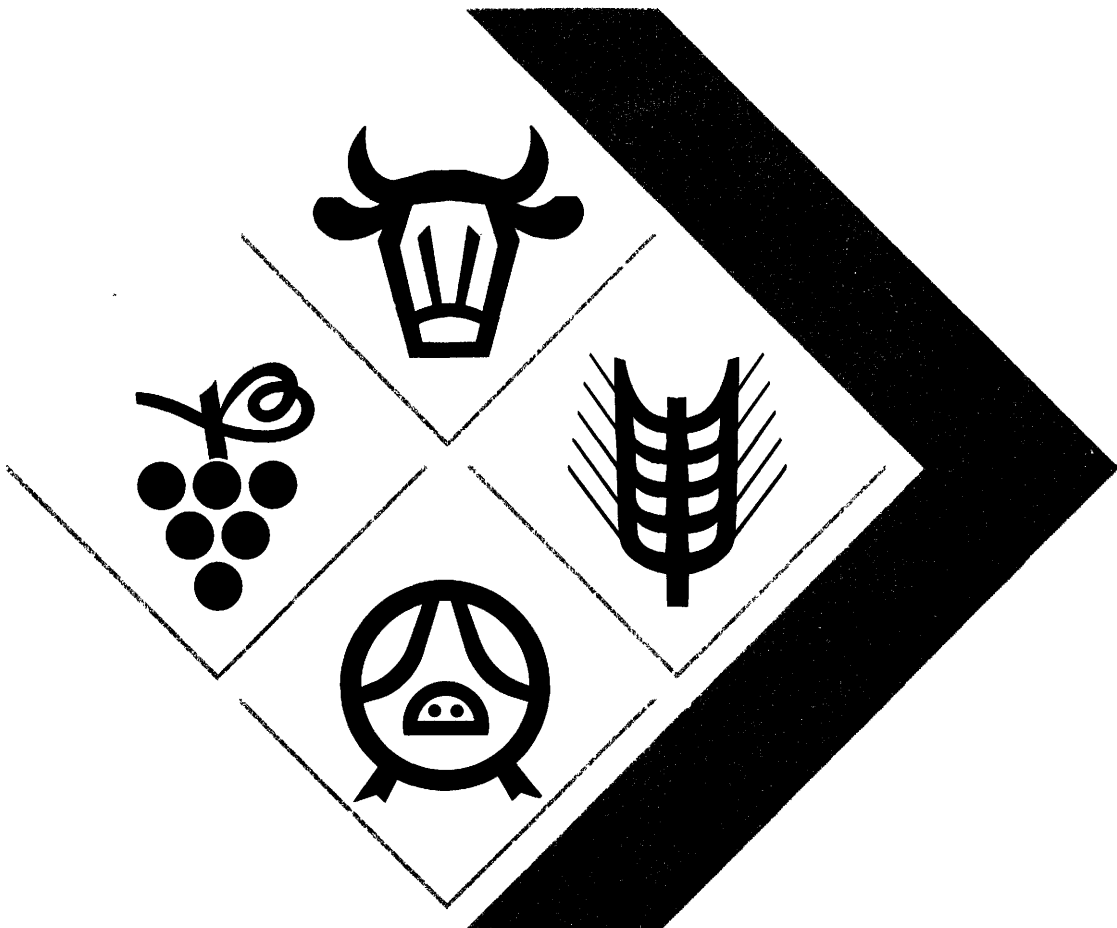


Information on agriculture

Cold storage warehousing in the EEC

An Inter-Country Comparison

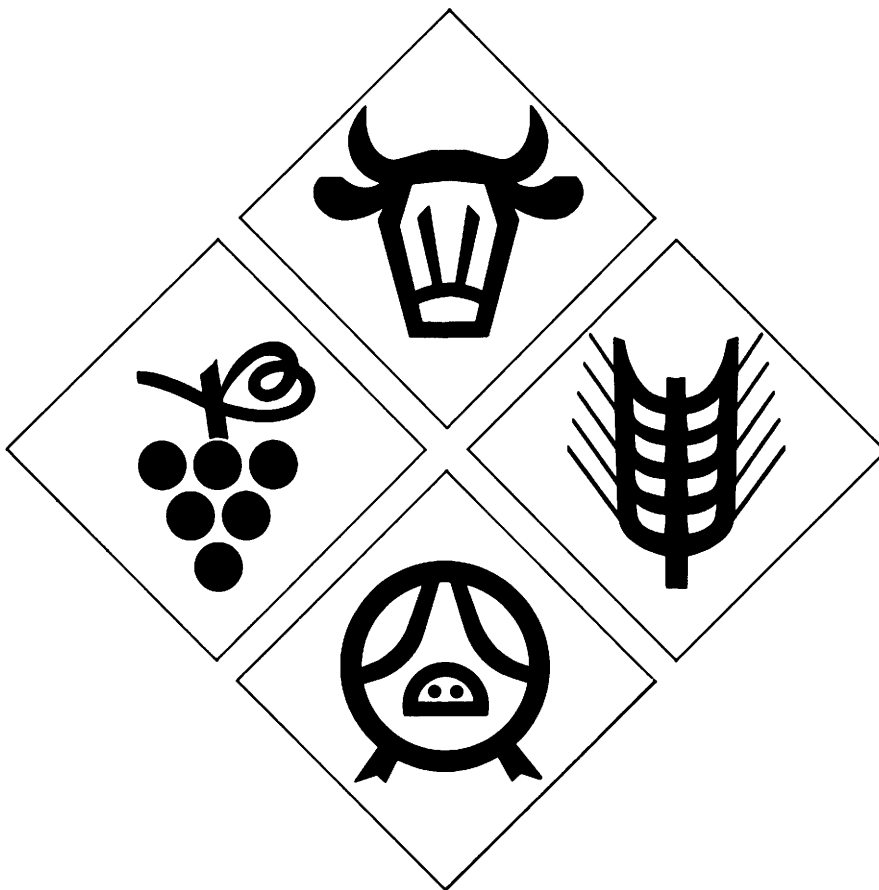




Information on agriculture

Cold storage warehousing in the EEC

An Inter-Country Comparison



COMMISSION OF THE EUROPEAN COMMUNITIES
DIRECTORATE-GENERAL FOR AGRICULTURE
Directorate General matters — Division “Reports, studies, statistical information, documentation”

A bibliographical slip can be found at the end of this volume

Luxembourg: Office for Official Publications
of the European Communities, 1981

ISBN 92-825-2595-3

Catalogue number: CB-NA-81-079-EN-C

© ECSC — EEC — EAEC, Brussels • Luxembourg, 1981

Printed in Belgium

Reproduction authorized, in whole or in part, provided the source is acknowledged.

INTRODUCTION

At the outset of the investigation the objectives of the study were defined as follows -

"To provide an objective analysis of the costs of operation of cold store warehouses in each of the countries included in the study, together with an explanation of any difference in costs between facilities and between countries".

Having examined and considered the cold storage industries of the EEC member states, the EIU is now persuaded that the costs of operation of cold stores, although important, are not of themselves the prime determinants of pricing structures within their respective countries. Other factors such as the role of the industry in the country, the structure of the national industry, market forces, the relative importance of intervention traffic and the strength of the industry trade association each play their parts in price formation.

Some or all of the effects of these factors differ from country to country, and while it is not possible to quantify the precise effects of any individual factor in monetary terms, it is considered that they do account at least in part for the different storage charges obtaining in each of the member states.

This report will therefore contain an account of the role these factors play in each of the member states and will present comparisons between the cold storage industries of the member states.

Luxemburg has but a notional cold storage capacity. The report therefore excludes any further consideration of that country.

1. SUPPLY OF REFRIGERATED SPACE

a. National storage capacities

Cold stores in each of the countries may be broadly classified as being either public stores or private stores.

Public cold stores rent out refrigerated space to third parties and have no proprietorial or other interest in the produce stored. They are in business to provide a service to owners of perishable goods.

Private cold stores on the other hand, are those owned or operated by food processors/manufacturers, supermarkets or producer cooperatives and which have been built as an essential element of the primary business, to meet part or all of that business's own storage needs.

However, it is not uncommon for private cold stores to offer to third parties space in the store which is surplus to the primary business's own immediate requirements. Indeed, most notably in Italy, but also in France, Holland, Belgium and Ireland, the Intervention Bodies use these private stores in addition to the more generally used public stores for storage of intervention stocks.

The wealth and detail of statistical records kept in the countries studied varies greatly. However Table 1 below shows the relative importance of the public and private cold stores in the member states.

Table 1. Public, Private and Total Cold Storage Capacities

| <u>Country</u> | <u>No public stores</u> | <u>Total public refrigerated capacity</u> (mio m3) | <u>No private stores</u> | <u>Total private refrigerated capacity</u> (mio m3) | <u>Total refrigerated capacity</u> (mio m3) |
|----------------|-------------------------|---|--------------------------|--|--|
| Belgium | na | 0.36 | na | 0.86 | 1.22 |
| Denmark | 26 | 0.73 | 272 | 0.52 | 1.25 |
| France | 225 | 2.90 | 335 | 2.30 | 5.20 |
| Holland | 109 | 1.26 | | 1.00 | 2.26 |
| Ireland | 8 | 0.37 | 40-45 | 0.10 | 0.47 |
| Italy | 125-130 | 2.00 | na | 4.00 | 6.00 |
| UK | 180 | 4.80 | 52 | 1.80 | 6.60 |
| West Germany | 102 | <u>2.90</u> | na | <u>1.00</u> | <u>3.90</u> |
| Total | | 15.32 | | 11.58 | 26.90 |

Source: Trade associations and EIU estimates.

However, not all the space indicated above is capable of maintaining temperatures low enough to store intervention stocks. While most of the public cold stores can in fact provide temperatures as low as -25°C or lower, some of the private stores do not. Table 2 shows the total of each countries' capacity suitable for storage of intervention stocks.

Table 2. Country
Capacities at -18°C or Below

| <u>Country</u> | <u>Mio m³</u> |
|----------------|--------------------------|
| Belgium | 1.02 |
| Denmark | 1.25 |
| France | 2.50 |
| Holland | 2.00 |
| Ireland | 0.47 |
| Italy | 2.0-3.0 |
| UK | 6.00 |
| West Germany | 3.00 |

Source: EIU estimates.

Comparison of Table 2 with Table 1 shows a significant difference for both Italy and France. This is no doubt due to the inclusion in Table 1 of "chilled" space which is predominantly required for storage of fruit and vegetables, which are important crops in these two countries.

b. Distribution of cold stores

Within each of the countries studied there would appear to be a fairly natural distribution of cold storage space. As might be expected, some concentration of cold stores has taken place around urban centres, or in those areas significantly concerned with the production of perishable products. The only exceptions to this pattern would appear to be in Italy and, to a certain extent the United Kingdom.

While the majority of Italian cold stores are in the cattle producing areas and in urban centres, a number of cold stores have recently been built in the central and southern areas of the country. These it would appear, have been built as a result of governmental incentives designed to stimulate investment and development of the regions, rather than in response to market demand for storage space. They are reported to be operating at very low occupancy levels and this, as will be later discussed, is causing some distortions in the market.

In the UK, the cold storage industry is much more closely integrated into the distribution network than seems to be the case in the other countries. This means that while there is some historic concentration of stores in traditional producing areas and in large urban conurbations and ports, in the past decade there has been a discernable shift to "green-field" sites with easy access to the growing motorway network. This has had the effect of bringing cold stores within easy reach of all but the remotest parts of the UK.

The EIU did not itself discover in any of the study countries, nor receive reports from its informants of any regional structural shortages of refrigerated storage space. To the contrary - as later discussion will show -the reverse situation would appear to prevail, and over capacity would seem to exist in some areas.

c. Ownership of public cold stores

A characteristic common to the cold storage industries of the study countries is the fragmentation of ownership which prevails in both the public and private sectors.

While there are some very large companies operating public cold stores, none can claim to anything approaching a controlling share of its market. While in France four companies own 60 per cent of public cold storage space, and in the UK seven companies share 73 per cent between them, the largest market share falling to one company occurs in Ireland. Table 3 below indicates for each country, the proportion of national public cold store capacity held by the leading company in that country.

Table 3.
Leading Companies' Capacities

| <u>Country</u> | <u>Capacity owned by largest operator (%)</u> |
|----------------|---|
| Belgium | 12 |
| Denmark | 33 |
| France | 29 |
| Holland | 5 |
| Ireland | 40 |
| Italy | 6 |
| UK | 25 |
| West Germany | 30 |

d. Organisation of the cold storage industry

In each of the study countries the cold storage industry has its own trade association. These associations are in turn members of the European Association of Refrigeration Enterprises which has its headquarters in Brussels.

The individual associations vary significantly in their effectiveness and strength in representing and negotiating on behalf of their respective industries.

This would appear to stem at least in part, from the extent to which the associations have recruited memberships. In Germany and France for example where the associations appear to be strong, 98 per cent of public cold stores belong to their respective associations. In Italy and Holland on the other hand, not more than 75 per cent of public cold store operators belong to their national associations.

However there is another factor which can and does affect the position of the national associations and that is the size of the cold storage "population". In Ireland where there are only six member companies in the Association (owning between them eight of the nine public stores), and to a lesser extent in Denmark which also has a limited number of

stores, it is difficult for individual companies to make full disclosure of their operational details and problems to the association, without giving information which could be advantageous to a competitor. This would appear to inhibit to some degree, the unity of purpose with the smaller associations.

Another difference between the national associations lies in the composition of their membership. Belgium and France for example do not admit private cold stores to membership of their associations, while Holland and Italy do. This latter practice, must be expected to impair the national association's ability to maintain or control minimum storage price levels.

In several countries, the EIU's informants repeatedly referred to the "unfair" advantage enjoyed by those private cold stores which also accept public storage contracts. As these latter contracts are often costed at marginal rate, the private stores can under-cut normal commercial rates and often do so, to their own commercial benefit.

If both types of store, public and private, are in the same association it would appear difficult, if not impossible, for the association to serve both sectors' interests simultaneously in setting any sort of minimum prices for the industry.

On the other hand, even though it has been reported that one public store in France was refused entry into the association because it charged excessively low prices, there is evidence to show that none of the national associations has succeeded in establishing minimum rates in the normal commercial sectors. Competition for business is both strong and free, with pricing levels being correspondingly flexible.

It is only with regard to intervention stocks that the national associations have had any success in establishing fixed price levels, although even here there are notable exceptions.

In Belgium, France, Germany, UK and Ireland the trade associations negotiate with their national intervention bodies storage rates for intervention stocks. These rates are then paid to all cold stores used by the intervention bodies, whether the stores used are members of the association or not.

In Holland, although the intervention body negotiates rates with the association, it also negotiates directly with individual stores. The association therefore does play a part in establishing price levels, although to what extent these levels are adhered to cannot be determined.

The Italian association would appear to have little part in negotiations concerning intervention storage prices; the intervention body's agent (AIA) dealing directly with each store used. This situation also prevails in Denmark, where under the Danish law with respect to monopolies, the association is not allowed to negotiate on behalf of the industry. The intervention body therefore negotiates directly with each store - apparently to its advantage.

e. Services offered

In all of the subject countries the cold store operators offer a wide range of services in addition to the actual storage of the produce. These include deboning and packing (in the case of meat), inspection, batch marking, inventory control, breaking bulk, despatch and delivery, invoicing and factoring. Not all cold stores offer all of these services, but in each country the larger companies, who are eager to extend their businesses, do provide most of these forms of assistance.

While most of these services are not used by the intervention bodies, they are used by private owners of produce. There are charges for each of these particular services, but in some instances they are provided "free" in order to attract major customers. In practice however the charge, or at least the cost of these services, is recovered inside the total contract price of the particular transaction. In Holland however, there does not appear to be a tariff for these extra services, although the services are provided for large customers.

Inventory control, invoicing, transportation and distribution are seen by many operators as the key to obtaining more business, particularly from the frozen food manufacturers. This is very marked in the United Kingdom in particular, which possibly has the most sophisticated storage/distribution operations. It is worthy of note that some of the largest cold store operators in the UK were originally transport companies, and that they built cold stores to serve as distribution depots rather than as long term stores. As a result of this, some cold store operators found it necessary to move into the transport business to retain their customers, particularly the food manufacturers. It is now common to find that major frozen food manufacturers, instead of themselves building cold stores, subcontract the whole storage and distribution operation to specialist operators who also handle all the invoicing and associated paper work. This development has also taken place, but to a lesser extent, in some of the other countries studied. It is a trend which must be expected to develop, and which may lead to a greater expansion of public cold stores than there will be in the private storage sector.

These services also tend to cement relationships between the cold store and its customers. They lead to longer term service contracts which are as much related to distribution as to storage per se. While the industry is very competitive and prices are keen, there are signs that - at least in the United Kingdom - the competition expresses itself in the quality of service provided, and not on price alone.

There does not appear to be a formalised space reservation system as such within the industry, but of course long-term contracts may be made. An unusual example, which is in effect "space reservation" occurs in Germany where Unilever rents a whole cold-store from one of the major cold storage companies.

None of the intervention bodies reserves space in advance or for a fixed period. This is the cause for a complaint from the store operators that the intervention bodies may have very sudden inflows and outflows which affect capacity utilisation dramatically and suddenly.

f. Degree of capital intensity and technology

There is no marked difference between the national cold storage industries in respect of sophistication of equipment used. There are examples in each country of the most modern systems and methods, and there can also be found old and obsolete cold stores.

The main difference between old and new lies in the nature of the construction, in the dimensions of the cold chambers and the absolute size of the stores. The newer stores have higher ceilings, permitting the stacking of box pallets or cage pallets to a greater height. This reduces the ground area needed to store a given quantity of goods - permitting greater utilisation of expensive land.

There is a strong trend in the new stores toward the use of lighter construction materials. Instead of building with brick or concrete, metal panelling supplemented by internal insulation such as polystyrene or other similar material is now widely used. The saving in construction costs is considered to outweigh any increase in operating costs caused by possible temperature "leaks".

As stated earlier, there is no marked difference between the countries' cold stores. However Denmark, France, Ireland and the UK probably have the highest proportion of new stores, with over 50 per cent of their total capacity having been built within the past 10 years. Germany, Holland, Italy also have built a significant number of new stores in this period, but they do not represent such a substantial proportion of the total capacity - probably only about 30-35 per cent. Belgium too has examples of very modern new stores, but these appear to be rather fewer than in the other countries and the majority of the country's cold storage is in rather older out-moded stores.

Another significant feature of the development of new stores is the size of store which is today considered "viable". There are still many small stores in operation, particularly in Holland and Belgium; however, although different figures were quoted as being the economic size of a

new store, a concensus view was expressed throughout the industry that 30,000 cu m is the minimum economic capacity for a store being built today.

Table 4 below shows the average size of the existing public cold stores in each of the study countries.

Table 4.
Average Capacity of Public Cold Stores

| <u>Country</u> | <u>Average capacity</u> (^{'000} m ³) |
|----------------|---|
| Belgium | n/a |
| Denmark | 28.0 |
| France | 12.7 |
| Holland | 11.6 |
| Ireland | 46.0 |
| Italy | 25.0 |
| UK | 26.7 |
| West Germany | 28.3 |

Source: EIU estimates.

It must be borne in mind that the above are average figures. They include many small stores and also many "superstores". In the UK for example 29.6 per cent of the total national capacity of public cold storage is provided by stores each with about 100,000 cubic metres capacity. Also in Italy, there is one store in Aprilia with a reported capacity of 200,000 cu m and even in Belgium where smallish stores still predominate, a store of 300,000 cubic metres can be found, although this latter store appears to be mainly associated with port activities.

2. DEMAND FOR REFRIGERATED SPACE

a. Seasonality of demand

There are discernable peaks and troughs in the level of demand for refrigerated space within each country. However these are not considered by the EIU's informants to be sufficiently marked to affect storage rates significantly, if at all.

The increase of demand for space coincides with the rising milk flows during the summer months when butter production is at its peak. Additionally, and in Ireland particularly, where cattle are largely grass-fed there tends to be an increase in beef slaughter in the autumn with a resultant demand for storage space. However other products tend to have counter-cycles which to some extent fill in the would-be troughs in the level of demand. For example packaged processed foods such as cakes, ice cream, etc, all of which are growing in importance, are produced out of the season in which they are consumed, thus requiring refrigerated space for their conservation.

A view has been expressed that the seasonality of butter, beef and other livestock products is declining as farmers adopt more intensive agricultural methods and depend less on natural feedstuffs for their stock.

b. National capacity utilisation

It has been reported elsewhere in this report that for a variety of reasons the past decade has seen the establishment of many new cold stores in each of the subject countries. These have been built as replacements for smaller outmoded stores, in response to changing patterns of food consumption (growth of the frozen-food sector), to obtain economy of scale of larger operations or simply in response to anticipated demand for refrigerated storage.

In France and Italy in particular, the government encouraged this expansion. It would seem however that these two countries now have the lowest average occupancy levels among the subject countries, although within

Italy, some areas are still achieving high levels of occupancy.

The table below shows the average cold store occupancy levels in each of the countries during 1977/78.

Table 5.
Average Occupancy Levels 1977/78

| <u>Country</u> | <u>% utilisation</u> |
|----------------|----------------------|
| Belgium | 75 |
| France | 63 |
| Denmark | 73 |
| West Germany | 82 |
| Ireland | 70 |
| Italy | 65 |
| Holland | 73 |
| UK | 80 |

Source: Trade associations; EIU estimates.

In considering the above utilisation levels it should be remembered that most store operators do not consider it feasible to operate at 100 per cent capacity and regard 90-92 per cent as being the maximum attainable.

3. THE INTERVENTION BODIES

a. Methods of operation

Regulations made by the Council and the Commission of the EEC under the Common Agricultural Policy, require that each member state establishes a body responsible for the policy's implementation. Each of the subject countries does indeed have an organisation charged with the responsibility for conducting and administering the market intervention schemes. However not all of these organisations are quite the same, nor do they all operate in the same way -even though they are all implementing the same general policy.

Although in each of the countries it is the Ministry of Agriculture which has overall responsibility for intervention activities, in France and Italy the Ministries have set up autonomous departments of the Ministry especially for this purpose, while in UK and in Germany, public corporations with corporate status have been established under the supervision of the Ministry of Agriculture. In the other four countries the intervention departments are all directly within the Ministries of Agriculture. Some of these organisations are staffed entirely by civil servants, but notably in France and Germany there are boards of management comprising representatives of producers, consumers and the meat or dairy industries.

Another difference exists in the way in which the activities are organised. For example in Denmark, Belgium, Holland Germany and the UK, beef, butter and other intervention products are all dealt with by the same organisation, while in France there are separate specialist departments for each product. This would also appear to apply in Italy and Ireland too - although in the latter two cases there has not, at the time of writing, been any intervention in butter.

The various organisations also differ in the way in which they actually carry out the operations in their markets. Some of the intervention bodies undertake all the operations of buying, inspection, negotiations, etc themselves, while others choose to use other organisations to control the physical activities.

In France, Denmark, Italy and the United Kingdom, the intervention bodies only undertake the administrative and financial control of intervention activities, and use intermediaries to control the physical operations. In Italy and Denmark they in fact use producers' organisations, France uses a mixture of specialist organisations and in the UK activities are carried out by various departments of the Ministry of Agriculture.

However probably the major difference between the various intervention bodies exists more in their attitude towards the cold stores than in their internal structure. In Holland, Denmark and Italy, when the intervention boards wish to store goods, they negotiate terms directly with each individual cold store. In the other countries the intervention body negotiates tariffs with the national cold storage association, and these rates then apply to all beef and butter placed in any store in that country.

In effect, the Italian, Danish IB's are regularly able by virtue of their powerful position vis-a-vis individual store operators, to obtain storage at rates well below prevailing commercial rates. In Holland, although the IB negotiates with the national cold storage association, it also negotiates storage rates directly with individual stores and thus often obtains advantageous terms.

This practice in Holland and Denmark is defended on the grounds that any profit on storage accruing from the difference between FEOGA payments received for beef and butter, and payments made to the cold stores, goes to make up losses incurred by the IB on other products. In Italy it is in fact the intermediary - the producers' association - used by the intervention body which makes the profit. This they claim, is to cover the administrative costs of carrying out the intervention programme.

The other intervention bodies which negotiate rates with the trade associations, do so because they consider that having fixed rates simplifies administration, speeds up allocation of goods to stores and ensures that in times of tight supply of space, that they will be able to put goods into store at reasonable prices.

b. Demand by intervention bodies

In some countries the volume of space taken up by the intervention bodies is significant, and in others intervention stocks are but a minor addition to the normal flow of traffic through the cold stores.

The following table indicates for each country an approximation of the total share of refrigerated (-15°C and below) space occupied by beef and butter bought by the intervention bodies in 1978/79.

Table 6. Share of Total National Refrigerated Storage Occupied by Intervention Stocks

| <u>Country</u> | <u>% of total</u> |
|----------------|-------------------|
| Belgium | 10 |
| Denmark | 8 |
| France | 20 |
| Holland | 10 |
| Italy | 10 |
| Ireland | 40 |
| UK | 4 |
| West Germany | 25 |

Source: EIU estimates.

While the above figures must be regarded with some caution, firstly because they are approximations, and secondly because of the sporadic nature of intervention board activity, they never-the-less give some perspective to the relative importance of intervention boards as a source of business for cold storage operators.

However even though the intervention board in a given country represents only a small percentage of the total business over all, the board can provide very substantial business for an individual cold store operator. In times of over-capacity this is even more true, and the board's position becomes correspondingly stronger in negotiation with the store.

c. Services required

As reported earlier, the public cold stores can and do provide a range of supplementary services in addition to the actual storage of goods. It is unusual for any of the intervention bodies to use these supplementary services, with the exception of freezing tunnels. Indeed this latter facility is essential to the storage of beef quarters.

However, all of the intervention bodies have laid down similar and stringent requirements for temperature levels at which goods are to be stored and they all insist on stores providing adequate facilities for veterinary inspectors and/or quality inspection on the premises.

Perhaps somewhat surprisingly, they appear to have different requirements concerning the separation and segregation of products within the cold stores. While in all countries intervention stocks may not be stored with fish (specifically) or with other odorous goods (generally), in France and Ireland there is a specific requirement that butter must not be mixed with any other product at all. In Italy there is a requirement by the intervention body that each of its consignments of meat be kept separate from other organisations' products and in Belgium intervention products must always be kept under lock and key.

It is clear that the more stringent the regulations on product separation, the more adroit the store operators must be if the creation of "dead" space in the storage cells is to be avoided. In the United Kingdom the intervention body requires that each box of butter must be accessible within the store for inspection and quality control purposes and this adds to the problem of "dead" or unutilised space in the cold chamber.

None of the intervention boards reserves space in advance, nor is space reserved for any specific length of time once goods have been put in store.

4. PRICE STRUCTURES OF THE COLD STORAGE INDUSTRIES

a. Price control

Although in some of the countries there has in the past been some control of prices charged for cold storage, the control has been exercised by government departments concerned with prices generally. This control however, has been concerned with setting upper limits only, and in practice prices in all of the countries are effectively controlled by market forces only.

b. Commercial and intervention prices

Because of the intensity of competition, a great deal of secrecy is maintained within the industry, in all countries, about the prices paid by commercial users of cold stores.

Although some of the major cold stores publish price lists, this is by no means common, nor does it happen at all in some countries. Even where price lists are published, these tend to signal the starting point from which the storage company will begin negotiations downwards with its customers, and certainly should not be accepted as the prevailing market price.

Even major commercial users of public cold stores will not reveal what they are paying for storage and services, for fear of giving information to their own competitors in their particular fields. This seems to be one of the side effects of the nature of the "special deals" which are very common, including granting of volume discounts, provision of additional services without extra charges, etc.

In fact, because most of the arrangements made between the suppliers of space and their commercial customers are the result of negotiation, it can be misleading to compare prices between deals. It is sometimes found that in one instance the handling charge applied in one agreement is greater than in another, with the storage rate in the first contract being lower than in the second. It would appear therefore that both the store operator and the commercial customer tend to look at the total "package" rather than its individual elements.

There is no way therefore, to determine the real prices being paid by major commercial users of cold stores. However from its discussions with both both store operators and with commercial users, the EIU believes that comparison of prices paid by intervention bodies with rates paid by large commercial users of public cold stores would show that the following is probably the case in each country:-

| | | |
|----------------|---|--------------------------------|
| France | } | Higher than commercial rates |
| United Kingdom | | |
| Germany | } | Approximately commercial rates |
| Holland | | |
| Belgium | | |
| Ireland | } | Lower than commercial rates |
| Denmark | | |
| Italy | | |

The conclusions expressed above are somewhat tentative. There is however some evidence to sustain the views expressed.

In the United Kingdom, comparison of IB rates with quoted list prices show the former to be some 10 per cent higher. Since most list prices are maximum prices, it is probable that large commercial users obtain reductions on the quoted prices. It is safe to conclude therefore that the IB's are indeed paying a higher rate.

In France, while the rates paid by the IB are below "list" price, we have had many reports of commercial contracts at rates far below those paid by the intervention body. Given the overcapacity which exists in France -it has the lowest occupancy rates in the EEC - commercial users are in a position to negotiate very low rates. Additionally, there seems to be an acknowledgement in France that intervention rates rightly should be higher than normal commercial rates because of the sporadic nature of intervention business.

Germany enjoys a very ordered and balanced market - with a close working relationship between the cold storage association and the intervention body. While the intervention body pays prices somewhat lower than those indicated in commercial prices lists, these probably are in line with rates negotiated by the larger commercial users.

In Holland, the prices paid by the intervention body have not increased - in the case of butter-during the last 10 years, and in the case of beef, for 4 years; they cannot therefore be considered high. Given that a very competitive situation exists, and that there is substantial storage overcapacity, the big commercial users also must be trying to obtain similar rates to those paid by the intervention bodies. It is likely therefore that prices are broadly in line.

In Denmark and Italy, the intervention bodies negotiate directly with the stores and aim to make profits to offset losses incurred in other areas. This fact, together with the views expressed by store operators, leads to the conclusion that the intervention bodies are obtaining full advantage from their position as major sources of business.

Because the intervention boards in Ireland are responsible for giving the storage industry at least 40 per cent of the latter's business, they are in a powerful negotiating position and probably command greater strength than any individual commercial user of cold stores. The views expressed by EIU informants in Ireland also suggest that IB rates are rather lower than commercial rates.

Belgium presents a particularly difficult judgement because the intervention body has two different rates - one which it pays to the state-owned Refribel company and a second, lower rate which it offers to all other cold stores. On balance however we believe that the Obea rates probably straddle the commercial rates, with Refribel being near the top end of the commercial scale and the other operators receiving the minimum rates paid by their big commercial customers.

5. COST STRUCTURES OF THE COLD STORAGE INDUSTRIES

This chapter of the report will attempt to analyse the costs of operation of the respective cold storage industries. However it is appropriate to sound a note of caution before proceeding.

The figures which will be analysed in the following pages have been supplied by the various national cold storage associations at the EIU's request. While some have been prepared in great detail, others represent estimations only, and direct comparison is not always possible or useful. Making comparison even more difficult, the costs have not all been prepared on the same basis. For example, the size of store used as an example by each of the associations is different. Also, views seem to differ as to how much land is required for a given size of store. The most significant difference of all however, would appear to be in the way depreciation charges and interest are calculated.

Because of these differences in presentation, the following paragraphs will tend to highlight anomalies and differences in the respective cost structures rather than to present absolute comparisons.

To facilitate some comparison where possible, and for ease of presentation, all costs will be expressed in units of account converted at the following rates:

| | | | |
|-------|---|-----|--------|
| 1 EUA | = | DM | 2.52 |
| | = | FF | 5.83 |
| | = | L1 | 113.19 |
| | = | BF | 40.15 |
| | = | DF1 | 2.75 |
| | = | DKr | 7.14 |
| | = | UK£ | 0.62 |
| | = | IR£ | 0.67 |

a. Investment costs

Each of the national associations was asked to provide current investment costs for a "typical" cold store in that country. Included in the costs provided were land, buildings, plant and machinery, handling equipment and "other equipment" - e.g. office equipment etc.

Because of the range of prices quoted for land - with vast differences depending upon whether the site was in an urban centre or in a rural area -it was considered prudent to exclude this particular cost from the investment cost calculations.

Leaving out land therefore, and taking into account buildings, refrigeration equipment and other equipment the following pattern emerges:

Table 7. Approximate Investment Costs

| <u>Country</u> | <u>Cost per 100 cu m '000 EUA's</u> |
|----------------|---|
| Italy | 7.2 |
| Holland | 8.2 |
| UK | 8.9 |
| Belgium | 9.9 |
| France | 10.4 |
| West Germany | 11.0 |
| Denmark | 12.6 |

As stated earlier these figures are based on stores of varying sizes ranging from 19000 m³ (France) to 100,000 m³ (Holland). For that reason alone they cannot be considered as totally comparable. However it is interesting to note that Italy (the lowest cost) and Denmark (the highest cost) are based on almost the same size of store - 28,000 m³ and 30,000 m³ respectively. Belgium represents the median with Italy some 26 per cent cheaper and Denmark 30 per cent more expensive.

b. Allocation of investment

Inspection of the way in which the investment is allocated also shows substantial differences. These are particularly related to construction, refrigeration equipment and handling equipment.

Table 8. Allocation of Investment by Purpose
(%)

| <u>Country</u> | <u>Construction & insulation</u> | <u>Refrigeration equipment</u> | <u>Handling equipment</u> | <u>Other</u> | <u>Total</u> |
|----------------|--|------------------------------------|-------------------------------|--------------|--------------|
| Belgium | 62.5 | 12.5 | 15.6 | 9.4 | 100.0 |
| Denmark | 72.2 | 18.1 | 9.7 | - | 100.0 |
| France | 39.6 | 38.3 | 19.8 | 2.3 | 100.0 |
| Holland | 56.0 | 28.0 | 16.0 | - | 100.0 |
| Italy | 45.8 | 25.0 | 24.8 | 4.4 | 100.0 |
| UK | 47.4 | 31.6 | 21.0 | - | 100.0 |
| West Germany | 67.2 | 20.1 | 12.7 | - | 100.0 |

Source: Submissions by National Associations.

It is clear from Table 8 that the allocations of investments by purpose are very different from country to country. If the stores were very different this might be expected. However, these are notional costs for new stores, and as we have earlier stated, most of the new stores in the countries under discussion are rather similar. Even allowing for the fact that the above proportions relate to stores of differing sizes, it appears that there are fundamental differences in the way equipment is classified.

This is important - particularly if costs are used as a basis for calculating prices of storage, or when calculating profit on operations.

The way in which investment is distributed affects annual depreciation charges to the enterprise. Different classes of assets have different depreciation rates e.g. buildings generally have a longer life than machinery, and therefore a lower annual rate of depreciation. If for example, in one store insulation is included as part of the building it might have a 5 per cent rate of write-off, and in another store it is included with freezing plant as "refrigeration equipment", it will have a faster write-off, probably at 10 per cent. The second store would then appear to have higher operating costs than the first - the difference arising solely from the way it had classified its equipment.

c. Depreciation

We have referred above to the way depreciation can affect stores' operating results and thus also perhaps the prices it seeks to charge.

In the submissions received from the national associations some similarities of treatment of depreciation can be observed, but there are also some striking differences. The following table sets out the rates used in each country as indicated by the national cold storage associations.

Table 9. National Depreciation Rates

| Country | Construction & Insulation | | Refrigeration equipment | | Handling equipment | | Other | |
|----------------------|---------------------------|------------------------------------|-------------------------|-----------------------------------|--------------------|----------|----------|----------|
| | Yrs life | Annual % | Yrs life | Annual % | Yrs life | Annual % | Yrs life | Annual % |
| Belgium | 15 | 6.7 | 10 | 10.0 | 5 | 20 | 5 | 20 |
| Denmark | 20 | 6.0 (10 yrs) 4.0 (10 yrs) | 15 | 8.0 (10 yrs) 4.0 (5 yrs) | 7 | 14.3 | - | - |
| France ^{a)} | 15 | 13.9 | 10 | 16.9 | 5 | 27.1 | 10 | 16.9 |
| Holland | 25 | 4.0 | 10 | 10.0 | 5 | 20.0 | 5 | 20.0 |
| Ireland | 20-25 | 4.0-5.0 | 10 | 10 | 4 | 25.0 | - | - |
| Italy ^{a)} | 15 | 17.94 | 9 | 21.71 | 5 | 30.54 | 10 | 20.69 |
| UK | 40 | 2.5 | 20 | 5.0 | 5 | 20.0 | - | - |
| West Germany | 25 | 4.0 | 10 | 10.0 | 5 | 20.0 | 5 | 20.0 |

a) Both the French and Italian Associations have used the "sinking fund" method of depreciation which also incorporates interest into the calculations. Thus an even higher rate is used than in the "straight line" method used by the other countries. The interest rates used are, in the case of France 11 per cent pa, and in Italy 15 per cent pa.

It can immediately be seen that significantly different lifetimes are ascribed to each of the assets. If these differences are further compounded by different classification into asset categories the outcome of the depreciation charges of two similar stores can be very different. It is possible to indicate the potential scale of difference which could arise, if we use the figures from tables 7, 8 & 9.

Table 7 shows that the mean cost of investment is approximately EUA10,000 per 100 m³. Table 8 indicates that about 50 per cent of this is ascribed to construction, i.e. EUA5,000 per 100 m³, or EUA2 million for the construction of a 40,000 m³ building.

If this investment is depreciated on a straight line basis at 4 per cent - as is done in Holland and Germany which both indicate a 25 year life span for buildings - the annual charge is EUA80,000. If however, it is depreciated over 15 years - Belgium, Italy and France - and again using the straight line method, the annual charge becomes EUA134,000.

The difference between the two lifetimes would therefore produce an apparent difference in operating costs of EUA54,000 per year. If however, some of the insulation materials were in one store classified as "construction", and in another as "refrigeration equipment", the difference becomes even greater as the most common lifetime ascribed to the latter category is 10 years. The disparity would therefore be between charging depreciation at 4 per cent pa and charging at 10 per cent pa - a difference of 150 per cent.

d. Interest

In their various submissions the associations dealt with the subject of interest in differing ways. France and Italy incorporated it in their depreciation calculations, Denmark ascribed it to only part of the funds invested as did the Dutch and German associations, while the British calculations appears to omit this factor altogether.

To permit comparison between the countries we will assume that interest at commercial bank prime lending rate is paid on all the investment

(again excluding land). This is in reality a valid assumption, because if the funds are all borrowed, interest must be paid and if the funds are the company's own, then there is an "opportunity" cost attached which is not less than prime commercial rate.

Table 10 below shows the differences between countries during the second half of 1979.

Table 10. National
Commercial Bank Prime Lending Rates

| <u>Country</u> | <u>Average rate</u> <u>July-Dec 1979</u> % |
|----------------|--|
| Belgium | 13.71 |
| Denmark | 16.62 |
| France | 13.31 |
| Holland | 12.40 |
| Ireland | 15.50 |
| Italy | 16.25 |
| UK | 16.00 |
| West Germany | 8.66 |

Source: World Financial Markets,
Morgan Guaranty Trust, January 1980.

The effect of the difference between these rates is significant when applied to large stores. If we assume a store of 40,000 m³ with an investment cost of EUA10,000 per 100 m³, then the investment (excluding land) is EUA4 million. A difference of 1 per cent on a sum of this magnitude produces significant changes in the stores' operating results.

e. Labour

Once again, because of differences of presentation it is difficult to make direct comparisons between labour costs in the respective countries. The ratio of workers to size of store also varies widely, with for example Belgium quoting 15 operatives and 5 administrative staff in a 40,000 m³ store, and Denmark quoting 33 operatives and 12 administrators in a 28,000 m³ store. These two stores must be presumed to be in rather different kinds of business, with the Belgian store being much less active than the Danish example quoted.

The following table shows approximate costs of labour in each country, inclusive of social payments, holidays etc.

Table 11. Approximate Labour Rates (Inclusive of Social Benefits)

| <u>Country</u> | <u>Average store worker EUA per year</u> |
|----------------|--|
| Belgium | 17,600 |
| West Germany | 15,300 |
| Holland | 14,200 |
| Denmark | 14,000 |
| Ireland | 14,000 |
| UK | 12,500 |
| France | 11,000 |
| Italy | 9,000 |

Source: Submissions by National Associations.

f. Power and other costs

It has not proved possible to identify unit power costs in such a way as to permit comparisons of power rates. This is because in many countries there are a variety of different rates for electricity depending on the time the power is consumed (night rates are often cheaper), maximum demand and total power consumed (bulk discounts etc).

Similarly "other costs" are not given to comparison because of the variety of factors - not all applicable or indeed even identifiable - included in each country's submission.

To give some guide however, we present in the next section the proportion of operating costs ascribed to these two items by the various associations.

g. Structure of total costs

Each of the associations (except Ireland) provided submissions which have permitted the EIU to calculate the relative importance of each cost factor. These are presented in Table 12 below.

Table 12. Breakdown of Total Costs

| <u>Country</u> | <u>% of total cost attri- butable to each factor</u> | | | | <u>Total</u> |
|----------------|--|--------------|------------------------|--|--------------|
| | <u>Labour</u> | <u>Power</u> | <u>Other costs</u> | <u>Interest & depreciation</u> | |
| Belgium | 32 | 12 | 25 | 31 | 100 |
| Denmark | 35 | 9 | 23 | 33 | 100 |
| France | 27 | 5 | 18 | 50 | 100 |
| Holland | 36 | 13 | 7 | 44 | 100 |
| Italy | 23 | 8 | 11 | 58 | 100 |
| UK | 23 | 8 | 28 | 41 | 100 |
| West Germany | 36 | 11 | 14 | 39 | 100 |

Source: EIU calculations.

In the above table the financial charges for France and Italy are presented based on the submissions made by those countries' associations. That is to say that in calculating these charges the "sinking fund" method of depreciating the assets has been used. This explains why these two countries show a higher than usual percentage against this factor.

In the United Kingdom submission no mention was made of interest charges. The EIU has therefore ascribed an interest charge of 12½ per cent pa to the whole of the investment. This is a lower rate of interest than applicable today, but it was applicable at the time the other elements were calculated.

It should be remembered that the above figures show the relative importance of each cost factor within each country and are therefore not directly comparable, country with country.

However there is one feature common to all the countries, and that is the very high proportion of cost which appears to be fixed cost. Although Labour is a variable cost, power and other costs cannot be totally variable costs - it is impossible to freeze only half a cold chamber - and the financial costs do not diminish with lower activity in the store.

This is in accord with the calculations the EIU has been able to make from the revenue submissions made by some of the associations. From these, we have calculated that break-even point is as follows:-

Italy 80 per cent capacity utilisation
France 79 per cent capacity utilisation
Holland 74 per cent capacity utilisation
United Kingdom 68 per cent capacity utilisation
Germany 68 per cent capacity utilisation

France and Italy again have a slightly distorted figure because of their methods of calculation. Allowing for this, it would appear that in general the industry moves into profit at about 70 per cent occupancy.

6. GENERAL REMARKS

In the foregoing chapters we have attempted to describe the cold storage industries of eight countries (Luxemburg having negligible capacity) and to make comparisons between them. Such a comparative exercise is subject to difficulties and pitfalls, and where we have considered it necessary we have expressed some warnings. We would here sound one final warning.

We have throughout the report referred to "a typical store". It must be clear that this term is conceptual only. In reality, there are old stores, new stores, large stores, small stores, stores with fast turnaround of stocks, stores which take in goods for long-term storage and stores which are mixed. Thus any national industry figures must be regarded as indicative estimates and not as absolute standards in themselves.

National institutions also differ. We have referred to "activist" intervention bodies which seek to obtain keen commercial rates so that they may make profits; other intervention bodies are not so motivated. Some national cold storage associations are strong and effective, others fragmented and relatively weaker. In some countries, intervention stocks are a significant part of cold storage traffic; in others, they are less important. In some countries the supply of, and demand for, cold storage space are roughly in balance; in others, supply exceeds demand.

The EIU considers these factors to be not the least in importance in the formation of intervention cold storage rates.

However, as has been shown, the cost structures of the national industries do indeed differ - sometimes significantly. These differences ensue in some cases from real differences in the costs of operational inputs such as labour and finance; other differences are more apparent than real and result from the use of differing accounting practices. Nonetheless, they all affect the calculation of storage prices to be charged to users of the cold stores.

European Communities — Commission

**Cold storage warehousing in the EEC
An Inter-Country Comparison**

Luxembourg: Office for Official Publications of the European Communities

1981 — 36 p. — 21 x 29,7 cm

Series Information on Agriculture — 79

EN

ISBN 92-825-2595-3

Catalogue number: CB-NA-81-079-EN-C

ECU 1,50
FF 8,70
USD 2.10

BFR 60
IRL 1.-

DKR 11,60
LIT 1800

DM 3,75
HFL 4,10

DRA 90
UKL 0.90

The study provides a comparative analysis of the costs of operation of cold store warehouses in the different member states of the European Community, together with an explanation of the main market mechanisms determining the prices for cold storage.

As the report shows, the cost structures of the national industries differ sometimes significantly. These differences ensue in some cases from real differences in the costs of operational inputs such as labour and finance; in other cases differences are more apparent than real and result from the use of differing accounting practices.

The costs of operation of cold stores, although important, are not of themselves the prime determinants of pricing structures within their respective countries. Other factors, such as the role of the industry in the country, the structure of the national industry, market forces, the relative importance of intervention traffic and the strength of the industry trade association each play their part in price formation.

Some or all of the effects of these factors differ from country to country, and while it is not possible to quantify the precise effects of any individual factor in monetary terms, it is considered that they do account at least in part for the different storage charges obtaining in each of the member states.

This study is only published in English

Information on Agriculture

| | | Year | Languages |
|--------|---|------|-----------|
| No. 1 | Credit to agriculture I. France, Belgium, GD Luxembourg | 1976 | F |
| No. 2 | Credit to agriculture II. Federal Republic of Germany | 1976 | D |
| No. 3 | Credit to agriculture III. Italy | 1976 | F I |
| No. 4 | Credit to agriculture IV. The Netherlands | 1976 | E N |
| No. 5 | Map of the duration of the vegetation period in the Member States of the Community | 1976 | F D |
| No. 6 | Models for analysis mixed crop and cattle farms Basic techno-economic data: Schwäbisch-bayerisches Hügelland (Federal Republic of Germany) | 1976 | D |
| No. 7 | Models for analysis mixed crop and cattle farms Basic techno-economic data: South-East Leinster (Ireland), West Cambridgeshire (United Kingdom), Fünen (Denmark) | 1976 | E |
| No. 8 | Provisions on bovine husbandry | 1976 | F |
| No. 9 | Forms of cooperation in the fishing industry — Denmark, Ireland, United Kingdom | 1976 | E |
| No. 10 | The milk and beef markets in the Community — A regional approach for the achievement of equilibrium | 1976 | D E |
| No. 11 | The contribution of the "mountain communities" in Italy to the development of hill farming | 1976 | I |
| No. 12 | The Italian "enti di sviluppo agricolo" (agricultural development bodies) in the structural reform — Adjustment problems and prospects | 1976 | I |
| No. 13 | Markets for fresh lemons and lemon juice in the European Community | 1976 | E F |
| No. 14 | Pesticide residues in tobacco and tobacco products I. General report | 1976 | F E |
| No. 15 | Water content of frozen or deep-frozen poultry. — Examination of methods of determination | 1976 | F E |
| No. 16 | Methods for the detection of the viruses of certain diseases in animals and animal products | 1976 | E |
| No. 17 | Veterinary Vaccines — A comparative analysis of regulations in the Member States for three major diseases | 1976 | E |
| No. 18 | The foreseeable trend in world availabilities of agricultural products and the consequences for the Community I. Wheat, feed grain, sugar — Summary | 1976 | D F |
| No. 19 | The foreseeable trend in world availabilities of agricultural products and the consequences for the Community II. Beef, sheepmeat, milk products | 1976 | D F |
| No. 20 | Forms of cooperation between farms for production and marketing in the new Member States | 1976 | E |
| No. 21 | Objectivation of the bacteriological and organoleptic quality of milk for consumption | 1976 | E |
| No. 22 | Evaluation of the hygienic problems related to the chilling of poultry carcasses | 1976 | E |

| | | Year | Languages |
|--------|--|------|-------------|
| No. 23 | Pesticide residues in tobacco products II. Plant protection products used — Legislation — Methods of analysis | 1976 | F E |
| No. 24 | Practical means for the application of methods of integrated pest control | 1976 | F |
| No. 25 | Forestry problems and their implications for the environment in the member States of the EC I. Results and recommendations | 1976 | D F E |
| No. 26 | Pesticide residues in tobacco and tobacco products III. Pesticide residues found in tobacco — Toxicological aspects of residues in tobacco | 1976 | F E |
| No. 27 | The marketing of imported fruit and vegetables in the EC | 1977 | F |
| No. 28 | Credit to agriculture in the EC Member States — A comparative analysis | 1977 | E F |
| No. 29 | The cost of first processing and packing of unworked tobacco produced in the Community | 1977 | I F |
| No. 30 | Review of pre-slaughter Stunning in the EC | 1977 | E D |
| No. 31 | Forestry problems and their implications for the environment in the Member States of the EC II. Access of the public to forests and their use for recreational purposes | 1977 | D |
| No. 32 | Forestry problems and their implications for the environment in the Member States of the EC III. Position, development and problems of mechanization of stand establishment and timber harvesting | 1977 | D |
| No. 33 | Forestry problems and their implications for the environment in the Member States of the EC IV. State aid for the financing of forestry measures in forests not owned by the State | 1977 | D |
| No. 34 | Forestry problems and their implications for the environment in the Member States of the EC V. Systems of forest taxation and the tax liability of private forest holdings | 1977 | D |
| No. 35 | Projections for the agricultural sector — Forecasts of the trends in farm structures and factor input in agriculture in the EC I. Theoretical basis and analysis of existing studies | 1977 | D |
| No. 36 | The foreseeable trend in world availabilities of agricultural products and the consequences for the Community III. Oils and fats, protein products | 1977 | D |
| No. 37 | Models for analysis mixed crop and cattle farms — Basic techno-economic data: Bassin de Rennes (France) | 1977 | F |
| No. 38 | Determination of the proportion of lean meat on pig carcasses using the Danish KSA-equipment | 1977 | D E |
| No. 39 | Models for analysis mixed crop and cattle farms — Basic techno-economic data: Volvestre (France) | 1977 | F |
| No. 40 | Influence on health of different fats in food | 1977 | E F |
| No. 41 | Models for analysis mixed crop and cattle farms — Basic techno-economic data East-Aberdeenshire (Scotland) | 1977 | E |

| | | Year | Languages |
|--------|--|------|------------------|
| No. 42 | Water content of frozen or deep-frozen poultry — Examination of methods of determination: turkeys | 1977 | F E |
| No. 43 | A prognosis and simulation model for the EC cereals market <i>Part I: Bases, conception of the model and quantification of factors determining supply and price formation</i> <i>Section I: Theoretical bases and conception</i> | 1978 | D |
| No. 44 | A prognosis and simulation model for the EC cereals market <i>Part I: Bases, conception of the model and quantification of factors determining supply and price formation</i> <i>Section II: Development and factors determining supply and cereal producer prices</i> | 1978 | D E |
| No. 45 | Cereals and meat in Eastern Europe <i>Section I: Text</i> | 1978 | D E |
| No. 46 | Cereals and meat in Eastern Europe <i>Section II: Tables</i> | 1978 | D E |
| No. 47 | The spreading of animal excrement on utilized agricultural areas of the Community I. Scientific bases for the limitation of quantities and criteria for rules thereon | 1978 | F N E |
| No. 48 | The spreading of animal excrement on utilized agricultural areas of the Community II. Characterization of the region with intensive animal farming A. Report | 1978 | D |
| No. 49 | The spreading of animal excrement on utilized agricultural areas of the Community II. Characterization of the region with intensive animal farming B. Statistical data: Basic regional data and coefficients | 1978 | D |
| No. 50 | The spreading of animal excrement on utilized agricultural areas of the Community II. Characterization of the region with intensive animal farming C. Statistical data: Regional concentration of animal farming | 1978 | D |
| No. 51 | The spreading of animal excrement on utilized agricultural areas of the Community III. Summary and conclusions | 1978 | N F E D |
| No. 52 | The structural and socio-economic situation and development in the agricultural regions of the Community I. Report | 1978 | F |
| No. 53 | The structural and socio-economic situation and development in the agricultural regions of the Community II. Explanatory annexes and statistical data by major regions | 1978 | F |
| No. 54 | The structural and socio-economic situation and development in the agricultural regions of the Community III. The statistical data for the 376 districts on which the report is based | 1978 | F |
| No. 55 | Possibilities for and constraints on the marketing of fruits and vegetables meeting defined quality standards | 1978 | F |
| No. 56 | System of codification for forest reproductive material A. Text | 1978 | D |
| No. 57 | System of codification for forest reproductive material B. Main Commodity Catalogue | 1978 | D |

| | | Year | Languages |
|--------|---|------|-------------|
| No. 58 | System of codification for forest reproductive material C. Catalogue of Poplars of commercial value, Index of Provenances, Catalogue of Qualities, Index of Tree Species | 1978 | D |
| No. 59 | Gross margins for agricultural products in the Italian regions | 1978 | I |
| No. 60 | Additional Quality standards for chicken and eggs | 1978 | F |
| No. 61 | Microbiology and shelf-life of chilled poultry carcasses | 1978 | E |
| No. 62 | Effects on the environment of the abandonment of agricultural land | 1979 | D F E |
| No. 63 | Agricultural situation and food supply in certain Arab and Mediterranean countries and their foreseeable development I. Trends and prospects by area and by product | 1979 | F |
| No. 64 | Agricultural situation and food supply in certain Arab and Mediterranean countries and their foreseeable development II. Methodological and statistical annexes | 1979 | F |
| No. 65 | Projections for the agricultural sector — Forecasts of the trends in farm structures and factor input in agriculture in the EC II. Analysis and forecasts, empirical results — General part | 1979 | D E |
| No. 66 | Projections for the agricultural sector — Forecasts of the trends in farm structures and factor input in agriculture in the EC III. Analysis and forecasts, empirical results — Report by country | 1979 | D E |
| No. 67 | Water content of frozen or deep-frozen poultry Examination of methods of determination: Guinea-fowls and ducks | 1979 | F E |
| No. 68 | Possibilities of reduction of the quantities of phyto-sanitary products employed in agriculture | 1979 | F |
| No. 69 | Dehydration of green fodder in the EC — Technical and economic study | 1979 | F |
| No. 70 | Development of uniform methods for pig carcass classification in the EC | 1979 | E |
| No. 71 | Water content of frozen or deep-frozen poultry — Comparison of methods of determination | 1980 | E F D |
| No. 72 | The problems of oriental tobacco production in the EC | 1980 | I F E |
| No. 72 | Maps | | |
| No. 73 | Factors influencing ownership, tenancy, mobility and use of farmland in Denmark | 1980 | E |
| No. 74 | Factors influencing ownership, tenancy, mobility and use of farmland in the United Kingdom | 1980 | E |
| No. 75 | Potato products: Production and markets in the EC | 1980 | E |
| No. 76 | Factors influencing ownership, tenancy, mobility and use of farmland in France | 1980 | F |
| No. 77 | A systematic approach to agricultural forecasts 1985 for the European Community of nine | 1980 | E |

| | | Year | Languages |
|---------------|---|-------------|------------------|
| No. 78 | Factors influencing ownership, tenancy, mobility and use of farmland in Belgium and Luxembourg | 1980 | E |
| No. 79 | Cold storage warehousing in the EEC - An Inter-Country Comparison | 1980 | E |

**Salgs- og abonnementskontorer · Vertriebsbüros · Γραφεία πώλησεως ·
Sales Offices · Bureaux de vente · Uffici di vendita · Verkoopkantoren**

Belgique — België

Moniteur belge — Belgisch Staatsblad
Rue de Louvain 40-42 — Leuvensestraat 40-42
1000 Bruxelles — 1000 Brussel
Tél. 512 00 26

Sous-dépôts — Agentschappen :
Librairie européenne — Europese Boekhandel
Rue de la Loi 244 — Wetstraat 244
1040 Bruxelles — 1040 Brussel

CREDOC

Rue de la Montagne 34 - Bte 11
Bergstraat 34 - Bus 11
1000 Bruxelles — 1000 Brussel

Danmark

Schultz Forlag
Møntergade 21
1116 København K
Tlf. (01) 12 11 95

Underagentur :
Europa Bøger
Gammel Torv 6 — Postbox 137
1004 København K
Tlf. (01) 15 62 73

BR Deutschland

Verlag Bundesanzeiger
Breite Straße — Postfach 10 80 06
5000 Köln 1
Tel. (0221) 20 29-0
(Fernschreiber : Anzeiger Bonn 8 882 595)

Greece

G.C. Eleftheroudakis S.A.
International bookstore
4 Nikis street
Athens (126)
Telex 219410 elef gr

Sub-agent for Northern Greece :

Molho's Bookstore
10 Tsimiski Street
Thessaloniki
Tel. 275 271
Telex 412885 limo

France

*Service de vente en France des publications des
Communautés européennes*

Journal officiel
26, rue Desaix
75732 Paris Cedex 15
Tél. (1) 578 61 39

« Service de documentation »

D.E.P.P. — Maison de l'Europe
37, rue des Francs-Bourgeois
75004 Paris
Tél. 887 96 50

Ireland

Government Publications
Sales Office
G.P.O. Arcade
Dublin 1

or by post

Stationery Office

Dublin 4
Tel. 78 96 44

Italia

Libreria dello Stato
Piazza G. Verdi, 10
00198 Roma — Tel. (6) 8508
Telex 62008

Nederland

Staatsdrukkerij- en uitgeverijbedrijf

Christoffel Plantijnstraat
Postbus 20014
2500EA 's-Gravenhage
Tel. (070) 78 99 11

United Kingdom

H.M. Stationery Office
P.O. Box 569
London SE1 9NH
Tel. (01) 928 69 77. ext. 365

España

Libreria Mundi-Prensa
Castelló 37
Madrid 1
Tel. 275 46 55

Portugal

Livraria Bertrand, s.a.r.l.
Rua João de Deus — Venda Nova
Amadora
Tél. 97 45 71
Télex 12 709 — litran — p.

Schweiz - Suisse - Svizzera

Librairie Payot
6, rue Grenus
1211 Genève
Tél. 31 89 50

Sverige

Librairie C.E. Fritzes
Regeringsgatan 12
Box 16356
103 27 Stockholm
Tél. 08-23 89 00

United States of America

European Community Information Service
2100 M Street, N.W.
Suite 707
Washington, D.C. 20 037
Tel. (202) 862 95 00

Grand-Duché de Luxembourg

*
**

Andre lande · Andere Länder · Άλλες χώρες · Other countries · Autres pays · Altri paesi · Andere landen

Kontoret for De europæiske Fællesskabers officielle Publikationer · Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaften ·
Υπηρεσία Έπίσημων Εκδόσεων των Ευρωπαϊκών Κοινοτήτων · Office for Official Publications of the European Communities ·
Office des publications officielles des Communautés européennes · Ufficio delle pubblicazioni ufficiali delle Comunità europee ·
Bureau voor officiële publikaties der Europese Gemeenschappen

L-2985 Luxembourg - 5, rue du Commerce · Tél. 49 00 81

ECU 1,50 BFR 60 DKR 11,60 DM 3,75 DRA 90 FF 8,70 IRL 1.- LIT 1800 HFL 4,10 UKL 0.90 USD 2.10



OFFICE FOR OFFICIAL PUBLICATIONS
OF THE EUROPEAN COMMUNITIES

ISBN 92-825-2595-3

L-2985 Luxembourg

Catalogue number: CB-NA-81-079-EN-C