

CHECKED
2003-04

5231 -

**SERVANTS OF INDIA SOCIETY'S LIBRARY,
POONA 4.**

FOR INTERNAL CIRCULATION

Returned on or before the last date stamped below

--	--

Dhananjayrao Gadgil Library



GIP-E-PUNE-005231

**CO-OPERATION IN DANISH
AGRICULTURE**

“Co-operation is a thing most excellent.”—W. E. GLADSTONE.

CO-OPERATION IN DANISH AGRICULTURE

BY
HARALD FABER

AN ENGLISH ADAPTATION OF
"ANDELSBEVÆGELSEN I DANMARK"

BY
H. HERTEL

WITH A FOREWORD BY
E. J. RUSSELL, D.Sc., F.R.S.
DIRECTOR OF THE ROTHAMSTED EXPERIMENTAL STATION, HARPENDEN

LONGMANS, GREEN AND CO.
39 PATERNOSTER ROW, LONDON
FOURTH AVENUE AND 30TH STREET, NEW YORK
BOMBAY, CALCUTTA, AND MADRAS

1918

All rights reserved

XM, 9(J). 572

E8

5231

FOREWORD

By E. J. RUSSELL, D.Sc., F.R.S.

IN the following pages Mr. Faber has taken the Danish text of Mr. Hertel's Report on the Development of the Co-operative movement in Danish Agriculture and put it into a form suitable for English readers. We have had several accounts before, notably those by Mr. Christopher Turnor, Levy, Wolff, and others, but none covering the same ground as this. Previous writers have described from without: they have visited Denmark, seen the wonderful results achieved by the Danish farmer, and on returning home have recorded their impressions. The present book deals with the movement from within: Mr. Hertel, through his intimate association with the Danish Central Co-operative Committee, and the Royal Danish Agricultural Society, has access to all the records of the movement, while Mr. Harald Faber not only knows Danish agriculture thoroughly, but is also well acquainted with English conditions. English experts have long since learnt to "ask Mr. Faber" whenever any question arose as to Danish agriculture; they will have in this book a valuable summary of the information he has been in the habit of giving them.

It would be difficult to find a more entrancing subject than the history of Danish agriculture between 1860 and 1912, roughly the period covered by the book. Up to the beginning of this period the story has been much the same as our own; there had been a steady improvement from the beginning of the nineteenth century to the culmination in the 'sixties.

The system had been essentially one of corn production; but in order to get the best results it had to be combined with live stock. It was in working out the combination that Danish agriculture took a line of its own which gradually led to complete differentiation from other European systems.

The English farmer had gone in for meat production. The Danish farmer, on the other hand, went in for dairy work. The choice was momentous, and we should like to know a little more fully exactly what determined it. Events have shown that it was emphatically the right choice, because dairy farming produces much more food per acre of ground than meat production, and it allows full scope for, indeed it necessitates, those co-operative methods of business and production which have since dominated Danish agriculture. We are proud to remember that Segelcke, the young Dane who played a prominent part in bringing about the change, first spent a year at Rothamsted, and then went straight from there to take up his work in Denmark. Co-operation came later. In 1882 Stilling Andersen founded the co-operative dairy at Hjedding, which is usually regarded as the starting-point, though, as a matter-of-fact, a co-operative dairy had already been established in 1875.

The wisdom of the Danish choice was evident in the 'eighties and 'nineties when Europe was flooded with cheap agricultural produce, especially corn from the virgin countries of the New World and Australasia. Wheat fell to nearly half the price it had commanded in the 'sixties. English agriculture suffered a terrible set back, and did not begin to recover until about 1896. Danish agriculture, on the other hand, was able not only to weather the storm but even to make headway all the time. The improvement in dairying reacted on the arable farming: the export of butter rose from 10,300 tons per annum in the late 'seventies to 100,000 tons per annum before the War, and the yield of wheat rose from 30·9 to 36·5 bushels per acre.

Thus the Danish system has proved to be eminently suitable for the production of wheat from the land.

Herein lies the great importance of its lesson for us. Whatever may be the ending of the War, and whenever it comes, we may be absolutely confident that times of serious difficulty lie ahead. However much wise statesmanship may mitigate the effects of the destruction brought about by the War a time of stress will come as surely as night succeeds to day; the very word "Reconstruction," now on every one's

lips, shows that most people realize this. The new structure may be better or worse than the old, but the old one has been so much shaken that we shall have the labour and the pain of building a new one. Science may do much in giving us new methods; but in agriculture the determining factors are human, and experience shows that history alone gives the key to the human factor. If we know what men have done before in given circumstances, and how they did it, we know what they can do again.

This book, therefore, comes most opportunely. We all wish that the agricultural reconstruction necessitated by the War shall give us a better and a happier country life than we had before. Messrs. Faber and Hertel show by what means Denmark started out from a humbler beginning than, let us hope, we shall be called upon to start from, and ended with a degree of prosperity that we should be happy to attain. The book is not, so to speak, a picture, but rather a working model with complete diagrams. We are given a detailed account of the various societies, the points where they proved defective, how the defects were remedied, and what measure of final success was achieved.

In solving our own problem we shall not necessarily use the same model; we are more likely to follow our national bent and improvise or design one adapted to our own special conditions. But the Danish model here described has proved an extremely potent constructive implement, and we shall do well to study it closely.

The essential feature of the Danish method is co-operation. The prodigious effect that combination of effort by the whole body of producers can exert in increasing output, in cheapening cost of production, in improving the quality and value of the produce, and in ameliorating the lot of the labourer, are shown by the statistics abundantly scattered throughout the book. During the period when Danish agriculture was making great progress, British agriculture gained little or nothing in prosperity; it first declined and then rose, but probably not beyond its original starting point. The British method, in short, proved less capable of adaptation to new and adverse conditions than the Danish. Critics may argue

that the same methods would not apply here; that the British farmer is so confirmed an individualist and so imbued with the idea of running his own farm in his own way that he cannot co-operate with his neighbour. It may or may not be so; but it is imperative that we should do something, and if we discard the Danish model we must at least try to produce a better. The book stands as a record of good work well done.

PREFACE

By MR. HARALD FABER

THE wonderful system of co-operation in Danish agriculture, in the highly developed form in which we find it now, embraces almost every branch of agriculture and agricultural industry, and has its ramifications in practically every parish in Denmark. It has built up an organisation so complete that all the threads converge to one point from which the joint action of the whole system is in a certain measure controlled. The co-operative movement in Danish agriculture was not started by a circle of philanthropists or even by the landlords for the purpose of benefiting the practical farmers. It has grown up locally and gradually among the peasants in the villages, and takes its root in the feeling of solidarity and a sense of the benefits of mutual help among the peasants which can be traced back to remote centuries. The date of the foundation of the agricultural co-operative movement in Denmark cannot, therefore, be given as it can in some countries where it owes its inception to the action of a single man or of a committee. Attempts to introduce co-operation in Denmark, fostered by philanthropists, were made in the middle of last century, but they aimed at helping the industrial workers in the towns and achieved but very little success. But the peasants, with their experience of mutual help within the village communities, eagerly took up the idea of co-operative supply stores on the Rochdale system, which the town workers were unable to maintain when these stores were introduced for their benefit in 1866. Another form of co-operation was introduced in 1850 from Germany, viz.: the Credit Associations, which for some time were supported almost exclusively by the large landowners. Co-operative Credit Societies, which in several other countries were the first form of co-operation among the

artisan and peasant classes, found no favour among Danish peasants, who were little versed in financial matters and perhaps also felt the need of credit less.

It is characteristic of Danish agricultural co-operation during the latter half of last century that it aimed almost exclusively at improving agriculture or agricultural industry.

The peasants formed societies for the purpose of enabling them to adopt means for the improvement of their live-stock which they saw practised by large land-owners, but which they themselves individually could not afford to employ. They also combined, in other societies, to improve their business by the manufacture of butter and bacon on an industrial scale, and introduced quite original modes of co-operation, such as the "control" societies. Later on they took up the question of improving farm seed, both by producing better strains of different kinds of plants, chiefly corn and roots, and by buying these improved seeds through special co-operative purchase societies. All these and sundry other co-operative societies, each with its own single object, were formed by the peasants for the purpose of improving their farming, in the widest sense of the word; and the success achieved was such that gradually farmers in a large way and even wealthy land-owners found it to their advantage to join these peasants' societies.

The local societies form the backbone of the Danish co-operative movement. Local societies of the same kind sometimes combine to form Associations, but the independence of the local societies remains unimpaired. The farmers in a village form their supply store, their co-operative dairy, their "control" society, bull club, horse-breeding or egg collecting society, all being co-operative and all being independent of one another, although the members and even the committee members are often the same individuals. The co-operative societies of the same kind in the villages in a district have in many cases formed an Association, and similar Associations would be formed in other districts, for instance, Associations of Co-operative Dairy Societies or Associations of Bull Clubs. These district associations, in some instances, again combine within larger districts or within the three provinces, Sealand,

Funen, and Jutland, to form Provincial Unions, but each keeps strictly to its own sphere, the Provincial Union of Horse Breeding Societies, for instance, being independent of the Provincial Union of Co-operative Dairy Societies, although it may very well happen that some prominent peasant may be a member of the committee of more than one Association or Union in his district or province. The Provincial Unions of the dairy societies have combined to form a Central Organisation for the whole country. In some instances the local co-operative societies, such as the Co-operative Bacon Factories, each of which serves a fairly large district, have formed a Union for the whole country, as also have most of the Co-operative Distributive Societies. These Associations or Unions have no power to interfere in the working or management of the independent local societies; their function is generally restricted to giving advice, helping to keep the societies on uniform lines, and representing them in their relationship to others; or they take up work which the local societies could not do, such as the collection of statistics. The more important of these Central or Provincial Unions together with some large co-operative societies extending their operations to the whole country, have combined to form a central representative body, the Central Co-operative Committee ("Andelsudvalget"), which thus forms as it were the keystone to the complete arch.

It is only quite recently that the question of co-operative short credit, as distinct from the Credit Associations, has been taken up by Danish peasants through the Co-operative Village Banks. At the same time, the more complete organisation, through the Central Co-operative Committee, has enabled the co-operative societies to form a Co-operative Bank. It is the intention in future to call large annual meetings of delegates from all the co-operative associations affiliated to or represented on the Central Co-operative Committee for the discussion of all co-operative questions of a general nature, and for the purpose of voicing the wishes of the co-operative societies, for instance, in their relation to the State.

An important development which seems to indicate a possible solution of the difficult problem of how to counteract trusts and similar combines has been successfully practised

by Danish co-operators on at least two occasions. When the trade supplying certain goods necessary to farmers, threatened to combine to exact conditions for the sale which were considered unfair or unreasonable, the farmers were quickly roused, in large numbers, to form a special society for the purpose of supplying those very goods on co-operative lines, thereby delivering the most effective counter-stroke possible to the attempt to enforce unjust conditions, both by withdrawing most of the custom from the threatening trust and by establishing a standard of fair prices and conditions as a guidance for others. This remedy against trusts seems as unobjectionable as it is effective, but it requires a population with a wide experience of co-operation and trusted and versatile leaders.

According to the Danish conception of a co-operative society, it is essential that the members themselves should manage the affairs of the society; that they should be jointly and severally liable for the loan raised to start the society; that they should have one vote each and only one, independently of their share in the transactions of the society; that goods should be distributed to, or produce delivered by, members at current market prices; and that the net surplus, after a substantial contribution to the sinking fund, should be divided among members according to the amount or value of their transactions with the society. Danish co-operative societies are neutral, that is to say, they take no part as such in political, temperance, or religious movements. They are open to all. Many of them bind their members, absolutely or to a definite extent, to take their supply from, or to deliver their produce to or through the society. Payment in cash is generally stipulated. As already said, the local societies form the backbone of the movement, and confine themselves to the solution of only one special problem each, be it the improvement of a particular kind of live-stock, or the joint purchase of farm seed. If a new object is in view, a new society is formed. Thus there are special local societies for cattle breeding, others for testing the milk of individual cows and herds, others for making butter from the milk, others for selling the produce of the dairies, and even a special society for the

marking of butter, though this latter has now been superseded by legislation initiated by the peasants themselves.

The difficulties experienced in some countries, when starting a co-operative undertaking, are often caused by the competition from the trade affected. A co-operative bacon factory, for instance, might be likely to take custom away from private bacon manufacturers or pork butchers in the district. These would, therefore, try, by offering the co-operating farmers a higher price for their pigs, to draw these away from the co-operative factory, hoping thereby to render its existence impossible, and then later on, with less competition, to recoup themselves by getting the pigs cheaper. To defeat this not uncommon nor unnatural form of competition, Danish co-operative societies have in several instances applied the rule of compulsory delivery. The co-operators will bind themselves for a number of years to deliver all their pigs to their co-operative bacon factory, or all their milk to their co-operative dairy, except what is wanted for their own use; or they will bind themselves to buy either all the artificial manure they want, or a certain quantity, through their co-operative purchasing society. They show thereby an obedience to self-made laws which gives a great strength to their co-operative undertakings and enables them to defy all competition. By the time the period for which they have bound themselves has expired, a sufficiently long test has been afforded to show whether the undertaking was sound or not.

It has sometimes been considered a shortcoming of the Danish co-operative societies that they have not set themselves idealistic or philanthropic aims or devoted some part of their surplus to educational purposes. This, however, is an undeserved stricture based on a misunderstanding of the co-operative movement in Denmark. The co-operative societies as such have not taken up education or other social work, but the members of the co-operative societies, *i.e.* the farmers themselves, have done so. Just as they have found it practicable to form a special society for each special object, so they have found it advisable to maintain societies for technical or commercial work distinct from societies with idealistic aims. The Danish farmers are well supplied with schools, and several,

both of the people's high schools and of the agricultural schools, belong to joint stock companies of farmers formed for that purpose. In the same way the farmers have their public libraries, their assembly-room in almost every village, their benefit societies, societies for insurance against unemployment, in some cases their own free church, and political and other societies for various purposes. It works for the strength of the co-operative societies that they are kept absolutely neutral and open to all men, independently of their political, religious, or social inclination. An exception is made by the Danish Sanatorium Society, which was formed in 1904 by co-operative societies, for the purpose of building sanatoria or convalescent homes for members, this term being understood to comprise members' households, *i.e.* man, wife, children, and servants. Any co-operative society can be accepted as a member by paying, once for all, 3s. 6d. per individual member. In April, 1917, 1070 co-operative societies, including 715 co-operative dairy societies, had joined with 182,000 individual members, and had paid £31,400. The society has a beautiful sanatorium, Krabbesholm, in a park of 53 acres, with accommodation for 114 patients.

The agricultural population in Denmark numbers about 500,000 heads of households, of whom 172,000 are employers. There are about 70,000 farmers and peasants, and about 100,000 small-holders; besides these are a large number of agricultural labourers with small holdings or allotments. It is the farmers, peasants, and the small-holders who are the members of the co-operative societies, except with regard to the co-operative supply stores, of which many servants and labourers are also members, and the co-operative dairy societies in which many agricultural labourers with small-holdings with one or two cows are also interested. It is not possible to give the number of members in all the different kinds of co-operative societies, inasmuch as the statistics, also the official statistics, give full particulars of the numbers of the herds and flocks, of the cows, pigs, horses, poultry, etc., represented in the societies by their respective owners, but not of the number of the owners themselves. This fact affords a striking proof of the technical view taken of these societies. But enough details

can be given to show how remarkably widespread is the participation in the movement. There were in 1916 approximately the following number of members in the larger societies :—

Co-operative Distributive Societies	244,000
Co-operative Dairy Societies	190,000
Co-operative Bacon Factories	135,000
Co-operative Egg Export Societies	45,000
Co-operative Manure Purchasing Societies ..	70,000
Co-operative Feeding Stuff Society, Jutland only	44,000
Cattle Breeding Societies	23,000
Control Societies	16,000

This list, from which many important societies have been omitted, shows that many farmers are members of several societies. Indeed, it will be found quite a common thing for a farmer, especially a peasant proprietor, to be a member of ten or more of these co-operative societies. Besides these Co-operative Societies in connection with agriculture there are 122 Agricultural Societies proper with 104,400 members, and 904 small societies of small-holders (Husmænd) with a total of about 55,000 members. ("Landøkonomisk Aarbog," 1917, published by the R.A.S.D.)

The striking difference in the co-operative movement as it exists in England and in Denmark calls for an explanation. The modern form of co-operation may well be said to owe its origin to the action of the twelve Rochdale weavers in 1844. From that small beginning has grown the mighty co-operative movement in England with its 2500 retail distributive societies, 2,500,000 members, and an annual turnover of £111,000,000, besides the Co-operative Wholesale Society with a turnover of £43,000,000. Nearly all the "co-operative stores" are in the towns, 90 per cent. of the members belong to the labouring classes, in mills, mines, and railways. There are other co-operative societies, in towns and country, but compared with the distributive societies they are of minor importance or influence in their various spheres. The seed of this movement was transplanted into Denmark in the year 1866 by some

philanthropists; it threw out some straggling shoots in the shape of small supply stores among the labouring classes in a few small towns and soon withered away. But the agricultural population, without any inducement from outside, took up the idea, formed first a number of co-operative distributive societies, thereby learned the lesson and then applied it with ever increasing force to almost all the various branches of their work. Only quite lately has the industrial town population in Denmark shown signs of waking up to the influence of the movement. In England, on the other hand, it is only recently that co-operation has taken hold in agricultural districts, and that co-operative societies have been formed for the furtherance of purely agricultural pursuits.

That the work of the Rochdale pioneers found no followers among the town labourers of Denmark was probably due to the fact that these were without organisation, and that, at the time, the number of them in any town outside Copenhagen was hardly large enough to support and manage co-operative societies, considering that only a proportion of the labourers could be expected to join them. The conditions among the teeming industrial workers in England with their elaborate organisations were quite different. But why did co-operation thrive in Danish agriculture and leave English agriculture cold? I believe the explanation is to be found in differences in their respective conditions in two directions, viz. a difference in the system of rural tenure, and a difference in the social and educational conditions.

In the first place, nearly all agricultural holdings in Denmark are freehold properties worked by their owners; and the average size of holdings is smaller, being about two-thirds of the average size of the holdings in England. Large estates cover only about one-ninth of the cultivated area, one-ninth is made up of small holdings; more than two-thirds of the cultivated land in Denmark are the freehold property of yeomen farmers and peasants cultivating their own land. Of the total number of Danish agricultural holdings over 90 per cent. are freehold, while in England the corresponding figure is, I believe, somewhat less than thirteen. The conditions in Denmark in this respect are very much as they were in England in Cromwell's

time ; his supporters were the yeomen farmers, the same class which in Denmark are the chief supporters and leaders of co-operative agriculture. Ever since the great agricultural reforms at the end of the eighteenth century the proportion of freehold properties has increased, and, by the subdivision of large holdings, the number of holdings, and of late particularly of small holdings, has increased and the average size of the holdings consequently decreased.

The Danish peasants were from ancient times accustomed to manage the affairs of their village communities in common, and had learned to trust one another and to co-operate in many ways. But any attempt to show why Danish peasants were particularly disposed to avail themselves of, and to elaborate further the modern forms of co-operation, would be singularly lacking which did not attribute a very large share to the People's High Schools. Readers who wish to learn about these are referred to a Report to the Board of Education by Mr. J. S. Thornton (Cd. 3537, 1907) who mentions them as the chief contribution of Denmark to educational progress. They are private, voluntary schools for young men and young women between eighteen and twenty-five years of age, who generally pass five winter months and three summer months respectively under the influence of the living word of the teachers and congenial comradeship ; their mental horizon is widened and their life is lifted to a higher plane. Though open to all the schools draw only about 6 per cent. of their pupils from the towns. From the High Schools have sprung the Agricultural Schools, the pupils of which are of the same age and come to the school with a considerable practical knowledge of farming. There are about 70 High Schools and 20 Agricultural Schools ; they are attended by about 8000 pupils annually, for shorter or longer terms ; they are very cheap, the young men are very eager to get an opportunity of going to them, and frequently pass one or even two winters at a High School and the next winter at an Agricultural School, working during the intervening summer months on the land. The State supports the schools, chiefly by bursaries, but leaves them complete freedom as to management and curriculum. The People's High Schools have been described as " hotbeds " of the co-operative

movement; most of the chairmen of committees of co-operative societies, and of the dairy managers have passed through one or more of them. The High School man, with his love of country and his country's history, says Mr. Thornton, will take an intelligent interest in public affairs; 30 per cent. of the members of the Rigsdag in 1901 had been High School pupils.

A committee appointed by the Royal Agricultural Society of Denmark for the propagation of agricultural literature, wrote in September, 1913, to the Society suggesting that a description of Co-operation in Danish Agriculture was very much needed by those who wanted to study this movement as developed in Denmark. It was needed by those who wished to help to promote the further development within the country and by many in other countries who came to Denmark to study the movement or who wished to transplant it, partly and suitably modified, into their own countries. The R.A.S.D., fully approving of the suggestion, wrote to the Central Co-operative Committee, feeling that the C.C.C., "holding in its hand all the threads of the co-operative movement, had more ample opportunities than any single person or any other institution for producing a first-hand description of the co-operative movement in Denmark." The C.C.C. willingly undertook the task which it had had in contemplation for some time, and prevailed upon Mr. H. Hertel, the secretary of the R.A.S.D.; an experienced writer with a wide knowledge of the early history and recent development of Danish agriculture, to write the book with the assistance of leading men in the different co-operative undertakings. The publication of the work has been much delayed by the war, but was completed in September, 1917. It is a book of 570 pages.

I have to thank the C.C.C. and Mr. Hertel for the readiness with which they gave their consent to the preparation of an English edition of their work. Such an edition seems quite necessary if the book is to meet the want mentioned by the R.A.S.D. I have shortened the book by the omission of considerable portions which, although of real importance and interest to Danish readers, do not concern English readers. On the other hand, some matters readily understood by a

PREFACE

xix

Danish public, have required fuller explanation, and other alterations, excisions and additions have been made. In this selection of material I have been guided by the experience gained through many years by answering inquiries from Great Britain and Ireland and from the British Dominions. Although fully conscious of many shortcomings, and also of the difficulty of adapting for use in one country what has had a natural development under the different conditions existing in another country, it is my fervent hope that this book may be of service in British lands where the question of co-operation in agriculture is engaging the serious consideration of leading men. It is this hope which has prompted me to bring the work to the notice of the British public.

An Appendix has been added giving various tables compiled and condensed from official statistics and expressed in English weights and measures. These tables should help to show the development which has taken place in Danish agriculture during the last thirty to fifty years with regard to rural tenure, cultivation of crops, live stock, and import and export of agricultural produce.

HARALD FABER.

LONDON, *December*, 1917.

TABLE OF CONTENTS

	PAGE
FOREWORD BY DR. E. J. RUSSELL	v
PREFACE BY HARALD FABER	ix
INTRODUCTION	3
Co-operation in Danish Agriculture in Olden Times; The First Credit Associations; The First English Co-operative Distributive Societies; Schulze-Delitzsch and Raiffeisen Credit Societies.	
CO-OPERATIVE DISTRIBUTIVE SOCIETIES	25
CO-OPERATIVE DAIRY SOCIETIES	31
CO-OPERATIVE SLAUGHTER-HOUSES (BACON FACTORIES)	55
DANISH CO-OPERATIVE EGG EXPORT SOCIETY	71
CO-OPERATIVE BUTTER EXPORT SOCIETIES	80
BREEDING SOCIETIES	85
Cattle Breeding Societies; Horse Breeding Societies; Pig Breeding Societies.	
CONTROL SOCIETIES	109
CO-OPERATIVE SOCIETIES FOR PURCHASE AND SALE	123
CREDIT ASSOCIATIONS	131
THE DANISH CO-OPERATIVE BANK AND CO-OPERATIVE VILLAGE BANKS	141
INSURANCE SOCIETIES	146
VARIOUS CO-OPERATIVE UNDERTAKINGS	150
Co-operative Use of Agricultural Machinery; Co-operative Electric Generator Societies; Co-operative Marling Societies; Co-operative Bakeries; Co-operative Flour Mills; Danish Co-operative Cement Works; Co-operative Building Societies.	
THE CENTRAL CO-OPERATIVE COMMITTEE	156

TABLE OF CONTENTS

APPENDIX I

	PAGE
STATEMENT OF NUMBER AND TURNOVER IN 1915 OF DANISH CO-OPERATIVE SOCIETIES CONNECTED WITH THE CENTRAL CO-OPERATIVE COMMITTEE	159

APPENDIX II

DANISH OFFICIAL STATISTICS (IN ENGLISH WEIGHTS AND MEASURES)	161
1. Population of Denmark, from 1840 to 1916.	
2. Agricultural Population in 1911.	
3. Agricultural Holdings, 1850-1905.	
4. Small Holdings with Loans from the State.	
5. Agricultural Holdings in 1911.	
6. Acreage, from 1888 to 1916.	
7. Produce of Crops, 1875-84 to 1910-14.	
8. Total Produce of Crops, 1879-83 to 1909-13.	
9. Average Yield, in Bushels per Acre, resp. Tons per Acre, 1875-84 to 1909-13.	
10. Number of Live Stock, 1861 to 1914.	
11. Yield of Milk and Butter.	
12. Import and Export of Agricultural Produce, from 1876-80 to 1910-13.	
13. Export of Butter, Bacon, and Eggs, from 1881-85 to 1911-15.	
INDEX	171

APPENDIX I

STATEMENT OF NUMBER AND TURNOVER IN 1915 OF DANISH CO-OPERATIVE SOCIETIES WHICH ARE MEMBERS OF OR CONNECTED TO THE CENTRAL CO-OPERATIVE COMMITTEE.¹

I. CO-OPERATION OF CONSUMERS.

Distributive Societies.

Number of co-operative stores in country districts	...	1,470
Number of co-operative stores in towns	...	92
Number of members in country districts	... ..	204,157
Number of members in towns	... ..	39,698
Total turnover of co-operative stores £5,720,000,		
of which one quarter was for corn and feeding stuffs, viz.:		
In country districts £4,920,000, about $\frac{1}{4}$ for corn and feeding stuffs;		
In provincial towns £700,000, about $\frac{1}{2}$ for corn and feeding stuffs;		
In Metropolis, £100,000.		

Co-operative Wholesale Society dealing with 1488 co-operative stores had a turnover of £4,000,000.

Ringkøbing District Society, with 53 local societies, had a turnover of £220,000.

II. CO-OPERATION OF PRODUCERS.

A. *Agricultural Purchase Societies.*

		Value of goods supplied
Feeding stuffs	... ..	£5,500,000
Artificial manures	... ..	383,000
Seed	... ..	272,000 ²
Coal	... ..	170,000
Dairy machinery and requisites	... ..	122,000

¹ *Andelsbladet*, 1917, p. 477. See also "Statistisk Aarbog," 1916, Tabel 118.

² Including seed supplied through the Co-operative Wholesale Society and the Associated Danish Agricultural Societies.

160 CO-OPERATION IN DANISH AGRICULTURE

B. Agricultural Productive and Sale Societies.

CO-OPERATIVE DAIRY SOCIETIES.

Number of Co-operative Dairy Societies	...	...	1203
Total turnover	...	...	£21,000,000

Average per dairy. ¹	1915.	1916.
Number of members	151	149
Number of cows	931	868 ²
Value insured against fire	£2000	£2070
Outstanding part of loan	£930	£930
Yield of milk per cow	5654 lbs.	5705 ²
Lbs. of milk per lb. of butter	25.2	24.7 ²

BUTTER EXPORT SOCIETIES.

Total turnover	£3,650,000
----------------	-----	-----	-----	-----	-----	------------

SLAUGHTER-HOUSES.

Number of bacon factories	...	...	...	...	44
Number of co-operators	...	...	...	...	141,300
Number of pigs killed	...	...	...	...	21,000,000
Number of cattle slaughtered	...	...	...	...	40,000
Total turnover	...	...	...	...	£14,400,000
Seven bacon factories exported eggs to the value of	...	...	...	...	£283,000

DANISH CO-OPERATIVE EGG EXPORT.

Total turnover, eggs	...	...	...	...	£426,000
Total turnover, poultry	...	...	...	...	£1,500

Total turnover of all co-operative societies connected with the C.C.C.	...	...	...	...	£60,200,000
From which, however, should be deducted value of goods handled twice, viz.:	...	...	...	...	£10,700,000
Leaving a total net turnover of	...	...	...	...	£49,500,000

Not connected with the C.C.C. were several Building Societies and Garden City Societies, Co-operative Bakeries, and Electric Generator Societies; also 201 Horse Breeding Societies, 925 Cattle Breeding Societies with 23,100 members, 690 Control Societies (1916), with 15,900 members and 242,700 cows; several Cattle Export Societies with a turnover of £1,280,000. The 13 Credit Associations had in 1916 granted loans to a total amount of £105,300,000, and the nine "Hypotheek" Societies had granted loans to a total amount of £7,200,000. The annual interest on these loans is about £4,720,000.

¹ Danmarks Mejeri-Drifts-Statistik: 19 and 20, 1916 and 1917. These Reports refer to 742 and 732 dairy societies respectively.

² Shows result of reducing number of cows on account of the war, preserving the best.

APPENDIX II

OFFICIAL DANISH STATISTICS.

1. POPULATION OF DENMARK.¹

	Total.	Living by agriculture, horticulture, forestry, and fishery.	
1840	1,289,075	596,751	46·2 per cent.
1880	1,969,039	888,931	45·1 "
1890	2,172,380	882,336	40·6 "
1901	2,449,540	971,894	39·6 "
1911	2,757,076	1,003,716	36·4 "
1916	2,921,362		

2. AGRICULTURAL POPULATION IN 1911.

Total population living by agriculture	935,292
<i>viz.</i> : Employers and their dependents	535,758
Employees and their dependents	399,534
Employers :—	
Estate owners	1,224
Peasants and farmers	69,778
Small-holders	97,822
Others	3,086
	171,910
Employees	315,350
Dependents of employers	363,848
Dependents of employees	84,184
	935,292
Domestic servants	48,671 ²

3. NUMBER OF AGRICULTURAL HOLDINGS FROM 1850 TO 1905.³

	Number.			Per cent.	
	Total.	Freehold.	Leasehold and tenancy.	Freehold.	Leasehold.
1850	180,090	103,518	76,572	57·5	42·5
1860	211,315	146,234	65,081	69·2	30·8
1873	239,419	194,263	45,156	81·1	18·9
1885	263,432	225,255	38,177	85·5	14·5
1895	270,918	236,709	34,209	87·4	12·6
1905	289,130	259,874	29,256	89·9	10·1

¹ Statistisk Tabelværk, 5 Række, Litr. A. No. 5, 1905, and do. No. 10, 1914; and Statistisk Aarvog, 1916, Table 33.

² This is in addition to domestic servants employed in agricultural work who are included under employees.

³ Statistiske Sammendrag, 1913, Tabel 20.

162 CO-OPERATION IN DANISH AGRICULTURE

4. STATE SMALL-HOLDINGS CREATED ACCORDING TO LAWS ON LAND TO AGRICULTURAL LABOURERS ("STATS HUSMÆND").¹

	Total number.	Average size.	Total area.	Purchase price.	Total amount of loan from the State.
1900-1911	5777	acres. 9	acres. 48,748	£ per acre. 16 16 0	£ 1,400,000
1900-1916	8200	—	—	—	2,300,000

5. AGRICULTURAL HOLDINGS, IN RURAL DISTRICTS ONLY, IN THE YEAR 1901.²

Grouped according to size.

	Number.	Total acreage.
Total number of holdings	249,983	8,916,388
Less than 1½ acre	68,380	23,506
From 1½ acre to 12 acres	65,222	412,039
From 12 acres to 37 acres	46,615	1,058,300
From 37 acres to 147 acres... ..	60,872	4,468,914
From 147 acres to 589 acres	8,072	1,902,127
More than 589 acres	822	1,051,502

Grouped according to tenure.

Freehold ³	211,874	7,803,074
Leasehold ⁴	10,491	242,324
Tenancy	20,840	652,658
Glebe and public servants' farms	6,778	218,332

Grouped according to the chief trade of the owner.

Agriculture	171,971
Horticulture and Forestry	1,578
Fishery	2,996
Dairy and Milling	2,707
Industry and Crafts	28,834
Commerce and Transport	7,517
Other or no trade	34,380

¹ Statistisk Aarbog, 1911 and 1916, Tabel 40 and 41.

² Statistisk Aarbog, 1916, Tabel 38.

³ Including hereditary leasehold with power to sell same.

⁴ Including hereditary leasehold without power to sell same.

APPENDIX II

163

6. ACREAGE¹
IN 1000 ACRES.

	1888.	1886.	1901.	1907.	1912.	1916.
Total area (including water) ...	9,488	9,502	9,502	9,629 ²	9,629	9,645
Total acreage under crops and grass ...	7,079	7,296	—	7,211	7,145	—
Arable land ...	6,263	6,378	6,304	6,128	6,105	6,157 ³
Permanent grass ...	816	918	—	1,083	1,040	—
Wheat ...	120	85	32 ⁴	100	134	152
Rye ...	694	718	673 ⁴	681	607	481
Barley and bere ...	736	691	695	578	596	633
Oats ...	1,053	1,086	1,069	996	1,059	1,042
Barley and oats, with peas or vetches ...	230	296	353	419	446	457
Total corn, cut ripe ...	2,833	2,876	2,822	2,774	2,842	2,765
Potatoes ...	129	130	134	134	151	159
Mangolds ...	46	—	124	207	207	276
Svedes ...	5	—	68	187	254	246
Turnips ...	44	220	140	171	167	150
Sugar beet ...	18	—	37	40	80	78
Carrots and chicory ...	18	—	19	23	22	20
Total roots ...	260	350	522	762	881	929
Seed of grass, roots and clover	9	10	11	10	39	42
Peas, beans and buckwheat	99	52	51	38	16	20
Other crops ...	54	24	26	33	22	—
Fallow ...	485	478	358	261	215	174
Bastard fallow ...	154	132	176	177	172	191
Green crops ...	104	122	135	181	167	90
Grass and clover in rotation	2,265	2,334	2,293	1,892	1,751	1,946
Permanent grass ...	—	121	—	229	256	—
Lucerne ...	0	1	—	18	24	—
Meadows ...	567	563	587	551	546	—
Bogland and common ...	249	233	236	285	214	—
Woods and plantations ...	560	665	—	801	823	—
Gardens and nurseries ...	70	81	89	95	112	—

¹ "Statistisk Tabelværk," 4 Række, Lit. C. No. 7; 5 Række, Lit. C. No. 1 and No. 3; "Statistiske Meddelelser," 4 Række, 12 Bind, 7de Hæfte, and 44 Bind, 2det Hæfte; and "Statistisk Aarbog," 1916, Tabel 45.

² A new survey was finished in 1906.

³ To which should be added the acreage with "other crops."

⁴ Damaged during winter and replaced by spring sown barley, oats and roots.

⁵ These roots occupied in 1871 14,000 acres, and in 1881 47,000 acres.

164 CO-OPERATION IN DANISH AGRICULTURE

Of the total acreage devoted to roots the following percentages were grown with potatoes, with roots for feeding, and with other roots :—

	Potatoes.	Roots for feeding.	Other roots.
1871	88·4	11·6	—
1888	49·7	43·5	6·8
1901	25·5	67·3	7·2
1912	17·1	73·6	9·3

(“ Landbrugets Ordbog,” 3 Bind, 1912, p. 70.)

7. PRODUCE OF CROPS.¹

Yearly averages.	1875-84.	1885-94.	1895-1904.	1905-9.	1910-1914.
	1000 Quarters.	1000 Quarters.	1000 Quarters.	1000 Quarters.	1000 Quarters.
Wheat	548	509	441	503	608
Rye	2,019	2,173	2,178	2,229	2,056
Barley	2,644	2,618	2,612	2,156	2,233
Bere				496	466
Oats, white	3,710	4,160	4,686	4,084	4,362
Oats, black				762	715
Oats and barley mixed ...	589	1,006	1,502	1,795	2,133
Buckwheat	99	87	46	39	20
Pulse	169	90	54	59	51
Total corn	9,778	10,643	11,519	12,123	12,644
	1000 Tons.	1000 Tons.	1000 Tons.	1000 Tons.	1000 Tons.
Potatoes	287	422	560	692	901
Mangolds	—	—	1,966 ²	3,984	4,551
Swedes	—	—	1,198 ²	3,204	4,598
Turnips	—	—	1,918 ²	2,664	2,684
Carrots	—	—	199 ²	245	232
Sugar-beet	—	—	370	455	825
Chicory	—	—	14 ²	16	22
Other roots	604	2,442	ca.5,300	10,568	12,872
Total roots	891	2,844	5,860	11,260	13,773
Hay	1,049	1,156	1,592	1,970	1,884
Straw	—	—	2,765 ²	3,355	3,268

¹ “ Statistiske Sammenlægninger,” 1913, Tabel 17, and “ Statistiske Meddelelser,” 4 Række, 36 and 49 Bind, “ Høsten i Danmark.”

² 1897-1904.

8. THE TOTAL PRODUCE OF CROPS.¹

The total produce of the crops of the different years cannot be directly compared unless the amounts of corn, roots, hay and straw be reduced to a common unit. This has been attempted in the following way. As unit is taken *one ton of corn*, which has been named a "unit of crops." The various crops are considered in respect to their value as food for cattle, based on the results of many years' investigations. Equal weights of different kinds of corn are considered to have equal value. The "total solids" in roots have the same value as an equal weight of corn. Hay and straw also are converted into "units of crops" according to their value as food, 2½ tons of hay and 5 tons of straw being taken as equal to one ton of corn or one "unit of crops."

In this way the average annual total produce of crops has been estimated for the following five-yearly periods to be—

1879-83 ...	...	...	...	...	...	3,050,000 units.
1884-88 ...	...	...	...	...	...	3,290,000 "
1889-93 ...	...	...	...	...	...	3,460,000 "
1894-98 ...	...	...	...	...	...	3,880,000 "
1899-1903 ...	...	...	...	...	...	4,030,000 "
1904-08 ...	...	...	...	...	...	4,760,000 "
1909-13 ...	...	...	...	...	...	5,390,000 "

9. AVERAGE YIELD²
IN BUSHEL PER ACRE.

	Wheat.	Rye.	Barley.	Bera.	Oats		Mixed oats and barley.
					White.	Grey.	
1875-84 ...	30·9	24·7		27·5		30·3	31·4
1885-94 ...	36·2	25·0		28·9		31·7	33·4
1895-1904 ...	39·3	25·3		31·4		35·4	36·2
1904-1908 ...	40·7	25·8	34·5	30·0	39·8	24·9	37·6
1909-1913 ...	43·1	27·0	38·2	34·1	44·0	28·8	40·7

IN TONS PER ACRE.³

	Potatoes.	Mangolda.	Swedes.	Turnips.	Carrots.
1895-1904 ...	4·2	16·4 ³	—	—	11·6 ³
1904-1908 ...	5·2	18·9	18·0	15·5	11·2
1909-1913 ...	5·7	21·5	19·0	16·4	11·4

¹ Statistiske Meddelelser, 4 Række, 53 Bind, 3 Hæfte, p. 17-20.

² "Statistisk Tabelværk," 5 Række, Litr. C. No. 4, "Landbrugsforhold i Danmark;" and "Statistiske Meddelelser," 4 Række, 36 and 49 Bind, 4 Hæfte.

³ 1897-1904.

166 CO-OPERATION IN DANISH AGRICULTURE

10. NUMBER OF LIVE STOCK
ON THE 15TH JULY.¹

	1861.	1871.	1881.	1893.	1898.	1903.	1909.	1914.
Horses	1000. 325	1000. 317	1000. 348	1000. 411	1000. 449	1000. 487	1000. 535	1000. 567
Bulls, 1 year and above	—	—	—	42	42	46	73	96
Bulls, 2 years and above	21	14	18	—	—	—	—	—
Bullocks, 1 year and above	—	—	—	112	71	38	58	68
Bullocks, 2 years and above	77	72	95	—	—	—	—	—
Cows, including heifers which have calved	757	808	899	1,001	1,067	1,089	1,282	1,310
Calves and young stock, including heifers which have not calved ...	264	345	458	531	565	668	841	989
Total of cattle ...	1,119	1,239	1,470	1,696	1,745	1,841	2,254	2,463
Boars, 4 months and above	—	—	—	6	7	8	8	13
Sows for breeding, 4 months and above	—	—	—	96	136	167	148	283
Pigs for fattening, 4 months and above	—	—	—	263	337	385	422	707
Young pigs	—	—	—	464	688	897	890	1,494
Total of pigs ...	301	442	527	829	1,168	1,457	1,468	2,497
Sheep	1,752	1,842	1,549	1,247	1,074	877	727	515

11. YIELD OF MILK AND BUTTER.

There are no official statistics of the yield of milk and of butter per cow, and reliable figures are only at hand from later years. In a paper read at the Winnipeg meeting of the British Association, 1909,² Mr. P. A. Mørkeberg, Danish Government Live Stock Commissioner, estimates the average yield of butter by all Danish cows at 80 lbs. in 1864; 116 lbs. in 1887, and 220 lbs. in 1908.

The annual Dairy Statistics,³ giving detailed information, collected from most of the Co-operative Dairy Societies, contain

¹ "Statistisk Tabelværk," 5 Række, Lit. C, No. 4, and "Statistiske Meddelelser," 4 Række, 47 Bind, 2 Hæfte.

² *Journal of the Board of Agriculture*, 1910, p. 998.

³ Danmarks Mejeri-Drift-Statistik, 1902-1916, described on p. 50.

figures from which the following table has been compiled. It applies to so many cows, spread over the country, and in no way selected, that the average yields of milk and percentages of fat in the milk may well be taken to apply to the whole stock of cows in the country.

Years.	Average number of dairies reporting.	Average number of members in dairy societies.	Average number of cows per society.	Total number of cows.	Yield of milk per cow.	Per cent- age of Fat.
1902-06 ...	507	—	ca. 980	490,000	Gallons. 510	3.44
1912-16 ...	728	153	936	680,000	554	3.51

This table shows an increase during the ten years of 8½ per cent. in the yield of milk and of 2 per cent. in the percentage of fat.

The Association of Bull Clubs and Control Societies in Funen have published information of the yield of the Red Danish Dairy Cattle in Funen.¹ It deals with—

A. All the cows in the herds of members ;

B. All normal cows, not including heifers, cows going farrow or having cast the calf. The figures for the year 1915-16 are as follows :—

	Number of cows.	Yield of milk per cow.	Percentage of fat.	Yield of butter.
A	40,116	Gallons. 794	3.65	lbs. 323
B	19,691	860	3.64	350

In the above-quoted paper Mr. Mørkeberg describes certain competitions between entire dairy herds, carried on during two whole years, with periodical weighing of the milk of each individual cow, testing the percentage of fat, weighing the fodder given to each cow, etc. Four such competitions have been carried on among herds of Red Danish Dairy Cattle in Sealand, beginning respectively, 1897, 1899, 1905, and 1911. From the reports of these competitions the following data have been extracted.²

The number of herds entered were 5, 6, 15, and 10, and the number of cows—whether in milk or not—were 102, 319, 441, and

¹ Føllesledelsen af Kvægavls-og Kontrolforeninger i Fyns Stift, Odense 1917.

² Beretning om to-aarige Konkurrencer, udgivet af Sjællandske Landboforeninger, 1899-1914.

168 CO-OPERATION IN DANISH AGRICULTURE

445 respectively. The average yield per annum of *all cows*, including heifers, in these herds during two years was :—

	Yield of milk.	Percentage of fat:	Yield of butter.
	Gallons.		lbs.
1897	711.2	3.39	277.8
1899	773.2	3.39	302.0
1905	791.3	3.66	332.9
1911	932.2	3.86	414.5

The average yield of *all cows* in each of the four best herds in the first and the last of these competitions was :—

COMPETITION 1897-99.

	Yield of milk:	Percentage of fat.	Yield of butter.
	gallons		lbs.
First herd	772.2	3.44	305.3
Second herd	800.5	3.44	316.4
Third herd	747.6	3.30	282.2
Fourth herd	810.8	3.31	307.5

COMPETITION 1911-13.

	Yield of milk.	Percentage of fat.	Yield of butter.
	gallons		lbs.
First herd	979.0	4.05	456.4
Second herd	990.3	4.02	460.7
Third herd	948.4	3.97	434.3
Fourth herd	981.3	3.81	429.9

Similar competitions have been carried on in Funen with cattle of the same breed, beginning in 1894. The seventh competition was carried on during the years 1913 to 1915. The results have been published from 1897 to 1916.¹ In the first, fourth and seventh competition, 7, 18, and 10 whole herds were entered with 530, 777, and 304 cows respectively. The results for *all cows*, including heifers, cows that did not calve during the year, and cows not in milk, are given as follows :—

¹ Beretning om to-aarige Konkurrencer mellem hele Kvæghold i Fyens Stift.

	Yield of milk.	Percentage of fat.	Yield of butter.
	gallons.		lbs.
1. 1894-96	697	3.44	266
4. 1903-05	853	3.53	334
7. 1913-15	934	3.83	398

THE BEST COW IN DENMARK.

A silver cup as a prize for the best cow in Denmark was offered in 1910 and following years by a weekly agricultural paper, *Dansk Landbrug*, the judging being based on the records for three preceding years established by the Control Society of which the owner was a member. The records for the best cow, in 1910 and 1914, are given below, the owners being farmers on middle-sized farms.

		Yield of milk.	Percentage of fat.	Yield of butter.
		gallons.		lbs.
Cow "Bellinge," 1910	1st year	1700.5	3.54	692.2
	2nd year	1173.9	3.59	485.0
	3rd year	1581.7	3.79	704.4
Cow "Silke," 1914 ...	1st year	1075.9	3.91	492.7
	2nd year	1414.9	3.80	619.5
	3rd year	1703.0	3.89	763.9

12. IMPORT INTO AND EXPORT FROM DENMARK OF AGRICULTURAL PRODUCE, FROM 1876-80 TO 1910-13.¹

Yearly averages.	1876-80.	1881-85.	1886-90.	1891-95.	1896-1900.	1901-05.	1906-09.	1910-13
	£1000	£1000	£1000	£1000	£1000	£1000	£1000	£1000
Live Animals, Import	305	330	281	196	143	183	939	555
Export	2,720	3,097	2,205	2,039	1,209	1,766	2,231	3,360
Surplus Export	2,415	2,767	1,924	1,843	1,066	1,583	1,292	2,745
Animal Produce, Import	757	1,080	1,434	2,351	3,089	4,551	4,912	3,114
Export	1,900	2,710	5,138	8,093	12,015	17,362	20,938	24,633
Surplus Export	1,143	1,630	3,704	5,742	8,926	12,811	16,026	21,519
Corn, Flour and Meal, Import	1,210	1,571	1,621	2,244	3,345	4,159	5,482	5,808
Export	2,706	1,679	935	801	753	747	1,085	862
Surplus Import	-1,496 ²	-108 ²	686	1,443	2,592	3,412	4,397	4,946
Feeding Stuffs and Seed, Import	615	918	1,272	1,447	1,826	3,306	4,960	4,934
Export	88	91	99	132	213	432	711	512
Surplus Import	527	827	1,173	1,315	1,613	2,874	4,249	4,422

¹ "Statistiske Sammendrag," 1913 (1876-1911); "Statistisk Tabelværk," 5 Række, Lit. D. No. 30 and 31 (1912 and 1913). ² Surplus Export.

170 CO-OPERATION IN DANISH AGRICULTURE

13. EXPORT FROM DENMARK OF HOME-PRODUCED BUTTER, BACON AND HAMS, AND EGGS, FROM 1881-85 TO 1911-15 ¹

Yearly averages.	Butter. ²	Bacon and hams. ³	Eggs. 1000 gt. hunds.
	Tons.	Tons.	
1881-85	15,630	7,940	478
1886-90	29,730	23,980	913
1891-95	48,070	41,270	1,243
1896-1900	57,396	64,860	2,222
1901-05	76,044	76,390	3,531
1906-10	90,180	95,400	3,357
1911-15	99,420	128,840 ⁴	3,596 ⁴

¹ "Statistisk Tabelværk," 4 Række, Litr. D. No. 9b. (1887) to 5 Række, Litr. D. No. 31 (1914); Statistiske Efterretninger, 1915, No. 1; 3 and 5; and 1916, No. 4.

² Including export of cream calculated as butter. See end of chapter on Co-operative Butter Export Societies.

³ Including Mess-Pork.

⁴ 1911-14.

INDEX

A.

Aalborg Butter Export Association, 83
Adulteration of seeds and feeding stuffs, 124
Agricultural and Horticultural Association, England, 125
Andelsbladet (Co-operative Journal), 157
Appel, A., Live Stock Commissioner, 93
Artificial manures, import of, 128
Associations of Bull Clubs, 96
 " Pig Breeding Societies, Funen, 108
Ayrshire cattle in Denmark, 87

B.

Bacon, Co-operative Factories, 55
 " " " cost of, 67
 " " " statistics of, 66
Bakeries, Co-operative, 151
Belgian horse, 101
 " " Breeders' Society in Sealand, 104
Bøggild, B., Professor, 39, 111
Bornholm, Breeding Societies in, 108
" Breeding Centres," 68
 " Societies, 85
 " of domestic animals, law for improving, 89
Building Societies, Co-operative, 152
Bull Clubs, 85, 91
 " " Associations of, 96
 " " and Control Societies, 116
 " " statistics of, 95
Butter, "Estate" v. "Dairy," 45
 " export of Danish, 45
 " Export Societies, Co-operative, 80
 " from collected milk, 1863...36
 " Show, London, 1879...35
Bye-law from Danish "Bye Lov," i.e. Town Law, 5

C.

Cattle Breeding Societies, 85
 " " " State aid to, 89
 " raising changes to corn growing, 86, 93
 " shows, 89
Central Co-operative Committee, 141, 156
 " Organisation of Danish Dairy Associations, 50
Change from corn growing to dairy farming, 32, 89
Control apparatus of N. J. Fjord, 110

- Control assistants, 113
 " " courses for, 116
 " Societies, 94, 109
 " " and Cattle Breeding Societies, 116, 117
 " " Federations of, 119
 " " in other countries, 120
 " " State aid to, 115
 " " statistics of, 117
 Co-operation as a remedy against Trusts, xii, 125, 128
 Co-operative Bacon Factories, 55
 " " statistics of, 66
 " Bakeries, 151
 " Bank, the Danish, 141
 " Building Societies, 152
 " Butter Export Societies, 80
 " Cheese making in Switzerland, 36
 " Dairies, cost of, 43
 " " statistics of, 40
 " Dairy, the first, 37
 " " Societies, 31
 " Distributive Societies, 25
 " " statistics of, 27
 " Electric Generator Societies, 150
 " Flour Mills, 14, 152
 " Journal, Danish, 157
 " Life Insurance Society, 149
 " Marling Societies, 151
 " Slaughter-houses, 54
 " use of agricultural machinery, 150
 " Village Banks, 143
 " Wholesale Society, Manchester, 17, 74, 80
 " " of Denmark, 26
 Corn growing changes to dairy farming, 32, 89
 Creameries, American, 36
 Cream separator, the first with continuous working, 35
 Credit Associations, Danish, 131
 " " the first, in Germany, 9
 " Association for Industrial Properties (1897), 135
 " " Jutland Towns (1852), 133
 " " of Landed Estate Owners in Jutland (1851), 133
 " " of Property Owners in Copenhagen (1882), 135
 " " " in the Danish Islands (1851), 133
 " " " in the Island of Funen (1860), 134
 " " " in the country districts in Jutland
 (1893), 135
 " " of Proprietors of Small Landed Properties in Jutland
 (1880), 135
 " " of Proprietors of Small Landed Properties in the Islands
 (1880), 135
 " Office for Landed Estates in the Islands (1866), 135
 " Societies (Banks), Schulze-Delitzsch and Raiffeisen, 18
 " " in Ireland, 22

D.

- Dairy, the first collective, 36
 " " co-operative, 37
 " Associations, Unions of, 50

- Dairy butter *versus* estate butter, 45
 " farming, change from corn growing to, 32
 " " introduced from Holstein, 35
 Danish Bacon Company, London, 67
 " butter, quality of, 44
 " Co-op. Bank, 141
 " " Butter Company, 83
 " " Cement Works, 152
 " " Coal Supply, 130
 " " Dairy Societies' Joint Purchase Society and Engineering Works,
 128
 " " Egg Export, 71
 " " constitution of, 78
 " " Manure Supply Society, 128
 " " of 1916, 129
 " Dairies' Butter Mark Society, 82
 " Co-op. Butter Export Association ("Danish Dairies"), 83
 " eggs, complaints of, in England, 71
 District Associations of Bull Clubs, 106

DANISH LAWS referred to:—

- on Breeding of Domestic Animals, 31/3/1852...89, 97
 " " " 1/4/1887...92, 101
 " " " 14/4/1893...92, 98
 " " " 23/5/1902...68, 93, 98, 106
 " " " 8/6/1912...68, 94, 99, 106
 on Combating Tuberculosis in Cattle, 26/3/1898, amended 5/2/1904 and
 17/2/1912...49
 on Control of the Export of Meat, 27/5/1908...69
 on Credit Associations, 20/6/1850...131
 " " amended, 19/2/1861...134
 " " for Small Holders, 1880...136
 on Employers' Liability, for Factories, 7/1/1898...148
 " " for Agriculture, 27/5/1908...148
 " " consolidation, 6/7/1916...149
 on Enclosures, 23/4/1781 and 15/6/1792...8
 on Export Duty on Cattle (Royal Decree), 1718...85
 on Horse Breeding (Royal Decrees), 16/6/1686 and 23/12/1778...97
 on Land to Agricultural Labourers, 24/3/1899, amended 22/4/1904; amended
 as Land to Small-holders ("Stats-Husmænd"), 13/6/1914, amended
 22/6/1917...162
 on Land-Loan Societies, 26/3/1898, amended 1/4/1908 and 12/5/1916...143
 on Marking of Butter and other Agricultural Produce, 30/3/1906...53
 on Mortgage ("Hypothec") Associations, 18/12/1897...140
 on Trade in Butter and Foreign Agricultural Produce, 12/4/1911...54
 " Steers (Royal Decree), 1457...85
 on Trading, 29/12/1857 and 23/5/1873...28

E.

- Egg Export, by Bacon Factories, 77
 " " Danish Co-operative, 71
 Eggs, export from Denmark, 76
 " increasing value of, 78
 " marking of, 74
 Electric Generator Societies, Co-op., 150
 Employers' Liability Risk Insurance Society for Dairies and Agriculture, 148

- Enclosures, Laws of 1781 and 1792...8
 English cattle in Denmark, 87
 „ co-operative distributive societies, 13
 „ Corn Laws, repeal of, 31
 „ pigs in Denmark, 55, 68, 105

F.

- Farmers of South Funen Butter Export Association, 82
 Federated Funen Horse Breeding Societies, 104
 „ Jutland Horse Breeding Societies, 103
 „ Sealand Horse Breeding Societies, 104
 Federation of Sealand Cattle Breeding Societies, 96
 Federations of Control Societies, 119
 Feeding stuffs, import of, 33, 123
 Fjord, N. J., 47, 110
 Flour Mills, Co-op., 14, 152
 Food units, 121
 "Forsøgslaboratoriet" (i.e. Laboratory for Agricultural Research), Copenhagen,
 47, 113
 Fowls, number of, in Denmark, 78
 Frederiksborg Koyal Stud, 97
 Freehold and leasehold, xvi, 161
 Funen Co-op. Feeding Stuffs Company, 127

G.

- Garden City, "Grøndalsvænge," 154
 Gerber, Dr., Zürich, 112
 Goat Breeding Societies, 108

H.

- Hjedding Co-op. Dairy, 38
 Holstein Dairy Farming introduced into Denmark, 35
 Horse Breeding Societies, 96
 „ „ „ statistics of, 102
 „ „ „ Society, the first, 99
 "Hypotheo" Societies, 140

I.

- Insurance Societies, Live Stock, 9, 146
 „ „ Hail, 148
 International Agricultural Exhibition in London, 1879...35
 „ Co-operative Alliance, 157
 Islands' Co-op. Society for the Purchase of Feeding Stuffs, 127

J.

- Jensen, J., Live Stock Commissioner, 100
 Jørgensen, Severin, 26, 73
 Judging dairy cattle, 112
 Jutland Co-op. Society for the Purchase of Feeding Stuffs, 126
 „ horse, 97, 100
 „ ox, 85

K.

- Kaslunde Dairy, 37
- Kildebrønd Co-op. Dairy and "Control" Society, 111

L.

- Laboratory for Agricultural Research, 49, 123
- Ladelund Agricultural School, 39, 124
- "Landschaften, fünf alte," 11
- Live Stock Commissioners, 68, 93, 99, 105
- " " Insurance Societies, 9, 146
- Lolland Co-op. Dairy Societies' and other Co-operators' Joint Purchase Society, 127
- "Lur Brand" for bacon, 69
- " " butter, 53

M.

- Machinery, co-op. use of, 150
- Marling Societies, Co-op., 151
- Maypole Dairy Company, 80
- Milk, production of, 41
- Milk-recording Societies, 111, footnote
- Milk-testing Societies, 51
- Mithern Jutland Butter Export Association, 83
- Mørkeberg, P. Aug., Live Stock Commissioner, 93, 105
- Mortgage Associations, 140
- " debt of Danish agricultural properties, 139

N.

- New Credit Association for Jutland Towns (1868), 135
- Nielsen, Anders, 51, 53, 126, 129, 142, 156
- North Jutland Butter Export Association, 83

O.

- Oilcakes, import of, 123
- Old time Danish agriculture, 3
- Owen, Robert, 14

P.

- Participation in Co-operative Societies, xiv, 27, 42, 64, 77, 84, 95, 102, 107, 118
- Pasteurisation of milk and cream, 47
- " " made compulsory, 49
- Pedersen, Niels, Ladelund, 39, 113
- People's High Schools, xvii, 27
- Pig breeding, 55, 68
- " " Societies, 105
- " " statistics of, 107
- Pigs killed, number of, 66
- " number of, 63
- Provincial Federations of Bull Clubs and Control Societies, 119

R.

Raiffeisen, 20
 Ringkøbing Co-op. Societies, 30
 Rochdale Pioneers, 16
 Royal Agricultural Society of Denmark, 35, 57, 72, 87

S.

Sanatorium Society, xiv
 Scale of food units, 121
 Schulze-Delitzsch, 18
 Seed, production and sale of, 29
 Segelcke, Th. R., Professor, 35
 Sheep Breeding Societies, 108
 Shorthorn cattle in Denmark, 87
 Small Holders, benefited by Co-op. Dairies, 44
 " " numbers of, increased, 135
 " " participating in co-operative societies, xiv, 27, 42, 64, 95, 103, 147
 Society for Breeding Light Horses in the Province of Funen, 105
 Societies for purchase and sale, 123
 Stallion Clubs, 101
 Swiss Co-operative Dairies, 36

T.

Tenure, joint, 4
 Trusts, Co-operation as remedy against, xii, 125, 128

U.

Union of Danish Co-op. Bacon Factories, 67
 Usury, Austrian Law of 1751 against, 10

V.

Vejen and District Control Society, 113
 Vejle District Butter Export Association, 84
 Village community, 5

W.

West and South of Jutland Credit Association, 137
 Women as Control Assistants, 116
 Workmen's Co-op. Building Society, 152

Y.

Yield of corn increased, 34
 Yorkshire pigs in Denmark, 55, 105
 " stallions in Denmark, 97

CHECKED
2003-04