

CHAPTER VI

DANISH DAIRY CO-OPERATIVE SYSTEM

From the presentation in the preceding chapters, we can realize a picture of the economic nature of Thai dairy industry as a whole. Now we turn to the investigation of the Danish dairy co-operative system in order to achieve the purposes mentioned in Chapter 1. An additional important reason for such an investigation is that the Danish system is a highly developed one and can serve as a significant model for Thai dairy industry in many respects. In other words, the relevant knowledge and know-how acquired from the System may be applied to the solution of Thai dairy industry problems. To prove this hypothesis, we will first explore the historical background and economic significance of the system and then analyze of growth, trends, and development.

6.1 Historical Background and Economic Significance

The historical background of the Danish co-operative dairy movement can be separated into various stages for clearer elucidation, which are agrarian reforms, credit co-operative establishment, folk high schools' role, political crisis, consumers co-operative formation, grain crisis, dairying before the co-operative dairy, and the scientific co-operative dairy. The characteristic features of each stage are presented chronologically:

1) Until 1788 Danish agriculture was organized on a feudal basis. The farmer depended on a *lord* who owned the land he was cultivating and for whom he was obliged to work it.¹⁾ The characteristic features of the peasantry were its poverty and its low level of education. Low, too, was the level of agricultural

¹⁾ L. Smith-Gordon and C. O'Brien, Co-operation in Denmark (Manchester: The Co-operative Union Limited, 1919), pp. 9-10.

productivity, because of the employment of the new method.¹⁾ However, the agricultural reforms, initiated in 1760 but not effective until the year 1784, destroyed the feudal system, liberated the peasants from the manorial system and fully developed free Danish farmers both in education and in landownership. New and better techniques of agricultural production were introduced and hitherto unused land was cultivated for the first time. Consequently, there was a considerable increase in agricultural production, particularly in that of the then main product, grain.²⁾ In sum, the agrarian reforms liberated Danish farmers and resulted in the increase of grain production in later years.

2) Danish policy after the abolition of the manorial system was to encourage farmers to purchase land and to this end a number of land credit institutions were introduced by the government to grant long-term loans at low rates of interest to farmers. But credit institutions established for this purpose were discontinued as a result of the war-time financial crisis of 1807-1818. Later a new credit system, the *Landboforening*, organized on a co-operative basis in Germany, was studied and proposed by A.P. Bergsøe, a Danish economist, at large agricultural meetings in 1845, where it was discussed and adopted. But the introduction of the *Landboforening* was postponed pending the adoption of the new constitution of 1849 which brought new men to the fore. Then a law was enacted by Danish Parliament in 1850 providing for the establishment of such credit associations;³⁾ the first two of these were set up shortly thereafter in Denmark and supplied their members with long-term mortgage credit at low rates of interest mainly for agricultural purposes. The credit associations can best be defined by saying that they were a sort of co-operative-type firm of farmer-member borrowers. However,

1) "Producers' Associations" (paper for the seminar on agricultural and rural development at Kals, 1962), p. 1.

2) *Ibid.*, p. 2

3) H. Faber, Co-operation in Danish Agriculture (London: Longmans, Green and Co., 1918), p. 131.

both because of the nature of these economic organizations, working on the basis of special legislation, and because of the comparative freedom of Danish farmers from the need for such assistance, the credit co-operative movement never really made much headway, although they were the foundation of the large-scale development of farmers' co-operatives for production,¹⁾ They were an important measure in assisting farmers to be land owners as well.

3) For adult education, the Danish folk High School System, the legacy of a great national leader, the Post-Bishop Nikolai Frederik Severin Grundtvig (1783-1872), was set up as a private institution to cope with the task of educating the peasants freed from serfdom. The schools, the first of which was opened in 1844 in Denmark, aimed not at turning the farmer into a specialist, but at giving him a general education. Supported by Government grants from 1851 to meet their expenses, the schools, at first sparingly, later more liberally, played an important role in general education by setting the facts before the farmer, acquainting him with different opinions, and showing arguments that could be advanced for and against the opinions and interpretations. They gave the farmer a real understanding of his problems and enabled and encouraged him to become a responsible citizen.²⁾ In so doing, they exerted considerable influence, and helped to make the Danish farmer one of the most enlightened in the world.

As regards their connection with agricultural co-operatives proper, the schools played a large part in creating social attitudes: they showed how democracy worked; they prepared the minds of those attending them for the idea of voluntary associations³⁾ on the basis

1) Danish Agriculture, (Copenhagen: The Danish Agricultural Organization, 1964), p.13.

2) "Producers' Associations" (paper for the seminar on agricultural and rural development at Kalø, 1962), p.3.

3) They include co-operative associations as well.

of **self-government** and solidarity) and they provided **the** education ¹⁾ necessary to **make democracy** and voluntary association work in **practice**. By awakening social awareness, the schools prepared the **ground** for the growth of the co-operative movement. In **conclusion**, the Folk High School played a significant part in contributing to dairy co-operative **development**.

4) A political crisis involved Danish agricultural economy: after the agrarian reforms, agriculture became mainly organized on an extensive **system**. Large areas of land were devoted to grain **production**, the **chief source** of income, while the remainder **was** given to **grazing**. The factual reasons for these phenomena were (1) Denmark then **possessed** the territories of **Schleswig** and Holstein, which were well suited to grain production and the raising of **cattle** and (2) she had a ready market for grain and livestock in Germany. ²⁾ In the second half of the nineteenth century, however, the picture changed **as** a result of the **wars** between Denmark and Germany in **1848-50** and in 1864. One of the **consequences** of the first of these **wars** **was** a general deterioration in trading relations between the two countries, **which particularly** affected outlets for Danish agricultural produce. A consequence of the second war was that Schleswig and Holstein **were** ceded to German States. ³⁾ Thus Denmark **was** deprived *not* only of a large and fertile portion of her territory but of **her** market *for* agricultural produce in Germany; **for** the **Danes' bitterness** prevented them from dealing with the *Germans*, **while** the **Germans** for their part introduced restrictive regulations and imposed prohibitive duties on the import, first of Danish corn

¹⁾ Henning Ravnholt, The Danish Co-operative Movement (Copenhagen: Det Dansk Selskab, 1950), p.12.

²⁾ L. Smith-Gordon and C. O'Brien, Op.Cit., p.11.

³⁾ Thip Thipohainetha, Economic, Organizational, and Managerial Nature of Danish Dairy Co-operatives Bangkok: Mr. T. Thipchaimantha, 1969), p.8 (Mimeographed).

ad later of Danish livestock.¹⁾ The political crisis affected
 ● Or100aly agricultural trading relations.

In addition, the immediate effect of the 1864 of the territories and markets was an intensification of nationalist sentiment in Denmark, which found an outlet in Grundvigionism,²⁾ and was summed up in the motto of the day "Outward Loss, Inward Gain." This philosophy had considerable influence on the folk high ● 04001. and became ● foundation of strength in the Danish co-operative movement.

5) After the war Pastor Hans Christian Some (1817-1880), the originator, with Dr. Ulrich, ● friend, studied the English co-operative store and founded the Thisted Workers' Society in Denmark in 1866. The formation of consumers' co-operatives 88 such introduced co-operative principles into Denmark and also inspired Danish farmers to solve their own dairy problems. The formation is generally held to be the beginning of the modern co-operative movement in this small country, because it was the first w-operative ● 8tnbll&ivd and it functioned without the aid of special legislation.

6) Another factor that played an important part in the Danish economy after 1875 was a heavy fall in price of grain, owing to improved technology and better sea transportation. The use of machinery on farms in America and faster sea transport ● naQlad grain and other foodstuffs to be produced more cheaply in increased quantities and shipped to Europe, flooding the markets in the northwestern European countries to which Denmark had previously exported most of her grain. This competition quite ● uddwly threw Danish agriculture into a serious and permanent crisis similar to agricultural conditions in other European countries. Owing to a

1) Ibid., p. 8.

2) Philosophy of N. F. S. Grundvig, poet, preacher, historian, politician, and popular ● duoator. When the Danes were defeated by the Prussians, he was 80.

lack of an industrial economy, Denmark could not protect her agriculture. Consequently, the price of rye declined after 1875 by about 30 percent, and that of wheat by 40 per cent.¹⁾ One result of this was a drop in the value of agricultural land. That it did not lead to the imposition of protective tariffs was probably due to widespread liberal sentiment. This preference for free trade necessitated changes in the pattern of Danish agriculture, which changed from grain production to animal production, i.e. dairy farming. Another reason for this change was that farmers realized how the drop in prices of rye and wheat affected them, and that the causes of the drop were likely to be permanent. As the pattern of agriculture changed, so did the pattern of marketing. That is, marketing co-operatives replaced privately-owned firms in order to perform marketing functions at home and abroad because co-operatives could better solve the small farmers' problems.²⁾ Denmark, then, gradually changed from a surplus grain exporting country to an animal-product exporting country.

7) Dairying methods practiced by peasants or small farmers before 1882 were incredibly primitive; fresh milk, for instance, "was placed on a shelf in the sitting room to keep warm while the cream formed. After twenty-four hours in smoke and heat, the cream would then be skimmed off by hand." It caused the quality of the small farmers' butter to be poorer than that of the large estates' butter, produced by better methods. Consequently, the "peasant" butter's price was lower than that of the "estate" butter. The differences in quality and prices between the two grades of butter stimulated the small farmers to improve their butter's quality by organizing several dairy ventures to cope with the mentioned problems, but they were not successful because

¹⁾ Harald Westergaard, Economic Development in Denmark (Oxford: Carnegie Endowment for International Peace, 1922), pp.66-67.

²⁾ Denmark 1931 (Copenhagen: The Royal Danish Ministry of Foreign Affairs and the Danish Statistical Department, 1931), pp.72-73.

of serious problems encountered, such as the poor quality of dairy products. Their existence, though, formed an important link in the development of dairying, as it eventually led to the establishment of successful co-operative dairies¹⁾ and of other type of Danish co-operative societies. It is known that another group of Danish farmers had established a dairy based on co-operative principles in 1875, but for some reason this co-operative remained unknown for years and had no imitators.²⁾

8) The first successful major venture was the national dairy co-operative founded in 1882 by a group of eighty farmers in the south-west of Jutland. It could solve the problems of producing and marketing butter of better quality successfully. Particularly, it sold the butter at a higher price than that of butter produced and sold by individuals. (wing to its great economic success, the firm began to serve as a valuable model for groups of Danish farmers in organizing many dairy co-operatives in other parts of Denmark. A number of prevailing conditions and factors which contributed to the dairy co-operative's success at that time were as follows. First, the firm was organized on a sound economic basis-sufficient volume of business. Secondly, it returned the skimmed milk to its members at a nominal price and had no problems with "thin" milk, as private dairies did. Thirdly, and most important perhaps, the co-operative was obviously the most suitable and appropriate way of organizing the production and marketing of dairy goods. As the farmers' general level of education was high and the folk high schools had developed a sense of community, it was possible to find intelligent farmers capable of managing the dairy business competently. Fourthly, the co-operative's contract and rules, e.g. organization on unlimited liability basis, were excellent. These embodied the principles necessary for the co-operative's success. Fifthly, the discoverer of the co-operative had been

1) K. F. Nielsen, "Dairying before the Co-operative Dairies" (paper for the seminar on agricultural and rural development at Kalz, 1962). p.1.

2) Harald Faber, Co-operation in Danish Agriculture (London: Longmann, Green and Co., 1918), p.37.

inspired by the discoverer of the first co-operative store at Thisted. And sixthly, the efficient mechanical cream separator invented in 1878 by L.C. Nielsen contributed to the co-operative's success.

From the aforementioned economic phenomena, we can deduce that the co-operative made Danish farmers economically successful.

6.2 Analyses of Growth, Trend and Development

For easy analysis this section will be separated into two subsections: (1) the historical growth and (2) the trend and development of co-operative dairies. The analysis of each subsection is presented below:

1) As to the historical growth, all dairy co-operatives patterned upon the first dairy co-operatives model were organized in rapidly increasing numbers in the period of 1882 to 1900. It was a period of spontaneous and rapid growth. The number of the co-operatives increased from 2 in 1882 to 942 with about 140,000 members in 1900¹⁾ primarily because of higher price for their butter sold. During the second period from 1900 to 1938, the peak year, the rate of increase slowed slightly. In 1938 proper 1,405 co-operatives with about 190,000 members and an annual turnover of 650 million kr.²⁾ existed in Denmark (see Appendix 2).

More particularly, the farmers were sure that their economic problems could be solved successfully by true co-operatives, not by the privately-owned firms; and the price of raw milk sold to the co-operative was higher than that of milk sold elsewhere. This economic success stimulated the rapid formation of dairy co-operatives all over Denmark (see Figure 12).

2) However, the co-operatives have decreased considerably in number since 1939, although the decrease has slackened somewhat. A main reason for this decrease was that, according to a Danish

¹⁾ Henning Ravnholt, The Danish Co-operative Movement (Copenhagen: Det Danske Selskab, 1950), p.42.

²⁾ Ibid., pp.92-94.

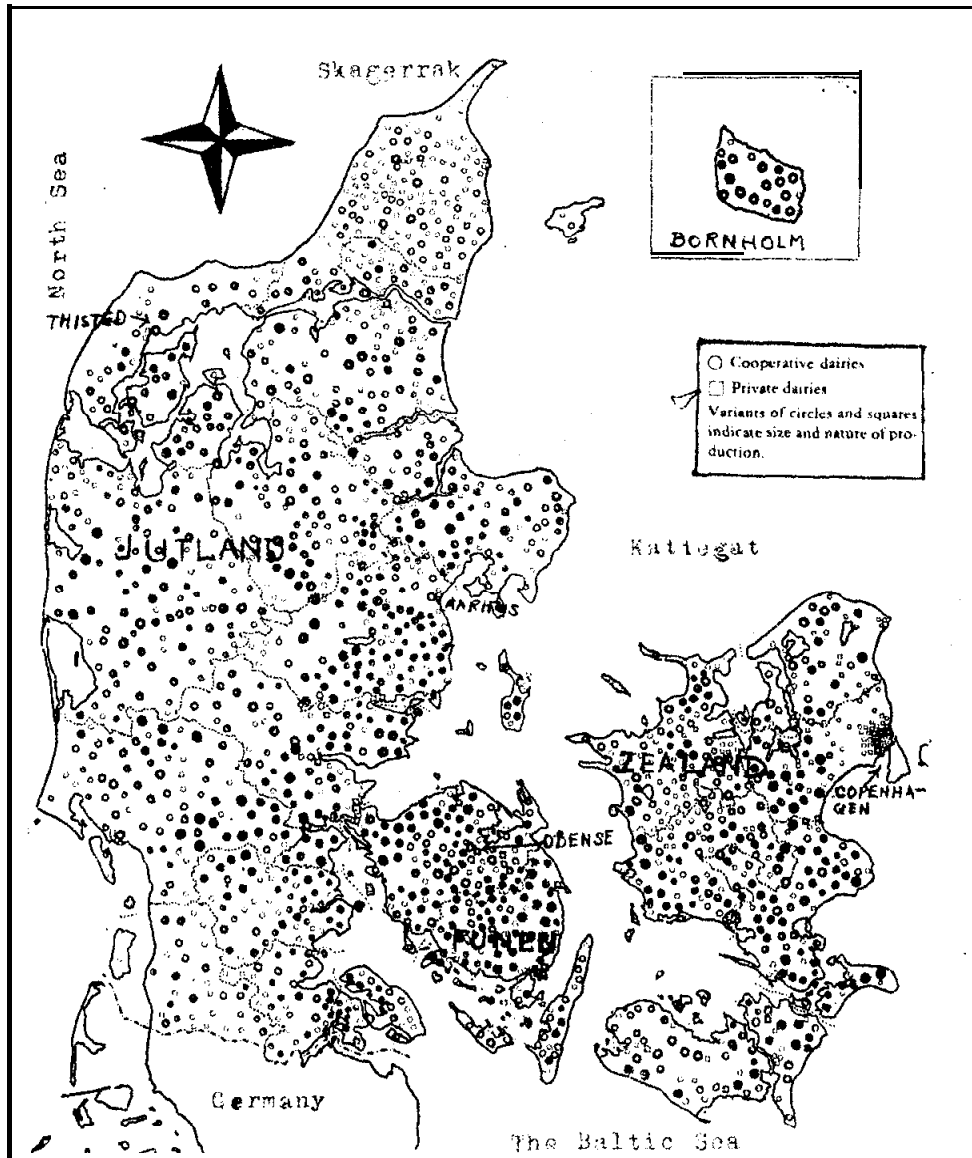


Figure 10

Locations of Dairies of Denmark in Past Years

Source: FDDA, Facts About the Danish Dairy Industry (Aarhus: FDDA, 1965), p. 40.

co-operator's theory, large co-operative dairies were more economical than small ones. Consequently, small and inefficient co-operatives were amalgated to gain size and efficiency. A planning committee set up by the Federation of Danish Dairy Associations, FDDA, is in charge of the amalgamation of these firms.

There were 1,399 co-operative dairies with about 189,825 individual members in 1939 (see Appendix 2). At the end of 1973 there were 261 co-operative dairies, 1,138 fewer than in 1939, with about 68,000 individual members, or about 261 per society, and an annual turnover of 3,996 million kr.¹⁾ Figure 13 shows the trend in the turnover and number of co-operative dairies with their members at intervals from 1955 to 1971. Now we interpret the figures:

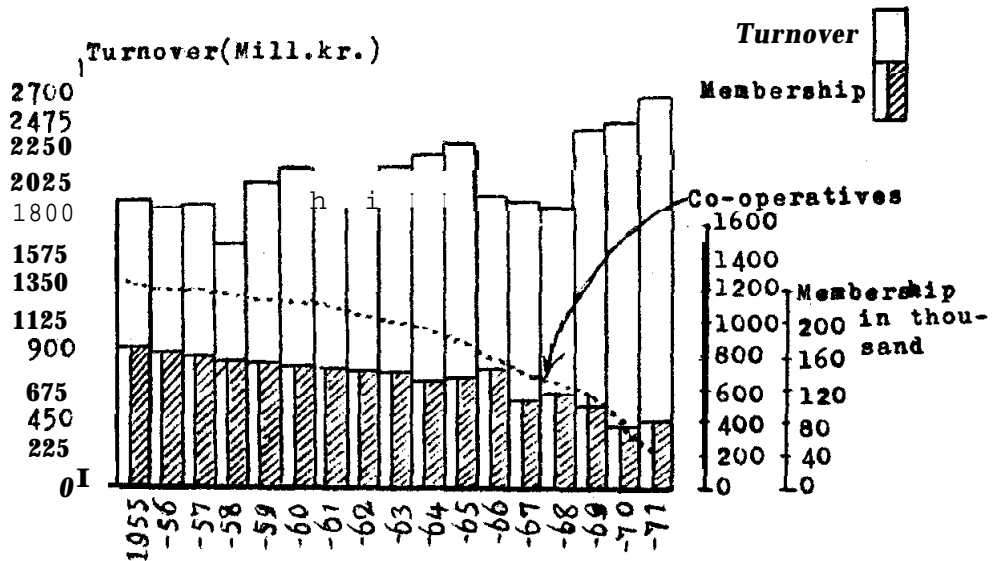


Figure 13
Number, Membership and Turnover of Danish Co-operative Dairies
1955-1971

Source: Danmarks Statistik, "Statistisk Årbog", Statistical Yearbook, København, Statistiske Departement, (Vols. 1955-1972).

¹⁾ This data was collected from Mejerikontoret, Frederiksballe 22, 8000 Aarhus C.

The number of primary co-operative dairies and their members has gone down significantly because of constantly decreasing farm population, but the average number of members per society (188) has slightly increased simultaneously because of the dairy industry's policy of shifting to smaller number of bigger Organizations. The annual turnover of the co-operatives has slowly increased. This was probably due to inflation during and immediately after the Second World war; but it slightly decreased in years after 1965, probably because of some marketing problems encountered. Comparatively, the Danish Co-operative Associations' aggregate turnover in 1970 was 20,544 mill. kr. ¹⁾; of which the firms' share was 3,318 mill.kr. or 16.22 per cent. Thus, economic strength of the associations also lay in the co-operative dairies.

The participation of Danish Farmers in dairy co-operatives led, towards the end of the eighties, to the establishment of dairy co-operative associations at higher levels. This development might have been based on evolution, i.e. a process of growth and expansion. The co-operatives of this type were exhibiting more life. The purposes of these associations varied: some were commercial, specialising, for example, in the further treatment of dairy products; others were associations attending to the interests specially connected with the marketing of butter; and others existed to look after other interests of their members. On these purposeful bases, these associations can be broadly divided into two groups: 1) federation for purposes of education, propaganda, research, advice, etc.; and 2) federstiona for commercial and manufacturing purposes.

The first group includes both District Dairy Associations and Provincial Dairy Associations and the Federation of Danish Dairy Associations (FDDA). The second group includes Co-operative butter Export Associations, Co-operative Cheese Export Association, and Co-operative Condensed and Dried milk Factories.²⁾

¹⁾ Danmarks Statistik, Statistisk Årbog 1972 (København: Det Statistiske Departement, 1972), p.137

²⁾ This data was collected from the FDDA at Aarhus.

Concerning the District Dairy Associations: when enough primary societies existed in Denmark, they federated to form these area associations for the most part on a county basis¹⁾ to deal with matters common to all of them in the districts. At first the associations, the first of which was formed in 1889, were concerned with the joint purchase of dairy materials, fuels, and feeding stuffs and with the encouragement of a uniform system of book-keeping and accounting. Later, they were concerned with marketing problems such as falling butter prices and the general dissatisfaction with the way the private-exporter-dominated committee determined butter price quotations, varying with no relation to the quality of butter, etc. In 1966 there were twenty-four district dairy associations with a total of 757 primary co-operative dairy members and some of the private dairies. According to A. Axelsen Brejer, a Danish writer of Looks on co-operation, the associations' present activities are (1) the arrangement of local tests of dairy products and (2) the employment of advisers in hygienic milk condition; but their other activities, such as joint purchasing and price statistics, have been gradually taken over by national organizations.

The Provincial Dairy Associations were set up in 1894, 1895, and 1901 by the District Dairy Associations in a move directly connected with the disagreement over butter price quotations mentioned above and with general discontent over the way the whole butter trade was organized. Their other activities which should be mentioned were (1) taking over and extending the task of collecting and exchanging information on butter prices from the district association; (2) extending and reorganizing the preparation of statistics connected with butter prices and dairy accounts; and (3) introducing a brand for Danish butter and preparing the legislation enacted by the Danish Parliament in 1906 concerning "Lur Brand," the quality mark of dairy

¹⁾ For the purposes of local government Denmark is divided into twenty-two counties, each of which is administered by a county council headed by a chief administrative officer.

products. In 1968 there were three provincial dairy associations, one of which was in Aarhus and belonged to the district association in Jutland, another in Odense which served as a District as well as Provincial Association,¹⁾ and a third in Copenhagen belonging to the district associations on the Eastern Island. After 1912 some of the three associations' responsibilities were transferred to the FDDA and their scope of activities was gradually restricted. They were consequently not as important as the district associations and the FDDA.

Now we turn to the FDDA, the national organization coordinating the activities of the provincial associations. It was set up in 1899 and was reorganized in 1912 as the national body, at Aarhus. Its formation was, amongst other causes, due to the fact that an establishment of the Lur Brand as the quality mark necessitated the existence of a control body that could prepare and make recommendations on necessary control and inspection measures on behalf of the entire dairy industry.

The federation has become an effective organization in the field of quality promotion, marketing, management, etc. The "Dairy Office" is the secretariat of the federation and of the special departments for dairy statistics, home market regulations, and advisory services, etc. The secretariat has its own architectural department specializing in the design and construction of dairy plants.

The federation is also represented in major organizations, directly and indirectly concerned with dairy industry. It is now the accepted body for negotiations with the Ministry of Agriculture and for making recommendations on matters affecting the dairy industry. To obtain the necessary services, the federation is also associated with the Federation of Danish Co-operative societies, the organization at the highest level of structure of Danish co-operative Movement.

¹⁾ Rai Saheb Pandit Chandrika Prasada, Manual of Agricultural Co-operation in Denmark (Ajmer: Scottish Mission Industries Co., Ltd., 1917, p.86.

Apart from the federation's working with the co-operative dairies, these primary organisations, at the end of the nineties, met up a number of Co-operative Butter Export Associations within their respective districts to save the profits of the middle-man, who bought the butter at the rates quoted on the Copenhagen market and sold it in the domestic market or for export. The Associations, which were local marketing organisations at the secondary level, were organized on a co-operative basis to manage the export trade and to handle wholesale marketing in importing countries. The member co-operative dairies undertook joint responsibility for the liabilities of the Associations. They were successful in the export trade. In 1948 there were ten Co-operative Butter Export Associations, each serving its district. The Associations' activities were co-ordinated by a national organization, the Federation of Butter Export Associations, which was in turn associated directly with the Federation of Danish Co-operative Societies.

By the end of 1970, there was one leading Co-operative Butter Export Association, namely, "Butter-Dane," because of the merger policy, with a turnover of 605 mill.kr.¹⁾ About 70 percent of the market share of all butter exports was held by this organization, the bulk of it to Great Britain.

The Co-operative Cheese Export Association also is a special marketing organisation, set up by the primary co-operative dairies on the co-operative basis. The main reason which led to the formation of this organization was an increasing demand for cheese abroad after the Second World War. This demand stimulated the expansion of cheese production in Denmark. Many dairies that had not previously produced cheese went in for it for export. The exports required a uniformly high quality and it was to ensure this that cheese stores were erected. In 1948 some of these stores and dairies united to set up the Co-operative Cheese Export Association. This nation-wide body is associated with the Federation of

¹⁾ Danmarks Statistik, Statistisk Årbog 1972 (København: Det Statistiske Departement, 1972), p.137.

of Danish Co-operative Societies. In 1970 it had 62 dairy members and a turnover of 157 mill.kr.¹⁾ About 30 percent of all cheese export was sold through it.

The local federations for commercial and manufacturing purposes, the Co-operative Condensed and Dried Milk Factories were set up after the Second World War by primary co-operative dairies to satisfy increasing demands for condensed and dried milk abroad. Their establishment also permitted a desirable diversification of dairy products. They produce condensed and dried milk of high quality standard for export, especially to the Far East. The factories are also big buyers of sugar and materials for producing and packaging the product. Eight of these factories are affiliated with the PDDA for services necessary for their business.

As to the co-operative dairies' importance, at present about 90 per cent of milk is delivered by the farmers to them. The export value of Danish products amounted to 17,257 million kroner in 1967, of which the dairy products' share was 1,450 million kroner, or 8.4 per cent.²⁾ This amount was high in 1967.

In sum, the co-operatives solved suspiciously many of the problems usually associated with small farms. Difficulties caused by variations in price and quality were eliminated. The co-operatives made it technically possible to utilize the milk from smaller farms as profitably as that from the large estates while paying the same price for it. They managed to double butter production within a period of twenty years. They organized an efficient marketing system and exported Danish butter at favourable prices, mainly to British markets. Simultaneously, they have been able to return the skimmed milk to the suppliers in quantities which, together with imported grain, have provided enough livestock foodstuffs to permit bacon production to almost double over the same period of time.

1) Ibid., p. 137

2) Facts about the Danish Dairy Industry (Aarhus: the PDPA, 1968 p.4.

In conclusion, the co-operatives reorganised Danish farm and dairy production and marketing and thereby created improved conditions for Danish farmers.

6.3 Economic Characteristics

1) Now we turn to economic characteristics of the co-operative dairy system. It is found that the co-operative dairy's main purpose is to obtain the highest price for the output sold for its members; it is an organisation of milk-producing farmer members; it is a co-operative-type firm, buying milk and producing and marketing its output for income, and it is organized in accordance with those principles formulated largely by the farmers at Hjedding. These four characteristics are common to all co-operative dairies, and they are the basic definition of the Danish co-operative dairy to be formulated as follows:

The Danish co-operative dairy is a firm set up by its members or member firms the purpose of which is to carry out the economic activity of dairying--the buying, producing, and marketing of dairy products--on behalf of its members, in accordance with principles agreed upon by and beneficial to them.

2) With respect to the extent of economic activity the co-operative dairies are concerned mainly with the processing of raw and dairy products of various varieties and the marketing of the products. They are also concerned with certain aspects of milk production on farms, such as research into heredity and physiology of cattle feeding, hygiene, and cattle disease prevention. Other services designed to further dairy interests both in Denmark and abroad are provided by their higher co-operative dairy organizations. Moreover, they are concerned with purchasing through the establishment of two agricultural purchasing associations for handling the purchasing of capital goods, mobile dairy machinery, to improve their purchasing position.

3) Of economic activities performed, the co-operative dairy is regarded as a buyer, producer, and seller of the products in the economic society. But in line with its main purpose, the firm carries on the marketing of dairy products as the kernel fundamental economic activity for its farmer members. In order to get high prices, the firm produces high quality goods for the market. The dairy is thus a producing and marketing co-operative.¹⁾

4) To fulfill the above-mentioned purpose, the co-operative dairy requires adequate capital for its organization and day-to-day management. Like other economic factors, capital is intrinsic to the firm as oxygen is to the air. It is a condition precedent for the firm's success. To have such significant capital, the firm has definite capital requirements and scientific methods of acquiring capital. It requires capital for physical facilities investment as well as for day-to-day operations. On the basis of capital utilization, the funds required can be grouped into (1) working capital, required for operations; and (2) fixed capital, required for fixed assets such as land and physical plant. The amount of capital required for such purposes depends on, according to careful investigation by the author, three factors: (1) the size of dairy business; (2) the quality of assets to be purchased; and (3) the willingness of the member patrons to wait for their payments, sometimes waiting for a long time, considerably reduce the amount of their own working capital. A medium-size co-operative dairy requires about D.kr. 550,000 for both working and fixed capital.²⁾ A small-scale co-operative may need a relatively small amount of capital, but a large-scale co-operative needs a much larger amount.

¹⁾ On the basis of classification of co-operatives according to their fields of economic activities, they fall in to four broad categories: (1) co-operatives for production; (2) service co-operatives; (3) purchasing co-operatives; and (4) marketing co-operatives of farmers.

²⁾ This data was collected from the FDDA. in 1966.

As investigated, the method of acquiring capital must frequently practiced by the firm is borrowing from a bank. It has also four other methods; they are "accumulation of capital," deferred payment to member patrons, deduction of definite amounts from members' returns, and accumulation of reserves. These are practiced as additional indirect methods for gaining financial independence.

Borrowing (the ability to command capital currently for a promise to repay at some future time) constitutes the most important direct method the firm uses to acquire sufficient capital for its fixed assets and operations. To prove this hypothesis, parts of money capital of the firm must be examined at some length. As examined, the firm, the non-stool type of organization, makes no sale of shares of common stock for money capital. The major part, or perhaps the entire money capital, is generally acquired by borrowing. The reason for this, according to A. Axelsen Drejer, is that it is unusual for a co-operative society to obtain sufficient funds from its farmer members to provide the capital required because of their economic condition. The firm makes a long-term loan of ten years at an interest rate of about 10 percent per annum from a bank, Co-operative Bank or Savings Bank, or commercial bank, on its members' joint and unlimited liability. (The members are jointly and severally bound for all financial obligations incurred by the co-operative.) If the firm fails, a bank creditor can secure full payment from any individual member, who in his turn can recover what he does not owe himself from other members on a patronage basis. However, the system of joint and unlimited liability is not used in ordinary organizations because the Danish farmer members of the local societies are unwilling to assume joint and unlimited liability for associations outside their local community. The loan is annually repaid according to the "decreasing payment plan of amortization" from the firm's profit over the period. The method of payment provides for fixed principal payments and declining interest payments on the outstanding balance.¹⁾ The payments continue until the loan is completely

¹⁾ This development is based on information collected from the Aarhus branch of Co-operative Bank.

repaid. This method has an advantage of being easy to compute and understand at any time during the period of the loan.

The accumulation of capital in here the annual* of net profit of the firm at the end of each financial year in order to have a certain amount of capital. The techniques used in the accumulation of net capital are as follows: When a co-operative dairy's net capital, the certain amount of surplus left, corresponds to the difference between the initial capital, the total assets, and the capital loans, then a certain amount of that net capital, not less than one percent and not more than two percent of the annual turnover as shown on the balance sheet, is transferred to the cooperative's bank account (Andelskonto). The amounts thus transferred to this bank account represent the capital in the name of the co-operative dairy.¹⁾ This account is afterwards broken into accounts for individual members and the amounts transferred to each individual account are calculated in proportion to the amount of milk supplied by the member during each year. Usually an interest rate of 6 percent per annum is calculated and paid on this capital.²⁾ However, in practice, this financing method is not successful because it keeps the members away from their co-operative society, it is thus not important at present.

One other financing method is the accumulation of reserves for additional sound financial management of the dairy. Technically, the total payment to each member is generally made for the milk delivered over a two-week or four-week period. When calculating the amount due to each member, deduction of 3¢ per kg. of milk is made to cover resources for the reserve fund. By adding to the reserve, the co-operative can improve its financial management from time to time, even though the amount added is not great.

In addition, when the managerial organs of the firm calculate the amount due to each member as mentioned above, deduction of 5¢ per kg. of milk is also made to cover the cost of

¹⁾The data collected from the FDDA at Auburn, Denmark.

²⁾The data collected from the FDDA at Auburn, Denmark.

operation.²⁾ This deduction of a definite amount from a member's returns may be one other indirect financing method for operational purposes. It is an ingenious device. However, the proportion of capital obtained by this method is relatively small.

As regards the last financing method, am investigated carefully, members of the firms are normally paid for their milk at the end of every two- or four-week period. This practice may be known as "deferred payment" to member patrons, a common feature to the co-operative in Uukotia# point of view. Thereby the firm has a distinctive feature. The flow of this money for the period free of interest results in lower operating costs, as it may reduce an amount of capital that must otherwise be borrowed outside.

5) Now we turn our attention from the capital aspect to membership aspects of the Danish co-operative dairy. As tradition, the firm is based on membership voluntarism. The Dane is free to join the co-operative, and likewise free to withdraw with the privilege of having his equity returned on due notice. Only under such a voluntary system can a member's preference be freely satisfied. Freedom to belong or not to belong to the co-operative is basic to its underlying philosophy. Coercion is the antithesis of co-operative. The right to withdraw from the society is likewise fundamental.

Practically, the co-operative restricts its activities to dairying, and dairying alone. Anybody in the milk production trade working in the area within which the co-operative operates is admitted to it, provided he sympathizes with its purpose and is willing to accept its by-laws. In practice, no membership selection procedure is designed by the society, because, according to Danish ideas, a milk-producing farmer is supposed to be an already qualified person.²⁾

The above-mentioned open-membership principle has an

1) Einar O. Petersen, Danish Dairying (Copenhagen: Technical Dairy Publishing House, 1963), p. 68.

2) This information was collected from the PDDA.

• One of the advantages in that free access to membership will generally facilitate the most appropriate size of undertaking. The more members there are in the co-operative, the lower will be the cost of doing business. However, in the economic sense, this open-membership principle can be broadened only to a certain extent, because the Danish firm, like other economic units, is subject to the law of economies. Up to a certain point an increase in the numbers of members and in the volume of milk handled brings a lowering of operating costs per unit. Beyond this point the costs begin to rise again. When the optimum point has been reached, a limit to any further increase in the numbers of members should be imposed because too wide an application of the open-membership principle would violate the laws of economics.

6) One more membership aspect should be mentioned here: membership in the firm homogeneous, not heterogeneous. Because all the farmer members are producers and all are of the same commodity--milk. The firm thus can, in its business activity, serve all its members in the best possible way, for the economic interests of the members are not in conflict with each other. They lie in getting the produce sold as advantageously as possible.

7) To create economic permanency, a contract between the firm and the member is entered into in the past, obliging him to market his produce through it for a stated period of time, etc.¹⁾ At present, the firm has no such contract, but it includes in its by-laws all the agreements. Every member is thereby bound to comply during the period of his membership. Some of the agreements oblige the members to supply the firm with hygienic milk from healthy cows in excess of standard farm requirements. These simultaneously oblige the firm to buy all milk delivered to it by its members. In return, the members are obliged to buy all the skim milk, buttermilk, and whey which are not used by the firm, in quantities proportionate to their deliveries of

¹⁾ Chris L. Christensen, Agricultural Co-operation in Denmark. U.S. Department of Agriculture, Dept. Bulletin NO. 1266 (Washington: Govt. Printing Office, 1924), p.13.

the milk to the co-operative. A member who fails to comply with delivery obligations may be deemed to have resigned illegally.

Now we turn our attention to the economic aspects of these agreements. As studied, the agreements guarantee regular and continuous deliveries of milk from the members to the co-operative plant. The existence of the agreements prevents opportunists using the co-operative as a means of inveigling higher prices from private purchasers. Such guaranteed deliveries make possible calculation of milk quantities in the future and enable the co-operative to plan further efficient operations, estimate operational costs, control commitments, and enter into contracts to sell its products to other firms. With the exact quantities of milk to be delivered known, the co-operative is in a position to adjust its operational costs because it can handle the deliveries of milk more efficiently, etc. Guaranteed supplies of milk, moreover, are accepted as security by banks and thus assist the co-operative in its financing operations.

The agreements also result in developing the loyalty of members to the co-operative. Once loyalty is developed, the marketing structure of organization is

8) One other economic characteristic of Danish co-operative dairies is utilization of a system in handling the milk of individual members--the pooling system.¹⁾ Pooling itself is the commingling at the plant of milk of many co-operative member-producers for a definite period of time for sale in bulk. One of the principal reasons for use of the pooling system is the impracticability of keeping each member's milk separate. And the central economic purposes of the pooling system are to enable management to enter into an orderly manner, to distribute risks among the pool contributors, and to effect economic distribution.

As studied, the pooling system has specific economic advantages, which are, for instance, primarily marketing risk--price changes, etc.--permitting the management to use more precaution

¹⁾ Ibid. p. 13.

in placing and in timing the milk to market, enabling the firm to finance its operations more easily because of the milk pool's being considered as security for a loan from a bank, thereby enabling the farmer member to obtain a fair return for his productive effort, placing the firm in a stronger bargaining position, and enabling the co-operative to have greater withholding power for more efficient bargaining than the individual producers could attain. Utilising the pooling system results both in more efficient and in more economical handling of the dairy products. Although the pooling system has certain disadvantages, such as causing delay in payment to producers, its advantages outweigh them.

9) We now leave the pooling system for the voting rights of members relating to the economic aspects of the Danish co-operative dairy. The principle of democratic control is fully applied by the firm.¹⁾ Because it is a democratic and economic organization, its members own, operate and govern the society's affairs on a personal (democratic) basis. Each member has one vote on affairs, irrespective of his economic and social status. This is an expression of equality.

From a strictly economic point of view, the principle of democratic control is really at variance with the co-operative principle of surplus distribution on the patronage basis (to be discussed later). In a primary co-operative dairy it would seem logical and reasonable for control of the organization to be divided in proportion to the extent of patronage. That is, each member should be given unequal voting rights based on patronage.

From the genuine co-operative point of view, the democratic-control principle spells out this characteristic of the co-operative system. It is necessary for the system to maintain this characteristic to distinguish itself from a privately owned or publicly-owned firm.

In fact, there are generally no great differences in wealth amongst the members of the Danish co-operative dairy, and their

¹⁾ Henning Ravnholt, The Danish Co-operative Movement (Copenhagen: Det Danske Selskab, 1950), p. 16.

transactions with the co-operative are generally of equal magnitude. The democratic principle appears, therefore, to be justified. And the firm can work well in this manner. This practice also creates in the individual member more interest in the firm's • ffdr.

However, the practical realization of the equal voting principle has caused difficulties in the higher association.¹⁾ In this organization there is often considerable difference in the size of the affiliated primary societies. Thus, the equal voting system on a personal basis has been replaced by the unequal voting system based on the proportional wealth.

10) The last economic characteristic, which is the most • (x,x)k□□◊◊◊ to be mentioned in this chapter, is a annual surplus distribution and the optimum lml. Specifically, • co-operative dairy's annual surplus, of profit, is distributed among member patrons in proportion to the quantity of milk each has delivered to the firm. It is the most significant principle applied by co-operative dairies.²⁾ According to Henning Ravnholt's reason for such • pplioatiea, profits, as such, arise from the • rhre having received too little for their produce. "As the size of the profit depends • awntially on the size of the turnover, it is only fair ◊◊◊◊ ◊◊◊◊ number • ◊◊◊◊ receive • share of the profit in proportion ◊◊◊ his • hmra of the turnover," or business. Thus the co-operative dairy is diametrically opposed to a privately-owned firm, where the profit is divided in proportion to the capital invested.

The actual procedure for the distribution of profits is usually regulated by the by-laws. These provide for the • ltothont, at the discretion of the board of directors of the co-operative, of a certain percentage of the aggregate net profits for distribution of the balance to member patrons on the patronage basis. The member patron who has • upplid • larger quantity of milk, receives a bigger share of the profit than one who has supplied a smaller quantity. This refund results in an increase of the unit price obtained for the product sold to the firm.

1) Op. Cit. p.19.

2) Op. Cit., p.41.

As stated above, the surplus distribution is equivalent to an increase of the unit price paid to the member patron for his product sold. In order to obtain the maximum increase of the unit price paid, the firm must operate its economic activities efficiently, aiming at a maximum difference between average total cost and average selling price of the product, or the average return per unit. When the difference between the average total cost and the average return reaches its maximum, the maximum-increase of the unit price paid to the patron, or optimum level in the surplus distribution, will thus be attained. The surplus distribution method, in practice, thus contributes in the best possible manner to the attainment of the co-operative's purpose.