Prices		Refined Palm Oil Prices	
	1986	1987	1986	1987
January	10.63	13.75	14.73	18.19
February	10.00	15.25	14.73	18.73
March	8.50	14.25	14.19	19.09
April	8.50	11.50	13.64	17.82
May	8.00	9.50	12.90	16.00
June	7.50	10.00	12.72	15.64
July	7.25	10.62	12.19	15.82
August	7.75	11.13	13.45	16.00
September	9.00	13.00	14.91	16.76
October	12.00	15.25	18.18	18.09
November	15.00	17.25	19.09	22.38
December	14.75	18.25	19.09	22.38
Average	9.91	13.39	15.16	17.85

Source : Internal Trade Department

Table 3.10

Production Costs of Refined Palm Oil

Unit : Baht/ton

	dyeing to make Soap (1)	dyeing and acid removal (2)	1st smell removal (3)	2nd smell removal (4)	Total (2+3+4)	%	Separation to Olein (5)
<u>Variable Costs</u>							
1. Electricity	78.49	223.83	14.12	148.94	386.89	5.7	62.41
2. Water and steam making	171.59	877.47	1,896.12	358.19	3,131.78	46.7	65.22
3. Chemicals	1.03	113.65	21.93	52.63	188.21	2.8	1.91
4. Labour	67.37	257.95	109.66	41.87	409.48	6.1	39.14
Total Variable Costs	318.48	1,472.95	2,031.83	601.63	4,106.41	61.3	168.68
<u>Fixed Costs</u>							
1. Wages and Salary	18.88	155.99	69.11	10.74	235.84	3.5	12.72
2. Depreciation	137.29	832.60	179.13	207.33	1,219.06	18.2	173.49
3. Maintenance	82.50	844.06	192.00	56.75	1,092.81	16.3	52.07
4. Others	11.31	27.43	20.17	0.12	47.72	0.7	-
Total Fixed Costs	249.98	1,860.08	460.41	274.94	2,595.43	38.7	238.28
Total Costs	568.46	3,333.03	2,492.24	876.57	6,701.84	100.0	406.96

- Note: 1. Soap is made mostly from dyed oil; smell and acid will be removed at later stages
2. In making food products, oil must be dyed; smell and acid removed prior to going into subsequent processes.
3. In making edible oil, oil will be dyed, and smell and acid removed before olein is separated and put in containers.

Source : Agricultural Economics Analysis Division, Office of
Agricultural Economics, Ministry of Agriculture and Cooperatives

Table 3.11

Thai Palm Oil Quantities Produced, Imported, Exported and Demanded

Unit: 1,000 tons

Year	Production	Import	Export	Domestic Demand
1978	10.5	6.4	2.7	14.2
1979	13.9	13.9	0.2	27.6
1980	19.5	60.3	-	79.8
1981	24.6	28.7	-	53.3
1982	36.0	10.9	0.2	46.7
1983	39.4	14.9	2.2	52.1
1984	57.9	8.6	5.5	61.0
1985	89.3	4.0	12.5	80.8
1986	105.0	0.3	5.1	100.2
1987	133.7	-	-	120.0

Source : Agricultural Statistics Centre, Office of Agricultural
Economics, Ministry of Agriculture and Cooperatives

Table 3.12

BOI-Promoted Oil Palm Plantations

Name of companies	Location	Date of Approval	Starting Date	Planting Area (rai)
1. Thai Palm Oil Industries and Plantation Co., Ltd.	Krabi	22/5/72	9/5/74	20,000
2. Oil Palm Development Co., Ltd.	Satun	26/1/76	1/8/80	10,000
3. Siam Oil palm and Industries Co., Ltd.	Krabi	15/3/78	1/5/82	15,000
4. Thai Union Vegetable Oil Co., Ltd.	Chumphon	19/4/78	1/1/82	20,000
5. Pithan Palm Development Co., Ltd.	Krabi	18/12/78	1/5/84	5,000
6. United Oil Palm Industry Co., Ltd.	Surat Thani	28/2/79	19/7/84	30,000
7. Rung Ruang Palm Oil Co., Ltd.	Chumphon	29/10/79	1/1/83	10,000
8. Taksin Palm (1987) Co., Ltd.	Surat Thani	21/7/80	1/9/84	12,000
9. Pratiew Agriculture Co., Ltd.	Chumphon	21/7/80	28/12/82	10,000
10. G.S. Palm Estates Co., Ltd.	Krabi	10/6/81	1/9/83	2,000
11. Chiaravanit Palm Oil Co., Ltd.	Krabi	26/7/83	-	10,350
12. Palm Co Taksin Palm Oil Co., Ltd.	Surat Thani	5/9/86	-	2,000
Total				136,388

Source: Board of Investment

Table 3.13

Number of Mills and Type of Investment
of Palm Oil Crushing Mills under BOI promotion in 1988

Name of company	Location	Production capacity (Ton/year)	Investment (million baht)	Date of operation Commencement
1. Thai Oil and Palm Plantation Industry Co., Ltd.	Krabi	13,600 (Crude Palm oil)	30	May 9, 1977
2. Srinakorn Chemical Vegetable Oil Co., Ltd.	Bangkok	315 (Palm oil)	8	July 26, 1979
3. Palm Thai Pattana Co., Ltd.	Satun	21,600 56 (Palm oil) 5,760 (kernel)		Oct. 1, 1981
4. Siam Oil Palm and Industry Co., Ltd.	Trang	18,000 (Crude Palm oil) 3,000 (kernel)	65	May 1, 1984
5. Chumphon Palm Oil Industry Co., Ltd.	Chumphon	9,000 (Crude Palm oil) 1,575 (kernel)	40	
(Expansion)		21,000 (Crude Palm oil) 8,400 (kernel)	60	
6. Palm Oil Union Industry Co., Ltd.	Krabi	10,000 (Crude Palm oil) 1,750 (kernel)	40	June 5, 1984
7. Taksin Palm Co., Ltd.	Surat Thani	4,800 (Crude Palm oil) 1,080 (kernel)	10	Set 1, 1984
(Enlargement)		28,800 (Crude Palm oil) 6,400 (kernel)	28.9	
8. Vegetable Oil Standard Co., Ltd.	Songkla	35,000 (Palm oil)	100	
9. Uni Palm Industry Co., Ltd.	Surat Thani	2,420 (Palm oil)	3.5	
10. Thai Max Industry Co., Ltd.	Samut Prakarn	14,000 (Crude Palm oil) 2,920 (kernel)	170	Dec 24, 1984
11. Thai Max Industry Co., Ltd.	Samut Prakarn	21,940 (R.B.D. Palm oil)	120	May 11, 1985

Table 3.13 (cont'd)

Name of company	Location	Production capacity (Ton/year)	Investment (million baht)	Date of operation commencement
12. Associated Palm Oil Co., Ltd.	Trang	11,773 (Crude Palm oil) 2,564 (kernel)	57.41	Jan 21, 1985
13. Satun Palm Oil Co., Ltd.	Satun	4,500 (Crude Palm oil) 600 (kernel)	20	Jan 11, 1985
14. Southern Oil Palm Integrate Co., Ltd.	Surat Thani	18,000 (Crude Palm oil)	135	Jan 21, 1985
15. Sahakarn Palm Industry Co., Ltd.	Krabi	18,778 (Crude Palm oil)	90	Feb 18, 1985
16. Trang Palm Oil Co., Ltd.	Trang	1,685 (kernel)	77	April 7, 1987
17. Asia Palm Oil Co., Ltd.	Trang	9,600 (Crude Palm oil)	424	June 27, 1985
18. Palm Co Taksin Co., Ltd.	Surat Thani	48,000 (Crude Palm oil) 4,560 (kernel)	427.85	Feb 18, 1987
19. Prasaeng Oil Palm Co., Ltd.		9,600 (Crude Palm oil) 2,020 (kernel)	57.60	Nov. 11, 1982
20. Vijitpan Palm Oil Co., Ltd.		36,000 (Crude Palm oil) 4,000 (kernel)	150	Nov. 25, 1982
21. Southern Palm Oil Co., Ltd.		7,200 (Crude Palm oil) 1,440 (kernel)	60	Dec 16, 1987
22. Surat Palm Oil Co., Ltd.		18,000 (Palm oil) 4,500 (kernel)	70	Feb 9, 1988

Source: Board of Investment

Table 3.14

Status of palm planters

Unit : Case

Status	CF	%	Independent	%	Total	%
Independent	5	8.77	15	25.00	20	17.09
Farmers' Group	3	5.26	6	10.00	9	7.69
Agricultural Coop	4	7.02	14	23.33	18	15.38
BAAC clients	39	68.42	17	28.33	56	47.86
Others	6	10.53	8	13.33	14	11.97
Total	57	100.00	60	100.00	117	100.00

Source: Field survey

Table 3.15

Characteristics of Palm Sales

Unit : Case

Characteristics	CF	%	Independent	%	Total	%
Bunch	51	89.47	40	67.80	91	78.45
Off-Bunch	6	10.53	19	32.20	25	21.55
Total	57	100.00	59	100.00	116	100.00

Source: Field survey

Table 3.16

Sources of Marketing Information of Palm Planters

Unit : Case

Sources	CF	%	Independent	%	Total	%
Merchant	7	12.07	12	20.34	19	16.24
Mills	41	70.69	28	47.46	69	58.97
Neighbour	7	12.07	11	18.64	18	15.38
Radio	2	3.45	5	8.47	7	5.98
Others	1	1.72	3	5.08	4	3.42
Total	58	100.00	59	100.00	117	100.00

Source: Field survey

Table 3.17

Transportation of palm

Unit : Case

Means	CF	%	Independent	%	Total	%
Own truck	18	31.02	20	33.90	38	32.48
Hired truck	35	60.34	32	54.24	67	57.26
Others	5	8.62	7	11.86	12	10.26
Total	58	100.00	59	100.00	117	100.00

Source: Field survey

Table 3.18

Land Holdings of Palm Planters

Unit : Case

Land Holdings	CF	%	Independent	%	Total	%
Own	25	59.52	36	59.02	61	59.22
Rented	11	26.19	16	26.23	27	26.21
Occupied	5	11.91	7	11.48	12	11.65
Others	1	2.38	2	3.28	3	2.91
Total	42	100.00	61	100.00	103	100.00

Source: Field survey

Table 3.19

Sources of Funds of Palm Planters

Unit : Case

Status of Borrowing	CF	%	Independent	%	Total	%
Borrowing	41	100.00	36	59.02	77	75.49
Not Borrowing	-	-	25	40.98	25	24.59
Total	41	100.00	61	100.00	102	100.00

Source: Field survey

Table 3.20

Sources of Loan of Palm Planters

Unit : Case

Sources of Loan	CF	%	Independent	%
Commercial Banks	-	-	7	19.44
BAAC	41	100.00	12	33.33
Merchant	-	-	4	11.11
Co-operatives	-	-	8	22.22
Crushing Mills	-	-	2	5.56
Neighbour	-	-	2	5.51
Others	-	-	1	2.28
Total	41	100.00	36	100.00

Source: Field survey

Table 3.21

Form of Borrowing of Palm Planters

Unit : Case

Form of Borrowing	CF	%	Independent	%	Total	%
Cash	6	14.63	20	55.56	26	34.21
Farming inputs	10	24.39	12	33.33	22	28.95
Cash + farming inputs	25	60.98	3	8.33	28	36.84
Others	-	-	1	2.78	1	1.32
Total	41	100.00	36	100.00	76	100.00

Source: Field survey

Table 3.22

Marketing Means of Palm

Unit : Case

Marketing Means	CF	%	Independent	%	Total	%
Self - delivery	41	100.00	21	33.33	62	59.62
Through middle man	-	-	13	20.63	13	12.50
Through agricultural Co-operatives	-	-	25	39.68	25	24.04
Others	-	-	4	6.35	4	3.85
Total	41	100.00	63	100.00	104	100.00

Source: Field survey

Table 3.23
Palm Selling Places

Unit : Case						
Market Place	CF	%	Independent	%	Total	%
At farm	20	48.78	29	36.25	49	40.50
Through farmers' organizations	-	-	25	31.25	25	20.66
At Mills	21	51.22	21	26.25	42	34.71
Others	-	-	5	6.25	5	4.13
Total	41	100.00	80	100.00	121	100.00

Source: Field survey

Table 3.24
Viewpoints of Palm Planters towards CF

Unit : Case						
Viewpoint	CF	%	Independent	%	Total	%
Useful	37	90.24	46	75.41	83	81.37
Not useful	4	9.76	15	24.59	19	18.83
Total	41	100.00	61	100.00	102	100.00

Source: Field survey

Table 3.25
Palm Planters' Willingness to Join CF if Approached

Unit : Case		
Attitude	No.of Cases	%
Positive	46	76.67
Negative	14	23.33
Total	60	100.00

Source: Field survey

Table 3.26

Forms of CF Desired by Palm Planters

Unit : Case		
Form	No.of Case	%
Individual	24	52.17
Group	22	47.83
Total	46	100.00

Source: Field survey

Table 3.27

CF Pricing Characteristics Desired by Palm Planters

Unit : Case		
Characteristics	No.of Cases	%
Fixed price	5	10.87
Minimum price	30	65.22
Market price	11	23.91
Total	46	100.00

Source: Field survey

Table 3.28

Quantity of Produce Palm Planters Prefer to Sell under CF

Unit : Case		
Quantity	No.of Cases	%
Whole	32	69.57
Part	14	30.43
Total	46	100.00

Source: Field survey

Table 3.29

Forms of Contracts Desired by Palm Planters

Unit : Case		
Form	No.of Cases	%
Written	25	54.35
Verbal	21	45.65
Total	46	100.00

Source: Field survey

Table 4.1

Volumes and Values of Canned Asparagus Exports
(January - July, 1988)

Country	Volume (kg)	%	Value (baht)	%
Netherlands	21,053	18.26	1,316,051	46.97
UK	17,700	15.35	377,850	13.49
Japan	36,000	31.22	369,672	13.19
West Germany	16,848	14.61	345,350	12.33
Canada	17,700	15.35	340,065	12.14
U.S.A.	6,000	5.20	52,665	1.88
Total	115,301	100.00	2,801,653	100.00

Source : 1. Customs Department
2. Office of Agricultural Economics

Table 4.2

Volumes and Values of Fresh/Frozen Asparagus Exports
(January - July 1988)

Country	Volume (kg)	%	Value (baht)	%
Japan	109,335	78.97	5,597,382	83.90
Hong Kong	17,455	12.61	811,962	12.17
Singapore	4,732	3.42	123,443	1.85
Denmark	2,075	1.50	67,023	1.00
UK	1,141	0.82	20,086	0.30
Netherlands	1,125	0.81	12,739	0.19
Canada	492	0.36	9,840	0.15
Sri Lanka	90	0.07	8,231	0.12
Malaysia	1,470	1.06	7,350	0.11
Taiwan	310	0.22	6,200	0.09
France	117	0.08	5,702	0.09
West Germany	42	0.03	1,050	0.02
U.S.A.	60	0.04	600	0.01
Total	138,444	100.00	6,671,608	100.00

Sources : 1. Customs Department
2. Office of Agricultural Economics

Table 4.3
Status of Asparagus Farmers

Unit : case						
Status	CM	%	Independent	%	Total	%
Independent	-	-	27	55.10	27	27.55
Farmers' groups	49	100.00	9	18.37	58	59.18
Agricultural Cooperatives	-	-	7	14.29	7	7.14
Group of BAAC clients	-	-	6	12.24	6	6.12
Others	-	-	-	-	-	-
Total	49		49	100.00	98	100.00

Note: CM = contract market

Source: Field survey

Table 4.4
Sizes of Asparagus Plantations

Unit : case						
Size (rai)	CM	%	Independent	%	Total	%
1 - 3	38	79.17	36	72.00	74	75.51
4 - 5	5	10.42	9	18.00	14	14.29
6 - 10	4	8.33	3	6.00	7	7.14
Over 10	1	2.08	2	4.00	3	3.06
Total	48	100.00	50	100.00	98	100.00

Source: Field survey

Table 4.5
Sources of Asparagus Seeds

						Unit : Case
Source	CM	%	Independent	%	Total	%
Purchased	42	87.5	40	81.63	82	84.54
Collected from own plantations	6	12.50	9	18.37	15	15.46
Total	48	100.00	49	100.00	97	100.00

Source: Field survey

Table 4.6
Sources of Funds of Asparagus Farmers

						Unit : case
Source	CM	%	Independent	%	Total	%
Own	10	20.83	29	38.78	29	29.90
Borrowing	38	79.17	30	61.22	68	70.10
Total	48	100.00	49	100.00	97	100.00

Source: Field survey

Table 4.7
Sources of Loans for Asparagus Farmers

						Unit : case
Source	CM	%	Independent	%	total	%
BAAC	35	92.11	7	23.33	42	61.76
Commercial banks	—	—	2	6.67	2	2.94
Merchant	—	—	20	66.67	20	29.41
Others	3	7.89	1	3.33	4	5.88
Total	38	100.00	30	100.00	68	100.00

Source: Field survey

Table 4.8

Asparagus Marketing Means

Unit : case

Marketing means	CM	%	Independent	%	Total	%
Selling to Company	40	81.63	-	-	40	41.67
Selling to middleman	7	14.29	42	89.36	49	51.04
Others	2	4.08	5	10.64	7	7.29
Total	49	100.00	47	100.00	96	100.00

Table 4.9

Asparagus Grading by Farmers

Unit : case

Grading	CM	%	Independent	%	Total	%
Yes	48	100.00	43	87.76	91	93.81
No	-	-	6	12.24	6	6.19
Total	48	100.00	49	100.00	97	100.00

Source: Field survey

Table 4.10

Weighing Methods Used by Asparagus Planters

Unit : case

Weighing	CM	%	Independent	%	Total	%
Using scales of farmers	3	6.12	9	18.75	12	12.37
Using scales of merchants	6	12.24	36	75.00	42	43.30
Using scales of companies	40	81.63	-	-	40	41.24
Others	-	-	3	6.25	3	3.09
Total	49	100.00	48	100.00	97	100.00

Source: Field survey

Table 4.11

Payment Periods for Asparagus Farmers

Unit : case

Period (days)	CM	%	Independent	%	Total	%
1 - 7	31	64.58	35	74.47	66	69.47
8 - 15	17	35.42	8	17.02	25	26.32
13 - 30	-		2	4.26	2	2.11
Over 30	-		2	4.26	2	2.11
Total	48	100.00	47	100.00	95	100.00

Source: Field survey

Table 4.12

Sources of Marketing Information of Asparagus Farmers

Unit : case

Source	CM	%	Independent	%	Total	%
Merchants	7	14.29	22	45.83	29	29.90
Company	27	55.10	4	8.33	31	31.96
Neighbours	12	24.49	16	33.33	28	28.87
Radio	-	-	-	-	-	-
Others	3	6.12	6	12.5	9	9.28
Total	49	100.00	48	100.00	97	100.00

Source: Field survey

Table 4.13

Problems faced by Asparagus Farmers

Unit : case

Problem	CM	%	Independent	%	total	%
Lack of Market	-	-	4	8.51	4	4.21
Delayed payment	-	-	1	2.13	1	1.05
Grading not up to standard	42	87.5	31	65.96	73	76.84
Low price	6	12.5	11	23.40	17	17.89
Total	48	100.00	47	100.00	95	100.00

Source: Field survey

Table 4.14

Forms of Sales Contracts under CM

Unit : case

Characteristics	Number (case)	%
Written	49	100.00
Verbal	-	-
Total	49	100.00

Source: Field survey

Table 4.15

Occupations of Asparagus Farmers

Unit : case

Occupation	CM	%	Independent	%	Total	%
Planting asparagus only	26	54.17	28	57.14	54	55.67
Planting asparagus + pineapples	-	-	8	16.33	8	8.25
Planting asparagus + sugarcane	-	-	3	6.12	3	3.09
Planting asparagus + vegetables	4	8.33	2	4.08	6	6.19
Planting asparagus + paddy	14	29.17	3	6.12	17	17.53
Planting asparagus + others	4	8.33	5	10.20	9	9.28
Total	48	100.00	49	100.00	97	100.00

Source: Field survey

Table 4.16

Characteristics of Land Tenure of Asparagus Farmers

Unit : case

Characteristics	CM	%	Independent	%	Total	%
Own	27	55.10	22	44.90	49	50.00
Rented	15	30.61	16	32.65	31	31.63
Own & rented	5	10.20	3	6.12	8	8.16
Others	2	4.08	8	16.33	10	10.20
Total	49	100.00	49	100.00	98	100.00

Source: Field survey

Table 4.17

Viewpoints of Asparagus Farmers Towards CM

Unit : case

Viewpoint	CM	%	Independent	%	Total	%
Useful	35	71.43	27	55.10	62	63.27
Not useful	14	28.57	22	44.90	36	36.73
Total	49	100.00	49	100.00	98	100.00

Source: Field survey

Table 4.18

Number of Asparagus Farmers willing to Accept CM if Approached

Unit : case

Answer	Number	%
Positive	26	53.06
Negative	23	46.94
Total	49	100.00

Source: Field survey

Table 4.19

Form of Contract Market Preferred by Asparagus Farmers

Unit : case

Form of CM	Number	%
Individual	12	46.15
Group	14	53.85
Total	26	100.00

Table 4.20

Forms of CM Pricing Preferred by Asparagus Farmers

Unit : case

Characteristics	Number	%
Fixed price	13	50.00
Minimum price	9	34.62
Subject to market price	4	15.38
Total	26	100.00

Source: Field survey

Table 4.21

Quantity of Produce Asparagus Farmers Prefer to Sell under CM

Unit : case

Quantity	Number	%
Whole	22	84.62
Part	4	15.38
Total	26	100.00

Source: Field survey

Table 4.22

Forms of CM Preferred by Asparagus Farmers

Unit : case

Form	Number	%
Written	20	76.92
Verbal	6	23.08
Total	26	100.00

Source: Field survey

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