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AGRICULTURAL COOPERATION IN DENMARK

O. H. LARSEN

DET LANDOKONOMISKE DRIFTSBUREAU, COPENHAGEN, DENMARK

BEFORE dealing with marketing questions I want to say a few words about Danish farming conditions in general. As you know, Denmark is a very small country—one of the smallest in Europe. Its area is only 43,000 square kilometres or about 16,600 square miles. Nearly 75 per cent of this area is used for agricultural purposes. Of the land used for agricultural purposes about 85 per cent is what we call arable land. Of this, about 47 per cent is used for grain growing, about 31 per cent is used for grass and green fodder, and nearly 18 per cent for root crops and potatoes. The remainder is fallow, or is devoted to the production of less important crops.

Animal production in Denmark is relatively high. According to our bookkeeping records it accounts for 85 per cent of the total gross returns. The greater part of this amount is derived from cattle, pigs, and poultry. We have about 3,000,000 head of cattle of which number somewhat more than 1,500,000 are milk cows with an annual average yield of about 3,100 kilograms per cow.¹ We have about 3,500,000 pigs or perhaps more, because better bacon prices during the last year have, I think, resulted in a considerable increase in the numbers of pigs. In 1926, we had about 18,000,000 hens and chickens.

The agricultural area of Denmark is divided into some 215,000 farms. The average size of these farms is about 16 hectares (nearly 40 acres). Although this is, under Scandinavian conditions, a relatively large average size, we have not very many really large farms—only about 5,500 or 2½ per cent, with more than 60 hectares each. The largest number—about 210,000 or nearly 97 per cent—are middle-sized or, as a matter of fact, small farms. In Denmark all farms from 0.55 to 10 hectares are called small holdings. The total number of these farms in 1919 was 109,000, and in 1929 about 117,000. However, the middle-sized farms containing from 10 to 60 hectares, which in 1919

¹ Equivalents of Danish units of measure, or money:

1 hectare = 2.471 acres

1 kilogram = 2.204 pounds

1 krone = \$0.268 or 1 shilling 1½ pence

numbered 91,500, include about 65 per cent of the total area in farms, while the small farms include only about 26 per cent.

In this distribution of the land I think we can find one of the reasons for the great development of agricultural cooperation in Denmark. It was the farmers on the middle-sized farms who started the cooperative production and selling societies in Denmark in the latter part of the past century. Another reason has been, I believe, that practically all the farmers are owners of their farms. About 97 per cent of all farmers in Denmark own their farms, and I think that the somewhat slower development of the cooperative movement in England is due in part to the fact that a far smaller proportion of the English farmers own their farms than is the case in Denmark. Another reason for the slower development of cooperatives in England is, perhaps, that the British farmer is of a more independent character than the Danish farmer. The Danish farmers are very easy to bring together, and although I do not say that this is altogether a good thing, it has been rather important from the standpoint of the development of the cooperative movement in Denmark. And then I should say that when we leave out of consideration the credit institutions and the consumers' societies, which were started in 1850 and in 1866 respectively, it was the severe agricultural crisis in the latter part of the 19th century which caused the farmers in Denmark to get together and form their first cooperative production societies—the cooperative creameries in 1882, and the first bacon factory in 1887.

Apart from the breeding associations and the cow testing societies, which have nothing to do with cooperative marketing, the number of local cooperative associations in Denmark in 1923 was about 7,000 with a membership of a little more than 1,000,000. Since then no official statement has been made, but the number of local associations has probably gone a little beyond 8,000 and the membership, presumably, somewhat beyond 1,300,000 although the exact number is unknown.

Considering the fact that the population of Denmark aggregates only 3,500,000 and that somewhat less than 1,000,000 persons are engaged in agriculture (the figure for 1921 was 1,077,000, but this figure included persons engaged in horticulture, forestry and fisheries which totalled 86,670), these figures are comparatively large, and Denmark may be considered to be one

of the countries where the cooperative movement is highly developed in the rural district.

Only a part of the cooperative associations and their members participate in cooperative marketing. Disregarding consumers' societies, which are not entirely rural, the most important cooperative associations in Denmark are connected with animal production and may, for purposes of discussion, be divided into the following groups:

1. Cooperative production associations, comprising cooperative creameries and cooperative bacon factories.

2. Cooperative export associations, comprising the Danish Cooperative Egg Export Association, the cattle export associations, and the butter and cheese export associations.

3. Cooperative buying associations, comprising the cooperative feeding-stuffs societies, the Danish Cooperative Manure-Supply Society, the Danish Cooperative Dairy Purchase Association and Machine Factory, and various other less important buying associations.

4. Plant production and selling associations, comprising the Danish Farmers Cooperative Association for Seed Growing, one of the Danish sugar factories, and a few potato export associations.

The latter group is not, however, of any great economic importance as, on the basis of present prices, its annual turnover hardly amounts to more than 10,000,000 kroner (\$2,700,000 or £550,000) while the aggregate turnover for the other three groups in 1927-28 amounted to a little more than 1,350,000,000 kroner.

However, I do not mean to say that the crop production associations are without importance—quite the contrary. Since its establishment in 1906, the Danish Farmers Cooperative Association for Seed Growing has had an extraordinarily great influence on the development and rationalization of seed breeding in Denmark. It constitutes a combination of a seed growers' and a seed-supply association. The function of this association is to guide the farmers with regard to seed breeding and to obtain the best possible seeds (stock seeds) for the breeders who have contracted with the association for their entire crop. It also offers to the members of the Farmers' Association and the Smallholders' Associations selected strains of seed, in the main from the material received from the breeders. With respect to certain kinds of seed, as

for instance red clover, the home production is insufficient to meet home demands. On the other hand, a considerable surplus of various kinds of grass seeds is produced. Cooperative organization is called for, not only when selling the surplus seed but also in buying and distributing other sorts of seed in cases where domestic production is insufficient to meet domestic requirements. The turnover for 1927-28 amounted to about 3,500,000 kroner (\$940,000 or £190,000). However, it amounted to nearly double that figure during the period when prices were high.

The establishment of sugar factories along cooperative lines has been discussed several times. When the last sugar factory was erected in 1912, it was planned to start it as a cooperative factory, but it proved impossible to secure the necessary capital subscriptions. The only sugar factory which is operated cooperatively had been in operation for about 40 years before, in 1925, it was successfully reorganized along cooperative lines. However, for purposes of selling its product, it has a close connection with the large joint-stock company, "The Danish Sugar Factories," which controls seven of the eight joint-stock sugar factories in the country.

Cooperative potato export associations and cooperative potato-meal factories are of very little importance at the present time. During the World War the growing of potatoes greatly increased, and a rather large number of potato-meal factories were organized on a cooperative basis. They worked well as long as starch prices remained high, but after the war when the prices of potato-starch dropped rapidly, the greater number of them failed. We did not have a protective duty on starch, and almost all of these factories have been closed down, in many cases with heavy losses. This is also true with regard to a large cooperative organization for the exportation of potatoes, "The Danish Cooperative Potato Export Association" which had a considerable turnover during its first years—1919 and a part of 1920. At the end of 1920 and in 1921, when prices dropped heavily, the association was not strong enough to stand the fall in prices.

Since the introduction of cooperative producing and selling organizations into the field of plant industry did not turn out very successfully, and was, in any event, limited in extent, further mention is unnecessary. However, the Danish Cooperative Fertilizer Supply Association, a buying organization, must be men-

tioned as an important undertaking, closely related to plant industry. It was established in its present form during the war (1916) when it was difficult to procure the fertilizer needed, and it has been of great importance during the following years. Its yearly turnover has exceeded 20,000,000 kroner which represents more than one-third of our total yearly purchases of fertilizer. Owing to the decline in prices the turnover is now below 20,000,000 kroner, but more than one-third of our total supply of fertilizers is still handled by this organization. It includes about 1,600 local associations with about 78,000 members, which means that 35 or 40 per cent of all Danish farmers procure their supply of fertilizers from this large organisation.

However, the three other groups of cooperative associations have been of much more importance to Danish agriculture than have the plant production and selling associations, especially the group of cooperative production associations, comprising the cooperative creameries and cooperative bacon factories.

The first Danish cooperative creamery was started in 1882 and is thus nearly 50 years old at the present time. The number of creameries increased very rapidly and during the first ten years more than 500 cooperative creameries were built. Before the end of the past century the number was above 1,000, and by 1928 it had increased to 1,379. The membership in 1928 numbered about 195,000, or nearly 90 per cent of all Danish farmers.

The Danish cooperative dairies are mostly butter factories. Some of them also make cheese, but butter production is most important. The yearly production has now increased to more than 180,000,000 kilograms, or nearly 400,000,000 pounds.

The total exports of butter in 1928, of which approximately 90 per cent was made by the cooperative dairies, amounted to about 148,000,000 kilograms. More than 68 per cent of the exports went to England, 27 per cent to Germany, 3 per cent to Switzerland, and the remainder to various other countries. Before the war about 90 per cent of our total exports of butter went to Great Britain, but during the war this percentage declined very considerably. On the average for the past five years only a little more than 70 per cent of our total butter exports have gone to Great Britain, and, as we have heard from Mr. Dykes, our exports to Great Britain constitute approximately 33 per cent of the total British imports of butter.

During the last five or six years nearly 40 per cent of our total annual butter exports have been marketed through the cooperative export associations, while about 60 per cent has been handled partly by private Danish exporters and partly by large British import firms (The English Cooperative Wholesale Society, Manchester, and the Maypole Dairy Company, London). The question has often been asked, as to why a greater number of the Danish cooperative creameries do not join cooperative export associations. The number has not increased materially during the last dozen years. I cannot give a satisfactory reply to this question, but I want to say that many more ought to join the export associations. Originally all Danish butter was sold through private trade houses, either Danish or English. The first butter export association was started in 1889, but it did not make much progress, and even twenty years later only fifteen per cent of the total butter exports were handled by the export associations. Since then, this percentage has been doubled, but during the last five or six years it has not increased. The number of butter export associations is still the same, namely, eleven.

The cooperative sale of bacon has not developed to the same degree as has the cooperative sale of butter. Only one-third of the cooperative bacon factories are members of the Danish Cooperative Bacon Trading Company of London. This company was started in 1901 and has grown rather slowly but steadily so that it is now marketing the bacon from 17 of the 51 Danish cooperative bacon factories.

The first cooperative bacon factory was built in 1887, partly as a result of a change in German tariff policy. Before that time most of our pigs went to Germany. Now we produce bacon for the English market. The movement developed quickly so that at the end of the 19th century the number of bacon factories had increased to 26. At the beginning of the World War in 1914, we had 45 cooperative bacon plants, and the number of hogs slaughtered annually was about 2,500,000. During the war, pig production declined considerably owing to lack of concentrated feeding-stuffs. In 1919, we exported no bacon at all, but after 1920 production and exports increased rapidly. The number of slaughtered hogs in 1928 was 5,400,000 of which 4,500,000 or approximately 83 per cent were slaughtered in cooperative bacon factories. This percentage has remained constant for the last

six or seven years. During the war it was a little higher—in 1918 it was as high as 89.2 per cent. Exports in 1928 totaled 272,000,000 kilograms, practically all of which went to Great Britain. Our exports of live pigs go to Germany and Italy. In 1928 only 45,000 pigs were exported which was a somewhat smaller number than in earlier years. In the five years 1921-25, the average export was 80,000 pigs, and for the five years 1924-28 it was 64,000 pigs. The average exports of bacon for the latter period amounted to 221,000,000 kilograms or 50,000,000 kilograms less than in 1928.

There are, presumably, several reasons why no more than one-third of the cooperative bacon factories have joined the Danish Cooperative Bacon Trading Company. It has been said that the company has now grown so large, that possibly it is not anxious to grow larger. However, whether or not this is correct is an open question. There are of course many bacon factories which have such good connections in Great Britain that their members would derive no advantage from joining the Danish Cooperative Bacon Trading Company. After all, the members of each individual cooperative bacon factory or cooperative creamery have no special interest in the way in which their products are sold, if only they can obtain the same prices as are obtained by the cooperatives selling through the cooperative export associations. The selling of the product is not a problem of the individual member; the bacon factory or creamery always takes care of that, and in many cases it is doubtful if more favorable prices would be obtained by selling on a completely cooperative basis.

A small number of our cooperative bacon factories have also taken over the export of cattle and eggs, but the bulk of the exports of these products is handled by private traders, although we have cooperative organizations for the export of both cattle and eggs.

Danish egg exports for the last five years (1924-28) have averaged approximately 41,000,000 scores per year, or about 50,000,000 kilograms (110,000,000 pounds). This represents twice the average number of eggs exported during the five years immediately preceding the war. In pre-war years almost all of our exports of eggs went to Great Britain. During the war this changed and it was not until the first couple of years after 1920 that about 90 per cent of our egg exports again went to England. However,

since 1924 this percentage has been declining. In 1928 only a little more than 72 per cent of our eggs were exported to England, most of the remainder going to Germany.

The first step toward cooperative exporting of eggs was made in 1895 by the establishment of the Danish Cooperative Egg Export Association. From a small beginning this association has gradually developed an annual export business of from 7,000,000 to 8,000,000 scores of eggs, which represents approximately 20 per cent of the total egg exports of Denmark. Besides this, about 3,000,000 scores are exported through the cooperative bacon factories. Thus about one-fourth of our total export trade in eggs is now handled by cooperative associations.

The Danish Cooperative Egg Export Association was started in a different way than the creameries and the bacon factories. The beginning was made with a central organization, which in the first years included only 60 to 70 local egg-collecting associations. There are now more than ten times that number. The great number of small collecting associations makes it possible to maintain an effective control of the members, which has been of great importance.

Even though a far smaller proportion of our eggs has been sold through cooperative associations than is the case with regard to butter and bacon, the cooperative marketing of eggs has had a beneficial influence upon the quality of Danish eggs on the English market. The quality was not very high when the Danish Cooperative Export Association was established in 1895, but since then it has improved considerably. Private traders have also been forced to be more careful with regard to the quality of their eggs in order to compete with the cooperative associations. In 1925 an act was passed providing that eggs for export must be sorted into five classes, and stamped and packed in standard cases as a guarantee to the buyer that the eggs are of a certain grade.

The cooperative sale of eggs through one central organization has no doubt been of very great importance to the Danish egg trade, even though sales through cooperatives have comprised only a rather small proportion of the total export sales of eggs. In total, export sales of eggs through cooperatives, including the eggs sold through the bacon factories, represent about 25 per cent of the total export sales of eggs.

The first Danish cooperative cattle export association was or-

ganized in 1898 in the northern part of Jutland. The second association was not established until 1906. After that time the movement developed gradually. We now have 17 cooperative cattle export associations with total annual sales of 35,000 head. In 1921, when exports were at their highest, sales through cooperative export associations totaled 70,000 head of cattle. However, not all the cattle handled by these associations were exported. A number was sold for home consumption. The cooperative export sale of cattle does not represent more than 12 to 13 per cent of the total exports—in 1927 and 1928 even less—yet it is evident that the cooperative export associations are of vital importance to the cattle trade, mainly from the standpoint of the small farmers. During the past few years, German import restrictions have proved a considerable hindrance to our export trade in live cattle. Germany represents practically our only market for live cattle. In recent years the average exports to the German market totaled about 270,000 head of live cattle annually, but during the war it rose to more than 300,000 head.

I have already mentioned the cooperative buying and distribution of fertilizers to a large number of Danish farmers (about 40 per cent). As previously stated, about one-third of our total supply of fertilizers is handled by the cooperative organizations. The purchases of fertilizer are made by one central organization—the Danish Cooperative Fertilizer Association.

The cooperative buying of feeding-stuffs is done through six different central organizations, one in each province and two in Jutland. The number of local associations is smaller than that of the fertilizer organization—1,300 as against 1,600—but the total membership is approximately the same, namely, about 75,000. The cooperative feed-supply associations are of an earlier date than the fertilizer-supply associations. Although it is of at least equal importance to the individual farmer to make certain, through cooperative organization and distribution, that the fertilizer which he purchases is all that it should be, it should be remembered that the purchases of feeding-stuffs are more than five times as large as the purchases of fertilizers. As early as 1885 a local feed-supply association, which is still operating, was started in Jutland. In 1896 the large central organization for Jutland was started as a counter move against the combine of the private feeding-stuff importers. This association, "The Jutland

Cooperative Association for the Purchase of Feeding-stuffs", grew very rapidly. Even before the World War it included more than 600 local associations, and now the number has increased to about 825. In 1901 a similar central association was established for the islands. It has since been divided into three associations. Besides this there are two smaller associations. That is to say, there are six central associations, including in all about 1,300 locals. In recent years they have handled 600,000,000 kilograms or approximately 40 per cent of the total imports of feeding-stuffs which, in the last two years, has been nearly 2,300,000,000 kilograms with a value of about 400,000,000 kroner. In the years when the prices of feeding-stuffs were high, the turnover in our feed-supply associations amounted to nearly 200,000,000 kroner, and even after the deflation during the last fiscal year (1927-28) the turnover was about 140,000,000 kroner.

To the farmers operating the small and medium-sized farms where the use of feeding-stuffs is relatively large, the cooperative associations have been very important. When buying through these associations, the farmer is certain to obtain feeds of good quality at a reasonable price. Besides, there is no doubt that as this cooperative organization has developed, it has had a beneficial influence upon the private trade in feeding-stuffs and fertilizers.

The same holds good with regard to a number of smaller cooperative buying associations. The Cooperative Wholesale Society of Denmark has had a favorable influence on Danish agriculture. As an example may be mentioned the Danish Cooperative Dairy Purchase Association and Machine Factory which was established in 1901 and which now has a turnover amounting to more than 5,000,000 kroner. Further, the Danish Cooperative Cement Factory which has a turnover of from 4,000,000 to 6,000,000 kroner, and the Danish Cooperative Coal Supply Association which has an annual turnover of from 4,000,000 to 5,000,000 kroner, may be mentioned. Although these buying and supply associations are small as compared with the fertilizer-supply associations and the feed-supply associations, they deserve to be mentioned in order to illustrate one kind of cooperative organization within Denmark. Each of them has been of importance within its special domain.

As already indicated, large amounts of business are transacted by cooperative organizations in Denmark. Apart from the Co-

operative Wholesale Society of Denmark, the turnover of which amounted to 170,000,000 kroner before the deflation but which has now declined to about 140,000,000 kroner, the total annual turnover of the cooperative undertakings which have been mentioned amounts to about 1,350,000,000 kroner or \$360,000,000. How much of this amount should rightly be put under the heading of cooperative marketing, is not certain. Purely cooperative sales, as previously mentioned, do not aggregate more than 40 per cent of the total export sales in the case of butter, 33 per cent of total export sales in the case of bacon, and 25 per cent of total export sales in the case of eggs. In the case of butter and bacon exports, it is probable that the individual farmer has about the same advantages he would have were his dairy or bacon factory a member of a cooperative export association.

As I see it, there is no doubt but that cooperative marketing has been of extraordinarily great importance to the development of Danish agriculture during the last generation, not only directly, but also indirectly through the favorable influence which it has exerted on private trading, as for example, in connection with the export of eggs and cattle.

In Denmark we all agree that the cooperative movement has been of exceedingly great importance in the development of agricultural production, especially animal production, but it is perhaps less generally acknowledged that it has been of great importance in the field of trade. However, in my opinion, it is here that Danish farmers ought to direct their attention in the future. I am sure that they will do so though we have no special bureau of marketing in Denmark and no large appropriation to spend on marketing work. However, the Agricultural Union, which was founded in 1919 as a central organization for the different agricultural and cooperative societies, has done a good work during the past ten years through its studies of cooperative marketing, the results of which studies have been published in the weekly paper of the Union. In the past few years many special investigations and studies of marketing questions have been undertaken by the Union. If the results of these studies indicate that we should go further in the same direction as heretofore, I am sure that the Danish farmer will follow the advice of the Union and do his utmost to find the best way to organize his marketing business.

DISCUSSION OF PAPERS ON COOPERATIVE MARKETING

Question.—How does it happen that the changes in Finland came so suddenly?

Professor Jutila.—At the end of the 19th century commercial economy came into Finland very rapidly. It was necessary to organize farmers, especially the small farmers, in order to take advantage of the economies of large-scale business.

Question.—What is included in distribution costs? What is the difference in the price paid by the consumer and the price received by the farmer? What are the actual prices of milk per litre?

Professor Jutila.—The cost of distributing milk which is about 10 or 15 per cent of the retail price includes transportation and the cost of selling in retail shops. The consumer buys bulk milk from the shops. The retail price of milk has varied between 1:50 and 2:00 marks per litre in Helsinki.

Question.—What connection is there between your admirable system of schools and the development of the cooperative movement? Are there any industrial classes putting up resistance to the cooperative movement?

Professor Jutila.—Regarding the schools I may say that at the agricultural schools, the teaching of cooperation is a very important subject. Extension teaching of cooperation is made very effective through the use of periodicals, the radio, and so forth. Many private dealers and tradesmen are putting up a resistance to the cooperative movement but very few others.

Question.—What are the means of transportation to the central creamery?

Professor Jutila.—We have relatively good roads for horse and motor transport. We are making a careful study of how much milk is produced in certain areas, and how it may be most economically collected. Charges are made according to distance.

Professor Weaver.—To draw a lesson from our own country, do you believe that before that condition (complete subjection of farmers to middlemen's dictation) existed, it might have been possible to form cooperative societies and prevent getting into such a bad economic condition? Assuming that cooperation will be as essential in our own country, do you think it is possible to organize people before such a bad economic condition is reached, or must they have experienced such conditions?

Professor Jutila.—Cooperative organization work in Finland was done from one center. The work was carefully planned and chiefly directed by one man, Dr. Gebhard, so that the farmers had the benefit of all available experience in the field of Finnish cooperation. Unfavorable economic conditions and political pressure stimulated the movement.

Sir Thomas Middleton.—There are three points which seem to me to account for the wonderfully rapid progress in Finland which Professor Jutila has described to us. First, the Finnish peasant is a well educated man. Secondly, Finland came late into the movement; it has had, therefore, the benefit of the experience of other Scandinavian countries. Those engaged in the work were able to secure not only the very best machinery

for their purpose, but also the knowledge of how it could be most effectively employed. Thirdly, and perhaps most important, there were no large distributing trades in the field when they started operations—they had no powerful combinations to compete against. But if there had not been behind this movement a great deal of thought and much activity, the progress described to us by Mr. Jutila could not have been accomplished.

Dr. King.—Does the State in any way organize or finance the cooperatives?

Professor Jutila.—The State gave large grants at the outset and continues to give grants for extension work.

Mr. Greenwood.—At the present moment the national cooperative movement in England is in considerable difficulty with respect to agriculture. We had a national committee in which both distributive and wholesale organizations were combined, but that was disbanded about 18 months ago. It was, however, reorganized a year ago under the Co-operative Union. A national committee is being formed under the Agricultural Committee to try to set up a national organization for the distribution of milk, but the whole thing is as yet in its infancy. The movement is becoming more and more alive from the necessities of the situation. The cooperative movement in this country is alive to the necessities, but no great achievement has been made up to the present.

Professor Ashby.—The study of the financing of the organizations, which Mr. Jutila mentioned, may be a very important thing in safeguarding, if not in developing, the movement.

Sir Thomas Middleton.—Are you doing something in that direction?

Professor Ashby.—With regard to Welsh cooperative organization it may be said that cooperation is stronger in Wales than in any other part of Great Britain, with the exception of a little of western Scotland, and until 3 years ago the Welsh Agricultural Association (made up partly of individuals and partly of societies) was a real guiding force. It has weakened in the last few years, however, until it is unable to do much. My colleagues have taken over some of its functions and have greatly developed the accounting side. It has reached the point where managers are getting out greater detailed statements and are pushing our analysis further than we did in the first instance.

Professor Pond.—Minnesota has more cooperative marketing associations, more members of cooperative associations, and does a greater total business, measured in terms of dollars, through farmer cooperatives than any other state. Minnesota also has a larger proportion of Scandinavian farmers than any other state. The first cooperative creamery in the state is usually accredited to a Danish community although a Norwegian community disputes the point. At least it was organized by Scandinavians. Our first cooperative livestock shipping association was organized in a Swedish community. Scandinavians have had a large part in the establishment of all our cooperative associations. The question may well be raised as to whether the rapid growth in cooperation in Minnesota has been due to the large Scandinavian element in our population or to a general economic environment favorable to cooperative endeavor. I am inclined to give

at least a fair share of the credit to our Scandinavian friends. They had learned some of the first principles of cooperation in their mother country. They live in homogeneous communities and, knowing their neighbors, are more willing to work with them than with strangers. After all it is the spirit of cooperation—working together, willingness to trust the other fellow, willingness to stick by him and to work with him—that determines the success of cooperative effort.

Out of our local cooperative groups grew central cooperative marketing. The Land O'Lakes Inc., an organization of local cooperative creameries in Minnesota, Iowa, and the Dakotas, is the largest butter marketing organization in the world. It does an annual business in excess of \$50,000,000. It started out making cooperative shipments to save costs. Next it went into a campaign for quality of products. It developed a brand, and built up a sales organization. Now it is handling eggs and poultry. It also has a buying department which furnishes supplies to creameries and feed to dairymen.

Mr. Lamont.—I feel that we are discussing problems in connection with no particular country. When I am back in my own country I must meet immediate problems and difficulties. I shall not be able to talk to farmers so much of international interests when it is practical assistance they are requiring.

Agricultural cooperation in South Africa has passed through many vicissitudes. The government exercises a considerable amount of control. A very serious depression occurred in 1902 after the Boer War, and cooperative movements started in separate provinces. Money was placed at the disposal of the farmers, the farmers supplying one-fifth of the capital, and the Government supplying four-fifths. After four or five years there was nothing to show but a considerable amount of experience. The cooperatives were unable to compete with private enterprise. The cooperative act of 1917 is the foundation stone of the present cooperative movement in South Africa. Every cooperative organization has, before registration, to satisfy the governmental branch that deals with cooperation that it has a reasonable chance of success and that it is going to render beneficial service.

Under certain circumstances cooperation is compulsory. If it can be shown that in any area 75 per cent of the producers are in a cooperative society controlling 75 per cent of a particular product, the government, by proclamation, can make it compulsory that all of that particular commodity be marketed through the cooperative. The results in the wine industry have been very satisfactory. The tobacco marketing cooperatives have not been so successful. From seventy to eighty per cent of the fruit exported to England is handled through cooperatives. In general, the cooperative movement in South Africa has been very successful. The thing which has loomed largest in my mind in connection with the cooperatives and which has not always seemed to get the attention which it should have, is the matter of costs.

We have just reached the stage where we shall soon be able to see the real significance of our work. Our idea has been to bring into **proper**

perspective the place which economics has in relation to our national agriculture, and the part which agriculture plays in determining our national prosperity.

Professor Coke.—In British Columbia "compulsory cooperation" has been attempted in the marketing of apples and certain other fruits. Compulsory cooperation represents radical legislation and where such a plan is followed it may be due to inefficiency on the part of the cooperatives. Even if successful from the standpoint of forcing private dealers to cooperate in the regulation of the flow of the product to market, such regulation may in itself bring about a revulsion of feeling against the cooperative due to the fact that farmers do not like to be deprived of alternative methods of marketing.

Dr. Jutila offered the opinion that farmers should engage in political activities. We have had some experience with farmers' governments and they have only been successful in those provinces in which the population is predominantly rural. Farmers have more to expect from the organization and conduct of business concerns about which there is some possibility of securing unanimity of opinion. Farmers in different sections demand radically different legislation. Apple growers and tobacco growers want tariffs. Other farmers are opposed to tariff legislation. Unanimity in political policy is impossible but they may agree on a business policy. There are 140,000 members of the wheat pool. Do you suppose that any government will disregard the attitude of this group as expressed through their officers?

In Canada we have several cooperatives which do not get as much publicity as the wheat pool. For example, the Canadian Cooperative Wool Growers Limited, with 10,000 shippers, handles from 3,000,000 to 4,000,000 pounds of wool annually. In Ontario there is the United Farmers Cooperative Company which handles a variety of goods having a turnover of \$20,000,000 annually. Their livestock department handles 50 per cent of the hogs marketed in the province and 35 per cent of the cattle and sheep. The creamery, with its branches, comprises the largest creamery business in the province. The United Farmers tried political action as a means of solving their economic problems but were not successful. The Ontario Honey Producers Cooperative Limited has also been successful in developing new markets for honey. In Nova Scotia the United Fruit Companies handle a large volume of fruit and growers' supplies. In the Province of Quebec the Coopérative Fédérée in Montreal serves a large number of farmers and handles a variety of farm products. The Provincial Government of Quebec has aided this company because it is their policy to foster cooperative organization among farmers.

Mr. Beyleveld (Question to Professor Larsen).—To what extent would you have the cooperative movement the controlling factor?

Professor Larsen.—I should think that many of our bacon factories have a better chance of making their business pay, operating independently of each other.

Regarding the question of education, our high schools were organized in 1844. The development of cooperative societies has been closely as-

sociated with the education of the farmer. Our first agricultural school, of which we now have about 20, was started in 1867.

Mr. Harkness.—Scandinavians seem to have a genius for cooperation. Sir Horace Plunkett developed agricultural cooperation in Ireland over 40 years ago. Today only about one-third of the butter produced in Northern Ireland is produced in creameries. The remainder is produced on farms. One difficulty with the creameries in Ireland is their uneven distribution as regards location. They are close together in some sections of the country while in others there are whole counties without a cooperative creamery. Another problem is the irregularity of the milk supply. The cows are turned out to grass in summer and the milk is sent to the creamery and made into butter. The chief interest of the farmer, however, is in producing calves for export. In winter the supply of milk is low. An irregular supply results, of course, in a relatively high overhead cost per unit of milk handled. We are faced with the problem as to whether or not it would pay to develop a system of winter dairying which would make for an even flow of milk throughout the year. I would like to ask Professor Larsen if Denmark has found winter dairying profitable.

Professor Larsen.—There is no great difference between the summer and winter production of milk in Denmark. The grazing season, from May to September, is relatively short.