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DANISH AGRICULTURE

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ADDRESS

UNDER THE AUSPICES OF THE

SOUTHERN COMMERCIAL CONGRESS

ON DANISH AGRICULTURE, TOGETHER WITH
A STATEMENT AS TO CULTIVATION IN DEN-
MARK, AND DANISH SEED AND SEED-GROWING

By

HON. RUDOLF SCHOU

COUNSELOR OF STATE, COPENHAGEN, DENMARK

PRESENTED BY MR. FLETCHER

JUNE 26, 1914.—Referred to the Committee on Printing

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REPORTED BY MR. FLETCHER.

IN THE SENATE OF THE UNITED STATES,
October 8, 1914.

Resolved, That the manuscript submitted by Mr. Fletcher on June twenty-sixth, nineteen hundred and fourteen, entitled "Danish agriculture," an address delivered by Honorable Rudolf Schou, counselor of state, Copenhagen, Denmark, be printed as a Senate document.

Attest:

JAMES M. BAKER,
Secretary.

D. OF C.
OCT 19 1914

recd. Oct. 27/14

LETTER OF SUBMITTAL.

THE SOUTHERN COMMERCIAL CONGRESS,
Washington, D. C., June 25, 1914.

MY DEAR SENATOR FLETCHER: His Excellency, Rudolf Schou, counselor of state, Copenhagen, Denmark, visited the United States recently and on Monday, May 18, was the guest of the Southern Commercial Congress in Washington. At the University Club, under the auspices of the Southern Commercial Congress, and on a program with His Excellency Constantin Brun, envoy extraordinary and minister plenipotentiary from Denmark, and Hon. Maurice Francis Egan, minister from the United States to Copenhagen, Counselor Schou delivered a notable address on the subject, "Danish agriculture," including a statement as to cultivation in Denmark and Danish seed and seed growing. In view of the notable achievements of Denmark in the past half century and the wide public interest in the whole question of agricultural cooperation as developed and successfully practiced in Denmark and other European countries, I have the honor to forward to you the address of Counselor Schou with the suggestion that it be made a public document for the information of the people of the United States.

Yours, very truly,

CLARENCE J. OWENS,
Managing Director.

HON. DUNCAN U. FLETCHER,
United States Senate, Washington, D. C.

DANISH AGRICULTURE.

Address by Hon. RUDOLF SCHOU, *Counselor of State, Copenhagen, Denmark.*

If one were to look back half a century one would find the conditions then existing in Denmark very different from what they are now. At that time Denmark was larger than at the present moment, for we possessed Slesvig and Holstein. The cutting off of so important a part of the country weakened it considerably, and the years following upon the loss were very hard. But little by little, as time went on, a more confident spirit began to prevail, and the nation joined in endeavoring to solve the problem how best to turn to account what was left. And it was really also possible to unite the population around this one great common object.

Agriculture, Denmark's chief source of gain, was the solution, and it has done its duty, as we shall enlarge upon in the following remarks.

While 50 years ago only 63 per cent of Denmark's land was used for agricultural purposes, now 75 per cent is cultivated under plow. As naturally the best soil was first taken into use, it is the less rich soil that last has been cultivated, and it is especially the peninsular of Jutland (Jylland) where this has been the case. In this respect Denmark stands highest with its 75 per cent cultivated soil. France has 53 per cent, Germany 49 per cent, Great Britain and Ireland 26 per cent arable land.

At the same time as the area of arable land has been increased so considerably, the cultivation and productivity have also been improved. This is closely connected with the fact that agriculture in Denmark has gone over from the sale of cereals to the production of butter, bacon, eggs, meat, etc. The soil's fertility has thus been greatly increased by the extra manure. In order to be able to feed the increased numbers of domestic animals it has been necessary to lay special weight on the growth of root crops, as well as on the improvement of the grass and clover fields.

The number of domestic animals was as follows:

	1861	1881	1909
Horses.....	312,000	329,000	500,000
Cattle.....	1,095,000	1,440,000	2,218,000
Sheep.....	1,733,000	1,530,000	712,000
Pigs.....	291,000	513,000	1,441,000

The soil was laid out as follows:

	1866	1888	1912
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
Ripe corn.....	2,425,000	2,887,000	2,870,000
Potatoes.....	95,000	130,000	152,000
Root crops.....	7,500	225,000	716,000
Hay.....	1,600,000	662,500	592,500
Pasture land.....	1,600,000	1,707,500	1,435,000
Fallow.....	487,000	632,500	507,000
Meadow.....	575,000	577,500	452,500

One can, through the above figures, see that the amount of land employed for the cultivation of corn has been unchanged the latter 25 years, but we find now cultivated a quantity of mixed corn which is partly used green for cattle fodder. The area of land laid out for root crops is now three times as large as 25 years ago, and as the root crop per acre produces much more cattle food than an equivalent acre sown with corn, this accounts for the great change.

If one recalculates corn, root crops, and hay to one common term, "unit of corn," one arrives at a harvest yielding for the year 1888 of 2,932,000,000 kilograms of grain. The average for the latter 5 years has been 5,290,000,000 kilograms of grain, and consequently for the 25 years a growth of 80 per cent.

At the same time the number of cattle has been increased as mentioned before. One can also rightly claim that the value of the live stock in the course of 30 years has been increased by \$50,000,000, and to this must be added the increased value of farm buildings, dead stock, machines, etc., as well as the value of the something like 1,200 dairies and 43 cooperative bacon factories that have been erected by agriculturists.

This development dates from the period about 30 years ago, when the corn prices fell and the economical status of agriculture was less good, if not to say bad. The transition from the sale of corn to the producing of cattle is a very interesting period in the history of Danish agriculture.

Whilst 34 years ago there was still a surplus export of corn and feeding stuffs representing a value of about \$4,000,000, there is now a surplus import of corn for a value of \$30,000,000, and there is imported feeding stuffs for \$20,000,000.

At the same time the surplus export of horses, cattle, butter, eggs, and meat has risen from \$19,000,000 to a value of \$126,000,000. If one besides this mentions that there in Denmark are to be found 180,000 estates of an average area of about 50 acres, I will not tire the reader with any more figures.

The surplus export of animal produce represents \$14 per acre, and if to this we add the home consumption in Denmark, whose population consists of 2,750,000, we arrive at a production value of animal produce of \$22 to \$24 per acre for every acre of the entire country's cultivated area.

There is no question here of discussing whether this result is better or less good than that arrived at in other lands. Partly because a comparison would be impossible, and at the same time it would be of little value, for an entire country's production is not altered by bringing forward another country's more favorable results. It is sufficient to state that there is every reason to believe that greater results will be arrived at in the future.

This period also marks the establishing of agricultural experimental work. We first started with experiments relative to dairy farming, and on basis of these the cooperative dairies were built. The butter which was produced on the ordinary smaller farms only obtained a price which was the half of what the larger estates were able to command, and the object was to find a solution which would place them all on an equal footing. This we find now, thanks to the cooperative dairies.

Besides dairy-farming experimental trials we have carried out experimental trials in the question of fodder, with the question of the cultivation of plants, their improvement and refining; experiments with fertilizers, the storing and preservation of manure; experiments with the feeding and slaughtering of pigs of various breeds; experiments with poultry, etc.

The foundation for these experiments has been the economical profit expressed in figures, and the results of these experiments are carried out in practical life.

One of the outcomes of this is the control with each individual cow's yielding and the quantity of fodder consumed, as well as the control with the growth of pigs in comparison to the food consumed. We can also add that there are undertaken scientific investigations and trials.

By means of agricultural dairy farming and housekeeping schools the young folks acquire the requisite knowledge necessary in order to understand the experiments; likewise they enlarge their practical insight by residing with other agriculturalists. It is likewise not at all uncommon that the sons of peasants are sent to foreign countries, and again in that manner enlarge the horizon of their views.

Protection for agriculture is unknown, and therefore it must endeavor to make itself so capable that it is in itself able to compete with all the world.

The cooperative movement has reached a high stage of development. There exist six associations or societies whose object it is to buy up feeding stuffs, artificial manure, and machines, and these have again branched off into 2,380 local divisions with a turnover of \$12,000,000.

One cooperative life insurance society has 160,000 members with a premium revenue of about \$800,000; the cooperative accident insurance society, with 65,000 members, has a premium revenue of \$180,000; 1,187 cooperative dairies have 160,000 members and a turnover of \$76,000,000 and prepare 700,000,000 gallons of milk; 6 butter export societies to which 267 dairies are connected turn over \$10,000,000; 43 cooperative bacon factories, with 135,000 members, kill about 1,900,000 pigs and turn over \$38,000,000; and there are 6 societies for the export of eggs whose turnover is \$5,200,000. Finally must be mentioned that 10 bacon factories have started their own office in London for the sale of their produce, and this turns over about \$7,500,000. One arrives at a turnover of \$127,000,000. As before mentioned, there are to be found in Denmark about 180,000 estates; these figures may be calculated to represent about \$700 per estate, or, in other words, about \$14 per acre land.

From the above one can best judge of what importance the cooperative societies are for the daily business of a farm and what a decisive influence the same cooperative societies' work has had and has on Danish agriculture's economical outcome.

Through its animal production agriculture has likewise become industrial and it is obliged, like every other form of industry, to endeavor to buy its raw material as cheap as possible and sell its finished product for its highest attainable price. These cooperative societies may be said to act as regulators for the entire turnover in the same wise as the private trade regulates the cooperative societies.

There is a continuous competition between these two forms of business which without doubt is very beneficial.

The cooperative societies' members are obliged to buy, for example, all their feeding stuffs and artificial manures through the societies and must also deliver all their milk, pigs, and eggs to the societies. A comparison as to what the cooperative members pay or obtain and what outsiders pay or obtain gives a good test as to where it is most profitable to deal.

No capital is inserted when these cooperative societies are founded, as the entire sum needed for their establishment and the working capital is lent on mutual guaranty and gradually paid off. Every member has the right to a vote, and the profit is divided in comparison to the turnover. The direction is in the agriculturists' own hands, and they thus obtain a good insight into business conditions. When one takes into consideration that there exists several thousand societies it can easily be calculated that several thousand agriculturists take part in the direction. The daily technical or commercial administration is left to managers having special professional knowledge, and these are as a rule well paid.

The mutual guaranty has only in certain cases been effective, and abuse or swindle is exceedingly rare. Thus the whole system of the commercial side of the farming has the advantage that all business now is able to be carried on through the medium of all the various forms of cooperation, and so the farmer can now, if he wishes to, himself remain at home and look after his farm instead of being obliged to go to town.

Through this amalgamation of agriculture and industry a considerable turnover is obtained, and no little money passes through the hands of the farmer. As a large working capital is necessary, loans on mortgages are considerable; the same applies as in the cases of industrial concerns—the working capital is borrowed and turned over fairly quickly. One can reckon that 43 per cent of the soil's value with the addition of buildings, stock, and dead stock is mortgaged.

The question has often been raised as to whether it is advisable for the farmer to use so much outside capital. One must take into consideration that the Danish law forbids joining estates, and a man who buys a farm can not reckon on being able to buy the neighboring land when he has put together some money and thus add that to his property.

If he wishes to have a farm of, for example, 60 acres, he must at once buy a farm of that dimension, for it is only the exception to find the farmer buying first a small property and then selling it in order to obtain a larger one. He has scarcely ever ready money with which to pay for the whole farm. He has besides some capital a good training, energy, and confidence in himself. This want of capital is not taken advantage of by capitalists, for he can get credit and do his business through the cooperative societies. And he has that advantage over others carrying on business that he does not compete direct with other producers. The other farmers will impart their experience to him, and he in return will give back his.

As the access to money is fairly easy, the prices for land may perhaps be driven somewhat up. The price of land may, of course, have a certain importance, but the vital point is the farmer's capabilities,

and one rarely really finds a clever man paying too much for his land, whilst the less competent will always pay too much. Personal cleverness and ability are here of perhaps equal importance as the price of land.

Agriculture has one great advantage, and that is that its workers have all had about the same form of training, are accustomed to the same way of living, and think in the same fashion. They are a homogeneous class. This is perhaps the real solution as to why they in so large numbers are able to work together in economical undertakings to such a degree that even one agriculturist's existence is dependent on the existence of the majority of his colleagues. Their interests are the same. The great object for them all is to keep clear of the capitalist's power and influence, to buy cheap and sell dear, and produce everything at the lowest cost.

The close union of interests results in the fact that all connected with agriculture have the same interest in the sale of their products, and as these for the main part are exported, all are interested in Danish goods enjoying a good reputation abroad and in their being disposed of with the least difficulty; again, this mutual interest leads to the produce being as similar as possible and of the best possible quality and sanitary condition, and besides in its being free from adulteration.

This has left its traces in legislation dealing partly with the treatment of the production and its export and also in the marking or rather branding of the goods. Of these laws I will only mention the most important.

The manufacturing of butter is under close control, and it is forbidden to sell butter which contains more than 16 per cent water as well as butter to which has been added preservatives; butter containing 16 to 20 per cent water may be sold in Denmark, but only under the mark "Water Butter."

All Danish butter which is exported must likewise be prepared from pasteurized cream at a dairy notified and approved of by the authorities and (with the exception of butter in tins) must be provided with the Government brand.

There are particular conditions referring to the dairies; amongst others, every dairy which stands under control shall be liable at any given telegraphic notice to send in a cask of butter to the Government laboratory. The butter stands 10 days in the laboratory and is then judged by three separate sets of experts. If the butter is inferior to a certain given standard, the dairy loses its right to export butter, as the Government brand is taken away from the dairy. If the butter is of a less good quality, but still not under the standard, the dairy shall send for a Government consulting expert, and after some time a new cask is sent for to be examined. If the dairy loses its right to use the Government brand, but would wish to regain the right of employing it, the dairy sends in a cask of butter, and if this is of a good quality (it must be considerably above the lowest regulation standard), the dairy receives the Government's brand once more.

The Government brand is placed on two staves of the cask as well as on strips of paper, which are laid on the butter itself, both on the bottom and on the top of the cask.

By means of a special number system one is able to control, the butter can not be changed or tampered with in the casks.

All imported butter shall be marked "Foreign." By means of the margarine legislation it is excluded that there can take place any confounding of butter with margarine.

Bacon, meats, sausages, and meat conserves which are exported from Denmark are under Government control and prepared in factories, where during the working hours there is constantly present a controller appointed by the Government.

Every piece of meat for export is marked with the Government brand, and every sausage is soldered, and every hermetically sealed tin is supplied with a special mark.

The control takes place at the export or public slaughterhouses, which are authorized by the Government, who at the same time has given minute instructions for the control.

For meat from pigs there is employed a special brand, which is branded in red into the bacon itself and is a guaranty for the bacon being perfectly healthy, without the least sign of tuberculosis, and prepared under sanitary conditions.

These two Government brands bear guaranty for the goods being in sound and healthy condition and for likewise the unadulterated condition of the said goods.

The Danish producers are, as mentioned before, interested in various societies and economical unions, and this collaboration goes so far that even their goods are supplied with the same brand. It may appear strange that things have gone so far. But the fact is that little by little, as the quality of Danish butter has been improved, there was a tendency abroad to try and sell other countries' goods. But at the same time there was a number of Danish producers who did not exert themselves to produce the best goods, and who nevertheless obtained fairly good prices because their goods were Danish. This gave rise to a criticism of the quality of the goods, so that the Government brand is only granted to those producing the best quality and not to less good produce. It became apparent that Danish agriculture could only keep up its good reputation by exporting solely the best wares and that it neither could nor would put up with its reputation being exploited in favor of goods which were not of a good quality.

This gave rise to the system of a universal brand and the controlling of all goods destined for export, and it is on that basis that one can guarantee for the quality of all goods bearing this brand in common.

By beginning first with uniting in local centers these were gradually extended to larger districts, and at length one has gone so far as to unite in one great ring around a joint or common brand, which again is an expression for Danish agriculture's joint interest in the quality of the goods.

With this joint brand, which extends over goods of a value of \$85,000,000, Danish agriculture has given proof that it has one great common interest and that it will work for one great common aim.

It is the Danish Government which, according to Danish agriculture's expressed wish, now stands as representative for the Danish agriculture's export of goods, which, according to the express wish of Danish farmers, shall be as good as possible and irrespective of the fact that any single producer may thus be excluded from the right of exporting.

We have now come so far that people understand the unimportance of the single individual compared with the mutual industrial and commercial interest of the agriculturists as a whole.

It has been said that our system is an attack on the individual's personal freedom to do what he likes to further his own economical interest.

We draw the limit in the same place as Herbert Spencer, saying that we want "Freedom of that real kind which consists in the ability of each to carry on his own life without hindrance from others as long as he does not hinder them."

SEED CULTIVATION IN DENMARK.

While Denmark previously imported all the seed for growing purposes, the country commenced to grow seed about the beginning of this century, and, besides cultivating sufficient for home use, large quantities of grass and root seeds have been exported during the last four or five years.

As soon as a rational seed cultivation was started, the leading agricultural men discovered the necessity, especially for the sake of export, of the cultivation being made in such a way that the buyers get full guaranty that the seed produced and delivered is absolutely first class in every respect. It is therefore necessary that the original seed sown for seed-growing purposes is of the best and most improved pedigrees. The Danish seed has already succeeded in securing a good reputation not only in Denmark but also abroad, owing to the fact that the Danish climate is excellent for producing different varieties of good grass, root, and cabbage seed.

However, in order to insure that buyers get only absolutely first-class seed, an extensive control takes place by the Danish Royal Government's seed-trial stations undertaking trials. The results are published every three years—after each trial, lasting three years, is finished. In that way the seed growers get information as to which pedigrees are the best and where to get them.

A large number of seed-growing farmers have formed a society under the style of "Danish Farmers' Cooperative Association for Seed Growing," in order to have their seed inspected by an intensive control. From the headquarters in Roskilde the growers receive the original seed of first-class controlled pedigrees, and after harvesting they deliver the crop back to the headquarters at Roskilde for uniform cleaning and packing. All the fields are inspected several times during the growing, and the result is that the seed from this society is the best procurable. The said society annually delivers the Danish farmers about one-third of all the seed used in Denmark and has already secured a large export trade.

DANISH SEED.

The Danish farmer is reputed all over the world as being No. 1 on the agricultural territory, with an open eye for the last inventions and a good mind to new experiments, conscious of the fact that nothing in the world is perfect, but always can be improved.

The reason why, in spite of the small extent of his country, the Danish farmer has gained his prominent position amongst the nations and that the Danish agricultural products have become reputed as being absolutely first class is principally due to his indefatigable efforts continually to send improved products into the market.

About 50 years ago Denmark began the exportation of these products, whose world-wide fame may now be said to be a fact. With the beginning of this century Denmark made advances as a seed-exporting

country, and during the last 10 years the surplus for exportation has been continually increasing.

The reason why the country during such a short period has been able to establish a rather considerable seed export is not only because of the climate having proved highly suitable for seed growing to such an extent that the varieties that have best succeeded—cabbage seed, grass seed (especially Cocksfoot), and chiefly root seeds—appear to be superior to foreign seed of the same varieties, but particularly owing to the system according to which the cultivation is carried on.

In due time the formation of cooperative societies made it possible to produce Danish butter of a quality of the well-known high level, and therefore the seed growers found that the same way had to be followed—i. e., to join as many of the growers as possible for cooperative working, in order to manage delivery of excellent and uniform seed in quantities of due importance. Until, therefore, the cooperative principle was adopted Danish seed growing did not get into proper shape, and not until then did the Danish seed become worth consideration so far as its export was concerned.

As a cooperative society to promote Danish seed growing, the Danske Landboforeningers Frøforsyning (Danish Farmers' Co-operative Association for Seed Growing) at Roskilde was formed a number of years ago. The procedure of this society is as follows: In its own trial grounds the best obtainable origin seed is produced and delivered to the growers. Throughout the entire growing period the seed is strictly controlled and the society effects the sale of the crop, as all the growers have to deliver all of their seed to the headquarters at Roskilde, in reality making the growers the actual and responsible sellers. On account of the effective control to which the growers are subjected they offer to the buyers the utmost obtainable guaranty as to the truth of the growing of the seed. The seed is cleaned at Roskilde, where it is also bagged and provided with the plumb of the society. Consequently the entire growing and handling of the seed are subject to ideal principles.

Besides growing seed for ordinary sale, the association also undertakes contract growing for other countries, and such growing is effected under the same control and with the same guaranty that apply to the seed of their own origin.

SEED GROWING IN DENMARK.

It is well known all over that Denmark is an agricultural country, and for its agricultural products—butter and bacon—has for many years been considered No. 1 in the foreign markets. This position is still maintained, even to such an extent that foreign buyers pay an overprice for Danish qualities as compared with similar products from other countries.

However, during the last few years a new line in the agricultural territory in Denmark has appeared—i. e., seed growing—and it is evident that Denmark is particularly favored by nature also for that purpose, seeing that the Danish varieties, particularly of grass, root, and cabbage seed, give a better result both in quality and quantity than products from other countries. The Danish seed is vigorous and hardy, being grown in a rather severe climate.

Seed growing in Denmark is started on a very solid basis, the Danish Government having from the commencement, by using the very best pedigrees, made trials with the different pedigrees in order to insure a first-class product—all with a view to gaining a high reputation as well at home as in the foreign markets.

Having the proper impression of the necessity of getting first-class and reliable seed for growing, a number of agricultural societies took up the matter and in the year 1906 formed the Danske Landboforeninger Frøforsyning (Danish Farmers' Cooperative Association for Seed Growing). From the headquarters of this society at Roskilde the growers get their original seed, and after harvesting deliver their crop to Roskilde for the purpose of careful cleaning, after which it is distributed to their respective members or to buyers, as the case may be.

Clover, grass, root, and cabbage seed are grown. The three latter varieties seem to grow excellently in Denmark, besides having pedigrees superior to the foreign ones. The acreage used for seed growing in Denmark amounts at present to 18,000 hectares, and of these about 4,000 or 5,000 hectares are under the control of the said society at Roskilde.

The quantity of root seeds and grass seeds cultivated at present is now so large that Denmark has annually a surplus for export purposes, and this Danish seed, grown under a very intensive control and cleaned on the most modern machines, easily finds buyers all over Europe and North America, where the varieties appear to grow very satisfactorily and to yield nice results. It is needless to say that seed growing for export purposes is carried on under the same intensive control as the seed grown for the members themselves.

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