# Agriculture and Co-operativism, a Persistent Duality: The Case of Denmark

by
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## Abstract

The paper argues that co-operativism in Danish agriculture represents both continuity and strong changes from the start of the movement as the economic branch of a comprehensive social and political movement to the large agro-industrial enterprises of today, and that co-operativism still is a necessary tool for both large scale production and for innovation within the agro-industrial sector. After a short description of the role of co-operative thinking and organising in the Danish context historically, the paper presents a statistical overview of the current position of co-operative societies in Danish agriculture on the background of the structural changes that have occurred in primary agriculture and agro-industry during the last generation and a half. The third section presents historical conditions and experiences of co-operativism that have paved the way for the characteristics of the current relation between agriculture and co-operativism. Finally, challenges to this relation are discussed in the context of market trends within the established sectors and new areas of agricultural activities – using the example of organic production.

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## Co-operativism in the Danish Context

When we speak of co-operativism in agriculture in Denmark we are dealing with a way of thinking and a praxis that has developed over the past 120 years. The co-operative movement within the agricultural sector was in its beginning part of a much more comprehensive militant social movement among the peasants and other poorer rural sectors[1] that were fighting for political influence and economic and social improvements. Several of the institutions of Danish society that were established in this period, after constitutional monarchy had been introduced, bear the mark of cooperative thinking. The other big social movement of the late 19th century was the workers' movement in the towns. Both movements took up co-operative organising in various forms[2].

Denmark is one of the societies that never got a specific co-operative law[3]. This means, among others, that, as opposed to e.g. Spain, France, and Italy, the 'social economy' is not a recognised[4] economic sector. Even so, historically, the economical and social influence of the co-operative ideas has been substantial in the society, and to such an extent, that it has been argued that co-operative praxis and principles became so embedded as a cultural behavioural phenomenon that this was reflected in public policies as well as the praxis of other sectors of society. Furthermore, this has become a cultural feature of certain private sector business systems (Whitley and Hull Kristensen, 1995). Co-operatives have, beyond

1 The 1787 law of abolition of landlords' slavelike rights on peasants initiated a series of land reforms during the next 50 years, involving redistribution of communal village land and peasants acquiring ownership of their land, as wells as a comprehensive modernization of methods of cultivation. At the social and political level a movement grew among peasants and reformists demanding political influence. In 1849 the absolute monarchy collapsed, and became a constitutional monarchy, which granted the right to vote to all debt free men above 25 years. This was at a time when Europe was marked by social revolutions (1789, 1830, 1848), but in the case of DK the social unrest was canalized into reforms and political influence.

2 The co-operative ideas were so much embedded in their practical manifestations and respective social movements that Danish vocabulary to this day uses three different terms when speaking of co-operatives, thus distinguishing whether they are farmers' co-operatives (andelsselskaber), workers' co-operatives (arbejderkooperationen), or consumers' co-operatives (brugsforeninger).

3 United Kingdom is another example. Nonetheless, in DK it is still very simple to start a co-operative and have it registered as an enterprise. In order for the special co-operative company tax legislation to apply, though, there has to be at least 10 members.

4 The term is not a part of the political discourse, so in a Danish context 'social economy' is a barely recognised theoretical concept more than a platform for social, political and/or economic action.

agriculture, historically had considerable economic and social importance within the energy sector (water and electricity), daily consumer goods, mutual societies of insurance, and savings and credit. The first agricultural co-operatives in Denmark were created in the 1880's, and the present day ones are an uninterrupted continuation of the same movement, although VERY different from the co-operatives of that time.

**General data on Denmark 2002**
Population: 5,300,000.
Surface: 43,000 $km^2$; Coastline 7,300 km; Highest point: 173 metres above sea!
Capital: Copenhagen: 1,100,000 inhabitants; Population density: 125 pr. $Km^2$.

Total number of farms in 2002: 50,331;
Farms with permanent staff employed: 23%
Average size of farm: 55ha;
Farms authorized for organic production in 2002: 6.6%

The paper argues that *this co-operative culture has been a vehicle in paving the way for the current strong concentration of the farmers' owned part of Danish agro-industry into today's large companies within meat and milk products.*

The paper also argues *that co-operative organisations and ideas continue to be an important feature of Danish agriculture, not only in the large monopolistic agro-industrial enterprises, but also as a tool of co-operation for the new groups of specialised farmers, and interest groups involved with developing new market opportunities*.

However, using the example of the growing sector of organic producers and consumers, it is argued *that co-operative organising in its various forms within the agricultural sector, at the present time, has changed to become a rational and useful economic tool for particular interest groups. It is not imbedded in the broader context of a social movement as was the case in earlier time.*

## Danish Agriculture - Structural Change Since the 1960s

Danish agriculture has changed radically compared to a generation ago. This goes for primary agriculture, as well as for the organisational set-up around the farmers and for the Danish agro- industry, where the farmer co-operative structures still are

the dominating entities, although very different from 30 years ago. The general pattern is a process of concentration in fewer units, specialization, and bigger units of production. In agro-business concentration has meant that the two co-operatives *Arla Foods* and *Danish Crown* have become companies with a monopolistic position on the domestic market within dairy products and pork meat. To illustrate this trend to concentration, I shall present some statistical data.

*Primary agriculture*

Concentration of farms

The number of farmers and of farms (or holdings) has decreased drastically, from almost 150,000 units in 1970 to 50,000 in 2002, and this trend continues. Some estimates predict that 20,000 farms will disappear over the next 5 years. Until around 1960, legislation protected the farm unit[5]. Farms could not be merged. So the number of farms and small landholding has been very stable from the time of the constitution of the independent farmer owner after the land reforms in the 19th century and up to 30 years ago. Table 1 also shows that the farms have become bigger. Farm units of more than 100ha are now the fastest growing category, and 35% of the farms have more than 50ha land compared to 6% in 1970. The bulk of Danish agricultural products have for many years been produced and developed by what is called the small and medium sized *family holding*[6]. In 1970, family holdings still comprised 60% of all units and the average farm size was 21ha. Today the bulk is the big farms, and the average farm size is 55ha.

5 Legislation that relates back to the 19th century's land reforms to protect smaller farms against being bought up by land estates.

6 The basic idea of the land reform was redistribution of the common village land in order to concentrate sufficient land around one farm to feed a family, and offer it for the peasants to buy. The concept of *family-holding* thus became the central reference of the middle sized farm and the social backbone in the farmers' co-operative movement. The other large social group in the rural areas was *the cottagers,*whose small plot of land made it necessary to work for others. However, around the turn of the 20th century a political movement created the basis for *small landholding (husmandsbruget) of the cottagers*. The co-operative system with free access for all producers created the basis for this sector to be able to get into the money-economy and process and commercialize the products from their cattle, poultry, and pigs.

**Table 1: The development in number of holdings in Danish agriculture 1970-2002**

| **Number of holdings in DK** | **1970** | | **1985** | | **2002** | |
|---|---|---|---|---|---|---|
| Farms below 10 ha | 44,038 | 32 | 18,224 | 20 | 9,640 | 19 |
| 10-19 | 43,589 | 31 | 24,051 | 26 | 9,752 | 19 |
| 20-29 | 25,036 | 18 | 17,284 | 19 | 6,256 | 12 |
| 30-49 | 18,868 | 13 | 18,490 | 20 | 7,369 | 15 |
| 50-99 | 7,055 | 5 | 11,335 | 12 | 9,880 | 20 |
| 100- | 1,611 | 1 | 2,789 | 3 | 7,624 | 15 |
| **Total no. of farms** | **140,197** | **100%** | **92,354** | **100%** | **50,531** | **100%** |

Source: Statistisk Årbog 2003: 288-289; 1987; 1977: table 66.

Ownership – sole proprietorship

The dominating type of ownership in primary agriculture continues to be sole proprietorship, although the relative share of sole proprietorship has dropped from 95% of all farms in 1980 to 88% in 2002. The average farmer-owner is 51 years old, and most farmers are around 27 years when they begin as independent farmers. But it has become increasingly difficult for young farmer to take over the bigger farms. They do not have the necessary capital, and the statistics show that there is a small change towards more partnerships: 8% of all farms today against 4% 20 years ago. During the last 10 years Dutch farmers have profited from higher land prices in the Netherlands and have bought bigger size farms in DK.

**Table 2: Development in ownership forms for holdings in Danish agriculture**

| | 1974 | | 1985 | | 2001 | |
|---|---|---|---|---|---|---|
| **Type of Ownership** | **number** | **percent** | **number** | **percent** | **number** | **percent** |
| Sole proprietorship | 147,367 | 95 | 124,309 | 92 | 48,032 | 88 |
| Partnership, limited partnership | 5,478 | 4 | 7,437 | 6 | 4,516 | 8 |
| Joint-stock company | 363 | - | 271 | - | 600 | 1 |
| Private (close) company | - | 0 | 767 | 1 | 1,104 | 2 |
| Co-operative society | 430 | - | 384 | - | 53 | - |
| Fund, foundation | 1,146 | 1 | 1,428 | 1 | 200 | - |
| Other ownership | - | 0 | - | 0 | 184 | - |
| ***Total*** | ***154,764*** | ***100*** | ***134,596*** | ***100*** | ***54,689*** | ***99*** |

Source: Statistisk Årbog: 1974 and 2003.
Note: This table includes also fishery and mining. These sectors make up about 1/3 of the total number of units.

Specialization of products

The other two trends, in parallel to the changes in size and ownership structure, are: specialization of the bigger farms into one product industry, and the growth of the number of part time farmers on the smaller holdings. The typical pattern in 1970 was a farm (family holding size) that produced both milk and meat and crops. Three quarters of all farms had both cattle and pigs in 1970, today it is less than 10% and about half the holdings do not have animals as products (see table 3). Specialization is the norm including on holdings where large volumes are produced. Milk and meat production methods have undergone big technological changes in primary agriculture and production has increased in absolute volume.

**Table 3: Development of specialization in primary agriculture in DK 1968-2002 (% of farms**

| specialization of animal products | 1968 | 1982 | 2002 |
|---|---|---|---|
| Cattle and Pigs | 75% | 31% | 8% |
| Cattle only | 5% | 22% | 37% |
| Pigs only | 10% | 23% | 7% |
| None | 10% | 24% | 48% |

Source: *Danish agriculture before and now*, p. 8 Landbrugsrådet 2004.

Increased production and increased livestock

Together with this change in specialization where only 8% of farms in 2002, against 75% in 1968, have mixed composition of animals, and almost 48% have ceased to have pigs and cattle, there are also changes in the numbers of the livestock kept. From 1960 to 2002 the total number of pigs on Danish farms has gone from 6 million to 13 million. The livestock of an average pig-farmer was 1,084 animals in 2002. This compares to 36 animals in 1960! The total volume has also increased. It has been estimated that the annual output of animal products could satisfy the needs of 15 million people, or 300 people per farm! (Landbrugsrådet 2004a).

Another piece of evidence about the concentration of production is the fact that 8% of the pig farmers deliver 40% of all pigs for slaughtering. A similar development has happened for milk farms. In 1980 70% of all milk farms had up to 50 milking cows. In 1997 their share had fallen to 30% and the share of milk farms with more than a 100 milking cows has increased 19%.

Use of the land:

The main products are: Grain (60%), grass and green fodder (30%), beats and beans (4%) and other products (5%). Grass and green fodder takes up relatively more space today than 20 years ago.

Organic production

During the last 10-15 years there has been an increase in the number of farmers that have moved to organic production. 3,595 holdings (or 7% of all holdings) were authorised as organic holdings in 2002. The average farm size was 48ha, and 10% of all delivered milk in 2002 came from organically fed cows.

Income

The average annual net income for farmers can vary quite considerably from year to year as market prices vary, thus full time holdings showed a net income of 132.000 Dkr in 1992, 234,000 DKr 3 years later, and 123,000 Dkr in 2002. Subdividing this figure it shows that net income for crop producers was 106,000 Dkr, 175,000 Dkr for livestock producers, and only 31,000 Dkr for pig producers, as prices for pigs have been unusually low the last couple of years, and interest payments are high in agriculture (see table 4).

**Table 4: Income on full-time holdings be type of production 2001**

| **Full-time holdings** | **Arable** | **Cattle** | **Pigs** |
|---|---|---|---|
| Number of full-time holdings | 4,000 | 7,500 | 5,900 |
| Gross output (1,000 Dkr per holding) | 1,837.4 | 2,016.1 | 3,337.5 |
| Costs | 1,315.0 | 1,458.0 | 2,797.8 |
| Gross profit | 522.4 | 558.1 | 539.7 |
| Interest payments | 416.7 | 382.8 | 508.5 |
| Net income from agriculture | 105.7 | 175.3 | 31.2 |

Source: *Danish Agriculture before and now.* Landbrugsrådet 2004:21

Falling rate of added value in primary production

Economists calculate the rate of value added, understood as the relative share of labour in the total production value[7]. For 1994 the total value of primary agriculture was estimated to consist of 60% input and 40% value added. Comparing with a similar calculation for 1951 it shows that there has been a drastic fall in the share of labour (or added value) in the production value. In 1951, before the industrialization of primary production, 'bought input' constituted 15% of the value of a piece of product, the remaining 85% being 'labour' (Ingemann, 2001:11). A corresponding calculation of the production value for manufacturing generally in Denmark was carried out which showed that in this sector the rate of value added had increased and was 45-50% in 1994 due to the use of more qualified labour.

7 The reported data are results from the Agricultural-Economic Research Project in Aalborg University led by Jan Holm Ingemann.

Today, primary agriculture and agro-industry employ 6-7% of the labour force, as compared to 24% in 1951, the volume of production for both sectors has doubled in the same period (Ingemann, 2001:13).

In short, although the core products have remained unchanged, the picture that this presentation leaves is one of a primary agriculture where the conditions of production have undergone an impressive change during the last generation with regard to practically all the described dimensions. There has been a strong concentration and specialization of the farm units, a depopulation of the sector and an impressive increase in total production and economic output.

*Agro-industry - co-operatively owned*

Vertical integration with primary agriculture

The general characteristic for Danish agro-industry is its high *degree of vertical integration with primary agriculture* through the farmers' co-operative movement and its related institutions and organisations. We can speak of both an agro-industrial and an agro-political complex run by the farmer co-operative movement (Ingemann 2001:6). The co-operative financial and democratic principles have been used for more than a century as the basis for most of the enterprises within manufacturing, distribution and marketing of products stemming from agriculture, as well as for the enterprises providing input to primary agriculture. The co-operative farmers' movement had and continues to have a very big influence in Danish agro-industry.

Table 5 gives an overview of the market share of selected agricultural products in 2002-03. The general trend during the last generation for the farmers' co-operatives has been one of gaining more weight within the sector of meat and milk products, while it has retreated somewhat in other sectors. These two sectors, meat and milk, increased their relative position within the co-operative agro-industrial complex, and they have increased their importance in the sector generally. Volume is large, and the co-operative sector dominates in most of the sectors mentioned with relative shares from just above 50% to close to 100% of the market in the first part of the value chain as appears.

Supply and processing of the co-operative sector

Table 6 below gives an overview of the agricultural co-operative sector and its annual turnover as presented in the annual report from the National Confederation 'Danske Andelsselskaber'. The table shows the number of producer members and the turnover of each product at the level of the federation and for the main companies involved. Today most sectors have centralised into few cooperative companies with an oligopolistic if not a monopoly position on the domestic

market. It is a process that has been completed during the last 10 years. To be more specific, the co-operative dairy plants currently receive 97% of all delivered milk from Danish farmers (see table 5). In 1990 this percentage was 92%. Today, there are 42 dairy companies, compared to 1,350 co-operative dairy societies in 1960, but with an absolute dominance of one company, *Arla Foods* (see section 4). The number of co-operative slaughterhouse-companies has dropped from 77 in 1962 to 2 in 2002. The poultry sector, grain trade, feeding stuffs, and fertilizer supply have also been rationalised and centralised considerably.

**Table 5: Market share of co-operative societies in Danish Agriculture (members of Danske Andelsselskaber) 2002-2003**

| Product | Market share |
|---|---|
| Animal based fodder - bonemeal production | 100% of raw material in Denmark |
| Milk and milk products | 98% of production of butter |
| | 97% of milk intake from Danish farms |
| | 88% of production of cheese |
| Fur | 97% of fur turnover |
| Starches (potatoes) | 90% of production |
| Pigs | 89% of produced pork meet |
| Wholegrain and farm supply | 80% of wholegrain and farms' supply trade |
| Seeds - clover and grass | 75% of production |
| Cattle | 59% of cattle slaughtering |
| Eggs | 58% of deliveries |
| Fruit and vegetable | 30% of turnover |

Source: Hansen et al.: *Andelsledelse.* 2004:47.

**Table 6: Number of producer-members and turnover of the agricultural co-operatives organised in the Danish Federation of Co-operatives (Danske Andelsselskaber) 2002, at the level of the federation representing each product sector, and the main companies**

| Sector | Member of coops/ producers | Turnover Parent company (Mill. Dkr) | Turnover Corporate (Mill. Dkr) |
|---|---|---|---|
| **A. Dairy sector** | **-** | **28,415** | **39,441** |
| *Arla Foods* | *7,103 i)* | *25,751 ii)* | *39,441* |
| *Andelsmør (Lurpak butter export)* | *4 v)* | *2,216 iv)* | - |
| **B. Bacon factories, Cattle slaughtering** | **-** | **28,191** | **46,082** |
| *Danish Crown* | *22,734* | *25,392* | *42,867* |
| *Tican* | *786* | *1,574* | *2,224* |
| **C. Farm supply** | **-** | **15,008** | **18,293** |
| *DLG* | *23,010* | *7,979* | *11,342* |
| *Den lokale Andel* | *22,000* | *6,745 iv)* | *6,745 iv)* |
| **D. Other agricultural sectors** | **-** | **4,993** | **6,253** |
| *Eggs ( Danæg)* | *93* | *216* | *442* |
| *Furs (For.af Danske Pelsdyravlere)* | *2,375* | *3,019* | *3,497* |
| *Seeds (TLF-Trifolium)* | *3,720* | *732* | *1,284* |
| *Starch (Danske Kartoffelmelsfabrikker)* | *1,795* | *683 iv)* | *683 iv)* |
| *Vegetables and fruit (GASA)* | *140* | *339 iv)* | *339 iv)* |
| Wholesale (*Greenmarket of Copenhagen)* | *190* | - | - |
| **A-D: TOTAL Danish Agriculture** | **-** | **76,605** | **110,061** |
| **E. Insurance and pension** | | **7,367 iv)** | **7,367 iv)** |
| **F. Oil, gasoline (***(O.K.)iii)* | **19,500** | **2,798** | **3,253** |
| **G. Credit and saving** *(Danske Andelskasser)i* | **52,000** | **7,008** | **8,227** |
| **TOTAL Turnover Co-operatives organised in Danske Andelsselskaber** | **-** | **93,778** | **128,908** |

Source: *Danish Agriculture Before and Now*. Landbrugsrådet 2004:32.

Notes:
'Corporate' or 'group' comprises parent company and subsidiaries.
i) Danish members (farmers);
ii) Turnover in Denmark and Sweden;
iii) The federation is the company.
iv) Group turnover = Parent company turnover.
v) Members are other dairy coops.

Employment effects of agriculture

The National Co-operative Confederation (Danske Andelsselskaber) traditionally calculates its contribution to the social and economic development. An example is to show the occupational effect both in primary agriculture and in the manufacturing food sectors of the farmers' movement. With a national labour force of 2,208,000, the agro-industrial sector occupied about 8% of the labour force in 2002. There has been a small decrease in the number of employed of some 7,000 during the last 10 years. The main part of the decrease has happened in the primary sector and basically because of the decrease in the number of farmers because of the concentration into bigger and fewer farm units (See table 7 and 1). The process of outsourcing manufacturing has not yet shown an effect in the employment statistics. However, this is an increasing characteristic of the Danish agro-industry of the latest years.

**Table 7: Occupational effect of agriculture in Denmark; number of people working within agriculture, agro-industry, and related sectors: 1990-94 and 2002**

| Sector | 1990-1994 average | 2002 |
|---|---|---|
| *Primary agriculture (except mink and other fur farms)* | *99,100* | *61,600* |
| *Vegetables (gardening/horticulture?)* | *11,800* | *10,500* |
| **Total number of workplaces in primary agriculture** | **110,900** | **72,100** |
| *Agricultural services* | *5,600* | *6,500* |
| *Slaughterhouses and manufacturing of meat products* | *24,200* | *22,800* |
| *Dairy plants and milk products* | *10,700* | *9,500* |
| *Vegetable and Fruit processing* | *2,900* | *2,400* |
| *Oil and flour mills* | *1,500* | *900* |
| *Sugar factories* | *1,900* | *1,400* |
| *Processing of animal fodder* | *1,200* | *1,000* |
| *Wholesale etc.* | *12,200* | *8,500* |
| **Total work places within agro-industry** | **60,300** | **52,800** |
| **Total occupation in agro-sector** | **171,200** | **124,900** |
| *Other food provision and service firms* | *51,200* | *48,700* |
| *Investments* | *12,500* | *14,700* |
| **Total occupation in the sector** | **234,900** | **188,400** |
| *Of these: number of farmer owners* | *87,800* | *48,300* |
| *Of these: number of employed* | *147,100* | *140,100* |

Source: *Dansk Landbrug før og nu*, Landbrugsrådet 2004:24.

Exports by the co-operative sector – large socio-economic importance

Export of agricultural products was the economic backbone in the Danish industrialization for many years (together with maritime trade). For a country that

has had to import practically all raw materials that do not come from the land[8], the import of foreign currency has been essential for the development of industry and manufacturing. 50 years ago, 2/3 of the foreign currency brought into the country came from export of agricultural products. From the mid 1960s the picture changed and non-agricultural export began to count more. Today agricultural products (primary and processed together) make up 15% of total exports, though the absolute volume of exports of agricultural products has grown. Agricultural exports in 2002 were worth 57 billion Dkr in foreign currency, or 7.6 billion Euros. The value of total exports from Denmark was 405 billion DKr. Today more than two-thirds of the total farm production is exported. 58% of exports went to other EU countries in 2002, of which Germany took 18%, while Japan and the US were the main markets outside the EU.

Another example of the traditional concern of Danish Agriculture[9] for its contribution to society is reflected in the following quote from the publication of Landbrugsrådet where import-expenses of the sector are compared to the export-income: "Agricultural industry's requirements for imported operational materials accounted for 15 billion Dkr, corresponding to 26% of the export income (2 billion Euro). The remaining 42 billion Dkr (5.6 Billion Euros) contributed significantly to payment for imported raw materials and equipment for other industries, as well as for the import of cars and other final consumer goods"(Landbrugsrådet 2004:4).

In short, this section has given evidence of the very strong presence of the cooperative sector in Danish agro-industry and its increased and strong centralisation and the continued great impact of the cooperative sector and agriculture in the Danish economy. In the next section focus will be on the historical elements that contribute to explaining the coexistence of continuity and such important structural changes.

## The Co-operative Movement in Agriculture – Historical Roots and Current Characteristics

Without claiming deterministic relationships, I shall present some historic elements that, in my opinion, constitute some of the specific preconditions for the current relationship between 'co-operativism' and agriculture in DK. One focuses on the

8 The exception to this statement came when the oil fields in the North Sea were opened for exploitation about 25 years ago.

9 "Danish Agriculture" is a usual expression used to cover, in a general sense, the co-operative agricultural sector as well as the interest organisations of the farmers like Landbrugsrådet.

agro-political dimension of the co-operatives, the second on the organisational specificity, the ethics, and values of the farmers' movement, the third on the embeddedness of the co-operative governing structures in the wider farmer culture, and its impact on the larger economic and political decisions of the co-operative business enterprises.

*Agro-industry, agro-political complex and/or co-operative movement*

Economists see the farmers' co-operative movement as a feature of an "agro-industrial complex", this being understood as the chain "from earth to table", i.e. primary production as well as manufacturing, distribution, sales, and marketing. It also comprises research and development, technology, fodder, breeding work, consultancy, as well as analysis and interpretation of market trends. In a historical perspective it thus looks as if the strategy of the agro-industrial complex in Denmark has been about "coordination, and building potential for coordination: Together we are stronger" (Ingemann 2001:9). Continuing this line of thinking the argument is that forms have varied over time, but the guiding line has remained the same: to create coordination that goes from primary production, elaboration and distribution, as well as economic action and political regulation. From this perspective the co-operative model becomes an instrument for creating an agro-*industrial* complex, and creating capacity for coordination that began very early, more than 100 years ago. Moreover, through their political and professional organisations, the farmers also created an agro-*political* complex (Ingemann, 2005).

Taking a sociological and social movement perspective, one can ask whether this also was the strategy of the movement at the time, or rather what we see is the result of a successful struggle for social and economic improvement of the peasants transforming themselves into modern farmers. It happened in organisational and political structures that involved the peasants of the family holdings as a socio-economic group (in cooperation) and, later on, also the peasants of the small landholdings (cottagers) not only as economic agents.

However, the important point to be made here is that these historical roots (and ideals) that became the co-operative movement have been used as guiding line for Danish Agriculture[10] since that time; and that they represent continuity despite the changes of interpretations and adaptations that have subsequently happened.

10 In the very centre of Copenhagen, one finds the building, 'Axelborg', which houses the main office of many of the farmers' co-operative organisations and associations, for some generations, and thus physically manifests the principle of coordination and network of "Danish Agriculture".

Three periods of co-operative development in Danish agriculture

When considering the Danish agricultural co-operative movement historically, it is usual to refer to three periods: The first one runs until 1900 and is often called the "pioneer period" characterised by the start up and positioning of 'family farm' agriculture in the market. The second period 1900-1960 is seen as "The Classical Period" (Christensen 1983, Ingemann, 2001, Bager, 1992), and from 1960 onwards the third is the "Period of Efficient Industrialised Agriculture" (Ingemann, 2001). From an organisational perspective, the latter period can be further sub-divided into 2 periods: the "fusion phase", and the "hybrid phase" (Bager, 1992).

The classical period was about stability and growth, whereas from 1960 onwards the economic strategy has been characterised by expansion through concentration. As already mentioned a sociological reading of the history will argue that the agricultural co-operative movement was integrated into a much wider social movement where its social class basis gained a strong position in society both politically, culturally and economically.

*Organisational specificity, values and ethics*

Besides the development and the economic importance of the co-operative movement, it is essential also to look at its cultural content. This involves examining the prevailing patterns of action and values that come into play when addressing challenges and conflicts within the sector in order to see how they become embedded in the collective culture of a particular group or a social class. The potential for organisational initiatives and cooperation is crucial in determining how a group reacts in the face of constant challenges. The history of the sector helps give an understanding of this cultural dimension.

The co-operative movement – as part of a *social* movement for social and economic independence

When the first dairy plants and later slaughter houses were created by enlightened farmers towards the end of 19$^{th}$ century, this action of organizing the marketing and commercialization of their products was one element of a vast sequence of political, social, economic and cultural activities and organisations that involved the peasant population.

In 1787 the peasants had been freed from ascription to the landlord and could acquire property rights to their village land. So, besides the fight for better economic conditions, the farmers' movement in DK was very much spurred by a wish for independence from the landlords, and from urban merchants. Thus to give an example: credit and saving accounts financed, to a large extent, peasants acquiring their landholding in property, and not loans from the rural or urban upper

class (Svendsen, 2001a and b). The social movement was about raising the life conditions of a social class. The peasants were to become educated for active citizenship. The guiding slogans for the movement can be formulated as follows (Ingemann 2005):

- "Foot under own table"
- "Cooperation is for the common benefit"
- "Heads decide not the herd"
- "You/one can do what you want to do

It is not difficult to see that the co-operative values fit well with those slogans: Economic independence as an individual; to pull together for a common benefit; human equality; one man one vote, and not "one cow, one vote"; and finally, what today is called empowerment, ability to learn and act together (Jakobsen, 1993)[11].

Education for citizenship and democracy

From the 1830s there was much concern about the education and enlightenment of the peasant population. The political climate favoured growing popular influence and a preoccupation with the peasant as a civil society participant. From this concern grew the movement for folk high schools, and agricultural schools for young people. Both schools were typically situated in the countryside and received their students in internship for 2-5 months. The pedagogy was "the spoken word", interest driven studying, learning through debate and curiosity, and it was anti-exam[12].

Within few years there were more than 100 of these schools dispersed over the country. Quite soon it became an accepted element of the general education of the young farmers to attend such a school. This was also reflected back into the co-operative movement. A study has shown that about half the board members in the first co-operative dairies were farmers that had attended a folk high school (Gjelstrup 1979, here quoted from Bager, 1992:159). These youth schools became a strong, empowering element of the new farmers' class. They contributed to a new

11 The co-operative principles of the ICA are (1) Open and voluntary membership - no discrimination because of gender, race, religion, or political affiliation; (2) Democratic control - one person one vote; (3) Limited interest on invested capital; (4) Dividend is paid to members according to activity with co-operative and not investment; (5) Co-operative education of members; (6) Inter-cooperation among co-operatives; (7) Solidarity and commitment to community development. The 7th principle was added at the ICA World Congress in 1995.

12 An important ideological inspiration for these schools came from N.F.S. Grundtvig, who inspired himself in the British university tutorial system and transplanted the idea for the benefit of the peasants' sons in their civil education.

social culture of more debate and more open-mindedness than the ones prevailing in the traditional village and peasant culture[13]. It contributed to the formation of a new farmers' identity characterised by self-consciousness as a social group/class and different from that of the classical dependent peasant of the feudal economy.

*The challenge of the economic crisis and restructuring of production through co-operative organising*

Until 1870's Danish agriculture was organised for production and export of grains (mainly wheat). With the opening up of the world market to American products Danish agriculture fell into crisis. In response, organising co-operatives to process milk and meat from the peasants became the organisational tool, previously lacking, to get the small productions into a scale that could be sold at a good price and with sustained delivery and stable quality. In less than 10 years the farmers managed to get a butter and bacon industry organised for the British market, through co-operatives processing the products of small and medium sized farmers.

Co-operatives for economic independence - commercialisation and marketing

The first dairy co-operative started in 1882 and was soon followed by others: in the next 3 years 80 co-operatives started activity, and between 1885 and 1895 another 595[14] (Christensen 1983). By the turn of the century there were 1,032 co-operative dairy plants. With some 1400 municipalities in the country the numbers of co-operatives approached one in every village municipality of some size.

The first co-operative slaughter house started in 1887. By 1900 the farmers' co-operative movement had established itself with its own bacon factories that had production and export direct to the British market and not through urban merchants, and about half of the landholdings between 5 and 250ha used the co-operative bacon factories (Christensen, 1983). This impressive pattern of co-operative entrepreneurship was financed through independent means. Co-operative credit and saving institutions supplied the main finance, and these were supplied by farmers' savings, and not through institutions controlled by urban merchants or landlords. The box below gives some indications of the degree of economic

13 Internships, and accepting people from the whole country meant living and learning with young people from outside the village. This provided an opportunity for developing a more open mind and bigger horizon. Many of its alumni gained personal maturity and developed a curiosity about new methods of cultivation and production. By having internships for young women parallel to those for young farmers, it also created many cross-country marriages. Folk high schools are still an important part of the Danish non-formal educational system.

14 In 1888 alone: 240 new dairy co-operatives started trading.

independence and self-management as a social group that existed in the peasant population from early on[15].

***Control of the agricultural co-operatives***

**Social origin of board members in the first agricultural co-operatives**
Farmers in the board of co-operatives created in 1888: 85%
Farmers as chairman/president of coops from 1888: 81%

**Origin of financing for new co-operatives**
Financing of new dairy co-operatives between 1882 and 1899: 70% of capital from credit and savings unions.
Financing of new bacon factories between 1887-1899: 70% of invested capital from credit unions and 13% directly from the farmers.

Source: Christensen 1983:102

Summing up, the following five characteristics shall be highlighted:

- The Danish farmers' co-operatives as they were created in the last 15 years of the 19th century were very much embedded within the social movement comprised of peasants (subsequently becoming family-farmers and political citizens), and later also by the cottagers (subsequently becoming small landholdings). In this sense they were also the economic-productive branch of a social movement that had as its central focus: the social, ideological, and economic growth of the peasants.
- In social and cultural terms it meant the creation of a self-consciousness social class of farmers (family and cottagers) different from that of the mentality of the tenant of before the land reforms- In economic terms, it was a strategy of coordination and self-reliance in competition with the private merchants for a direct access to the export market.
- The new co-operatives were largely self-managed by the farmers themselves. This value has carried into present day's praxis where board members in the

15 Co-operative organising can be a part of a humanitarian and even paternalistic policy of 'helping the poor develop', or they can be part of a self-organising movement. The latter became the dominating form in DK. It does not mean that there were not intellectuals involved in the movement. There are several examples of the local vicar or schoolmaster being actively involved. At the time pastoral dwellings were also agricultural units.

big business co-operatives continue to be elected from amongst farmers. Professional board members have in general not gained acceptance[16].

- They constituted a mode of production different from the land estate-agriculture, developing their own distribution system, and they became among others path breaking with regard to quality control at the time, by applying new techniques of agriculture.
- The pattern of constituting co-operatives in Danish agriculture became: one basic product for one co-operative, not the multipurpose type of co-operatives that has been seen in other countries.

*An agro-political movement and knowledge sharing*

An impressive organisational network of political as well as professional, social and agro-technical character was formed for the farmers to be part of parallel to the cooperative organising. With present day terminology one will call it networks for knowledge and information sharing. And it has functioned as such, as well as channels for political and social action as farmers and as citizens.

The farmer as a nucleus for memberships

The pattern of co-operative organisation thus became one co-operative society for each main primary product. This has had consequences for the associational membership activity of the farmers. Up until the 1960s the typical farmer in Danish agriculture would belong to a considerable number of co-operatives and associations. As an agricultural producer he would be a member of a number of co-operative societies related to the processing and commercialisation of his products and for buying inputs for his production:

> As a *producer of meat*, he will be a member of a co-operative slaughterhouse.
> As a *producer of milk*, a co-operative dairy.
> He will be a member of one of the co-operatives for *grain*.
> He will be a member of one of the co-operatives for *fertilisers*.
> He may be involved with the co-operative of *egg and poultry producers*.
> He may be a member of a *potato starch producing coop*, etc.

Moreover, as a professional farmer-agriculturist, he would belong to one of three professional associations, depending on the size of his land (Land estates and big farms, family farms and small landholding). Finally as a consumer, he most

16 Recently a group of retired leaders from large agricultural co-operatives published an interesting analysis of the relationship between management and the farmers' boards confirming this point (Hansen et al. 2004).

probably would be affiliated to the local *consumer co-operative.* To this one shall add the various memberships and participations in local politics and associational life, sports, culture, church, school etc[17].

Through these memberships the farmer gained access to important knowledge and to participation in policy formulation for the profession and for the business strategies of the sector. The function of ***knowledge sharing and development*** that has continued in this system -technically and culturally- should not be under-estimated. I think that it has been central to the commercial and social success of the cooperative enterprises.

The farmers' movement became, what in modern terminology is called, *an agro-political complex* that comprised both the co-operative business societies and the various professional organisations. The latter organised the extensive consultancy service of agro-technical knowledge available to farmers to improve their agricultural techniques and accounting. At the general movement level, the farmer professional associations (Dansk Landboforeninger og Dansk Familielandbrug[18]) became the central entity of meeting across the different co-operative structures. It was their members who served in the different boards of the various co-operatives, as well as in the various committees and agricultural commissions at state or government level, breeding-institutions, and state-experimental farms, advisory bodies, etc.

These different organisational and praxis elements have shaped a culture of debate, information and communication, some critics may at times say persuasion and manipulation, but no doubt, it has created a strong common identity.

*An agro-industrial complex*

With strategies originating in the farmers' interests whenever there was consensus for a strategy this common identity provided the possibility from several sides to pull in the same direction[19]. Generally one can speak of a high level of solidarity, fellowship, and interconnectedness. The result has been a very strong position vis-à-vis the political level in society and good access to the state apparatus. In current

17 Until the municipal reforms of 1970, many rural municipalities were small, about 4-600 inhabitants, and were responsible for taxation, primary school etc.

18 Since January 2003, these two organisations have merged into one association: 'Dansk Landbrug'.

19 The fact that it is possible to see a common strategy within the sector may be read as a harmonious process. This is not the intention. It has been a process of strong, at times opposed, opinions, competition among organisations and tight votes. The struggle between a federative and a one company organisational model of the co-operative organisation (Bager 1992:229-231), and the process of introduction of organic agriculture described in this paper are examples.

terminology, one would say that the farmers' movement generated a very strong amount of 'social capital'. The fact that the farmers who were elected to the various boards also met each other in the context of the professional association created a place of co-ordination and discussion.

The farmers have been able, time and again, to formulate and implement common strategies in Danish society and in the market, thanks to this talent of organisation, tradition, and the dominant position that agriculture had in the Danish economy until the 1960s. And these have been strategies based on farmers' interests. This is exemplified in the following recent quote from the president of the Fur Producers Association when asked, why his sector is having such a degree of commercial success: "It is not the general conditions and political legal frames that is the strength in the Danish fur industry. It is our ability to co-operate in a formal and an informal set of rules[20]."

Wider historical influence of the farmers' co-operative movement and culture – business system

The changes in agriculture shaped the industrialization process in Denmark historically. Many non-food industrial products have been developed from the needs of the agro-industrial sector, both its primary agriculture and its manufacturing part. Thus, many industrial successes have grown out of the needs to service the agricultural-industrial sector, and not least the machine industry for food processing. Machine and tools industry for agricultural and industrial needs have developed in close contact with their customers – the farmers or the food processing plants. There are many examples of innovative energy having borne fruit here to the point where researchers describe it as a characteristic business system (Whitley and Kristensen, 1995). The term 'industrial districts' has been used to characterise this interwoven and cross sector business culture. Although the manufacturing sector is not co-operative in the ownership sense, it has many co-operative features in the cultural and behavioural sense, with extended cooperation and support among smaller artisan and industrial workshops and their customers. It is a sector characterised by an extensive flexible specialization both with regard to the market and technological innovations. It has been used to explain the apparent contradiction between economic efficiency and international business success on the one hand, and being smaller and medium sized enterprises on the other hand. They have developed what has been called 'collective efficiency' (Schmitt and Muscyk 1994) through cooperation.

20 Torben Nielsen quoted in the annual report of the Agricultural Council by Bent Juul Sørensen, May 2004.

## Towards Co-operative Monopolization of Milk and Meat

When the industrialization of the production techniques began in primary agriculture in the 1960s, it produced a differentiation and structural change in the sector, which reflected in a diversification of interests in the agricultural sector. It created tension within the co-operative structures, as they traditionally were built around a group of members with more of less common interests. So, for example, within the sector of pork meat producers basically two groups appeared: the large producers with industrial production on the one hand, and the smaller producers on the other, and they do not necessarily address the same market with the same strategy. The policy of common strategy based on the common interest of the sector gradually has come under strain. It has been a slow process, though, and it has taken time before it has resulted in new organisational entities. This section analyses the process of cooperative monopolization at the Danish market within milk and meet.

Looking at developments in the two main products, milk and meat, we have witnessed an amazing and very interesting process of concentration that has lead to monopolistic situations in both sectors in the domestic market, and to different processes of internationalization or rather of trans-nationalisation, both through merging with co-operatives from other countries (Sweden) and through acquisition (England and Canada).

*Milk – Arla Foods*

*Arla Foods* was created in 2000 as a merger between the Danish MD Foods[21] and the Swedish ARLA. It was the first cross-national co-operative in Northern Europe. Seen from the perspective of MD Foods, it looks like a natural continuation of a strategy that has been pursued for the last 25-30 years (Vedholm, 1995). The farmers of the dairy co-operatives have always had their attention directed towards export, sales and marketing. Now they went a step further to develop the processing of the milk, with special attention on developing cheese production.

Merging through persuasion

The whole process of merging of many dairy co-operatives into one national co-operative dairy enterprise, MD Foods, has happened using the co-operative democratic system, and persuasion. This has been helped by economic problems in the small co-operatives, and at times also by tough competition for members, for

21 MD is a shortening of "Mejeriselskabet Danmark" (Dairy Society Denmark), later MD Foods.

retail outlets – a recent example is excluding smaller new organic co-operative dairies from access to retail shops where Arla Foods delivers.

The merger process of co-operative dairies has taken place over a long period. It started in the 1960s and became more intense after 1970, and was basically completed by the turn of the century. The strategy has been one of growth through concentration of "ownership" and expansion into agro-industry and food processing, especially within the production of cheese. The strategy was established by 4 coop dairies that created a jointly owned company in 1970, Dairy Society Denmark (Mejeriselskabet Danmark) later known as MD Foods, which in December 2000 was merged into Arla Foods (Vedholm, 1995).

The underlying business concept was to gain competitiveness through size, and gain unity through merger that was considered more efficient and competitive than the federative alternative[22]. By the mid 1990s MD Foods was the third biggest dairy company in Europe and number10 in turnover. Globally, *Arla Foods* now ranks among the 20 biggest. In 2002 *Arla Foods* processed 7,241 million kg milk in Denmark corresponding to a proper capital of 8,544 million DKR, and had 17-18,000 employed. For comparison the remaining 45 coop dairies plants and some private ones in DK employed about 300 people, commercialised 236 million kg milk and had a capital of 184 million DKR. (*Andelsbladet* 2004 no.6:119) [23]

*Arla Foods* received over 90% of produced raw milk in DK from 7,103 members (2002). It had a market share in Denmark of about 85% within most dairy products, and a turnover of 9.4 billion DKR, which is about 25% of the total turnover of the whole of *Arla Foods* Corporation. Sweden accounts for another 26% of the total turnover and *Arla Foods* commercialises two thirds of the milk produced and has 6,539 producer members in Sweden (*Arla Foods Annual report* 2001/2002).

*Arla Foods* has a capital basis of about 600,000 DKR per co-operative member. The membership policy with regard to capital investment of new members has been not to require any investment contribution and the capital of the cooperative was kept as a collective account and not as member specific co-operative shares. Members have increasingly expressed their dissatisfaction with this arrangement, and recently the board of *Arla Foods* has decided to introduce members' capital accounts as part of the responsible capital of the cooperative

22 For co-operatives dealing with grain and fertilizer the federative structure been maintained for about half of the sector.

23 In December 2004 the process continued with the announcement of the negotiations for the merging of Arla Foods and the Dutch dairy co-operative Campina. However this was called off in 2005, apparently partly due to difficulties in pairing the different systems of co-operative ownership.

(*Andelsbladet* 2004, no.14:307 and *Andelsbladet* 2005, no. 1:17). The governance system strongly represents farmers, through a system of regional representation, and with an elected board of farmers in the central leadership. Presidency and vice-presidency guaranties both Danish and Swedish representation.

*Meat – Danish Crown*

The other Danish food company ranging among the 20 biggest, globally, is *Danish Crown* – supplying bacon and meat products. This is the result of a process of concentration within the pig producers' co-operatives similar to what has occurred within the dairy sector. From 35 co-operatives 30 years ago (1975) there are now two co-operative slaughterhouses and food processing companies: *Tican* with 3-4% and *Danish Crown* with 93-94% of the market. Private companies process the rest of the market.

The process of internationalisation has been different from the dairy sector. *Danish Crown* has slaughterhouses and production plants in several countries like USA, Germany and Eastern Europe. But they have not merged with other co-operatives across national borders as we have seen in the case of Arla Foods whose membership-group are Danish and Swedish farmers.

*Monopolistic situation in domestic market*

While the two companies are well positioned in the international market, this monopolistic situation in the domestic market has had consequences among primary producers, other industrial actors, and among consumers. The consumers have given up their traditional loyalty to *Arla Foods* products. For the first time in history the consumption of milk from *Arla Foods* has decreased (7%) in DK this year while, correspondingly, the organic dairy plants have witnessed a 50% increase in their sales. Also German products are getting a steadily bigger market share in DK. Ten years ago there was hardly any milk sold in DK that did not come from Danish producers.

The central business idea of these co-operatives has always been, and basically still is to produce standardised products in large quantities and consistent quality. Innovation occurs basically within this concept. The main factor of competition is the price.

The diversification of the farmers' interests is manifested in the creation of professional interest groups and subgroups of, for example, big pork-meat producers, and likewise for milk producers. A new factor in the local market and in the competition in this sector is the introduction of organic grown products to Danish consumers and for export. This will be addressed in the next section.

## New trends of Co-operativism – The case of organic production

Denmark has witnessed a remarkable increase of organically produced dairy and meat products during the last 10-12 years. Lately, however, there has been some stagnation in the growth of this sector. Nonetheless, in 2001, 7% of all the farms (3,270 farms) were cultivated according to recognised organic methods. This corresponds to 6% of the cultivated land (about 165,000 ha) in DK. The average size of a farm is 49 ha (versus 53 for conventional farms).

The proportion of organic farms across product sectors varies. About 10% of all milk delivered to dairy plants in Denmark now comes from organic farms. With regard to livestock, statistics show that in 2001, 21% of the farms having sheep, 8% of those having milking cattle, and 3% of those with pigs were organic farms.

*Organic milk products and cooperativism*

Co-operative organising has been one of the organisational tools used for processing the organically grown milk. Several co-operative dairy plants have been established during the last 20 years. They have not all been able to survive beyond a few years, though. They often operated outside the traditional co-operative structures, as the latter initially did not show openness to this product. An example is MD Foods. The early organic farmers did not see their interests represented in the boards of the then MD Foods. It only came onto the agenda of the meetings in their democratic bodies in the late 1980s, and was subjected to very strong opinions and emotional debates. (see textbox below) MD-Foods began to process organic milk from their members, when FDB- the national consumer coop required that there should also be organic milk on their shelves in the beginning of the 1990s.

Organic milk products and MD Foods 1995

In the 25-year jubilee-publication of MD Foods, published in 1995, the issue of organic milk is treated as an issue at the level of the members, as something to be debated at the representative meetings of the company. In 1995, an organic-production-council was established at the level of the national dairy-plants society (Mejeriernes Mælkedisponeringsselskab) with the purpose of creating an optimal co-operation between organic producers and the dairy-companies (including MD Foods).

The text diplomatically explains what was a rather tense situation:

*"There are many emotions related to organic milk production- both from the organic producers, and from the traditional. Ahead lies a big and demanding task of making the points of views meet, and it is, of course, of decisive importance that the dialogue about these questions be kept open, so that solutions can be found that are acceptable and useful for the daily work".*

Vedholm, 1995:167

In view of the situation in 2004 when Arla Foods had more than 800 organic producers, and where 15-30% of their milk on the market came from organic producers, the text box above provides testimony to the importance of the democratic representative bodies in the co-operative organisations for finding solutions, and changing conditions.

Today, organically produced fresh milk is commercialised both from Arla Foods and from other co-operative plants. In 2004, 29% of fresh milk for consumption in the Danish market is organic milk. In Sweden it is 7%, and compared to international statistics this is a high percentage. So the change is happening.

At the end of 2003 Arla Foods cancelled all the contracts with organic farmer-members in DK, and offered new conditions[24]. The arguments being that the conditions of the ol agreements were economically too favourable to the organic producers and so much organic milk is produced that part is sold as ordinary milk. Some 300 farmers gave up their organic recognition as a consequence of this situation. The current strategy of Arla Foods for organic milk products is to develop the domestic markets, and less the export market[25]. The bulk of organic products is sold as fresh milk and much less is processed into butter and cheese. The mission of Arla Foods with regard to the organic business area is: "To offer an attractive organic choice of products so that the modern consumer experiences:

- A contribution to his/her health
- A contribution to a better environment for humans and animals
- That Arla Foods reinforces its environmental image."[26]

As can see seen, the mission does not express a concern for promoting organic production. This way of thinking has consequences for the farmers that want to convert to organic production. Arla Foods has 865 organic milk producers as members -535 in DK and 330 in Sweden. The policy of Arla Foods, under the prevailing strategy, will only admit new organic growers when they see the need from a market point of view.

24 The new conditions are economically less favourable. Organic farmers are registered with the state. In 2003 50 new producers applied for recognition. *Andelsbladet* 2004, no. :

25 Confirmed in lecture by Vicedirector Povl Krogsgaard Arla Foods, Nov. 29, 2004 at LO-Skolen, Elsinore.

26 ARLA Økologi-harmoniseringsprojekt. Arla. August 2003: www.arlafoods.dk.

*Co-operativism and agriculture 2004 – innovation patterns*

Efforts to develop exports of organic milk products are being made by the smaller organic dairy co-operative and by private dairy plants. The large co-operative structures participate, but not as the innovative path breakers. Vis-à-vis the new market challenges their strength is still predominantly mass production of standardised products, the product concept for which the co-operatives were conceived originally!

The story of organic milk production and the established co-operative dairy sector is interesting. In reality it depicts a pattern that has often been seen in DK. Innovative products start on the outskirts of the established organisations, and often also in opposition to the established entities[27] - Co-operatives or not. The situation in the area of developing new milk products and new product markets seems parallel to that in the conventional capitalist sector as regards the relationship between big and smaller enterprises. There exists a number of small co-operative and private dairy plants devoted to developing differentiated products, especially within organic production schemes, whereas the big company Arla Foods, currently, regulates its organic producers, as described above. This does mean, however, that, provided the smaller businesses gain a position on the market, this will influence the future market and production strategies of Arla Foods. But the logic of the relationship between the big and the small co-operatives is one of a business relation rather than one of a social movement.

*What do farmers do – new organisations*

At the level of delivery, the so-called split deliveries are more and more common. If the farmer experiments with organic meat and still has a conventional meat production operating in parallel, he may be in two different marketing systems. At the agro-political level, we have seen new professional associations appear which represent the special interests of the various types of farmers. These are sector organisations like: "The Association of Organic Producers, "The Association of Danish milk-producers", "The Association of Danish Pig Producers". Thus there is a breaking up of the hitherto strongly coordinated farmers' movement centred on

27 A recent, now famous, example of this type of social and technological innovation occurred within alternative energy, where the current international business success of Danish windmill technology and companies had their start in a combination of the experiments of various small enterprises, artisans and blacksmiths, some researchers and a social movement for alternative energy, whose members organised a guild of customers and experimental users of wind mills in close contact with the producers, accompanied by the development of a certain political climate for supporting alternative energy research.

the classical co-operative structures. Farmer producers' interests are more differentiated both as to size and products, and consequently for markets also, than was the case when this agro-industrial complex was being formed and consolidated. An increasing number of farmers commercialise outside the cooperative structures. The growing importance of non-cooperative productive structures within agro-industry is manifested in the creation of a new employers' association called 'Danish Food Industry' in 1999 that represents the interests of that part of the agro-industry that is not within the co-operative movement. This association is affiliated to the National Employers Guild (Dansk Industri)

## Concluding Remarks

Agriculture and agro-industry is one of the important economic sectors in Danish economy, and the farmers' co-operative movement is the main player in the Danish Agro-industry, even though there are more players now, including private ones. With all the changes, and the technical and economic developments from the first farmers' co-operative in 1862 up till now, the interchange and interdependency between social economy-activities, its organisations, and business development, continue to be at play in Danish Agriculture.

Co-operativism is one of the means for new ideas and interests to be developed and tested technically and economically on the market, and it provides a context (or structure) for exchange and development of knowledge, where the focus is on the product rather than on the investment. Commercially, co-operative structures organise mass production. There are, however, many challenges to the classical co-operative form, some of which are:

- The criteria of open access for any producer within a given geographical area is being challenged when it comes to developing niche products, but the Danish farmers continue with a democratic and crop based co-operative organisation.
- There are tendencies to forming co-operatives of the American type with closed membership, where the co-operative organisation serves to channel an economic and psychological engagement in developing a new product.
- The forms of the co-operative ownership are under discussion: The traditional way of handling co-operative member accounts is changing. Members are demanding personal capital accounts.
- The internationalization of the membership structures in the large cooperatives is still very much an experimental ground, as evidenced by the non-completed merging of the Dutch Campina and Danish-Swedish Arla Foods.

- As a coherent farmers' movement politically, the co-operative sector is under strain due to increasingly, differentiated interests of its members.

The co-operative paradigm has a new role related to the efforts of certain farmer groups to develop new niche products, although often in a somewhat controversial relation to the established movement. The necessary duality between agriculture and co-operatives still exists.

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