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Econ. report 136



NORTH OF SCOTLAND COLLEGE OF AGRICULTURE

Agricultural Economics Division

School of Agriculture, Aberdeen

# DANISH COMPETITION IN THE UK PIGMEAT MARKET IN THE 1980s

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The North of Scotland College of Agriculture  
Agricultural Economics Division

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### Acknowledgement

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Foreword

This report is based on studies initiated under the auspices of the Department of Agriculture and Fisheries for Scotland which, together with the three Colleges, is pursuing a programme of market studies on agricultural products.

It has been recognised that in a changing EEC and UK market, home producers and processors need a better understanding of how the market operates and how change affects demand and marketing opportunities for their products.

Danish dominance in the UK import supply sector is a key factor in overall market competition. This makes the industry in Denmark, particularly the production-marketing chain worthy of detailed examination.

Summary

1. The study was designed to provide for producers a first stage analysis of the operational features of the Danish Industry and a guide to the main strengths and weaknesses underlying its competitive role in the UK market during the 1980s.
2. Co-operation has been of considerable benefit, to Danish pig production and its processing-industry, providing the basis of an efficient marketing chain to the UK market.
3. The Danish Advisory Service operates a high degree of specialisation and a formalised approach to within-service training. However in pig breeding, work seems to suffer from over-centralised control.
4. The tendency is for the results of R and D work to go rapidly into practice because "short chains" are sought between research and development work and on-farm/in factory evaluation.
5. Farm and agri-food industry finance seems well provided with a range of 'tailored' facilities which, though operating satisfactorily, are vulnerable to the underlying weakness of the kroner.
6. Taxation of agriculture and the food industries in general is neither notably punitive nor relaxed. However fiscal controls have occasionally been exercised sharply to achieve special short term aims.
7. The agri-food industry in general is export oriented with the bacon sector under considerable centralised control on quality, supply and pricing.
8. Managers in the processing and export functions are influenced by consultation through the first and second tiers of the co-operative structure. However as the business has grown in scale, power has tended to concentrate and tensions have emerged between farm and factory.
9. Close trading links operate between Ess-Food (Copenhagen and London) and the large supermarket and multiple outlets in the UK. A responsive mechanism is maintained by the Danes to give a quick service to complaints from the consumer.
10. Pig and arable farmers pay a levy which provides substantial finance to fund a wide range of research, developmental and marketing work.
11. Promotion is a very significant weapon in Danish marketing. The budget is allocated to a comprehensive range of professionally organised activities directed towards UK consumers.
12. Pricing is a key activity for recovering adequate margins for the whole 'chain' and will remain a central weapon of competition in the British market.
13. The prospects are for low growth in real prices for pigmeat and relatively small changes in the cost of cereals and feed, affecting all pig industries. 'Danish' seems to have few if any long term advantages although co-operation and the quality approach are likely to remain significant strengths.
14. The institutional structure, in particular the organisation of the Agricultural Council, is highly developed, reflecting the overall importance of agriculture and food exporting to the national economy.

## INTRODUCTION

This report is based on material contained in detail in a background report "The Production-Marketing Chain from Danish Pig Producers to UK Consumers" which was derived from studies conducted in Denmark and the UK in the first half of 1981. The work was initiated under the auspices of the Department of Agriculture and Fisheries for Scotland.

The UK pigmeat industry operates in a strongly competitive market due mainly to the high level of imports but also to the aggressive marketing adopted by the importers. The strengths and weaknesses of their production-marketing chains are clearly important factors in current and future performance. Scottish producers need a better appreciation of how the market operates. Understanding the Danish 'system' because of its dominating influence in the British market can be of considerable assistance in this regard.

The approach adopted seeks to answer the basic question - What do Scottish and other British pig producers need to know about their Danish competitors? The following areas are considered:

- Organisation, finance and taxation of pig production;
- The approach to breeding, feeding and advisory techniques;
- Co-operation on procuring, slaughtering and bacon manufacturing;
- Organisation of transport, sea-freight and distribution to wholesale/retail customers;
- Marketing, promoting and pricing of their products;
- The management of UK and other export markets;

Organisations, functions and techniques deserve close scrutiny to reveal strengths which may be worthy of wider application, as well as indicating possible weaknesses which may be exploited. Overall an increased awareness of competitors' activities is a prime requirement for improving competitive effectiveness in the market place.

The report does not seek to present a comparison of the Scottish/UK/Danish situation with its inevitable repetition of much that is already familiar about the home industry. Awareness of the home industry is therefore assumed allowing the analysis to concentrate on the 'roots' of Danish competition in the UK market and the lessons that may be drawn.



Figure 1      Simplified Representation of Production-Marketing Chains  
and Operational Concepts

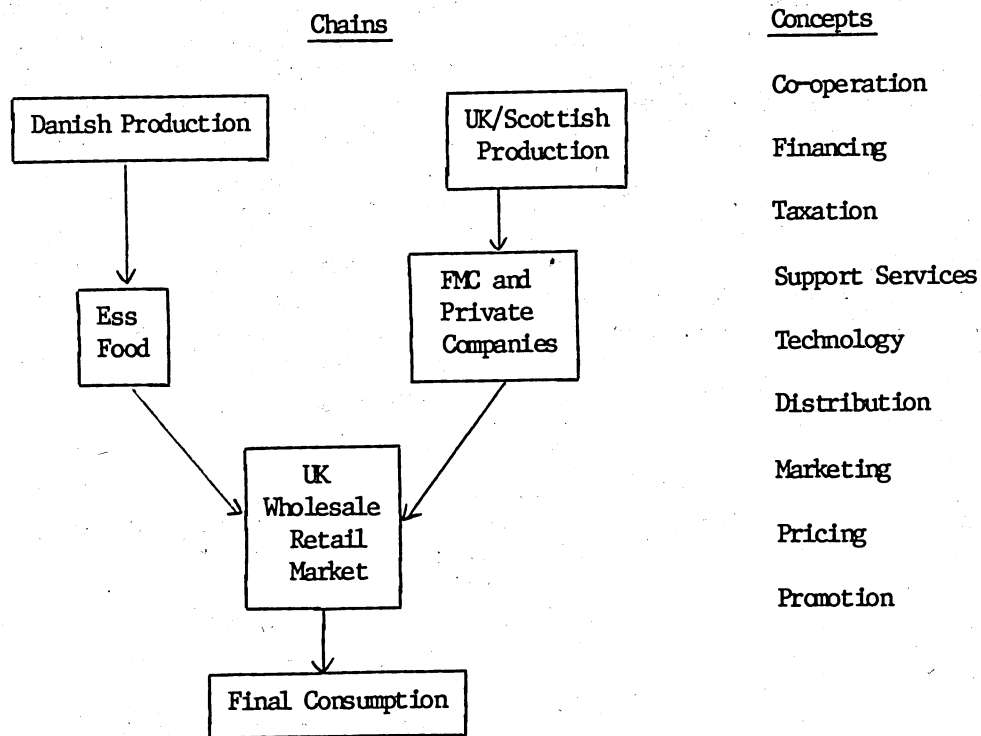


Figure 1 is an aid to the nature of the production-marketing "chains" and the approximate 'location' of the main operational concepts examined. It should be used in conjunction with Figures 9, 10 and 11.

1.

CO-OPERATION

Co-operation is a decisive feature of the Danish agri-food sector. In the two biggest markets, pig products and milk products, co-operative bacon factories and dairies dominate, handling over 90 per cent of the total production (Table 1). Farmers themselves are therefore influencing, dominating or controlling the system of trading and creating a powerful impact on market forces.

Table 1      % Market Shares of the Co-operative Societies

Dairies	87
Bacon Factories	91
Beef and Veal Marketing	60
Seed Sales	45
Egg Sales	60
Fertiliser Supplies	43
Feedingstuff Supplies	50

The movement has been outstandingly successful in strengthening the structural framework and the operational dynamics of the production-marketing chain for pigmeat from Denmark to the UK (Figure 2).

Currently the co-operative movement is said to offer certain advantages to its members; the price from the co-operative is generally higher largely due to the ability to negotiate rather than 'take' price; better treatment is likely to be given by the co-operative to its members compared with private enterprise; and farmers are able to influence the activities of co-operatives through their representation. Dominance in the market has helped to make these worthwhile advantages but it should be noted that in Denmark today there are few real alternatives to co-operative outlets.

An important strength in co-operative activity is that co-operatives can give good guarantees to bankers when seeking finance and considerable investment can be raised.

For UK agriculture the Danish 'co-operative experience' is alluring. However, it needs to be adequately understood if it is not to be a misleading inspiration. History - economic, social and political - provided the 'fertile seed-bed' for its growth. The relative simplicity of farm production systems checked the growth of conflicting interests. The need to export from a basic 'agri-food' economy and the dominance of the British market for Danish bacon created compelling pressures on organisations to co-operate.

The concentration of control in the production-marketing chain (Figure 2) is a key management feature. The efforts of 70,000 producers reach the UK market through one export association and clearly producers accept the strict discipline implied in a centrally controlled system but they do so only for the joint benefits which it creates.

Figure 2      The Co-operative Production-Marketing Chain from Denmark to the UK

70,000 Producers	23 Bacon Factories	1 Export Association	1 Shipping Company	1 Promotion Agency	10 <sup>1</sup> Supermarket Chains	56 M Consumers
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<sup>1</sup> Oversimplified because significant trading is done by smaller chains, multiples and other organisations, but retailing is on a concentration trend.

Rationalisation throughout the chain, over the years, has reduced the number of participants both concentrating and narrowing the decision-making base. Dependence on a high level of professional management from a smaller management team has therefore increased. This worries some Danes and much is made of the democratic processes built into the first and second tiers of the co-operative structure which are designed to facilitate full consultation down to the grass-roots.

However when the consultation stops, the professional managers have to take the commercial decisions. The variable capacity of managers to come up with the 'best' answers is a problem familiar to all large scale businesses. 'Getting it wrong' can have widespread and damaging effects capable of travelling deep into the 'system.'

Ess-food's insistence on end-product requirements over biological characteristics neatly illustrates the possible dilemmas in concentrating decision making and power. Nonetheless the benefits of co-operation to Denmark's agri-food industry have been considerable. It should be noted that they have been achieved within a pattern of ownership throughout the chain dominated by primary producers. This contrasts markedly with UK arrangements - farmer ownership of "agri" and city/multi-national ownership of "food" - with the resulting clashes of loyalty aggravated by a historical acceptance of major import flows of food.

Without a comparable historical experience co-operation in the UK will grow different roots, achieving real benefits, although, probably less than in Denmark.

2.

FINANCEFarm Production

The banks are a main source of agricultural credit in many EEC countries. In Denmark the credit organisations handling mortgage loans to the industry are the significant force. However, the banks act as intermediaries to the mortgage credit associations, the main one being the Mortgage Fund for Danish Agriculture. The importance of the banks in the financing of agriculture is considerably greater than the bare figures of bank loans to farmers suggest. Credit associations can normally lend up to half of the farm's total market value inclusive of farm stock, machinery and inventory. Finance sources and their loan terms are summarised in Figure 3. Danish farmers are well served by financial institutions catering particularly for their needs.

Figure 3     Capital and Finance in Danish Agriculture  
Summary of Financing Sources

	<u>Repayment period in years</u>	<u>Normal type of loan</u>	<u>Maximum of security value</u>	<u>Security</u>
Mortgage Credit Associations	10-13	Annuity	45%	Real Estate Farm Stock (Inventory)
The Mortgage Credit Fund of Danish Agriculture	5-30	Series & Annuity	70%	Real Estate Farm Stock Inventory & Machinery
Savings Banks	1-10 (in general)	Series or Annuity	by agreement	(Real Estate (Farm Stock (Inventory)
Commercial Banks	1-10 (in general)	Series	by agreement	(Possibly (Supplemented
Private Mortgage	5-15 (in general)	Series or Annuity	by agreement	(by Pledge (and Surety
State Loans				
Land purchase	30	Annuity		Real Estate Farm Stock and Inventory
Commution of Ground Rates	40-60	Annuity		
Conversion Loss	about 21	Annuity		

Supply Associations

### Slaughtering and Processing

Almost all the bacon factories are co-operatively owned and therefore this side of the agri-food industry draws its basic funds from farmer members ie. from the farm finances which are being funded through the sources of finance shown at Figure 3. This is in marked contrast to the UK where the processing sector is funded by a mix predominantly of private and equity market capital.

The Danish co-operatives have traditionally covered a substantial part of their financial needs for trading by borrowing from the banks and conversely have made use of the debenture market to a lesser extent. They also deal with part of their shorter term financial needs in certain activities by using "revolving funds". These are provided by a small deduction from the price paid to their farmer members, supplying pigs for example. A deduction of only two øre per kg can produce a useful amount of working capital for short term needs. This method of raising short-term money is relatively uncommon amongst UK co-operatives but appears to have much to commend it.

The food processing sector is also able to obtain finance from special funds administered by Agro Invest Ltd. This was set up in 1977 with finance which was made available out of EFTA funds returned from Sweden and it is designed to lend money to co-operatives in agricultural processing. The main businesses using Agro Invest Ltd are abattoirs, dairy processors and feed manufacturers and the funds borrowed are used only for buildings and equipment. The interest paid on loans is 1 per cent over the current bank level.

From 1977 to 1979 the state froze money calculated for national wage settlements into a special Wage Earners Foundation which by 1980 had lent 150 M kroner to co-operatives at 2 per cent discount over the national bank rate of 13 per cent.

In 1981 the Government responded to the serious financial crisis in industry by making available special support funds; 1.25 billion<sup>(1)</sup> kroner to the food industry, 1.25 billion kroner to factories and 1.25 billion kroner to primary industries.

### Current Situation

In 1980 in agricultural, processing and marketing enterprises there was a sharp decline in the previous substantial level of investment. During the late 1970s when terms were more favourable and the government needed assistance with its economic-monetary strategy it had encouraged business to negotiate loans in foreign currencies. The later steep rise in international interest rates and the fall in kroner value markedly increased the cost of these foreign loans.

Borrowing in foreign currencies by UK firms is generally negotiated by the individual concern; a difficult and rarely indulged exercise for the smaller business. In Denmark Agro Invest Ltd, operating on behalf of the agri-food industry, negotiated foreign loans to provide finance for lending to the industry. The foreign loans taken up since the company was

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(1) thousand million.

established at the end of 1977 totalled around 323 million kroner composed as shown in Table 2. Some 56 per cent of the loans including all dollar loans were based on variable interest while the remainder were fixed interest loans.

Table 2      Composition of Agro Invest Foreign Borrowing 1977 to 1980

	Million
US \$	27.2
Swiss franc	23.9
Deutschmark	18.6
Dutch guilder	15.0
Belgian franc	50.0

None of these loans has been guaranteed in relation to the foreign banks. They are secured partly through the company's own capital and partly through loan documents entered into with Danish borrowers. Distribution of the loans is given in Table 3. The secretariat collects payments from borrowers as they fall due and makes the relevant payments to the foreign banks.

Table 3      Agro-Invest Loan Distribution by Sectors 1977 to 1980

	Million kroner	% of Total
Slaughterhouses	129.3	40
Dairies	55.1	17
Farm Supply Associations	47.75	15
Others	90.55	28

Some observers in Denmark feel that the operations of Agro Invest Ltd and various financial measures to support agriculture and the processing industries are not incompatible with paragraphs 92 and 93 in the Treaty of Rome which prohibit the use of national aids. The apparent view is that in a "serious" financial crisis situation the interpretation of these paragraphs is largely governed by the approach of the "gentlemen's agreement."

The experience of the late seventies and early eighties was based on unique circumstances notably EEC accession and a world recession. Denmark was not the only economy showing poor economic performance during the period. Criticism can be levelled at the recent behaviour of farmers, finance institutions and government but credit should be given to how the Danish "system" performed in more "normal" times. Prior to accession Danish agriculture had invested wisely in a steadily expanding agri-food sector and built-up substantial export markets for quality produce. The specially tailored finance sources such as the Mortgage Credit Fund of Danish Agriculture were an important part of this development.

### Land Ownership and Mortgageability

The legislative bodies with the agricultural organisations pursue other than purely financing aims, such as curbing land prices, stopping 'hobby' farming, preventing foreigners buying Danish farms, and maintaining Denmark as a land of comparatively small farmers.

All land is registered and land registry maps of the numbered plots are kept at the local court together with details of ownership, mortgages, etc. No mortgage or similar document affecting the land can be issued unless and until it is registered and it is the existence of these requirements which make possible the special Danish mortgage system.

Under this, a land credit association makes a property valuation and issues bonds, maturing at different dates with a maximum of thirty years, and carrying varying rates of interest. The mortgagor receives only the Stock Exchange value of the bonds but there is 100 per cent security on the bonds because the credit institutions are owned and jointly guaranteed by all farmers involved in them.

In this way the farmers are said to run no real risk because the value of the property is always considerably in excess of the face value of the bonds. In fact the limit of credit permitted and automatically granted is 50 per cent. The interest rate varies from 5 to 10 per cent but with the loss on the bonds, often as much as 30 or 40 per cent, the effective rate is much higher.

In 1970 a special bill was passed under the aegis of the Ministry of Agriculture to allow the Mortgage Fund of Danish Agriculture to give additional credit to bona vide farmers. This credit, which can cover up to 70 per cent of the assessed trade value, is granted only after an assessment of merit and purpose. It may be given for the purchase of farms, land, equipment, and construction of new buildings or extensions. Apart from this the two types are similar with regard to bonds, interest rate etc.

In recent years the Mortgage Fund has been allowed to offer cash loans which do not involve any bond issue but carry a higher interest rate which has taxation advantages for some.

### Young Farmers

Farmers of up to forty years of age may obtain government loans and establishment grants under fairly stringent conditions. The farm must be the young person's first, and the maximum valuation for loan purposes was set initially at 600,000 kroner. He must own at least 50 per cent of the farm, farming must be his main occupation and he must have received the 'green card' as proof of his agricultural training.

The loan aims at helping to cover the loss in selling the credit association bonds and there are no repayments for five years. The direct grant is 2.5 per cent of the assessed trading value of the farm up to the ceiling.

### Investment Trends

Before EEC accession Danish agriculture invested the equivalent of 20 per cent of its gross income (before allowance for depreciation) and this rose to an average 35 per cent after 1972.<sup>(1)</sup> The comparable figures for the Danish non-agricultural industry was 15 per cent in the 1960s, falling to 10 per cent in the 1970s. The variation in the investment levels of the two sectors is attributed to the exceptionally good mortgage ability of farms in the 1970s caused by the rapid increase in land prices and the post-accession optimism among Danish farmers.

The combination of these two factors led to over-investment and consequent over-commitment and there is little evidence that the finance institutions exercised much restraint. By 1978/79 Danish Agriculture was investing 45 per cent of its gross income. When the price increases for agricultural products and land decelerated sharply towards the end of the 1970s agriculture experienced the start of a liquidity crisis which seems likely to run its course for several years.

High investment in the 1970s also coincided with high MCA payments from trade with the UK and a growing awareness of competition in the EEC particularly from the Netherlands which helped fuel an expansion drive. During the 1960s Danish farm bankruptcies averaged 60-70 a year. In 1979 they stood at 196, in 1980 at 570 and in 1981 were running at a rate of 40 per week suggesting around 2,000 per year. Almost all the failed farmers are young men who have just recently tried to get established.

The farmer's son, taking over, finds the normal practice by which he can minimise his tax burden is to purchase the farm from father at a statutory price of not less than 80 per cent of the official value assessed for tax every four years. Since all other taxes, eg. capital gains will have to be paid, the son's capital at changeover is likely to be about nil and he immediately starts with an 80 per cent mortgage. To pay the interest on such a highly geared business the pressure is on to expand production. This inevitably means more borrowing which in total can quickly build up to 95 to 100 per cent of total assets. Borrowing to such levels is virtually impossible in Britain and the undesirability is obvious.

In the 'aftermath,' mortgage institutions are applying stricter criteria when assessing the credit-worthiness of agricultural concerns. At the end of 1980 the Danish government introduced a series of measures enabling hardest hit farmers to cover their debts to a total value of 8-9,000 M kroner at preferential interest rates.

### Agricultural Debt

The dramatic increase during the 1970s in the level of debt with a 152 per cent increase from 1970/74 to 1979 has been ascribed to different causes. The agricultural organisations consider the problems experienced by farmers are a direct

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(1) Agricultural Economics Institute, Copenhagen.



result of unforeseeable high interest rates. However the more realistic explanation emerges from studies by the Agricultural Economics Institute in Copenhagen which conclude that the present farm liquidity crisis is mainly due to massive over-investment in Denmark's agriculture which occurred following entry to the EEC.

#### Denmark v UK

The nature of the UK economy, the structure and the operations of the financial institutions are markedly different. Where special provisions were required new institutions such as the Agricultural Mortgage Corporation have been formed. There has generally been a satisfied response from the primary industry. A changing situation, during longer term membership of the EEC may create a need for further adjustment to the agricultural finance market.<sup>(1)</sup>

Of more immediate concern in the UK is the funding of agricultural co-operatives and their own criticisms about facilities. There is a general impression in Denmark that they operate in a more favourable financial climate sustained by successive governments and basically motivated by a social philosophy that co-operation is good for people and for the economy.

Support for co-operatives comes not only from official sources and financial institutions but also from farmers through the operation of revolving funds which is widely practised through producer co-operatives. In the UK greater use could be made of this activity improving co-operative finances and increasing farmer commitment.

Increased direct investment by farmers may come only following fuller realisation of the significance of co-operatives to their future in European markets but the historical pattern of ownership and finance in the UK will not be easily changed.

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(1) Reference EEC Commission Information on Agriculture, No. 28, 1977.

3.

TAXATION

The structural framework of taxation in Denmark is broadly similar to the UK, but the impact of fiscal measures can be different. Taxation is reviewed briefly to provide a reference point for UK comparison.

Taxes paid by farmers are:-

VAT (22%) - reclaimed on business purchases

Income Tax (a) Government

(b) Local Community

Property Tax

Capital Gains Tax

Income Tax

Income Tax has two components, central government tax and local community tax. The community tax varies with locality. The city worker and the small farmer can pay markedly different levels of tax.

Examples of typical average estimates of tax (kroner) based on comparable income levels:

	small farmer	city worker
1965	15-20,000	40-50,000
1981	NIL	60,000

Property Tax

This is based on land area and local land values. Inevitably wide disparities exist between rural and urban values:

	farm	city dweller
Kroner per hectare	500	20,000
Typical size, ha	20	0.1
Value, kroner	10,000	2,000

There is some political support for removing farmers from the land tax, but it seems unlikely to be successful. Property taxes are principally important for the counties and local government since they represent 11 per cent of their total tax receipts. As property taxes are also levied on agricultural land, farmers therefore bear a relatively large part of the burden in addition to the personal taxes which are levied according to the general rules which apply to all categories of income earners.

The situation was accentuated in 1980 by the introduction of a special state tax on agricultural land, the aim of which was to absorb the income improvements due to a devaluation of the representative rate of exchange (green rate) in 1979.

Taxes levied on agricultural property in recent years have grown by 136 per cent from 364 M kroner in the early 1970s to

859 M kroner in 1979. An unusual increase in 1980 was mainly caused by the special state tax of 264 M kroner which unlike other property taxes was not deductible in the farmer's income declaration. Divergent views on land and taxation have existed between farmers' unions and the smallholders' unions but have not been strong enough to prevent collaboration and co-operation.

#### Capital Gains Tax

Capital Gains Tax applies to land and property sales and on house sales other than the designated domiciliary dwelling. Because the aim is to neutralise the effects of inflation, the profit (capital gain) is calculated as the difference between the selling price and an "adjusted buying price."

#### Taxation in Succession

As indicated on Page 9, when a son takes over a farm from his father, he may frequently be saddled with an 80 per cent mortgage. This situation has placed many Danish farmers in dire financial circumstances. In recent years the production capacity of many young farmers has been checked through the joint effects of the taxation and high interest rates. Particularly because of their youth, their loss, to an industry full of older farmers, is regarded as a serious matter. Overall in the UK the impact of taxation on succession has been much less traumatic.

#### Denmark v UK

Comparative assessments are difficult largely because the markedly different contributions to the national economies have had influences on fiscal policy. Danish governments have at times operated fairly punitive tax policies in agriculture. While a comparable desire may be detected in certain British political circles in practice it has had little scope. Taxation in Denmark is also a political weapon used to help maintain a socially acceptable structure of land ownership where few large estates have survived. Overall UK producers do not appear to be disadvantaged by current fiscal policy and practice.

4.

SUPPORT SERVICES

The Danish pig sector is supported by various organisations and services at several stages in the production-marketing chain. At farm level the main support is derived from the advisory services of the farmers' organisations and the work of the national committee for production and breeding.

There would appear to be important differences between the Danish and UK approaches to advisory, research, development and breeding services. The more integrated farmer involvement is a notable feature in Denmark. The role of farmers' unions in advisory funding and direction and the virtual monopoly of State bodies in breeding work seem to offer little to the UK experience. However the closer links between research institutes, (comparable to the Rowett Research Institute and the Animal Breeding Research Organisation) and farms leading to quick evaluation of R and D is an interesting feature on which the Danes themselves lay stress.

Advisory Services

The State's policy is to give financial support, 30 to 40 per cent of total cost, while leaving the employment of advisers and the management of advisory services to the farmers organisations. Advisers are assigned to subject areas according to local needs and employed by local farmers' organisations.

The cost of running the advisory services is included in the Union's membership fee. A typical membership fee would be based on a basic rate of 125 kroner plus 18 øre for each 1,000 kroner of farm valuation. Veterinary services are provided under free enterprise. Formerly farmers and small holders ran individual advisory services but these were amalgamated and now operate from central headquarters at Viby on Jutland. The services are of the comprehensive nature familiar in the UK. From the outset the vast majority of advisers were specialised advisers. The total number of advisers has risen from 685 in 1960 to 917 in 1980. In-service training is an important feature of staff development. A special centre at Tune, south of Copenhagen, conducts this activity and it is used also by staff from the Ministry and other departments.

The organisation of the advisory service is on two levels, local and national. The composition of staff is shown in Table 4. There are 46 pig advisers, 8 of whom operate as national specialists. Advisory work is carried out in close connection with numerous other services to farmers notably book-keeping, farm business analysis and financial reporting. The need to conduct formal evaluation is limited in Danish advisory work. This is due to the fact that most advisory programmes are determined and executed at local level. Farmer reception of a specific programme is taken as a clear indication of its suitability and timeliness.

Future emphasis is likely to be placed on teaching farmers to programme and control their systems of production. Data processing technology will be applied to the recording and analysis of physical and financial data both on the individual farm and for selected farm groups and production systems.

Table 4      Composition of Danish Advisory Service

Branch of Specialisation	Total No. of Advisers	of which National Specialists
Crops	225	17
Cattle	110	13
Pigs	45	8
Cattle and Pigs	35	-
Poultry	16	3
Farm Buildings and Machinery	50	6
Accountancy and Farm Management	340	14
Youth Work	20	3
Domestic Science	75	6
Total	916	70

The importance of up-dating advisory training is given emphasis through the provision of seven-day courses for advisory officers, agricultural teachers and research staff. In a typical year some 50 courses are held attended by about 1,200 people.

In 1963 agriculture's main organisations, the farmers' unions, the smallholders' union, the Central Co-operative Committee and the Agricultural Council established a joint information organisation - Agriculture's Information and Conference Confederation (LOK).

While the further education arranged by the Tune Agricultural College is predominantly of a practical farming character, the further education conducted through LOK is of a more general economic and social character working both through local arrangements and through centrally organised courses and conferences. Nearly 10,000 farmers and others employed in ancillary services take part each year in conferences and meetings on economic, political, social and cultural subjects of interest to the farming industry. The increasing importance of this organisation led it in 1972 to establish its own centre on an estate near Copenhagen. It is used as the setting for courses and conferences associated with agriculture and related circles outside the industry proper. Conferences are held with politicians, journalists, veterinarians co-operative organisations, teachers, employers and others. The public relations needs of agriculture are clearly recognised.

There is considerable potential value in a forum of this nature for informing public opinion and creating a broad-based political lobby for debates on contentious issues like conservation, pollution control, animal welfare and general conflict of interest between different users of the countryside. The UK approach, with many bodies representing a wide variety of sectional interests lacks an organised central forum.

#### National Committee for Pig Breeding and Production (N.C.)

Pig producers benefit from the work of the N.C. on pig improvement and production systems. The investigation

programme is extensive. Cross breeding is still mainly used between two breeds, Danish Landrace and Yorkshire Large White. Commonly a sow consisting of 50 per cent Danish Landrace and 50 per cent Yorkshire is used as the dam and crossed with a Danish Landrace boar, the final product being 75 per cent Landrace and 25 per cent Yorkshire.

The N.C. is responsible for pig breeding for which it stipulates regulations governing both conventional and specific pathogen free (SPF) pigs both in nucleus herds and multiplier herds. Constant supervision and evaluation of each herd is conducted through nine regional committees. A number of technical and economic aids are made available to breeders for example:-

- (a) Progeny and sib tests
- (b) Ultrasonic measurement
- (c) Electronic data processing (EDP)

The progeny and sib tests and ultrasonic measurement (performance tests) form the basis of the breeding index. This index summarises the characters of daily liveweight gain (DLWG), feed conversion ratio (FCR), and percentage lean in the bacon side into one figure. In 1981 Danish selection methods incorporated a meat quality assessment. The meat quality (KK-) index is determined objectively 1-2 days after slaughter using colour and pH measurements. The KK- index has a scale from 0.1 to 10.0 - the higher the figure the better the meat quality. These measurements are said to give a good indication of carcass characteristics, especially the colour and keeping quality of bacon. The four production characteristics (DLWG, FCR, per cent lean and KK- rating) now being used to calculate the selection index are given an economic weighting.

Private breeding companies, are not barred, but they are notable for their absence. The lack of competition in the breeding field is a latent weakness which has potential importance. Danish breeding success has been closely tied to the single product requirements of basically one national market - the UK. The requirements of the international pigmeat market are different and in the medium to long term the Danes cannot ignore them.

Central control of an activity like breeding has strengths but it can engender weaknesses. It is too easy for the management team to continue agreeing rather than to risk dissent. The external force of competing ideas and products is an important spur in stimulating innovation eg. the shorter pig with a bigger ham line. Reacting to the disciplines imposed by more than one market can create both opportunities and conflicts. The level of Danish commitment to the quality bacon-type pig and the emergence of new market requirements elsewhere may suggest a compromise solution which could create difficult management problems in the industry. It is clear that the Danes are moving slowly through these awkward decisions in their current breeding programme.

5.

PROCUREMENT, GRADING AND PROCESSINGProcurement and Grading

Procurement organisation, which is dominated by the co-operatives, sees grading of pig carcasses as a vital activity, providing the basis for both producer payments and for quality differentials for the trade. Denmark's system for predicting minimum lean meat percentages in the carcass involves taking four measurements of fat and muscle thickness by means of the specially produced and automated device called the Meat Fat Automatic (MFA) probe, which produces readings based on the difference in electrical conductivity between muscle and fat. The MFA device relays the electronic readings of meat and fat thickness to a computer which calculates the lean percentage in the carcass.

In the UK, although two methods of assessing carcass lean have been used to date, the one gaining increasing favour involves the single (P<sub>2</sub>) measurement taken over the longissimus muscle at the last rib by the intrascope optical probe. Although a complete MFA system costs approximately £30,000 or 100 times as much as the intrascope, the use of an automatic probing system offers potential labour savings both in the operation of classification and in the subsequent processing of records by the abattoirs involved.

Although producing Wiltshire bacon, Denmark has moved to rewarding producers on the basis of total lean percentage in the carcass and away from backfat measurements. The limitations of the latter are apparent to many processors in the UK.

Grading for Quality

Bacon pigs are graded according to weight and lean meat content for quality reward.

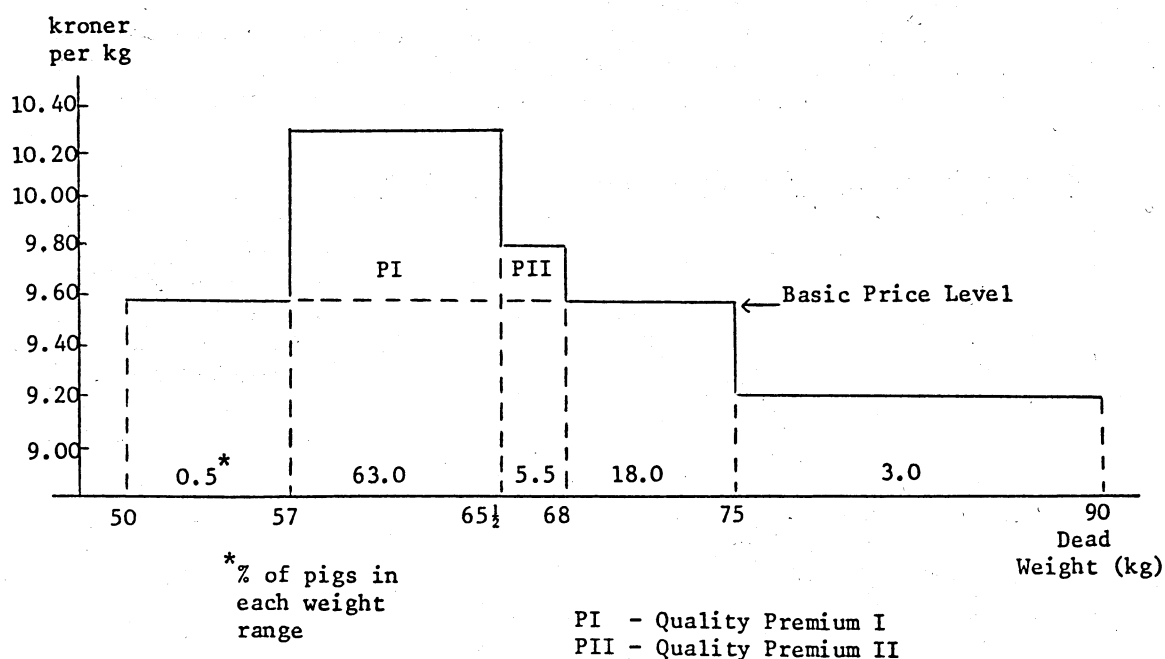
In order to obtain the quality premium in 1980 the following were required:

1. Minimum meat content 52%
2. No veterinary remarks (carcass blemishes and disease)
3. No coloured pigs
4. Pigs to be within the weight limits laid down (quality premium 1:57-65.5 kg, quality premium 2:66-68 kg)
5. Pigs to exceed the minimum length of 77.4 cm.

Payment on Quality Grade

The Danish system uses a basic price plus quality premia (Figure 4). The basic price is applied to the normal bacon deadweight range of 57-70 kg. Above 75 kg there is a deduction in the basic price. Above 90 kg there is no fixed price.

Figure 4      Denmark - Grading Payments Scheme



Source: Ess-Food.

Within the normal bacon range quality premium I - 70 øre per kg is applied. Quality premium II - 20 øre per kg operates on pigs going partly for bacon at 65½-68 kg. Some 41 per cent of pigs received premium I in 1980. Grading reward on lean pigs is not open ended and ultra lean pigs are penalised. A 52 week slaughter year operates and payment to the producer is made weekly by means of a transfer cheque from the slaughterhouse, which pays out the terminal bonus in November. Farmers can also borrow from their co-operative slaughterhouses.

#### Recent Changes

In March 1981 minimum meat requirements to obtain quality premia were raised from 52 to 53 per cent with a premium/penalty operating for each 1 per cent above or below 53 per cent lean meat content.

As from February 1982 the scale of payments, based on the meat content percentage has been changed so as to encourage producers to improve the quality of the pigs sold. Producers selling pigs with a meat content of 57 per cent now receive an additional 4 øre per kg premium while those selling pigs with a meat content of only 51 per cent receive 30 øre per kg less than the basic price. This compares with a deduction of 20 øre prior to February 1982. The meat content of 53 per cent still remains the norm.

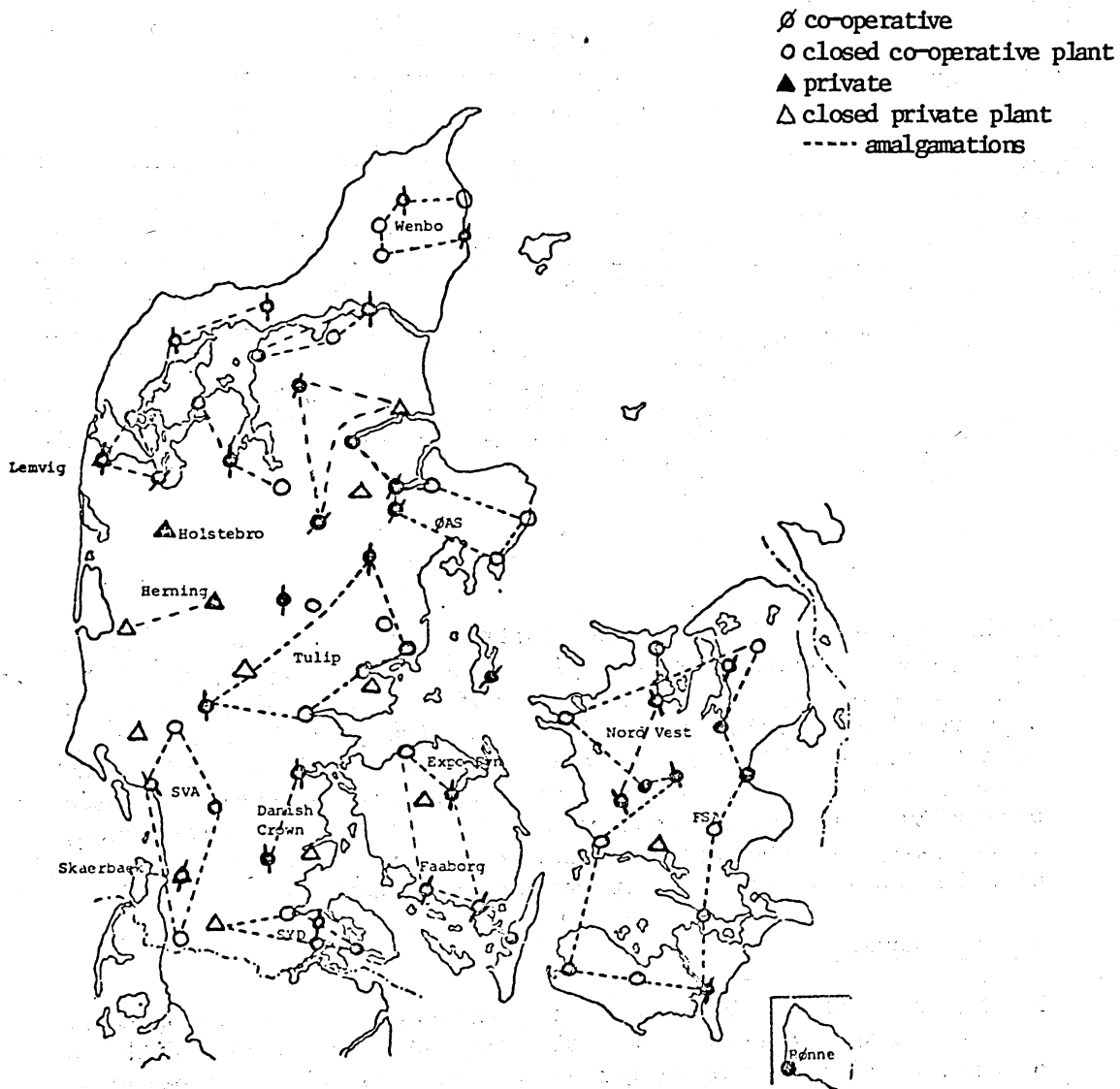


## Processing

### Organisation

Today there are 18 co-operative bacon factory companies (with 34 factories) and two private bacon export factories, located throughout the country (Figure 5). Concentration has been a feature of changes in the industry since the early sixties.

**Figure 5** Denmark - Location of Bacon Factories 1962-1980



Source: The Danish Pigmeat Sector - Statistics 1980

From 1962 to 1980 the total number of companies operating declined 74 per cent from 77 to 20 with the number of slaughtering units dropping 53 per cent from 77 to 36 (Table 5).

Table 5      Number of Pig Slaughterhouses 1962-1980

Companies	End Year: 1962	1970	1977	1978	1979	1980
Co-operatives with more than one slaughter unit	0	1	10	9	10	11
Co-operatives with one slaughter unit only	62	49	12	11	10	7
Total number of co-operative companies	62	50	22	20	20	18
Privately owned slaughterhouses	15	4	3	3	2	2
Total number of companies	77	54	25	23	22	20
<u>Slaughtering Companies</u>						
Number of co-operative units	62	56	35	33	34	34
Number of privately owned units	15	4	4	4	3	2
Total number of units	77	60	39	37	37	36
Number of units in companies with one or more unit		7	23	24	26	27

Co-operative units fell 45 per cent compared with a drop of 87 per cent in the much smaller private sector. An additional feature of the concentration process has been the emergence of larger factories with the FSA (Forenede Slagterier Andels)<sup>(1)</sup> plant at Ringsted reputed to be the largest in Western Europe. The co-operatives slaughter 90 per cent of total production which amounts to about 14 million pigs a year; the private factories dealing with the remaining 10 per cent.

#### Control

Farmer directors control the operations of the local co-operative factory which provides excellent information 'feedback' to the individual producer. The co-operatives are owned and run by the farmers themselves on their own account and at their own risk. The members of the society must share the ultimate profit or loss.

The share of profits or losses must be in relation to the members' trade with the particular society in the immediately preceding period. The general line in Danish co-operatives is that:-

- membership is open to all who are truly interested in the society
- interest on capital is restricted.
- profits are shared according to deliveries.
- there is democratic control by members.

Voting in primary societies is always on the basis of one vote for each member.

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(1) United Slaughter Co-operative

The bacon factory receives a "transfer" price, which includes small "surplus" margins, from Ess-Food. Factories earn other margins from the home market and the combination from all sources provides the earnings, including bonuses, to give back to farmers. The terminal bonus is the usual one and it is essentially a profit sharing among co-op members. The "league" table of terminal bonus payments by factories indicated for 1980 a normal payment range of 35-75 øre per kg with an average around 50 øre per kg. This bonus level is about 5 per cent of producer price compared with the UK contract which gives one per cent of the pig price.

6.

TECHNOLOGY INVESTMENT

In any fragmented industry like agriculture, it is difficult to get concrete measures of investment in new techniques. Although data is scarce, subjectively based information is more readily available. The following are areas of significant technology application in recent years.

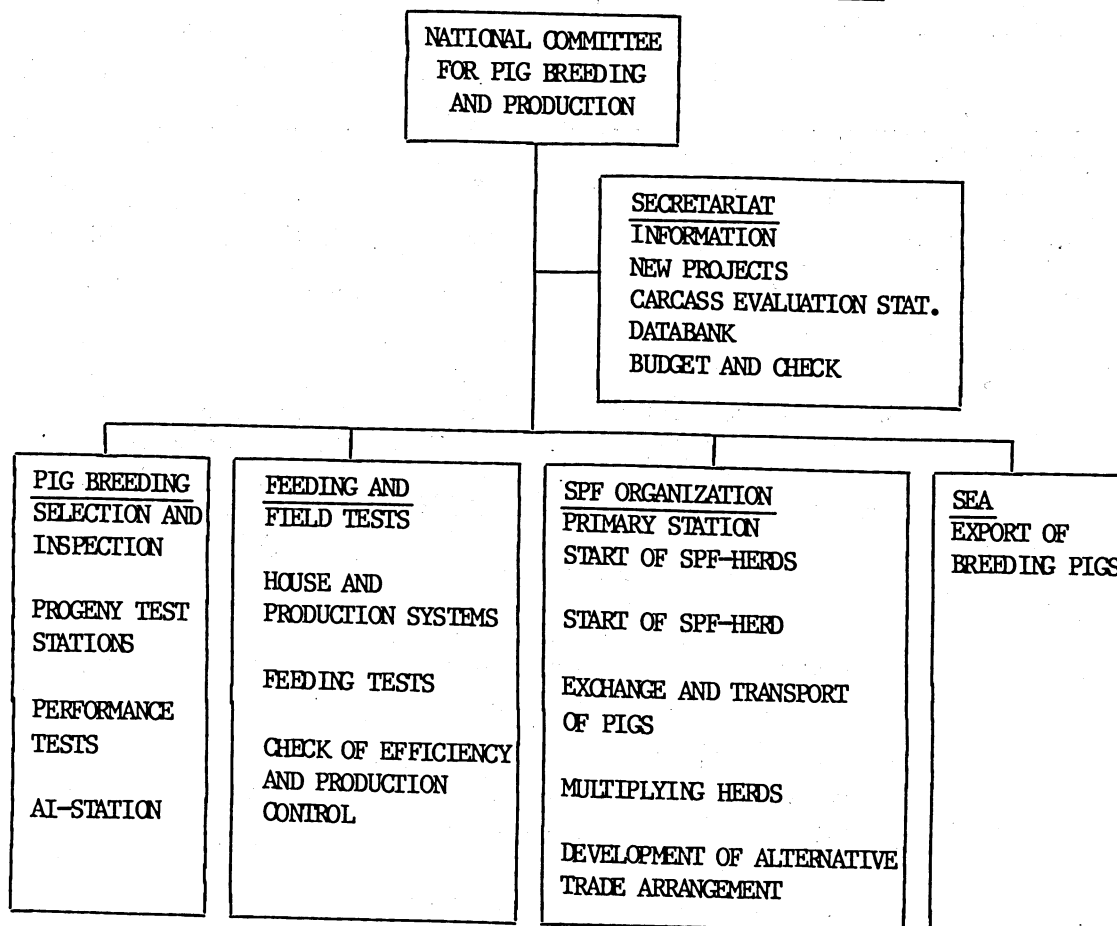
- Farm                    -     Breeding and feeding techniques  
                                 Buildings and equipment development  
                                 Labour in pig production  
                                 EDP of farm production data
- Factory                -     Meat technology eg. cutting, curing  
                                 Labour in slaughter and process  
                                 Grading and equipment technology  
                                 Quality monitoring and control
- Distribution        -     Cold storage  
                                 Containerisation and trans-shipment  
                                 Processing and adding value in UK plants

A. Farm

## 1. Breeding and Feeding Techniques

The work of the National Committee for Pig Breeding and Production (NC), founded in 1931, was for many years concentrated on breeding. An important increase in activities occurred in the sixties and the early seventies.

Figure 6     National Committee and Support Services



Several new technical developments were available to the industry - pig health programme, production of SPF pigs through Caesarean operation; artificial insemination; instrumentation for meat measurement.

Largely because of these developments the NC extended its activities not only to include the new techniques but also to take on the testing of pig housing and production systems. Today the NC remit is to cover all the main activity areas in pig breeding and production (Figure 6). The NC dominates these activities with relatively little engagement by the private sector.

## 2. Improvements in Pig Production Efficiency

From 1973/74 to 1979/80 feed conversion efficiency improved by 4.5 per cent and pigs weaned per sow per year by 18.5 per cent. The Danes claim that increases in the annual number of pigs weaned per sow have been obtained, partly, through a rise in the number of litters per sow per year, and partly through better health conditions throughout the production cycle (Table 6). However these national performance levels compare less favourably against British and Dutch standards although the statistical base may not be strictly comparable.

Table 6      Efficiency in Pig Production

	1973-74	1977-78	1978-79
Feed consumption in feed units <sup>1</sup> per kg LWG for slaughter pigs	3.5	3.38	3.34
Weaned pigs per sow per year	15.1	17.6	17.9

<sup>1</sup> 1 Feed unit = feed value of 1 kg barley

The main current aims of NC work, for the next ten years, are to improve daily LWG by 10 per cent and the feed conversion ratio by 10 per cent within the context of the overall breeding goals (Table 7).

Table 7      Breeding Goals

Health	Feed Conversion
Strength	Daily Gain
Longevity	Grading
Heat Control	Meat Distribution
Fertility	Meat Content
Litter Size	Meat Quality

In the area of farm production Danish and UK technical developments appear to run in close parallel. However private breeding companies do not operate in Denmark where law prevents private firms owning land or breeding facilities. Importing breeding stock is inhibited because the international breeding companies cannot match the low price levels. Some Danish specialists are unhappy with current performance levels from the 'national system' and point to the underlying levels of potential for example in the elite herds where Landrace stock may average 750 g LWG per day compared with a Large White average of 900 g. Indeed breeding objectives are said to have suffered from heavy pressures from the Ess-Food sales organisation.

Overall the UK seems to have benefited from the open market competitive activities of the breeding concerns. However, the Danes have made mistakes before in the breeding programmes and as in the past can be expected to make amends.

Returns from investment can be considerable. Danish data is not available but some measure of its significance can be derived from estimates of UK 'returns' from R & D in this field (Table 8).

Table 8      Application of Genetic Research in the UK  
                   - Annual Improvement Value

<hr/> pence per pig per year <hr/>	
Feed conversion rate	23.2
Eye muscle area	37.6
Killing out %	6.9
Daily gain	4.7
Other	<u>4.3</u>
Total	<u>76.7</u>

Source: C Smith  
 British Society of Animal  
 Production, 1981.

Within the highly competitive EEC pig industry there are strong pressures to maintain investment in new technology particularly in raw material and product improvements.

### 3. Buildings and Equipment Development

In the 1950s and 60s Denmark was well known for its development of pig housing and associated equipment. This development is continuing. The technology gap in housing between the UK and Denmark, if there is one, is nowadays difficult to define, the main reason being

the considerable forward strides made in the UK. Evaluation of different types of housing is one of the activities organised by the NC and the advisory service and the assessments generated are passed on through the advisory service. This contrasts noticeably with the UK's more open exposure to trial and error by buildings manufacturers.

Danish stock buildings can be of remarkably high quality and of high cost which may be economically dubious. Animal welfare concerns are also evident but are not as yet causing significant economic problems. Animal behaviour is given due recognition particularly in design and facilities for the mating function.

#### 4. Labour Costs

Costings from the Danish National Survey show that labour constitutes a higher proportion of total cost than in the UK (Table 9). The main reason appears to be a higher proportion of smaller units which tend to be less labour efficient. However, visits to larger units indicated that labour input is tightly managed.

Table 9      Production Cost Structure, Denmark v UK

Breeding and Feeding Units	<u>% Contribution to Total Costs (Interest Excluded)</u>	
	1977/78	1978/79
Denmark - National Survey		
Feed	67.2	66.6
Labour	20.8	20.7
Other Costs	12.0	12.7
UK - Cambridge PMS		
Feed	78.8	78.4
Labour	9.6	9.9
Other Costs	11.6	11.7

Labour substitution tends to be mainly through technology application eg. flow feeding which is easier on larger scale operations and more evident in the UK, particularly in Scotland, where average herd size is even greater. The broad generalisation is that if Danish production stays firmly rooted in the family size business then the application of new technology will be more difficult than in the UK.

#### 5. EDP of Farm Production Data

The LEC Computer Centre at Viby on Jutland was set up to service computerised data handling which is advancing throughout the industry and considerable resources are involved. Annually some 30,000 whole farm accounts are subjected to analysis and further

processing under a mechanised system so that they can be used in individual advisory case work and for the preparation of reports, leaflets etc. This compares with some 600 farm accounts processed by the Scottish Colleges for DAFS and a probable total of 3,000 for the whole of the UK.

EDP based budgets for individual use are prepared for the solution of limited planning problems. Advisers receive assistance in the solution of special planning problems from departments handling finance, modernisation grant schemes, company formation etc. The taxation department provides updated information about fiscal legislation and decisions assisting advisers in conducting special tax cases etc.

In co-operation with LEC the NC has developed a system of computerised data processing of pig recording. The system can be used by all producers through their local pig advisers. The scheme provides fast feedback on recent efficiency levels and can also be used to provide a forward projection of performance. Proposals for expansion or for new units can be processed through the LEC system to test feasibility.

The advisory service carries out comprehensive efficiency checks for pig producers (charging 25 kroner per sow per year) with a recording scheme comparable to that run by MLC. Some 25 per cent of production; mostly on the bigger farms, takes part in this scheme.

## B. Factory

### 1. Meat Technology

In general pig abattoirs/bacon factories endeavour to operate an advanced level of technology and investment and on average is probably ahead of the UK.

Meat technology is essentially related to techniques applied to the production of meat which have effects on all the different characteristics of quality. The following list briefly outlines some main areas of recent development and application:-

- Improving electrical stunning using higher voltages in automatic units.
- Development of CO<sub>2</sub> stunning which can reduce the occurrence of pale PSE meat considerably.
- Dehiding as an alternative to scalding/singeing etc. to reduce energy needs.
- Multi-needle injectors especially for the curing of middles, backs and streaks.
- Separate curing of back and streaky bacon for the UK to reduce variation in salt content in these cuts.
- Hot boning and the production of quality pork products.



- Production of vacuum packed bulk cuts of bacon (primals) linked to optimal methods for boning, cutting and curing of such products.
- Reducing volatile nitrosamines in bacon during cooking.
- New heat processed products especially for Western European markets.
- Low cost comminuted meat products for markets in the developing countries.

Bacon factories have led in these developments. There is currently some evidence of greater specialisation being given to the fresh pork line with developments in de-boning, quick freeze and packaging.

## 2. Labour and Labour Costs

The labour force employed in pig slaughterhouses increased 15 per cent from 12,100 in 1976 to 13,900 in 1980. This appears to have been due to two main factors. From 1977 to 1980 the total delivery of pigs to abattoirs rose by almost 32 per cent. The export volume of pig cuts rose by 140 per cent. Cutting is a more labour intensive exercise but the rising demand for cuts forced processors to increase labour use.

The costs of labour in Danish slaughterhouses have an important bearing on the internal economics of the industry. Hourly pay for slaughterhouse workers rose by around 74 per cent from 1975 to 1980 apparently keeping marginally ahead of the hourly rate for industrial workers at 71 per cent. During this period the average hourly pay for industrial workers in the UK doubled. However the two countries experienced different rates of inflation.

Amalgamation of abattoirs and processors has led to greater concentration of labour as for example in the massive plant at Ringsted, south west of Copenhagen. Growing militancy in this labour force and demands for higher pay have presented new and difficult management problems in the export bacon factories. A major strike in May 1981 amongst abattoir workers closed pig slaughter and process and disrupted bacon supplies to the UK. The seriousness of the dispute is emphasised by the fact that government had to introduce legislation forcing labour back to work.

It is difficult for the outsider to get an adequate assessment of labour productivity in Danish pigmeat plants. One observation of output on deboning and cutting showed that whereas UK performance might average 100 cuts per butcher per shift, Danish output could be about 130 cuts although this was on piecework.<sup>(1)</sup>

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<sup>(1)</sup> Acknowledgement to Mr David Hall of Halls of Broxburn for some assistance with this section.

### 3. Grading and Equipment Technology

The Danes have been in the forefront of developing grading techniques and equipment, driven by the desire to monitor and control quality. After many years measuring bacon backfat thickness by a variety of probe techniques, the Danes have recently married developments in probe technology with those in computerisation to meet the emerging needs of assessing overall carcass lean meat content. The development and installation of mini-computers began in 1978. The equipment was designed to collect and process data from the carcass weighing machine and the meat/fat measuring system and to compute pig grade and register classification and payment data. Some 21 factories operated mini-computers for this purpose by the end of 1981.

Equipment, manufacturing and development seems to be much more active in Denmark, a point confirmed by several UK buyers. Considering the size of the UK industry this is a more than curious weakness. Home plants claim that poor profitability in the industry weakens the resolve to update equipment and methods. This lack of demand presumably then inhibits adequate design and development work by our manufacturers. The outcome has been that the Danes have developed equipment for both domestic and export markets (including the UK). In the twenty-five years from 1954 to 1979 137 patents were issued in 18 countries with the aim of protecting the industry and the machines and equipment developed by the Meat Research Institute at Roskilde.

### 4. Quality Control

Quality in Danish bacon is administered through statutory instruments. A general scheme of meat inspection run by the government includes factory tests and spot checks at the Esbjerg container terminal. Danish farmers depend primarily on exporting their products to earn their living. They have to compete on quality, rather than price, with other exporting countries, especially in the keen and discriminating British market. It is understandable, therefore, that Danish farmers have insisted on rigid quality control, keyed to export requirements, whereas in most other countries such measures have been brought about by pressure from home market consumers.

Here as in many other aspects of Danish food production; government institutions and the farming industry's own efforts are closely interlinked. The basic system is that the producers themselves set the standards of uniform quality and enforce them by means of payment linked to quality, while the government provides the final neutral control.

The Ministry of Agriculture's bacon control, instituted in 1929 to supplement earlier State

Veterinary Control, ensures that the requirements of the regulations regarding the manufacture of bacon are fulfilled by making unannounced visits to bacon factories and export harbours. Each step in production is subject to control and frequent sampling of bacon for analysis is carried out during transit along the 'chain.' Samples are examined in the laboratories of the Meat Research Institute at Roskilde which works closely with the scientists dealing with breeding and nutritional research and with the bacon factories and bacon control.

Bacon control in co-operation with a quality committee appointed by the bacon factories, undertake the examination and judging of bacon sides taken from different consignments just before shipment. The results of these examinations are sent to the bacon factories and they are a highly important element in the continuous work to maintain and improve quality. Quality is created at a variety of points in the production-marketing chain and the Danes have been quick to invest in the most effective techniques, equipment and practices on and off the farm. After slaughter, food chemistry becomes highly important and new technology in this field is carefully pursued.

### C. Distribution

The competitive nature of modern markets and the need to recover adequate operational economics from distribution systems demand the continual application of new technology. The pressure is greater where long haul freight is involved and the export trade is large as in the case of Danish bacon distribution to the UK market.

#### 1. Investment in Cold Storage

The comparative levels of cost in cold store investment have been recently surveyed by the EEC. These costs exclude land, taking into account buildings, refrigeration and handling equipment. In thousand ECUs per 100 cubic metre, typical UK investment cost stood at 8.9, with Denmark 43 per cent more at 12.6. Denmark had the highest of all the EEC costs and Italy the lowest. The breakdown on total costs is given in Table 10.

Table 10      Breakdown of Total Costs of New Cold Storage  
Denmark v UK

% of Total Cost Attributable to Each Factor					
	<u>Labour</u>	<u>Power</u>	<u>Other Costs</u>	<u>Interest &amp; Depreciation</u>	<u>Total</u>
Denmark	35	9	23	33	100
UK	23	8	28	41	100

Source: Cold Storage Warehousing in the EEC 1980.  
EEC Information on Agriculture No. 79.

The above figures show the relative importance of each cost factor within each country and are therefore not directly comparable, country with country. Labour emerges as a very significant cost component in Danish operations.

## 2. Container Technology

Ess-Food operates its own international transportation and it owns the entire transport system apart from the ships. Bacon is transported from Denmark to the UK in specially designed refrigerated containers. The regular container transport started in January 1967 after the purchase of 400 containers with fittings and motor vehicles and the erection of service facilities on both sides of the North Sea. Development and design work at the Roskilde Meat Research Institute, funded through the production levy, led to the introduction of the racked container which limited the individual stack height.

Containerisation required developments in:-

- Container design
- Container haulage
- Container shipping
- Embarkation facilities at Esbjerg, North Shields and Harwich and the appropriate organisation/administration structures in Denmark and the UK.

Racking in the containers plus a brine environment would naturally limit the possibilities of return loads of a different commodity. The need to maintain a smooth running continuous shuttle service in both directions may be the more important reason why return loads do not operate. This policy has important economic consequences for it means that each container load of bacon bears the freight cost of the returning empty container.

## 3. Processing in the UK

In the early sixties, when it became clear that the demand for pre-packed bacon had come to stay, Ess-Food set up its own manufacturing investment under Danepak UK Ltd in Thetford, Norfolk and Selby, Yorkshire. As well as applying new technology (cutting, packing etc.) and adding value the move also created greater flexibility by introducing UK labour costs and an alternative location. Danepak's annual turnover had reached some £80 M by the beginning of the 1980s.

The demanding requirements placed on an export-oriented industry create its own imperative to explore and apply new technology. Throughout the Danish production-marketing chain there is considerable evidence of willingness to apply new technology soon after proving is completed. This ability to make a concerted effort to further national product aims is a revealing insight into the power of co-operation among the Danes, particularly in export activity.

7.

EXPORT ORGANISATION

Exports from the agri-food industry are vital to the Danish economy and food products enter over 120 different countries. Pigmeat represents some 52 per cent of Denmark's total animal agricultural exports and the UK receives 46 per cent of her total world exports of pigmeat. Denmark holds 68 per cent of world exports of bacon and ham and virtually all her trade is with the UK.

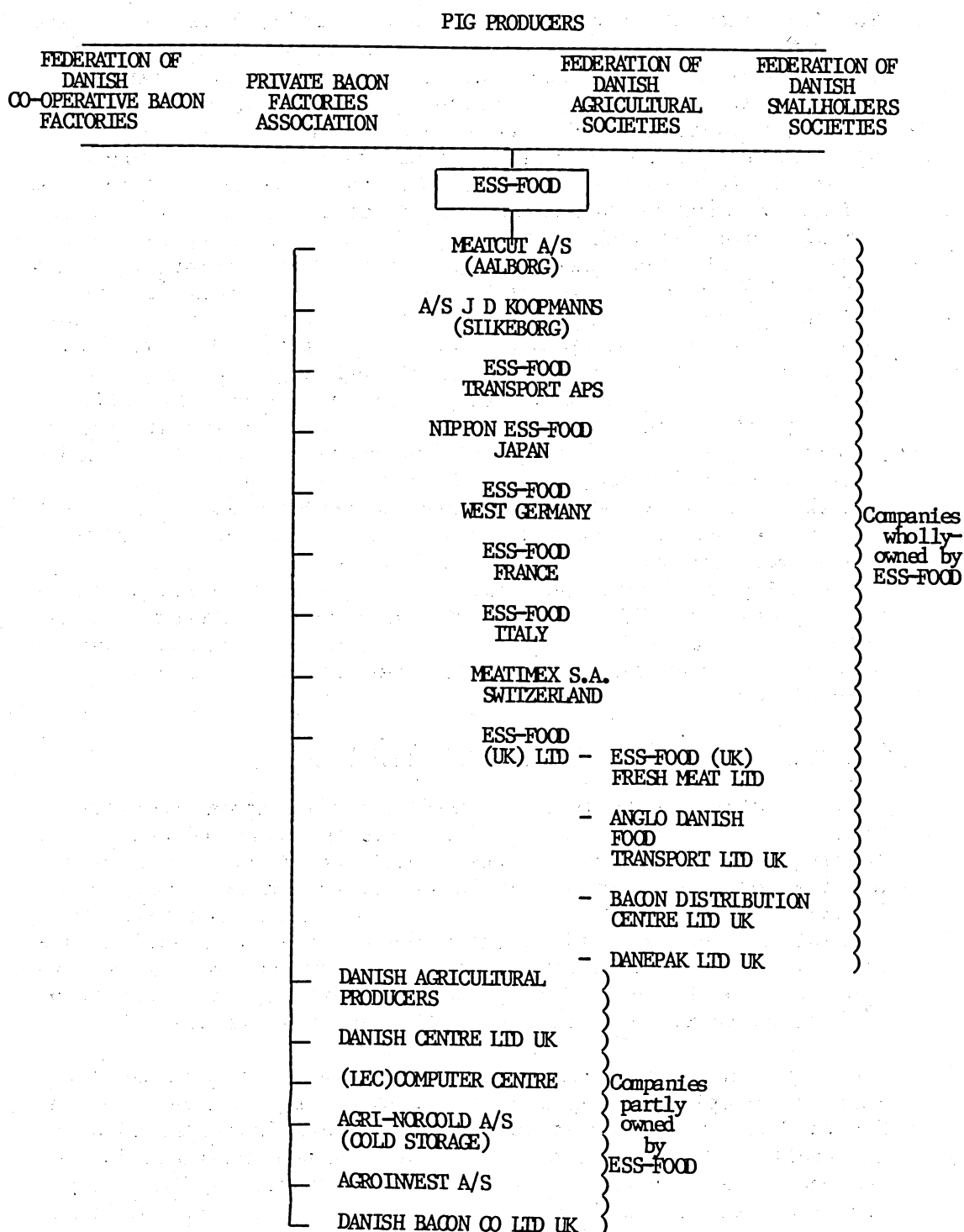
Ess-Food - The Danish Bacon Factories Export Association

Ess-Food is an export sales organisation owned by all Danish Bacon Factories and thereby the Danish Pig Producers. In 1980 Ess-Food, exclusive of subsidiary companies, had a turnover of 7.9 M kroner and sold 550,000 tonnes of pork, beef and veal (including 208,800 tonnes as bacon). Ess-Food, including its fully controlled subsidiaries, employs about 3,000 people. It owns and runs, either on its own or in collaboration with other branches of Danish agriculture, a number of subsidiary companies in Denmark and abroad (Figure 7). In addition, the organisation is involved in extensive research, experimental and development work for Danish pig producers and slaughterhouses, including pig progeny testing stations, field tests, breeding work, and exchange of SPF pigs and artificial insemination. In addition, it operates the Danish Meat Research Institute and the Dutch Meat Trades School in Roskilde. The object is currently to produce the best breeding stock for the pig producer, to ensure that the member companies always have at their disposal advanced technology and working methods to develop products which meet the wishes and demands of the customer.

Requirements for export markets are precisely defined and strictly administered by Ess-Food. There is a voluntary agreement between Ess-Food and the slaughterhouses to send them only quality pigs. A slaughterhouse can keep all its pigs and send none to Ess-Food. However, it must advise Ess-Food 6 months in advance how many pigs it will send to them so Ess-Food's planning department knows well ahead how many pigs will be received and their quality.

Complaints from UK buyers, eg. supermarket chains, are handled in the first instance through the Ess-Food London Office and then passed to the Copenhagen Headquarters. Quick response to complaints is the aim. Important issues are handled through Ess-Food research and development organisation - National Committee for Pig Breeding and Production and the Meat Research Institute at Roskilde. For example, some UK buyers had complained that certain bacon sides from Denmark did not look like "typical Danish." Investigation confirmed that more carcasses were coming from the Hampshire Duroc which has different body proportions to the traditional Danish Landrace.

Figure 7 The Ess-Food Organisation



The Roskilde Institute is managed by the slaughterhouses. It follows the market closely and advises the slaughterhouses on all technical meat matters.

Working capital used in Ess-Food is known as the 'equalisation fund' and it is maintained in an operating band with a defined floor and ceiling. The surplus beyond the ceiling is paid to producers. Most of the working capital is borrowed money and the organisation does not hold reserve funds.

### The Agricultural Marketing Board

The Agricultural Marketing Board supplements, looks after and co-ordinates marketing in close co-operation with the special export committees. Its activities in recent years have expanded into marketing research, propaganda and advertising. It also establishes and runs offices in other countries. Work associated with market research consists mainly in the handling of statistical material with a view to working out long term and short term prognoses in individual markets. These often demand basic research on the use of products, customer usages in the market area concerned, and sales organisations and this material is co-ordinated with statistical material from other Danish agricultural organisations. The results of this work form the normal background for their publicity and sales promotion. The actual publicity and advertising work is carried out in close co-operation with representatives of the most important export interests. It includes exhibitions of different kinds associated with international and large scale home market promotions. Exhibitions emphasise the quality of Danish food production and are normally associated with demonstrations and competitions, partly at the exhibitions themselves and partly in shops and similar places in the surrounding district. Arrangements are also made for meetings with press and TV, retail and wholesale customers, local authorities and others to publicise these promotions, and to ensure that the Danish products are exhibited as widely as possible.

### The Agricultural Export Board and Committees

In 1950 Danish agriculture formed its own export committees. There are ten export boards and committees today and one of the leading ones is Ess-Food, the Danish bacon factories export association. Another is the Danish Livestock and Meat Board. These boards or committees are voluntary organisations. They consist of representatives of appropriate main organisations along with representatives of the processing units and exporters in that commodity group. In this way the interest of both co-operative and private trading are represented.

The ways in which these boards or committees operate vary. Some are simply running a large or small export business, ie. Ess-Food which is very large, and the Potato Export Board which is small. Some resemble a product group amalgamation of producers, processors and sales organisations, as for example the Seed Selection Export Committee. Some can influence supplies and price policy and carry out sales, like Ess-Food, whilst others leave these fields of activity alone to concentrate on quality and promotional work. Some of them cover all the relevant group, others just a major part of it. Their aim is always primarily to promote the export of their products and to establish conditions that will achieve the best possible prices for their producers. The financial basis for the work is provided by production levies in accordance with the regulation regarding the administration of Common Market arrangements in Denmark. All the committees are members of the agricultural Council.

## Co-ordination in the Danish System

### History

Danish agricultural history includes a peasant revolution, dissolution of the great estates and a "socialisation" of land ownership with over 95 per cent of owner occupiers. This widely based ownership of small businesses provided the "setting" for co-operation. The country's natural features, being low in mineral resources, led to a dominant agricultural economy which helped to weld the general political will to the promotion of the agricultural industry.

### Export Pressures

High exports of agri-food produce have been necessary to advance the Danish economy and the general standard of living. Denmark has been a pigmeat exporter to the UK for over a hundred years, during which time she has cultivated our market and consumer relations. The need to build and strengthen a position in this vital market created pressures which have been used creatively in the production-marketing chain, eg. tight product definition, quality-control-inspection, regulated breeding, feeding, slaughtering, processing and transportation systems.

Farmers make a direct and significant financial contribution through the production levy, to the support work necessary for the improvement of the production-marketing chain.

### Co-operation

A strong cultural belief in co-operation inside and outside agriculture, organised and accepted politically, is used to promote solutions to practical problems in the agri-food industry.

Producers' active involvement in co-operation, in strict business terms, in feed and requisite supply and pig procurement and slaughter-process is a central feature of production and primary marketing.

At supra-level the relationship between Ess-Food (export marketing organisation) and the co-operative bacon factories represents an advanced level of understanding of market 'realities' in both export and home markets which is effectively co-ordinated in joint action.

### Marketing Philosophy

The need to export and therefore to "sell well" in overseas markets provided a key motivation in the use of marketing techniques and management. The primary producer has not been excluded from the educational process of modern marketing. Being a co-operative owner of the local bacon factory he is brought into close contact with market awareness coming through the Ess-Food 'system' from the UK and other export markets.



## Co-ordination

Over a long period farmer and processor organisations, political and government bodies have pursued the benefits of co-ordination through joint action. The need to control the costs of co-ordination is recognised but how far this is achieved must be an open question. Certainly "bodies" and committees are a noticeable feature of the 'Danish Approach' (Figure 8).

Within the framework of the figure a large number of activities conducted on behalf of farmers are represented. They can be summarised as follows:-

- Technical information and guidance
- Farm supplies, processing and sales
- Export promotion
- Agricultural economy and policy

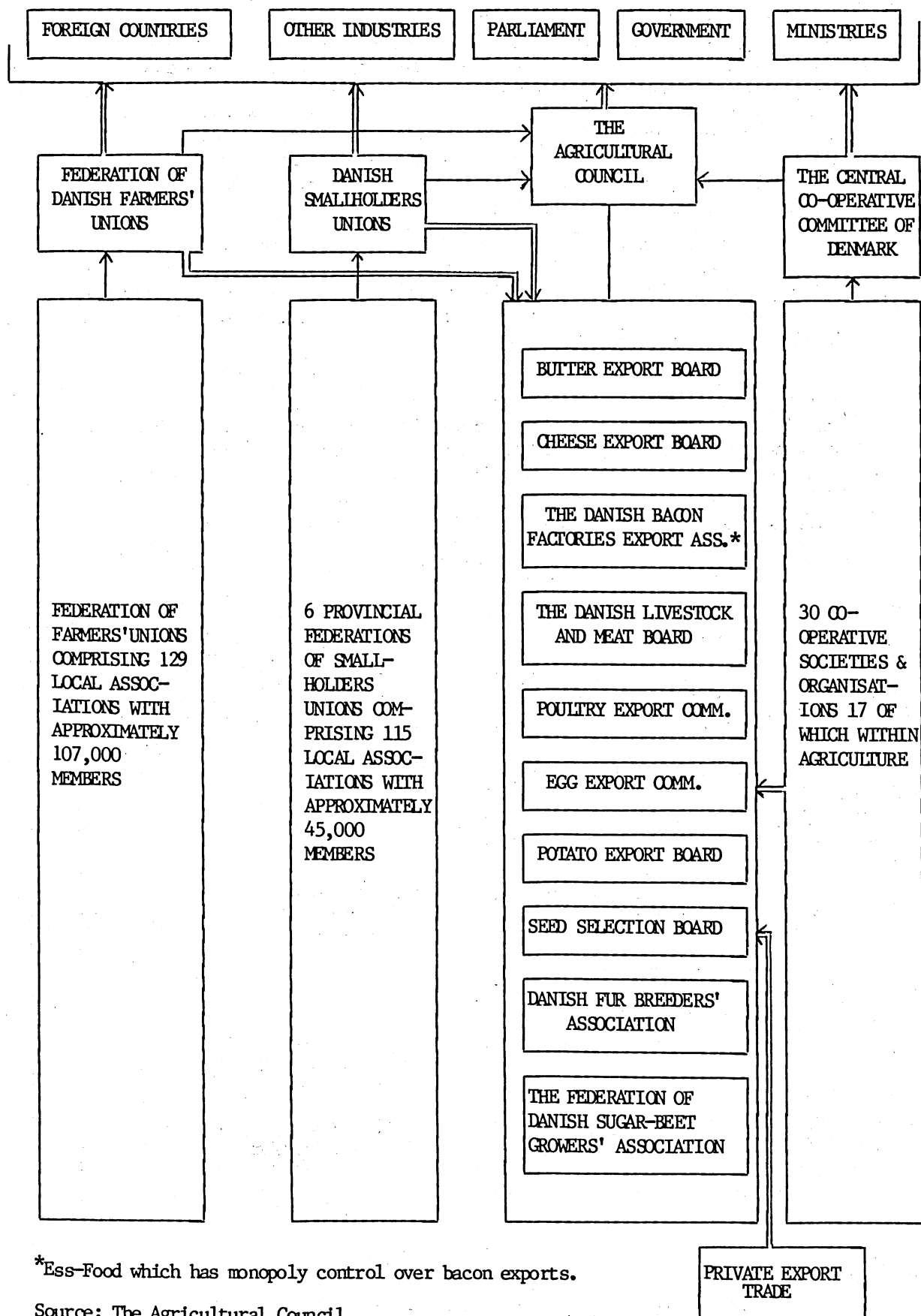
## The Agricultural Council

The Agricultural Council as the central co-ordinating body must seek its objectives through effective representation and adequate consultation.

There have been developments in the Council's activities as a result of Denmark's Membership of the EEC. The Council acts as a unifying representative of the Danish Agricultural Organisations in matters of common interest concerning Government and Parliament, central administrative bodies and other Danish industries also in relation to other countries. It puts into effect arrangements for the promotion of markets, co-ordinates and maintains Danish agriculture's position in Common Market questions and conducts research on agri-food 'outlook.' It takes care of matters concerning veterinary conditions and the making of laws and regulations on foodstuffs and additionally deals with information on conference activities and fosters contacts with other information sources and economic groups within the Community. With these activities in mind, six permanent Committees were established under the Agricultural Council; the European Economic Community Committee, the Economic and Statistical Committee, the Veterinary Committee, the Public Relations Committee, Information and Conference Activities and the Marketing Committee.

There is no UK set-up comparable to the Danish agri-food (pigmeat) export organisation. The need to export has provided the Danes with creative insights and energies owing more to necessity than to any rationalisation process. Danish pig producers had two main exporting objectives, firstly to develop uniform quality products, marketed at a uniform price and then to promote them in their overseas markets with consumer advertising and in-store promotion. It is clear that they have had a significant measure of success.

Figure 8 Organisational Connections in the Industry



8.

DISTRIBUTIONMarketing Channels

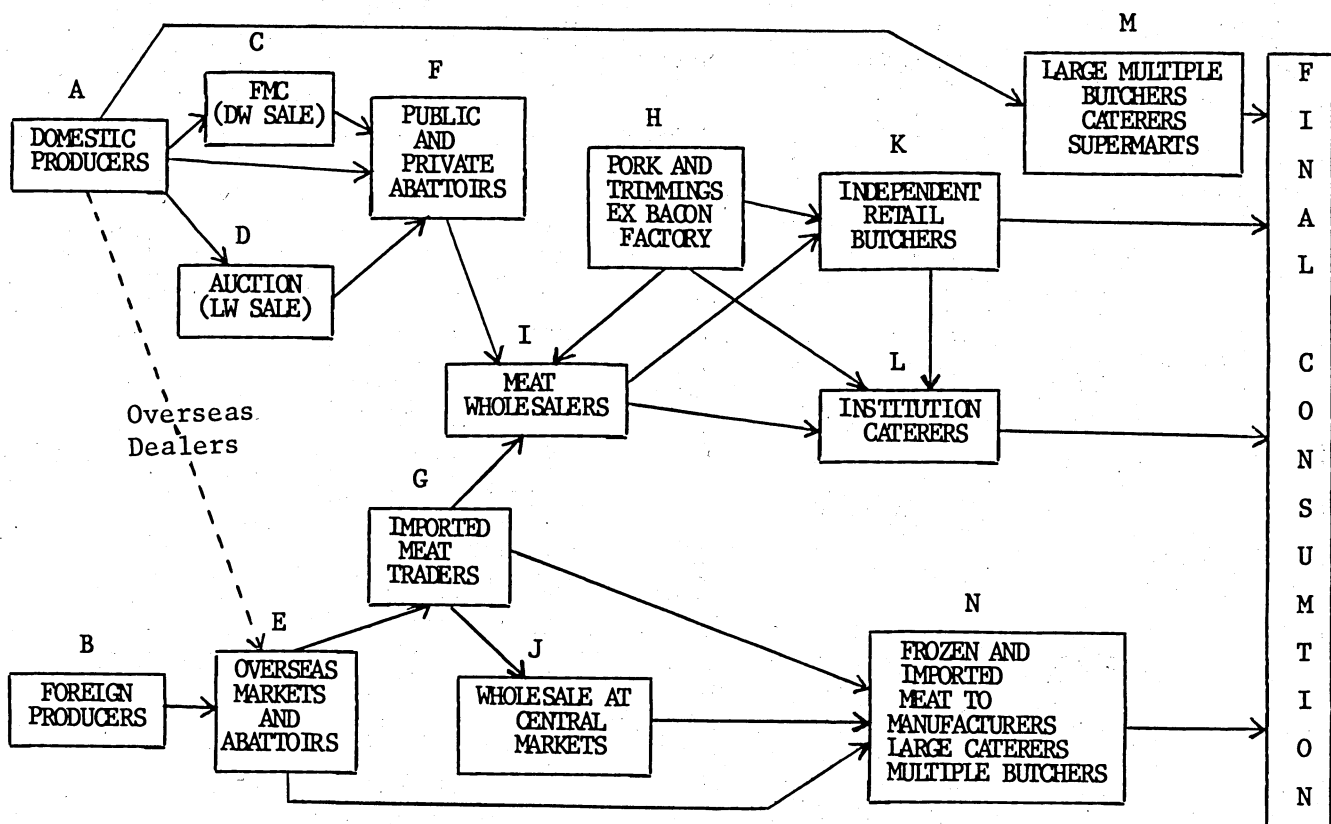
The flow of pig products from the farm or to the consumer passes along several channels, some fairly direct but others, more traditional, involving several intermediate stages. The flows from home and foreign sources inevitably intermingle at different stages but, depending on the source foreign products, can also flow fairly directly or through intermediaries. Importers may develop very individualistic approaches to their activities. Denmark is an important participant in UK market channels with such an approach, for example the use of a central marketing organisation.

To understand how the Danes use the market place it is necessary to have a basic understanding of the structure of the UK pigmeat market. Flow patterns for fresh and cured pigmeat are similar but sufficiently important differences exist to justify separate descriptions of both.

Fresh Pigmeat

Figure 9 presents the pork marketing channels in the UK. In recent years the growth in larger trading groups (multiple butchers, caterers and supermarkets) has led to increased volume through these outlets and in the operation of centralised buying policies.

Figure 9 Pork Marketing Channels

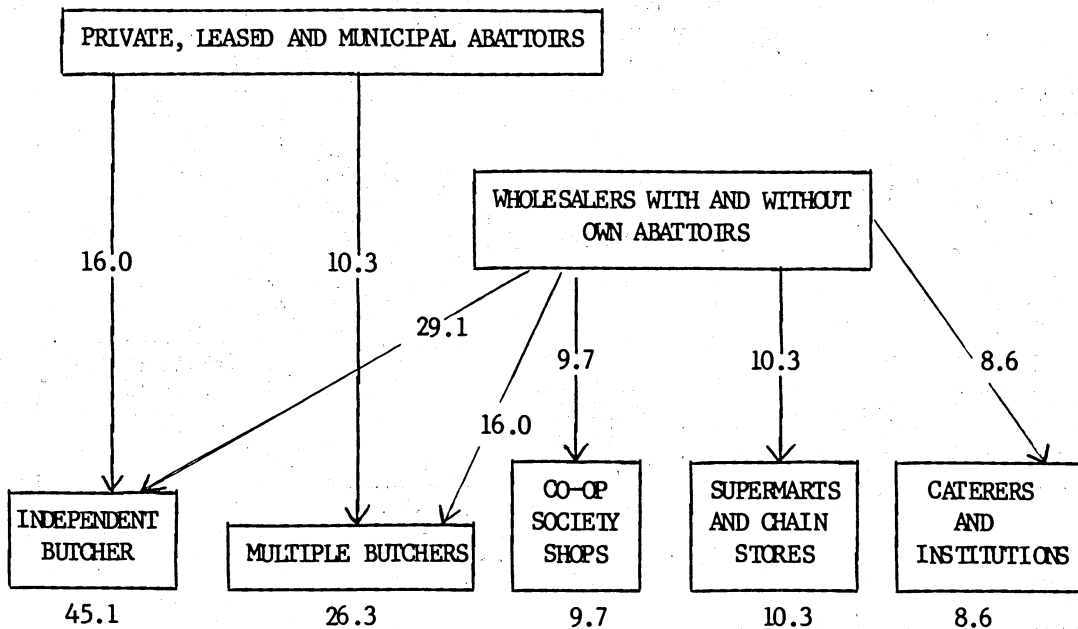
Channels (Ranked by Volume)

A-F-I-K  
A-C-F-M  
A-D-F-I-K  
A-D-F-I-L

----- Small Volume or Seasonal Flows

Nonetheless, in terms of total volume share, it is estimated that the most important channel is through private/public abattoirs to meat wholesalers to independent retail butcher (F-I-K) in England and Wales, (Figure 10). In Scotland, with its relatively simpler "marketing pattern" involving fewer companies in a smaller market, the dominant channel is the FMC/private abattoirs to multiples' outlets/independent butcher.

Figure 10      Percentage Distribution Channels for Pork  
(England and Wales Predominantly)

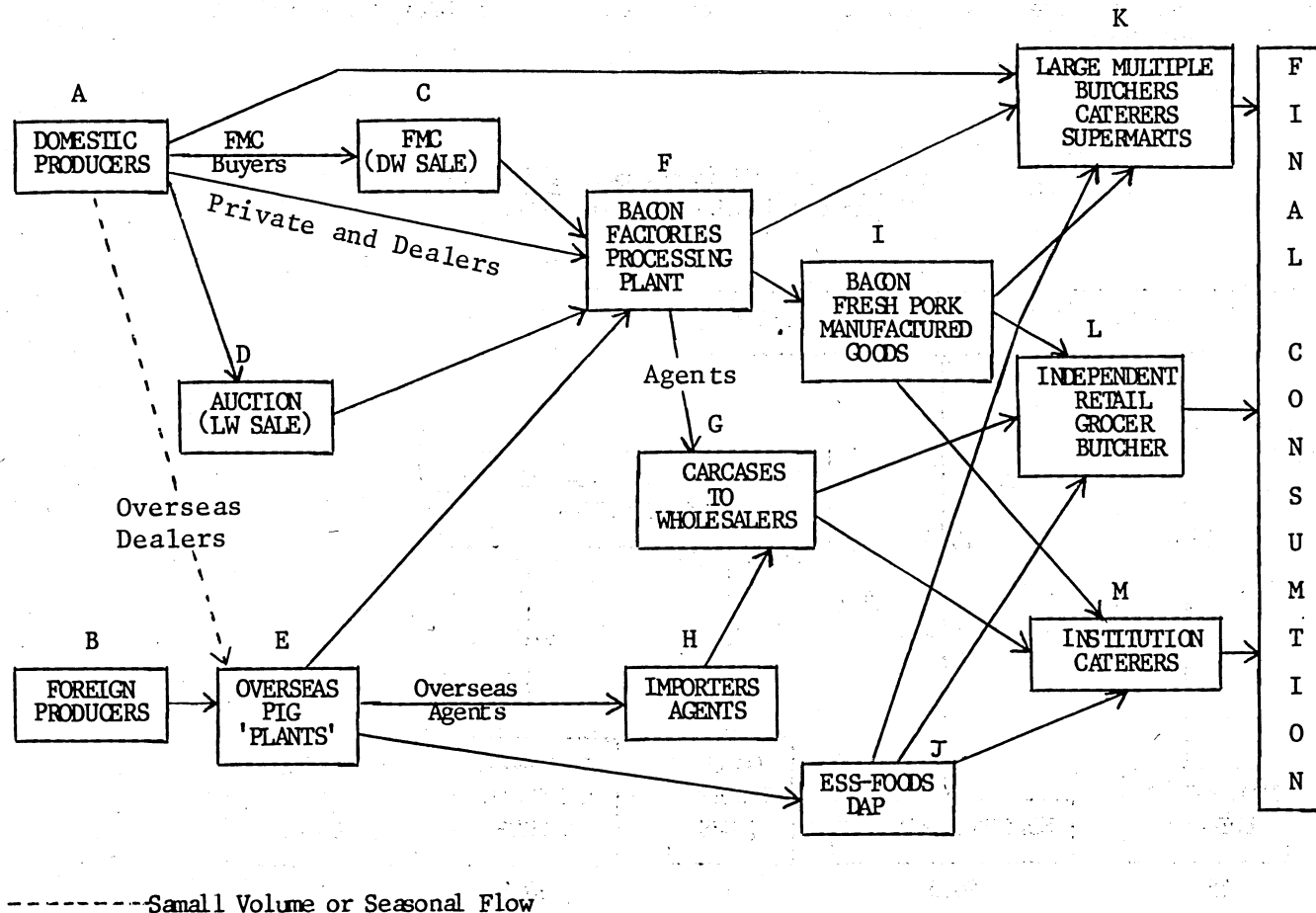


Source: C M Palmer 1975 "Distributive Margins for Meat in Great Britain," Exeter University.

#### Cured Pigmeat (Bacon)

Figure 11 presents the bacon marketing channels in the UK. As with fresh pork, concentration in retailing has led to the "multiples" emerging as the largest sales volume outlet. Butchers are of less importance as a traditional market channel, although this outlet is being developed particularly by the importers. Home produced bacon flows predominantly through bacon factories along channel A-C-F-K. The bacon sector is dominated by imports (over 55 per cent of total supplies) particularly from Denmark through the Danish Agricultural Producers (DAP) and Ess-Food (UK) Ltd network. This organisation is its own importer into the UK where it distributes partly direct to retail outlets and partly through agents. The E-J-K channel (Danish pigmeat - Ess-Food - multiple retailers) is generally regarded as the most important in volume terms.

Figure 11 Bacon Marketing Channels



Source: W M Caldwell 1981 after D Wood 1965

### Supermarket Activity<sup>(1)</sup>

The Large Multiple Grocers category consists of 18 supermarket groups which accounted for about 78 per cent of the grocery sector's share of purchases of All Meats by households in 1979/80. In 1977 these groups had, according to the Institute of Grocery Distribution (IGD) around 4,400 outlets, and comprised such familiar names as Allied/Presto, Asda, Fine Fare, Keymarkets, International, Safeway, Sainsbury, Tesco, Waitrose, Jackson, Gateway, Bishops, Kwiksave, Wilson, Hilliards, Hinton, Laws and MacMarkets.<sup>(2)</sup> Four of these firms, Tesco, Sainsbury, Allied/Presto and Asda, accounted for 43 per cent of these outlets.

(1) See "Food Distribution: its Impact on Marketing in the 80s" by Jennifer Tanburn, 1981 for the most recent comprehensive review.

(2) No longer operating.

The larger chains are currently regionalising smaller stores and concentrating newer investment on superstores/hypermarkets and generally declaring a strategy of moving "up-market."<sup>(1)</sup> The dominance of the Large Multiple Grocers in selling meat in the grocery sector is a reflection of the concentration that has been occurring in the grocery sectors of the food industry. A key feature of supermarket management is the operation of centralist policies through central control.

#### Danish Imports

Britain is the biggest imported bacon market taking around 4-4½ thousand tonnes of Danish a week. On landing in the UK, Danish pigmeat flows along several channels. It may go direct to first hand buyers sometimes to be sold green, sometimes to be smoked before being sold to the retail trade. Some of the pigmeat goes to the Danish export association's own factories.

The great increase in the number of self-service shops as well as supermarkets which has taken place in the UK in recent years has helped make it a large market for vacuum packed bacon rashers. To ensure that the Danish bacon factories can supply this market, Ess-Food established two bacon slicing factories in England at Selby and Thetford which slice and pack bacon into consumer packs or bulk.

The Danes' internal distribution system in the UK appears to give the retail trade the goods and service it requires. In the past it has probably been more responsive to these needs than the home industry, but this picture could be changing as major national and regional suppliers like FMC Ltd, Walls, Dixon's of Ashton-under-Lyme, Cavray of Carlisle, Hall's of Broxburn and others have made significant changes in distribution systems in recent years.

If supermarket involvement in meat retailing grows, as now seems likely, primary producers and suppliers will increasingly look to this sector for new and profitable initiatives in the meat business. Suppliers could see an increasing demand for primals, sub-primals, de-boned meat and consumer packs. Producers could be asked to organise a higher production level of repeatable quality and to become more responsive to market signals.

It is clear from interviewing senior head office staff in UK supermarket chains that they are keenly aware of the importance of imports and the totality of market competitiveness in the British pigmeat market. The individuality of company approach to purchasing and retailing was naturally evident, but a consensus view was noticeable on "requirements" which are summarised below.

#### UK Supermarkets Requirements - Bacon and Chilled/Frozen Pork

1. Regular supply through short supply chain
2. Consistent high quality
3. Keen pricing - bulk order discounting
4. Effective promotion

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(1)ie.to higher added value products and improved store image.

Current supermarket trading policies in the UK presents opportunities and threats to primary producers, processor/manufacturers and importers. The threats arise mainly from severe financial pressures due to 'harsh' discount trading and from concentration of ownership in retail. In the short term these problems seem unlikely to diminish. In the longer run some rationale must be developed for the allocation by negotiation of the total net recoverable margin (throughout the food chain).

#### Costs of Distribution

Unlike home supplies Danish imports bear the additional cost of land and sea freight into the UK market before internal distribution starts. Shipment from Denmark (Esbjerg) to UK ports (Harwich and North Shields) is based on container traffic; 16 crossings per week carry some 300 containers on container vessels or multiple activity ships.

The need to maintain a smooth running continuous shuttle service in both directions may be the main reason why return loads are not operated as a matter of policy. Economical shipping to the UK market is vital to the Danish pigmeat industry. Danish Seaways (DFDS) the sole contracted carrier appears to operate a highly efficient service. It has a progressive management and investment policy on its North Sea operations and Ess-Food would expect to be a main beneficiary.

Specimen costings for a single load on the Esbjerg - North Shields Ro-Ro single crossing suggested a freight cost of 3p per kg of pigmeat in 1980. Danish costs could possibly be up to 50 per cent less with the regularity and high volume of business involved. But cost of returning the empty container could 'restore' cost to 3p on distances around 500 miles. Delivery cost through the cold chain in the UK in 1981 was around 6p per kg, on contactor quotes. Own vehicle fleet costings could well reduce this to 4.5-5.0p per kg. These estimates suggest the total 'cold chain' from Denmark to UK wholesaler retailer outlets could cost from 7.5-9.0p per kg (1981).

#### Added Value

The pigmeat processor on both sides of the North Sea is faced with the same basic problems; purchasing raw material at a sufficiently competitive cost to encourage its continuing production, controlling the cost of services and maximising the added value out of which it is possible to retain sufficient profit for re-investment after covering all other costs.

Added value provides a measure of sales value minus expenditure on bought-in materials and services. It draws the attention of management and shareholders to the greater importance of the cost of achieving sales in relation not to sales value, but to the wealth created by the business out of which these costs have to be met.

Primary producers as suppliers of the industry's raw material must have a keen interest in quality and the processor's capacity to add value. Building a profit margin, large enough to service both producer and processor needs, starts on the Danish farm and continues throughout the chain to the point of retail purchase.

A comprehensive appreciation of this important fact by all the participants is vital to the long term prospects of the home industry.



9.

PRICE DISCOVERY AND MARKET MANAGEMENT

Price discovery<sup>(1)</sup> holds great interest for most traders involved in a market. The price setting activities of the brand leader because it is a refinement of "discovery" can hold a particular fascination. This seems to be especially true of Danish pricing in the UK bacon market.

Basic supply and demand factors set the background price 'tone' in the market. Beyond that the price setter must take account of the following factors in determining tactics and strategy:-

- a) Estimates of own current demand pattern for all products (fores, middles, gammons, rashers, joints). The demand shift, revealed by orders against the previous week and the same time the previous year.
- b) Informed 'guestimates' about competitors' demand patterns corrected for the likely impact of special trading terms eg. discounts, special offers.
- c) Assessments of the average impact of seasonal and climatic factors eg. Easter, Christmas, hot summers.
- d) Comparisons of current national wholesale prices and assessments of differentials created by competitors.
- e) Assessments of the theoretical 12 month forward view of price trend against the previous year's actual.
- f) Estimates of the desired trading margin.

This clearly provides a mixture of objective and subjective information and it is on this that the pricing team makes its decisions by applying judgment, intuition and commercial flair. It should be noted that this is done on a product market (bacon) which demonstrates long term demand fall.

The underlying strategy of Danish pricing is to pitch the wholesale quotation at a level which is either keen enough to favour expanding sales of the brand leader or, in less favourable circumstances, sufficiently sensitive to maintain market share. Ess-Food has also stated (1980) a desire to make only a few price changes in the year, yet in 1980 it recorded seven. It is basically consumer preference which forces British brands to trade below the Danish price (Table 11).

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<sup>(1)</sup>The mechanism which reveals current market prices to all traders eg. livestock auctions.

Table 11      Average Annual Brand Differentials in the UK  
Bacon Market 1976-1980

	National Declared Wholesale Price as % of Danish Price				
Irish Republic	95.5	97.2	96.8	-	-
UK	95.8	98.0	97.7	96.2	97.1
Ulster	94.8	97.3	97.0	96.2	97.1

Source: W M Caldwell, 1980 (based on monthly data from London Provision Trade Federation).

Scottish bacon comes on the UK market mainly through the FMC channel which puts top grade bacon sides into its Crown Brand. This is the bacon which is quoted weekly by the London Provision trade as UK A1. FMC has worked hard to standardise the Crown Brand 'cure' at its several plants, to maintain a uniform repeating quality to deal effectively with Danish competition and in the long term to close the price differential to zero. The new bacon charter pursues the same general objectives.

#### Price Competition with Danish

The starting point is recognising how market forces have created the current brand differentials, how the Danes maintain quality, promoting the quality image and how they price the brand leader. Brand leadership is not taken, it has to be earned in the market place on a repeating basis.

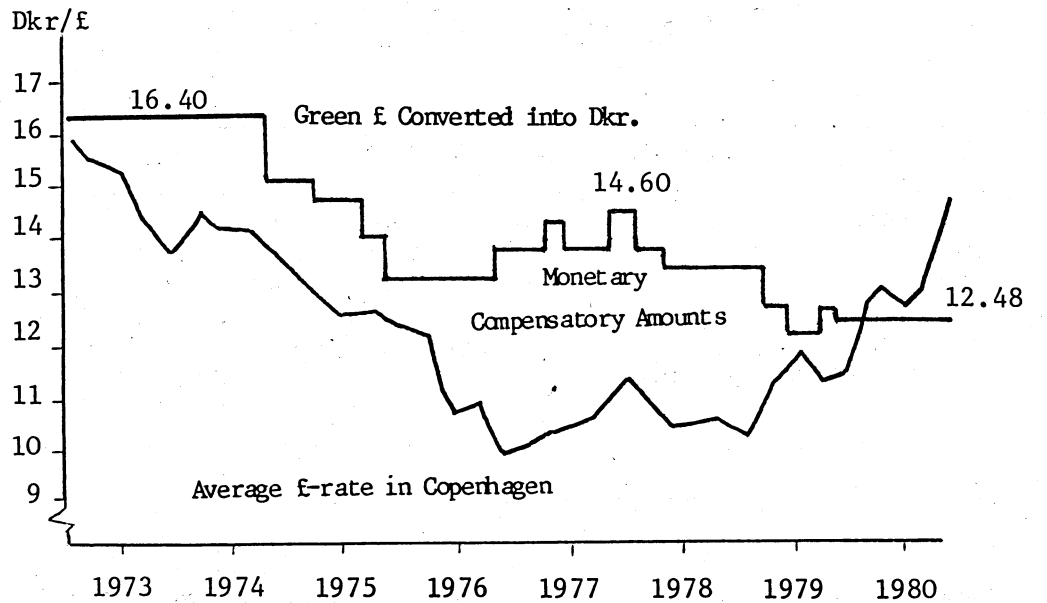
However it can be broken or replaced by sharing. This is the challenge for British bacon - convincing the consumer and the wholesale/retail trade that its product stands at level par with Danish. A change in conviction will be reliably based only on hard facts as any retailer will affirm. This is an important exercise in which Scottish production has a considerable stake.

#### MCAs in the UK Bacon Market

The operation of MCAs has been extensively analysed elsewhere and it is possible to present here only a brief summary.

Trade with the UK for most of the 1970s involved Denmark with negative MCAs. The underlying behaviour of sterling was central to the overall pattern of MCAs (Figure 12). During the period trade with UK was assisted by the MCAs but discouraged in the West Germany market where the Dutch tended to strengthen their position assisted by lower production costs.

**Figure 12**      Development in the Rate of Exchange for the  
£ and in the MCAs for UK 1973-1980



Source: The Danish Pigmeat Sector - Statistics 1980.

Table 12 shows that MCAs operated at very significant levels for several years in the 1970s.

While MCAs of around £250 per tonne in 1977 and 1978 were substantial and probably helped to hold down marginal increases in UK bacon prices their overall impact from 1973 is less clear. UK bacon and ham consumption was not rising at the prevailing price levels and there was no real growth in Danish imports to the UK although the Dutch did increase their market share from a low base.

**Table 12**      Wholesale Price and MCA Levels in UK Bacon Market 1973-1979

Average in £	1973	1974	1975	1976	1977	1978	1979
Danish W/S price/tonne	629	700	839	973	979	1092	1171
MCAs/tonne	45.9	45.5	82.4	158.7	245.7	230.0	113.2
Total value W/S + MCAs	674.9	745.5	921.4	1131.7	1224.7	1322	1284.2
MCAs as percentage of total value	6.8	6.1	8.9	14.0	20.1	17.4	8.8
UK A1 W/S price/tonne	582	672	825	932	963	1065	1122
UK A1 W/S as percentage of Danish W/S	92.5	96.0	98.3	95.8	98.4	97.5	95.8
UK A1 W/S as percentage of Danish W/S + MCAs	86.2	90.1	89.5	82.4	78.6	80.6	87.4

Source: W M Caldwell, 1980 (based on monthly data supplied by the Meat and Livestock Commission and the London Provision Trade Federation).

UK processors were probably denied a marginally greater return from the market by MCAs but, for some, internal problems of over-manning, outdated plant, lack of product innovation and quality deficiencies were also taking their toll on the economics of plant operation. Producers were also suffering from a high feed cost regime.

Greater attention needs to be focused on the significance of MCAs to the internal operation of the Danish pig economy. Kroner revenue earned by the Danes was significantly depressed over 1974 to 1979 by fluctuating exchange rates. Without the substantial FEOGA payments involved the industry would have been exposed to considerable economic strain (to come later in 1980) with some consequential effects on its UK operations which could have been of benefit to British processors and producers. This suggests that in a relatively static market Danish pricing strategy had been astute and their capacity to operate it must have been assisted by MCAs.

If the pound falls sufficiently, the possibility of negative MCAs returns and with it increasing pressures on the UK industry. In the longer run the industry should have realistic expectations about parity competition on quality, price, promotion and consumer preference.

PROMOTION IN MARKETING

Promotion is the Danish marketing activity which impinges most noticeably in the UK market. Only this very relevant aspect of the marketing function related to Danish competition in the UK bacon market is discussed. However marketing's wider nature should be fully appreciated. The Danes operate close to the conventional marketing view with a full professional commitment to the whole range of marketing activities.

Organisation and Funding of Danish Promotion

Danish promotional work is organised within a triple framework of Government, farmers' and trade organisations, and private firms. The Government's activities are legally recognised under the Commercial Fund (ERHVERSFOND) which is an independent institution under the Ministry of Trade.

According to guidelines decided by the Ministry, the Commercial Fund lays down the framework within which the Export Council, appointed by the Ministry of Trade, administers the rules. The Council funds activities through grants. For example, contributions are made to groups of export concerns to support the build-up of new markets and new the development of new products and new methods in export activities. Such contributions cannot normally exceed 50 per cent of the expenditure.

The special common promotional work of agriculture and the food industries is carried out partly through the Danish Agricultural Marketing Board and partly through the agricultural industry itself. The most important source financially is production levies, collected in accordance with a law governing the administration of EEC arrangements in Denmark.

Additional to the levies there are contributions, "trade funds" accumulated from two main sources. There are Agricultural Financing Funds for the work conducted by the Danish Agricultural Marketing Board, complementing the individual export committees' contributions. Furthermore contributions are granted to some extent, from governmental promotional activities. Part of the trade funds is allocated for work in pig breeding and production.

The production levy is funded both by pig producers and by farmers who are basically in arable production. The central policy operating is that all farmers in Danish agriculture benefit from a prosperous pig sector and therefore all should support it.

For pigs under 90 kg deadweight the production levy is 3.50 kroner per pig and for pigs over 90 kg deadweight 10 kroner per pig. The area levy is 3½ kroner per thousand kroner of the land value of the farms. In effect funding is divided 50/50 between the two sectors. In 1979/80 funds from the levy totalled 104 M kroner. Of these 22 M kroner (21 per cent) was spent on general sales promotion activities in the UK and 2.6 M kroner on offices abroad. Danish advertising/promotion expenditure in the UK pigmeat market in 1980 was approximately £2 million.

Changes in the structure of the UK grocery trade and the continuing concentration of major buying points have resulted in a reorganisation of the promotion services operated on behalf of Danish farming organisations by Danish Agricultural Producers (DAP).

Advertising, public relations, exhibitions, consumer and catering advisory services for both Danish bacon and dairy products continue to be carried out by DAP. It also takes part in national and international exhibitions, staging exhibitions directed at the UK food trade as well as running Danish Food Centres in Glasgow, Manchester, Birmingham and London.

As part of the reorganisation, Ess-Food (UK) Ltd took on additional staff in the existing regional offices at London, Yale (Bristol), Altrincham and Newbridge in Scotland. Ess-Food (UK) Ltd now handle directly all promotional activity on behalf of Danish bacon and other Ess-Food products.

This extensive re-organisation, revealed the range of management perspective of a changing market, available to Ess-Food in London and Copenhagen. It also recognised the emergence of a tougher market environment for both Danish and UK bacon.

#### Bacon Promotion - Generic and Brand Advertising

The role of advertising within the marketing mix for an established branded consumer product is to stimulate repeat buying, and to help build up market share by increasing the number of regular, loyal buyers. This is usually done by making the product itself more attractive and in some way better value than the competition, and then communicating this advantage by advertising.

Generic advertising is quite different from brand advertising in intention even though it uses the same media and similar techniques. Generic advertising is intended to increase total demand for a product as a whole. This can be done in terms either of increasing the rate of consumption, or halting a decline in consumption or raising the price at which a given volume can be sold. In doing this, it takes no account of the brands on sale within the market, and will usually stimulate total consumption of such brands in line with their existing brand shares.

It is basically evidence of a slow long term decline in demand for bacon which motivated the six major bacon suppliers to the UK market (Britain, Denmark, Ulster, Eire, the Netherlands and Poland) to come together in 1979 to further a common interest. Their initial excursion into generic advertising in 1981 involved a very modest budget of £70,000 and substantial increase on this level seems unlikely. By comparison the Butter Information Council allocated approximately £0.4 M on a generic press campaign over 1981/82 and may spend up to £2.5 M in 1982/83.

Table 13      Selected Advertising Budgets for 1982

	£M
British Bacon <sup>2</sup>	1.2
Danish Bacon	2.0
Mattessons - meat products range	1.0
Findus - frozen foods	4.5
Bird's Eye - Walls - frozen foods	9.0+
Ross Foods - frozen foods	3.0
Milk <sup>1</sup>	3.0
Cheese <sup>1</sup>	8.5
Cream <sup>1</sup> and related products	4.0
Lurpack - butter	3.0
Matthews - turkeys	1.0
New Zealand Meat Board	1.3

<sup>1</sup>Dairy Council.<sup>2</sup>Total MPE Budget £5.5 M.

Source: Author from trade material.

The magnitude of current budgets (1982) for bacon and a number of selected generics and brands in the food market are given for comparison in Table 13. Although not easy to measure the commercial impact of advertising, it is not impossible. Because it is an important activity in marketing and a significant area of industry expenditure, funding levels, efficiency of resource allocation and agency and programme effectiveness are important matters to the industry, probably more fully recognised by Danish farmers than by British producers.

11.

CONCLUSIONS

The Danish 'chain' demonstrates a wide variety of organisational and functional features which deserve wider recognition among competitors. Table 14 presents a summary of strengths and weaknesses in the Danish system which are apparent from current studies. In several cases the weaknesses are potential and derive from the level of risk which is implied when guidance and control are concentrated in a few hands.

Table 14      Summary of Strengths and Weaknesses in the Danish System

Strengths	Weaknesses
Production technology for single product stream	Restricted internal competition
Strong co-operative endeavour in primary marketing	Highly concentrated policy making
Concentrated command structure - superficial democratic control <sup>1</sup>	Concentrated funds control - risk bearing
Revolving funds from farmers used by co-op factories	Vulnerability to a weak currency
Strict quality control along export chain	Over-committed to UK product requirements
Efficient sea freighting	International transport costs
Well organised UK distribution	Health Control and disease
Thorough market research	
Effective promotion budget levels	
Strong support services eg. Adviser training	
Organisational strengths from integrated official bodies	

<sup>1</sup> Capable of becoming a weakness.

Attention is drawn to a number of points of note in the Danish system which are worthy of consideration by the home industry.

1. Special provisions available for farm finance eg. the mortgage credit corporation is widely used by farmers.



2. Breeding stock used in the industry are fairly tightly controlled and tied to the requirements of the 'bacon model.' The specific pathogen free (SPF) pig has made considerable progress.
3. Short links exist between research, development, education and farm application with the advisory service conducting on-farm evaluation.
4. Advisory service staff are specialised and a considerable amount of in-service re-training is available to all advisers through the staff college at Tunc which is also used by Ministry staff.
5. EDP facilities for pig business recording and reporting are available to many producers through the advisory service.
6. A production levy, charged on pig and arable producers, is used to fund wide-ranging activities in the production and marketing functions.
7. Tight grading specifications operate with reward based on a basic price plus quality premia. Premium I is 8 per cent of the basic price and premium II is 2 per cent. Grade II is thus 95 per cent of the top grade compared with 93 per cent in the last UK contract (1981/82).
8. The co-operative bacon factories pass surplus margins back to producers in the form of an end of year bonus, which is generally about 5 per cent of carcase value compared with 1 per cent in the UK.
9. Farmers, as owners of the local co-operative bacon factory, are more directly involved in the market place, receiving information about raw material and finished product requirements and performance.
10. Quality control is tightly administered throughout the chain from producer to supermarket with complaints subjected to close scrutiny.
11. Uniform product specifications and grading standards formulated by Ess-Food, the bacon factories export association, are imposed on all exporting factories.
12. Marketing management in the UK is highly professional and perceptive to important political realities eg. debate over MCAs.
13. Promotion in export markets is tightly organised, progressive in style and adequately funded.
14. Support services are structured for an agri-food export industry with farmers, commercial organisations and government bodies as active participants.

## Commentary

### Organisation

It is important not to be blinded by excessive admiration for Danish achievements in agriculture, co-operation and exporting. Nevertheless it would be unwise not to recognise the validity of the 'Danish experience' as a learning model in areas of specific application.

What is the future for co-operative activity? The type of grouping preferred generally depends on how farmers view their relationships with their markets. Two main alternatives can be identified. First they can use the services of the industrial and commercial sector, contenting themselves with the formation of syndicate type co-operatives with mainly a negotiating function to defend their interests. Secondly, they can replace the industrial and commercial sector by creating their own co-operatives to retain control of their products further along the marketing chain. This arrangement retains the economic power of decision making and the profits arising out of the various functions performed. Here the co-operatives aspire to partnership with industry and commerce.

UK processor/manufacturers, unlike many of their continental counterparts are not tied historically, culturally or financially to their own national primary producers. They are essentially attuned to importing raw material from the world's suppliers and increasingly to low cost material from other EEC producers.

The future challenge is greatest for the UK's primary producers. To protect their domestic retail outlets it seems increasingly likely that they are going to be drawn into considering investment further down the processing chain. Financing this major change will not be an easy task and the returns could be less than attractive. A more satisfactory solution would be a basic change in attitude among many UK processor/manufacturers and producers involving working much closer together for mutual benefits.

### Promotion

Historically agriculture has been known as a production-orientated industry - a description which broadly reflected the way in which its investments and activities were organised.

The close integration of production and marketing chains operated by competitors is forcing change into the home industry. Merely offering rather than marketing raw materials in the market place to buyers is an untenable position which no wise businessman should willingly adopt.

A change to market orientation in the pig industry with producer-processor groups implies identifying consumer needs precisely, arranging to supply them and communicating product information to the consumer through promotion. Current levels of promotion budgets in the UK pigmeat market are coming into

balance viz à viz home and imported. Expenditure can be expected to stay broadly in line with inflation. However a danger exists that promotion budgets, which are already substantial may escape adequate control in a market place which is set to become increasingly competitive and because the effectiveness of promotion is very difficult to measure.

### Marketing and its Wider Role

The marketing lesson from the 'Danish experience' can be summarised as:

- knowing the market and all its changes
- building a production-marketing chain to guarantee supply, quality, delivery and repeatability.
- having produced the right product, sustaining it in the market place with effective promotion.

The commercial realities in today's food market should leave little doubt in the minds of raw material suppliers and finished goods producers that marketing is very important.

Full awareness of the comprehensive nature of marketing in business is vital if its importance is to be fully grasped. This means that marketing should be understood as the creative management function which promotes trade and employment by assessing consumer needs and initiating research and development to meet them. It co-ordinates the resources of production and distribution of goods and services and it determines and directs the nature and scale of the total effort required to sell profitably the maximum production to the ultimate user. The production-marketing chain assembled by the Danes lies close in spirit and function to this understanding and as a learning model for others it has many merits.

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AppendixThe Kroner Exchange Rate Against Sterling\* 1973 to 1980

	1973	1974	1975	1976	1977	1978	1979	1980
Annual Average	14.71	14.16	12.76	10.79	10.53	10.60	11.19	13.12 (F)

\*Estimated from average daily rates of sterling and kroner against the dollar (100 øre to the kroner).