Le dossier
Économie de l'Élevage
TOUS LES MOIS, UNE ANALYSE SUR LES FILIÈRES BOVINES, OVINES ET CAPRINES

INSTITUT DE L'ÉLEVAGE

INRA

January 2007

n°364

Labour productivity and income in North-European dairy farms

Diverging models

Study realised by Institut de l'Élevage and INRA-SAE2 Nantes

with the financial support of CNIEL and Office de l'Élevage

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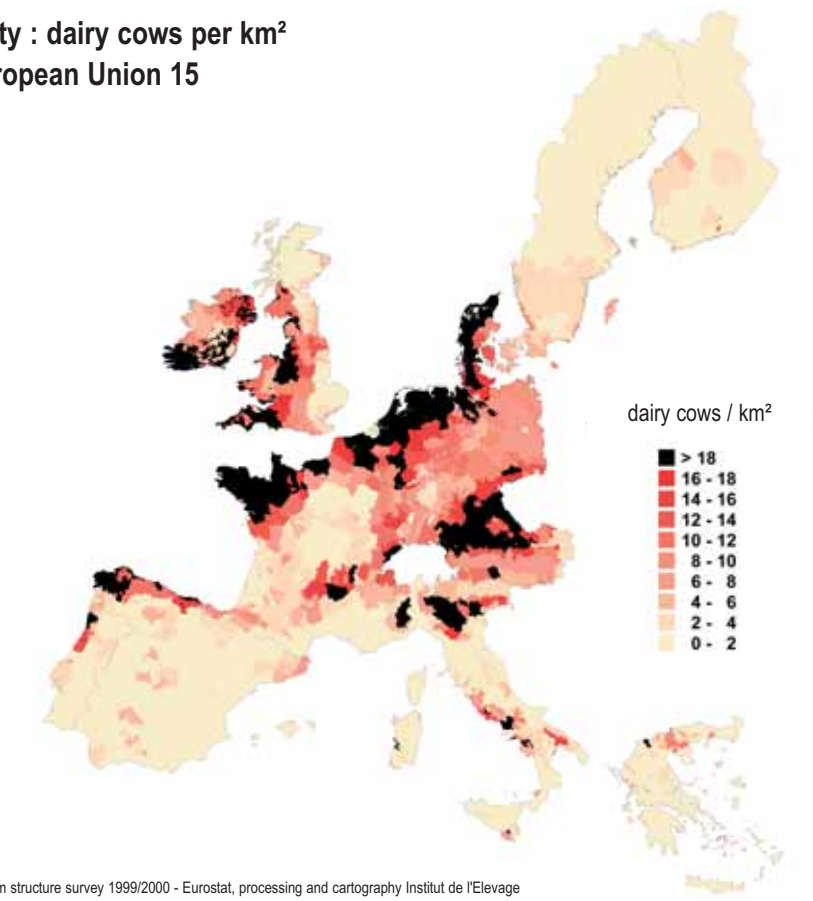
Density : dairy cows per km²
in European Union 15



Source : Farm structure survey 1999/2000 - Eurostat, processing and cartography Institut de l'Elevage

Labour productivity and income in North-European dairy farms

Differences in the average size of dairy farms within the European Union (EU 15) are large and rapidly increasing. However the agricultural income per family worker unit seems not to be systematically greater in European regions or countries where restructuring of dairy farming was strong in the near past (Denmark, The Netherlands, North Germany, England) than in other regions or countries with smaller dairy structures and a slower restructuring. This second category refers amongst other to the plains of the northern part of France, whose farms will be compared to their North-European neighbours.

All these dairy structures are producing milk for a European market which will be less regulated and more competing tomorrow. One third of the French or German milk productions is exported as well as two thirds of the Dutch production and 75% of the Danish production. Is diverging of milk production models in Europe a risk for the French competitiveness?

The 2006 study implemented by the Economics Department of Institut de l'Elevage and SAE2 Unit of INRA Nantes aimed to go further into this diagnosis thanks to a deep analysis of European FADN individual data[1]; afterwards our hypothesis had to be discussed with milk production experts from the selected regions. Farm visits allowed a better view of the situations and projects of a few dairy farmers from these regions; we were thus finally able to understand the mechanism underlying differing models within the European Union.

Differences in farm size are easily noticed at the end of each quota year in terms of average milk quota per dairy farm or per country, whereas analyses in terms of labour productivity are not easily done.

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[1] With European Commission FADN Office DG-AGRI G3 agreemen

Which relationship between these two topics? Labour input per farm does not seem to vary much between production areas, whereas the produced milk quantity can vary from 1 to 3. How can we explain these differences in labour productivity? Through differences of farm specialisation in milk production (with a possible cereals and meat production)? Through a more often use of contract workers for specific tasks (harvest, manure or slurry spread) which is recorded in farm accounting as a cost and not as labour? Through an efficient substitution between labour and assets?

It is de facto possible to answer all these questions in the affirmative. French dairy farms produce less milk in the average, but they also more frequently produce cereals and meat. In the Netherlands for example, use of external labour units increases an apparent work productivity which is already at a high level due to large investments in buildings and equipments.

The second topic of this study concerns family labour income. Alike the analysis of labour productivity, several indicators will be used in order to highlight the economic impact, very variable per ton of produced milk, of production factors others than family labour (intermediate consumption, land, assets, paid labour). Gaps between regions are narrowed when the analysis goes from productivity to labour income but the situation remains unfavourable to French regions for the specialised dairy farms.

Reasons for this are linked to fixed costs and assets management in the case of Denmark and The Netherlands. Large investments, allowed by a high milk price, were carried out recently. They anticipate a farm size increase which is therefore now inescapable and will bring a necessary restructuring (in quota period).

Theses investments have today an important place in economie accounts, but their dilution (due to an increase of production) could have in the future a very positive effect on the farmers incomes in these countries.

Analysis of immediate labour income should be completed by an analysis of patrimonial strategy and assets accumulation, as a part of benefits is invested in quota and land. As a consequence, the price of these production factors (30 000 €/ha, 2 €/kg quota in the Netherlands) and the immobilisation of assets (Denmark) reaches a level which is difficult to understand for our country.

In the case of North-Germany and England, a lower milk price explains the difference between labour income and productivity levels. This is probably the reason why investments were restrained in North-Germany and low in England in the recent period.

Finally, even if structural gaps always grow in average, French farms still have strengths to adapt to new environments, whereas there appears to be some limits in other production areas. Dutch producers who can be considered today as the most specialised and efficient could still increase their economic results in medium term; however their global development potential in milk production seems to be poor due to a lack of space caused by the high density of population and activities in this country .

"Is diverging of dairy production models in Europe a risk for the French competitiveness ?"

Room to manoeuvre and opportunities of development will be probably higher in Denmark (milk production was 20% higher in the 50s than today) when the radical change in production model will be achieved. The transition, which was decided, supported and financed, is partly fulfilled at the moment. Nevertheless the development of milk production could be also restricted by the limited area of the country and the implementation of environmental regulations.

Production seems to be more in fallback position in England. The level of income out of milk production, quite high at a European scale, is partly due to the weakness of investments. This seems to be the consequence of the obsolescence of farm buildings more than the effect of a low cost strategy implemented by a minority. Return on investment is hard to predict, as medium term visibility on made in

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England milk as well as public support to national agricultural economy appear to be as weak in this country as they are strong in Denmark.

A brighter future could be finally foreseen for North-Germany. Moreover, development opportunities seem to attract emigrant Dutch farmers. More than in other regions, the analysis of average results hides a strong diversity of production areas and farms in the region. An increase in milk production allowed a farmer's minority to set up a profitable activity despite a milk price below the European average. This model could attract the great majority of family farms.

Farm structures and incomes are more homogeneous in France. Reasons for this are to find in milk quota management rules (public management, link to the land, and in the fact that the creation of associative structures [French GAEC] usually coming with an increase of milk production, leads to lower labour productivity gains compared to other regions). However the French way of producing is particularly rich in employment as GAECs are generally based on family labour, whose quantity does not vary with production (unlike paid labour which is more flexible).

"French associative structures propose a production model particularly rich in employment"

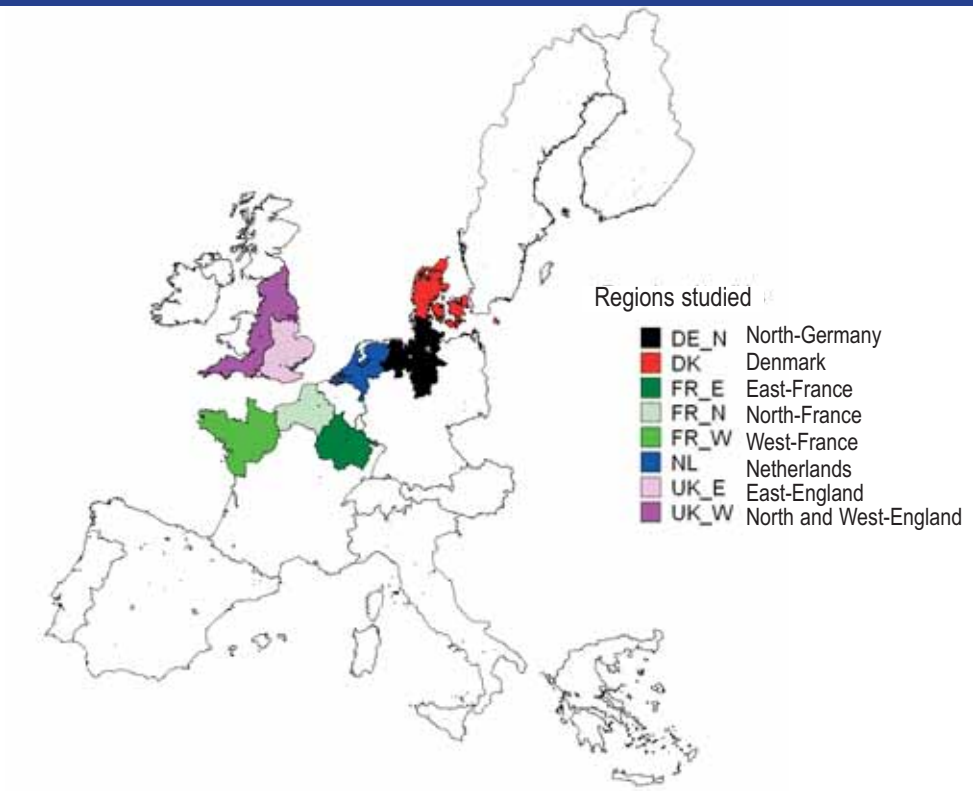
Other strengths of the French way of producing can be underscored: operating costs are often reduced, particularly in Western France. Prices of land and quota are lower and therefore contain the cost of development and the immobilisation of assets. Fixed costs are high; yet it reveals a great level of investments and a trust in the future of production through modernisation of buildings and equipments. It is also the consequence of a good advance in terms of environmental standardisation compared to other regions (North-Germany and England). Mechanisation costs per produced litre are high, though the same costs per farm are comparable with other regions with far higher milk productions and a nearly identical agricultural area. These choices tend towards good working conditions; yet it reduces the income as they have been too far compared to the limited gain in work productivity in the near past. This weakness can be considered as a source of improvement for the future. Another strength of French dairy farms is a good enhanced value of the production (milk price, meat…). This is among others the reason why it was possible to carry out investments and to remunerate more workers than in other regions for a given production. Labour income is certainly lower than in foreign production areas, yet the gap is not as large as it is for productivity. Moreover income discrepancies are not specific for milk production or agriculture. According to Eurostat, wages differences (in services and industry) also put France behind The Netherlands, Germany, Great-Britlany or Denmark (from 15 to 40% for a mean full time salary in euro).

In a first part, we will try to highlight how much answers to these micro-economics questions refer to the specificity of national context (natural, political, economic, fiscal or social environment of dairy farms). Theses specificities as well as factors influencing directly the actual running and the development strategies of farms will be explained for each country in a second part.

CONTENTS

Regions studied

Figure 1



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage. © EuroGeographics 2001

Main figures 2003 for the regions studied

Figure 2

	UK-W	UK-E	DK	NL	DE-N	FR-N	FR-W	FR-E	UE-15
Number of farms (sample)	320	131	452	426	654	366	771	233	13586
Number of farms (extrapolated)	12 390	2 190	7 440	24 110	24 100	13 070	45 050	7 250	463 890
Milk production per farm	695 600	866 900	621 700	521 000	343 200	262 000	257 800	290 500	280 900
Milk production of the region (T)	8 618 000	1 899 000	4 625 000	12 561 000	8 271 000	3 424 000	11 614 000	2 106 000	130 307 000
Milk production per ha of UAA (kg)	6 800	4 900	6 500	11 200	5 000	2 900	3 600	2 000	4 600
% of the dairy farms	2,7%	0,5%	1,6%	5,2%	5,2%	2,8%	9,7%	1,6%	100%
% of the milk production	6,6%	1,5%	3,5%	9,6%	6,3%	2,6%	8,9%	1,6%	100%

Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Specialised farms: main characteristics per region in 2003

Figure 3

	UK-W	UK-E	DK	NL	DE-N	FR-N	FR-W	FR-E	UE-15
Number of farms	10 300	1 540	6 390	20 850	14 640	4 460	30 600	3 410	296 620
Annual work unit (AWU)	2,25	2,92	1,88	1,69	1,85	1,73	1,75	1,84	1,84
Paid AWU / total AWU	33%	47%	34%	9%	16%	9%	5%	9%	14%
Utilised agricultural area (UAA in ha)	86	124	92	46	70	72	64	109	54
FS / UAA	87%	72%	67%	94%	84%	62%	75%	74%	79%
Maize / FS	7%	16%	25%	17%	23%	34%	30%	16%	15%
Grazing LU / ha FS	2,0	2,0	2,2	2,4	2,0	2,0	1,5	1,3	1,9
Number of dairy cows	103	123	86	74	60	46	42	47	49
Milk production per farm (kg/year)	731 900	937 400	659 400	544 700	428 600	305 200	265 800	290 300	329 900
Milk production per dairy cow (kg)	7 100	7 600	7 700	7 400	7 200	6 600	6 400	6 200	6 700
Milk production per ha of UAA (kg)	8 500	7 600	7 200	11 800	6 100	4 300	4 200	2 700	6 100

Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

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Labour productivity and labour income : variability and explanatory factors

Dairy farms in European Union

This study on European milk production is based on two complementary sources of information: the treatment of several available statistical data, notably from the Farm Accountancy Data Network (FADN); the implementation of interviews of dairy farmers and experts (advisers, financers, members of dairy organisations, persons in charge of FADN, etc.) in four countries (North-Germany, Denmark, the Netherlands and the United-Kingdom). Interviews were implemented by four master-students completing their study with a practical period in Institut de l'Elevage.

The data presented in this document are mainly the result of a treatment of FADN individual data. FADN is a yearly implemented survey since more than thirty years in all EU member states. It gives detailed information on the structure, the economic results and the financial situation of "professional[1]" dairy farms. In the dairy sector, non-professional units are seldom and only marginally participate in the total milk production (less than 1%). Data come from the accounting year 2003, which was the last year available at the beginning of this work. Analyses on five years (1999 to 2003) were sometimes favoured in order to strengthen the economic approach (and thus decrease the effect of economic circumstances). All the same, semi-constant samples have been built in order to focus on farms present for a long time during the period.

Definition of FADN variables have been harmonised as much as possible between member states. Nevertheless some economic variables remain sensitive to non-harmonised national rules : for example rules for calculation and time of depreciation, valuation methods for land value, quotas, buildings and machinery in the farms accounting, etc. These elements influence the comparative analysis.

Starting from the FADN data provided by competent services of the European Commission, the first methodological step consisted in isolating "dairy" farms. All farms having a mean number of dairy cows greater than five are considered so here. This definition differs from the one giving importance to Types of Farming and makes it possible to gather the whole milk production in a single type and to consider farms which associate other agricultural productions to milk production. In 2003, at the EU 15 scale, the FADN sample gathered 13,586 farms which represented a population (or universe) of 463,900 farms after extrapolation. One farm from the sample represents in average a universe of 34 farms; this rate differs according to the country (examples: 16 in Denmark or 56 in the Netherlands).

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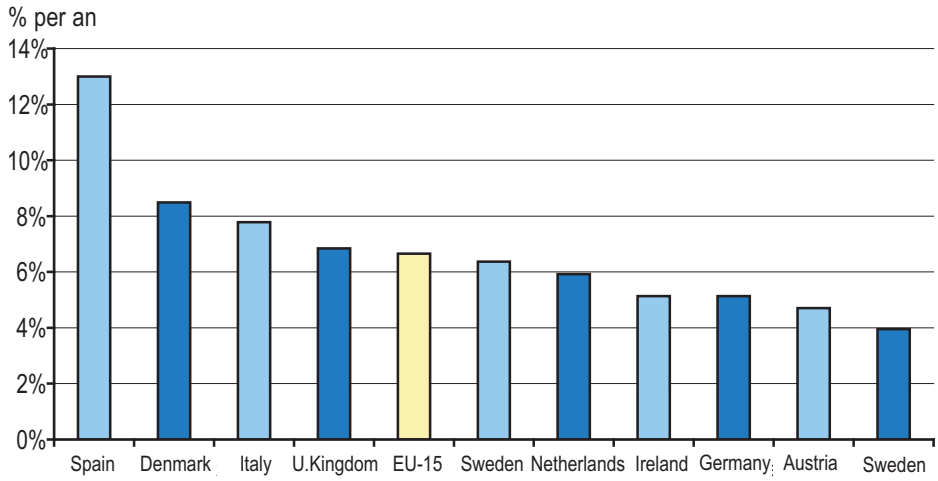
[1] Farms are considered to be professional when employing more than 0.75 Annual Work Unit (AWU) or when their Standard Gross Margin (SGM) reaches a minimal value fixed by each member state. This threshold is for example 8 Economic Size Units (ESU) in Germany, in Denmark, in France and in the United-Kingdom and 16 ESU in the Netherlands.

Figure 4

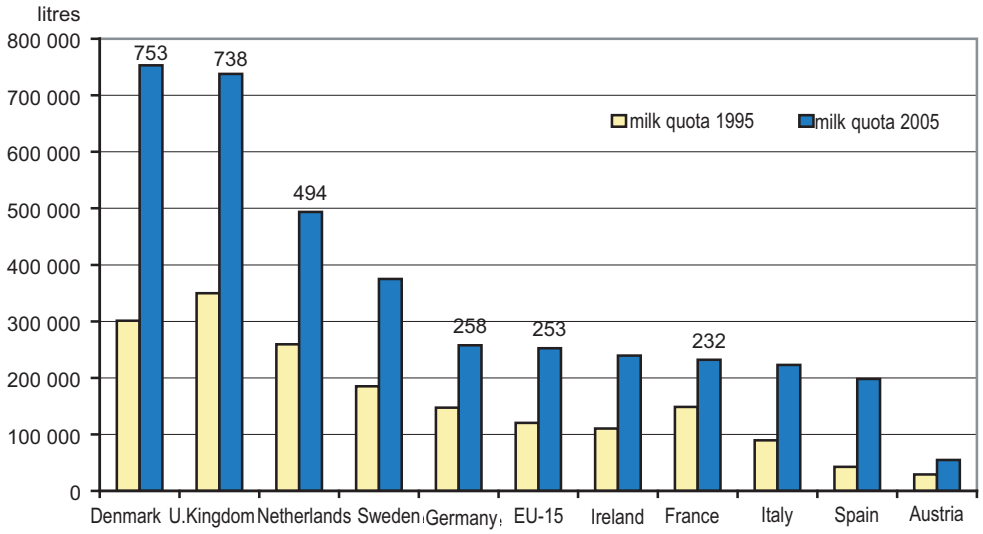
Decrease of the number of dairy farms: average annual rate 1995-2005



Source : GEB - Institut de l'Elevage from Onilait and European Commission

Figure 5

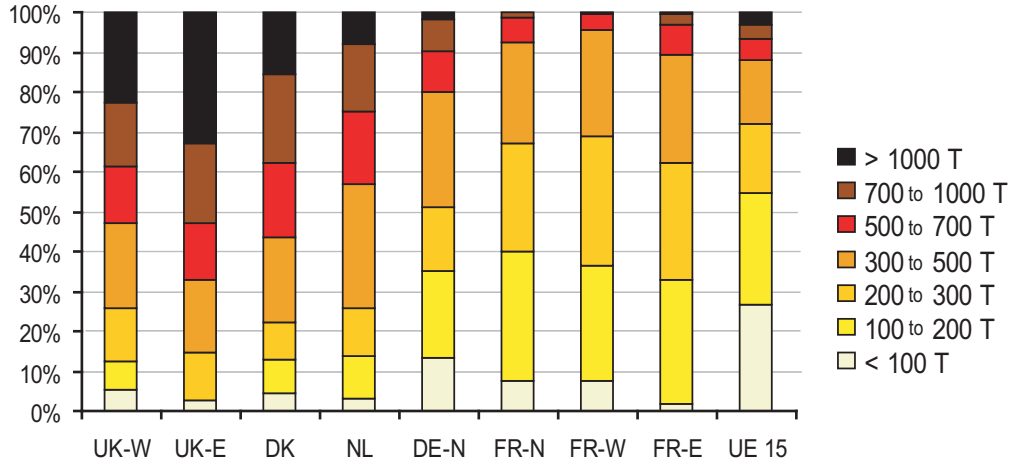
Average milk quota per farm in 1995 and in 2005



Source : GEB - Institut de l'Elevage from Onilait and European Commission

Figure 6

Distribution of the farms per class of milk production in 2003 (in tons per farm)



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Treatments presented in this document focus mainly on 296,600 specialised dairy farms (representing 63% of the total number of farms and 75% of the milk production). Farms are considered as "specialised" when the ratio ["milk production (in value) / total agricultural output (exclusive of animal purchases and subsidies)"] is over 60%. They are "diversified" in the other case (the annex presents results for both categories).This choice of targeting is justified by the fact that it reduces the bias caused by other productions in the analysis of labour productivity and costs of production. This document gives results calculated at the European scale (EU 15) as well as for eight production areas, all located in the North of EU (figure 1): North and West of England (UK-W); East of England (UK-E), Denmark (DK), the Netherlands (NL); North-Germany (DE-N: Lower Saxony, Hamburg and Schleswig-Holstein); North-France (FR-N: High-Normandy, Ile–de-France, Nord-Pas-de-Calais and Picardy); West-France (FR-W: Lower-Normandy, Brittany and Pays de la Loire); East-France (FR-E: Lorraine and Champagne Ardenne). These eight areas gather 137,800 farms (30% of the total number) and account for 41% of the milk production of EU-15. Because they are not representative enough, the areas "East-France" and "East-England" are not taken into account in analyses focusing only on specialised units.

The productive areas selected abroad have been chosen because of similarities with farms from West- and North-France (oceanic or continental zones of plain with variable proportions of meadows, crops and forage crops) and growing structural oppositions (farm size and rate of restructuring). These are therefore only partial European comparisons in this study, excluding other regions with different contexts or evolutions: low cost Irish grassland farming, mountain farming (France, Austria,..) with specific products and/or agri-environmental subsidies, pluriactive farms of Bavaria with high familial property, production areas of South-Europe where averages are difficult to analyse (from mall to large farms not always producing their own feedstuff).

A great diversity with diverging evolutions of the structures

There were 463,900 dairy farms in European Union (EU 15) in 2003; this was nearly the number of dairy farms in France in the early 80s. Restructuring of European dairy farms took place with a average annual rate of 6.5% between 1995 and 2005. The restructuring rate varies considerably between countries : it is particularly high in Spain, Denmark and Italy, and much lower in Austria and France (figure 4). Under the constraint introduced by milk quota, these differences in rates led to a spectacular widening of the range of average structures in the European Union (figure 5). The average milk quota rose by 8,300 kg per year during 10 years, against 45,000 kg per year in Denmark, 39,000 in the United Kingdom, 23,000 in the Netherlands. Restructuring rate depends on several overlapping factors such as the population pyramid of the farmers; the initial size of dairy farms (in Spain, restructuring takes place in a context where dairy farms were initially small, unlike in the United Kingdom); national agricultural policies regarding young farmers establishment or milk quota management. In France, for example, the implementation of a voluntarist and decentralised policy (free quotas, strong link between milk quota and land, allocation of released quota to farmers considered to be priority cases, etc.) limited the growth of certain categories of farms and made it possible to maintain a balanced territorial distribution of milk production (mainly profitable to mountain areas). In the Northern countries (Denmark, the Netherlands, United-Kingdom), on the contrary, the existence of a milk quota market resulted in a stronger decrease of the number of farms and an increase of the geographical mobility of milk production.

Diversity in European dairy farms is the result of several influences (potential of the natural environment, social or economic environment, regulations,…). The specialisation degree in milk production differs from one region to the other. Furthermore specialised farms in the studied regions (figure 3) also clearly differ in the milk production volume (from 265,800 kg to 713,900 kg per farm in Western France), in the production density (from 3,000 to 4,000 kg/ha of agricultural area in France up to nearly, 12,000 kg/ha of agricultural area in the Netherlands), in the type of labour (from 5 to 34% of paid labour) or even in the importance of maize silage (from 7 to 34% of fodder surface, with higher percentages in France, associated with the lowest production density). Total labour input does not differ much on the contrary (a little less than two annual workers units per farm), and agricultural area varies from 64 and 92 hectares except for the Netherlands (46 ha).

Mean structural characteristics of specialised dairy farms also vary much within each region (figure 6). Heterogeneousness appears initially by substantial gaps in dimension (agricultural area, herd size or milk quota). The percentage of farms having a greater milk production than 700,000 kg per year reaches around 40% in United-Kingdom and Denmark whereas it reaches 10% in North-Germany and around 1% in France.

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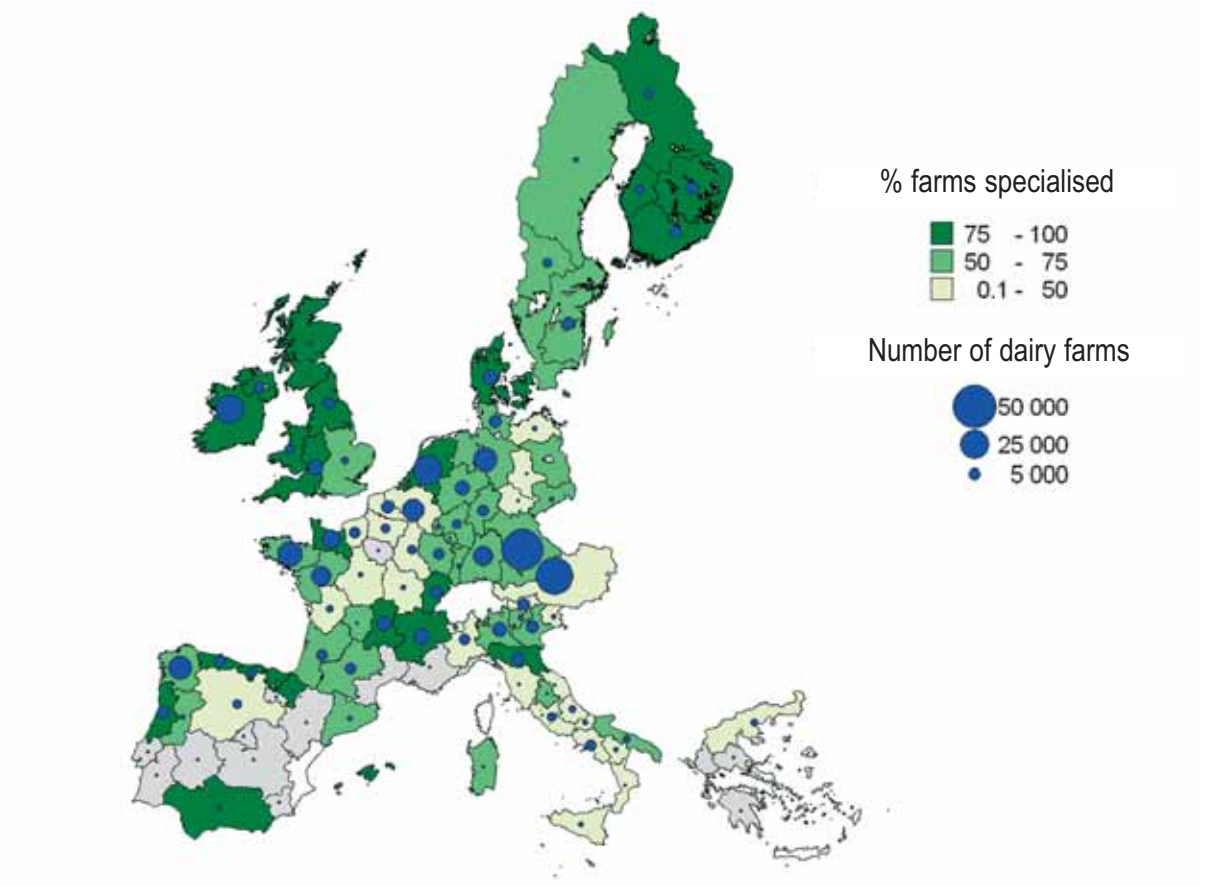
Figure 7

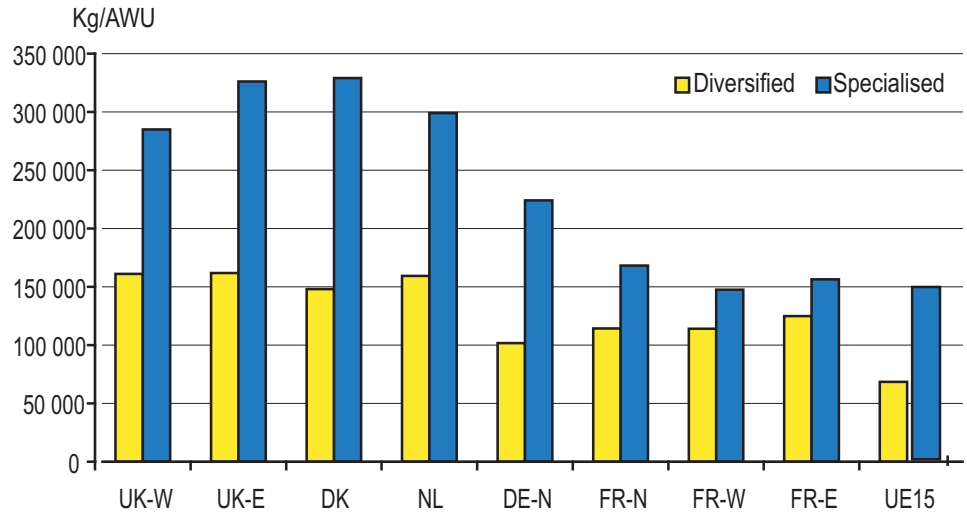
Percentage of diversified dairy farms per FADN region in 2003



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage. © EuroGeographics 2001

Figure 8

Milk production per total AWU in 2003 in diversified and specialised farms



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Labour productivity : variability and explanatory factors

French dairy farms are more often diversified

Since the introduction of dairy quotas, low mobility of dairy quotas and high agronomic potential of the soil led the French dairy farms to develop other agricultural productions in certain milk production areas. This strategy aimed particularly at using the agricultural areas "released" by the decrease of the herd size caused by an increase of milk yield per cow.

Generally speaking, 41% of the French dairy farms located in zone of plain (including less-favoured agricultural areas except mountain areas) can be regarded as diversified, which means that the percentage of milk in the total output is lower than 60%.
This percentage is of course higher in the traditional zones of mixed crop-livestock farming of North (66%) and the East (53%) of France.
However it reaches 32% in West France although this region is regarded as specialised; nevertheless, milk production can be completed there with beef, cereals or pork production (Britlany).

Farms are less often diversified in the other regions considered for this comparative study. It is the case in three large specialised regions: the Netherlands, Denmark and West England in which the percentage of diversified dairy farms does not exceed 17%. The percentage is a lot smaller in East-England (30%) than in North or East France, although the importance of crop production is in overall the same in these regions. In fact farmers from East-England could choose more easily either to develop milk production in large structures or to specialise in crop production. Finally only North-Germany shows a rate of diversified farms (beef or cereals) close to the French rates (39%).

These significant differences should be kept in mind when studying the map of average dairy farm size in Europe. In French regions, dairy farms produce certainly less milk than in other regions; however there are also more often than elsewhere other productions in these farms, particularly cereals and beef.

Mixed crop-livestock farming : success for a diversified model

The great number of diversified dairy farms can even be considered as a positive specificity of the French milk production model in the way that the situation is more favourable for diversified farms than for specialised farms. Unlike in other countries, French diversified farms produce almost as much milk as specialised farms (figure 8). And they also develop another production. This is true for mixed crop-livestock farms representing 20% of the plain dairy farms (with or without meat production depending on the region), and in particular for farms which are not located in the most dense regions (like West France). It is particularly the case around the Parisian Basin, where the agricultural areas are larger : farmers have more choices in terms of strategy and agricultural speculations : restructuring was greater there than elsewhere and gave some farms more possibilities to develop. An agricultural area increase came along with the quota gain however, due to the link between quota and land in France.

As a conclusion, mixed crop-livestock farming located in French regions where crop production is developed represents at the moment an economically efficient production model in terms of global productivity as well as labour income. These farms get better economic results than mixed North-German crop-livestock farms (which are the most similar). Moreover they are clearly above the average of European dairy farms and sustain a comparison with large specialised dairy farms of the North of Europe.

However comparison with large dairy farms from East-England is apparently less favourable. This report will be moderated by calling upon elements of economic context in this region located out of the euro zone: its good apparent economic results are partly the consequence of a decrease of investments devoted to milk production, in a region where this production is globally declining.

French specialised dairy farms: productivity is comparable to the European average

What follows only concerns the subset of specialised dairy farms, defined by a percentage of milk in the total output (subsidies excluded) over 60%. For these farms, comparisons are made easier by the fact that labour input and costs aim essentially at producing milk and by-products (calves and cow meat). This restriction leads us to draw aside from now on the East-France and East-England regions, due to the small number of specialised farms.

Gaps between regions in terms of specialisation rate do not explain alone the moderate results of French regions concerning the size of farms or the labour productivity (measured in milk volume). Depending on the approach, labour productivity in specialised

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Productivity and labour income in mixed crop-livestock dairy farms in 2003

Figure 9

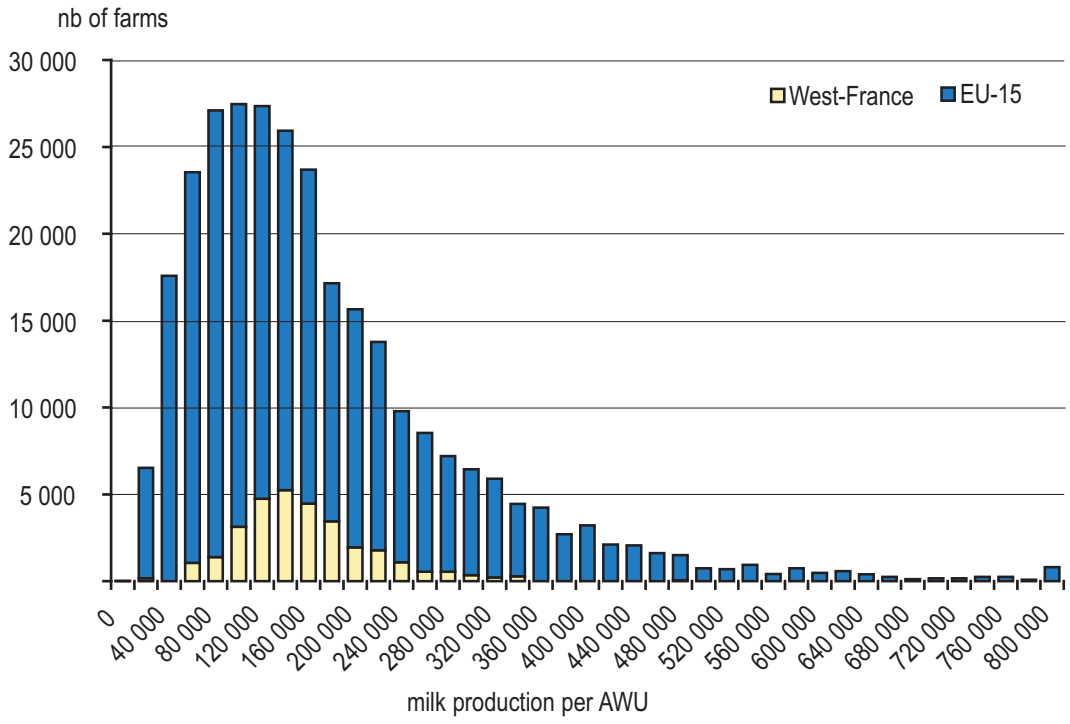
	Region	milk production per TAWU (kg)	Output and subsidies per TAWU (euros)	Family Farm Income per FAWU
Mixed crop-livestock dairy farms (OTEX 81 and 60)	UK-E	162 000	125 000	36 000
	DE-N	87 000	88 000	14 000
	FR-E	131 000	111 000	24 000
	FR-N	122 000	101 000	22 000
	FR-W	117 000	97 000	17 000
	UE-15	88 000	80 000	15 000
All dairy farms	UE-15	113 000	65 000	15 000

TAWU : Total Annual Work Unit
FAWU : Family Annual Work Unit

Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Milk production per total AWU in 2003 in specialised farms : comparison West-France / European Union

Figure 10



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

French dairy farms can be considered in the best case as equal to the European mean, and thus far below the north-European mean.

The first possible approach consists in the comparison of labour productivity distributions of the 300,000 European specialised dairy farms and the 30,000 specialised dairy farms located in West-France. These two distributions have almost exactly the same median although the shapes are very different (figure 10): productivity distribution is tight and symmetrical for West-France and the median reaches 144,000 kg/AWU. The shape is flatter and dissymmetrical for Europe, where there are lots of low productivity farms, notably in South-Europe, as well as a subset of high to very high labour productivity farms (above 350,000 to 400,000 kg/AWU, in particular in the North of Europe.

The second approach considers the European specialised dairy farm as a whole. This "farm" produces 100 millions tons of milk each year with 545,000 AWU, which makes 180,000 kg milk per AWU. The mean productivity of this "farm" is higher than the mean productivity of West-France taken as a whole, which produces above 8 millions tons for 54,000 AWU, which makes 152,000 kg per AWU.

From productivity in volume to productivity in value

The analysis of labour productivity in volume should be completed by an analysis of productivity in value in order to take into account differences between regions in terms of milk and meat prices on one hand, and to rectify the bias caused by remaining differences in specialisation rates on the other hand. In France for example, the proportion of specialised farms is lower than in North-Europe, while specialised farms are themselves less specialised than in the other countries. A first reason is a better price the of byproduction of meat (64 €/1,000 kg in West-France against 55 € in North-Germany and approximately 30 € in the Netherlands, Denmark and England, see figure 11), due to the price of calves and cull cows and to the lower milk yield of dairy cows, which implies more cows for the same production. Moreover French farmers sell more cereals whereas crops are more often used on farm in other regions. The third reason concerns subsidies which are greater for 1,000 kg in France (from 55 to 70 € in France against 15 to 40 € abroad). This is the consequence of the importance of maize silage (34% of the fodder surface in North-France, 30% in West-France, 25% in Denmark, 23% in North-Germany, 17% in the Netherlands, 7% in West-England) and of the lower density of milk production: milk production per hectare of agricultural area is twice lower in West-France than in Denmark, and three times lower than in the Netherlands. Therefore the subsidies (proportional to the area of maize or cereals) seem to be greater per volume of milk produced in France.

All these elements increase the output for 1,000 kg milk in French farms; they are even more than compensating for milk price differences with Denmark or the Netherlands. However the comparative place of French regions remains identical when analysing productivity in volume or in value (defined by "output + subsidies / AWU"). Going from productivity in volume to productivity in value implies deeper modifications concerning the analysis of England and to some extent of North-Germany, due to milk prices far below the average (between 55 € and 33 € per ton in 2003). The relative decrease observed in the Netherlands for this indicator (output + subsidies / AWU) is the consequence of a lower output per ton of milk due to lower subsidies per kg (caused by the importance of grassland – not subsidised - in the agricultural area).

The third economic indicator evaluates labour productivity through the gross added value per labour unit. This classical indicator is defined as the difference between output – subsidies excluded- and intermediate costs and remunerates production factors : land, assets, labour. The most spectacular change in the comparative places of the regions concerns Dutch farms, due to the great economic efficiency of their production system, particularly in terms of control of intermediate costs. Variations observed for other regions can be regarded as the consequence of several factors : gross output composition can differ between regions; gross added value does not include subsidies whereas the CAP does not sustain all production in the same way for historical reasons. Therefore, the rate of gross value added for milk was high during the studied period because the price support for milk production was maintained at this moment.

Finally, the comparative analysis of specialised dairy farms in terms of productivity in volume is only partially changed by the measures of productivity in value. Labour productivity in volume as well as in value seems to be twice lower in specialised farms of French plain regions than in Danish or Dutch farms. The gap is reduced (from 1 to 1.5) with West-English farms although their production per farm is the highest in Europe. This is due to a lower milk price; this same reason explains the small difference between North-Germany and North-France in productivity in value.

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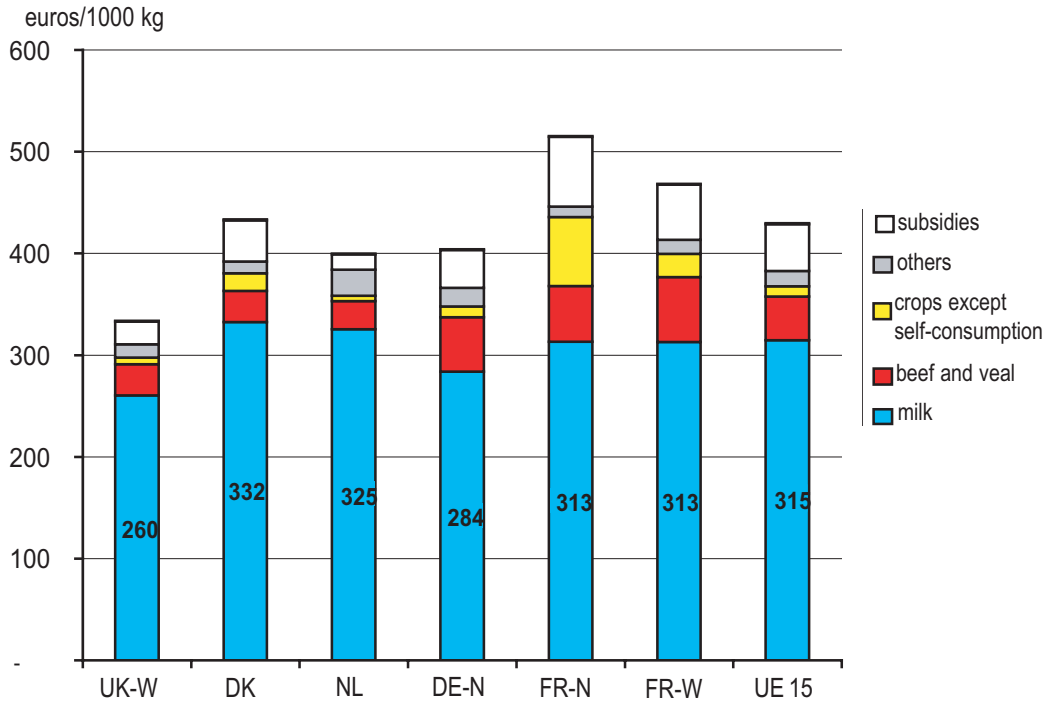
Composition of the output of specialised farms for 1000 kg milk in 2003

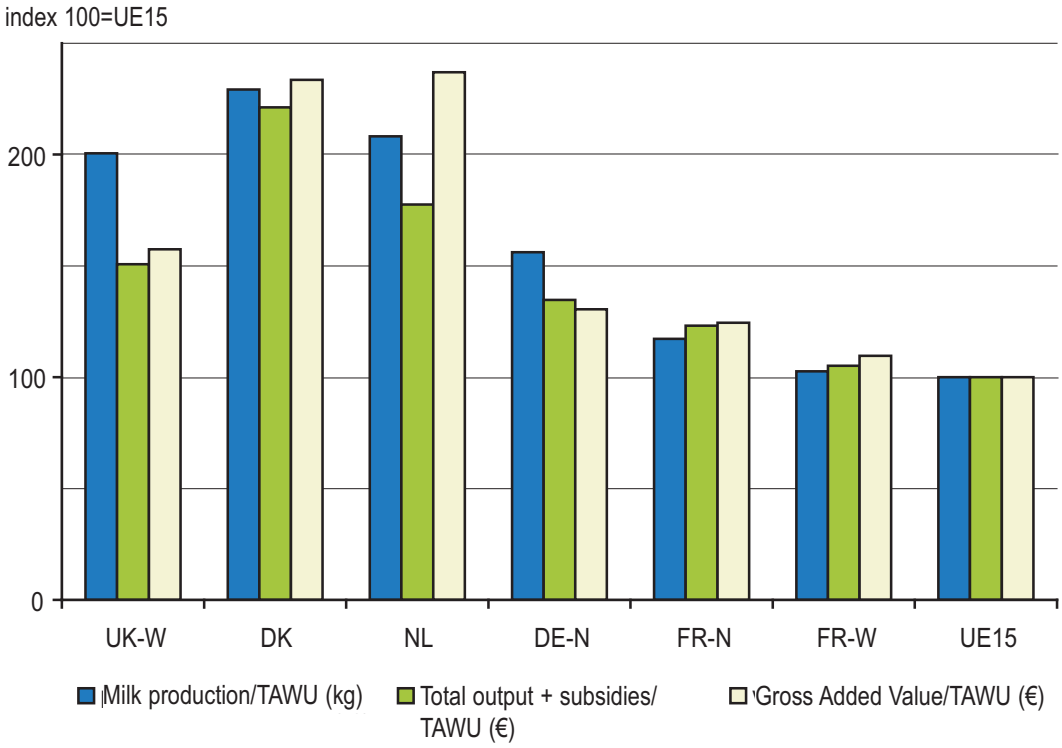
Figure 11



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Labour productivity in specialised farms in 2003

Figure 12



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

North-German farms suffer from a low milk price although they produce 1/3 milk more (428,000 kg against 305,000 kg per farm) with the same labour input (1.85 against 1.75 AWU).

Subcontracting: the positive effect on apparent labour productivity is difficult to assess

Can measurement of *apparent* labour productivity[1] be biased by a higher use of subcontracting for specific tasks (sowing, harvesting, manure or slurry spread,…), recorded in farm accounting as a cost and not as a labour input ?

Actual FADN data cannot be used directly to answer this question. The indicator "contract workers" refers indeed to several distinct processes: recourse to agricultural service supply agencies (which supplies materiel and labour), rent of material (without labour) or use of material in the frame of a machinery cooperative (CUMA, France).

Analysis of this indicator (figure 13) shows a particularly high value per hectare in the Netherlands (275 €/ha) explained by the subcontracting of manure spread as well as numerous mowing of grasslands. High animal density implies a high manure production per hectare of agricultural area, which results in an important cost for manure spreading per hectare. In Denmark, renting of high capacity machinery seems to be quite usual and have to be added to subcontracting which is also common.

Contract work per 1,000 kg of milk seems higher in West-France (45 €). However, a frequent resort to cooperatives of agricultural machinery in this region, recorded in FADN as "contract work" although it does not imply any labour, biases this result. Therefore differences between countries can be interpreted as differences in equipment strategies (including equipments which result in higher depreciation; subcontracting, common use of epuipment, renting). This is why the analysis will be more accurate if mechanisation costs are taken globally into account, including contract work, building and machinery current costs, fuel, depreciation of machinery.

This global analysis of mechanisation costs for 1,000 kg milk puts French regions in first position again. This is not surprising : all the studies on milk production cost in France in the last years pointed out the importance and even a certain excess in fixed costs, contrasting with a good control of variable costs in average.

The item "buildings" as well as recent investments for modernisation and implementation of environmental standards in the last years are partly responsible for the importance of fixed costs in France (32 €/1,000 kg).

However the biggest part of fixed costs corresponds to mechanisation costs (approximately 120 €/1,000 kg, see figure 14). The high level per production unit observed for France is the consequence of a level of equipment or costs per farm which is not very different from the situation in the North of Europe (figure 15), although French farm do not produce the same volume. Indeed, machinery is certainly more used for agronomic tasks and harvesting in the French situation than for feed distribution (unlike Denmark where feeding machine and total mixed ration are becoming the rule) and agricultural areas are often high in French farms. Furthermore, it is possible than French farmers wish to have the same working conditions and organisation than their European neighbours, so that they have an equivalent equipment despite different production volumes.

Presentation of national context (part II of this document) will give supplementary qualitative information on this topic. Outsourcing of certain tasks seems to be part of the strategy of many farms in the Netherlands which specialise in milking; in Denmark where the rapid growth of certain farms implies – temporally? - a need for external labour input; in England where outsourcing is a mean for differing investments in a uncertain economic context. It is obvious that a high resort to outsourcing in these regions increase the apparent productivity of labour units working on the farm. However it seems impossible to quantify this overvaluation as long as there is no new quantification of the level of outsourced labour input in the FADN.

Dynamism of investments : high contrasts between regions

A traditional way to increase labour productivity in an economic sector is the substitution of labour by capital, represented here by machinery, buildings or equipments allowing the automation of some tasks or their faster implementation. Does this phenomenon occur in European dairy farms?

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[1] At this stage we consider the total labour input (family AWU as well as permanent or temporary paid AWU)

Figure 13

Contract work in specialised farms in 2003

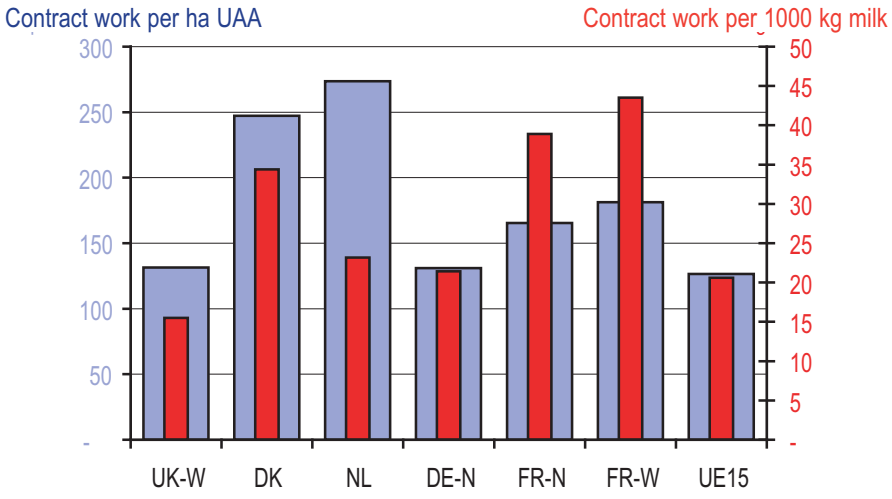


Figure 14

Total mechanisation costs in specialised farms in 2003

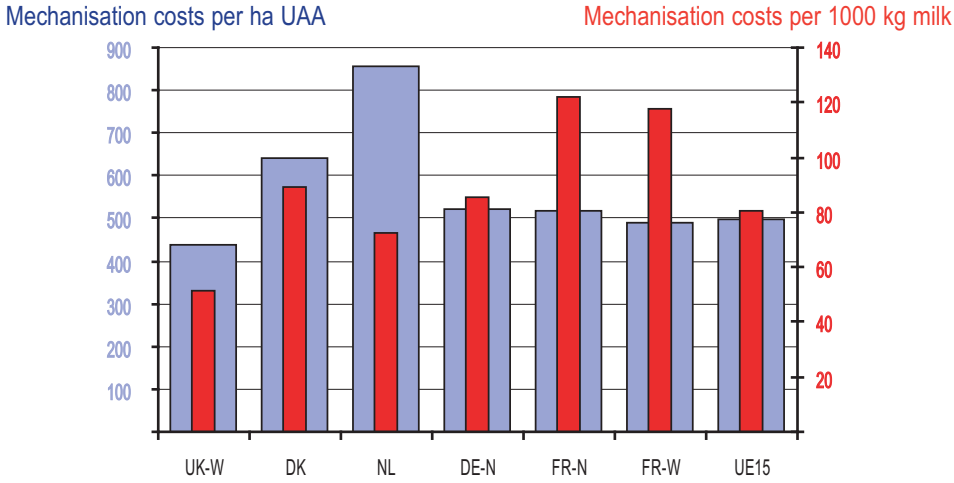
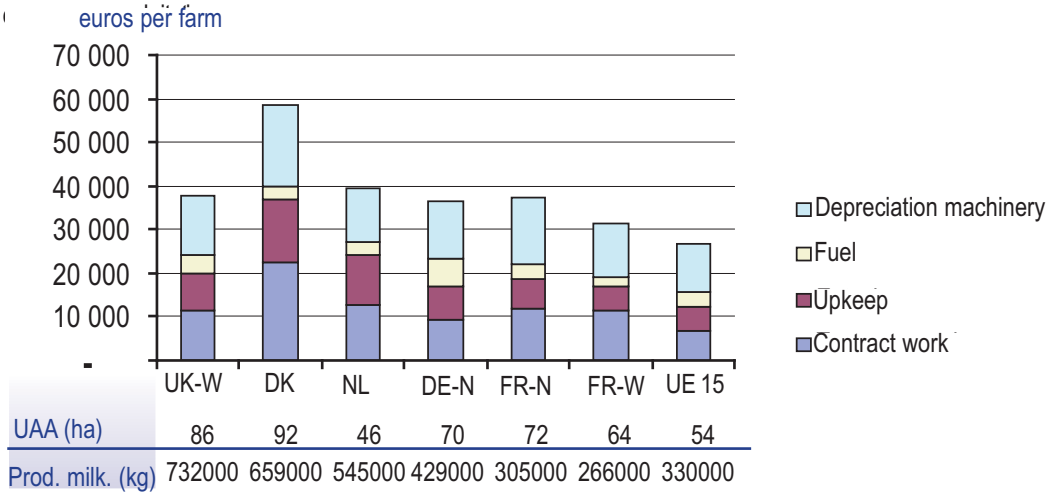


Figure 15

Mechanisation costs, UAA and milk production in specialised farms in 2003



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Is the high increase of labour productivity in certain region the consequence of a particularly efficient substitution between workers and assets?

Several indicators were defined from FADN in order to analyse possible differences in the use of assets in time, between regions or between size classes. The term "assets" refers here to the building or machinery aiming at increasing labour productivity, that is to say excluding land, herd, quotas…

The intensity of assets mobilisation was analysed from three type of FADN data: the assessment of the building and machinery assets recorded in the accounts, the depreciations for machinery or buildings and the investments in machinery or buildings (taken for several years).

Data concerning the valuation of assets or the depreciation appeared to be difficult to compare between regions: buildings seem to be overestimated in Denmark due to a fiscal valuation, land and buildings assets are not totally separated in England and life time used for depreciation of buildings differ much between countries. Therefore we will only present the analysis based on investment in what follows.

The figure 16 measures the evolution of total labour input used for the production of 100 tons of milk, that is to say the inverse of the apparent labour productivity in volume. It is noticeable that regions differ in levels of productivity as well as in productivity gains (represented by the slopes).

There is a higher labour productivity in the specialised dairy farms of three regions (Denmark, the Netherlands, West-England). Yet productivity gains look regulars and moderates in the Netherlands compared to Denmark. Productivity gains seem high as well in North-Germany since 1995, when the evolution of this region begins to differ from West-France. Productivity gains of this last region strongly slowed down after the period 1989-1995. This period corresponds to the beginning of milk quotas, with many public purchase of quantities released by small dairy farms (with a low productivity) who wished to stop milk production, and reallocation to farmers considered as priority cases. In this first period, end-of-activity programmes allowed labour productivity to evolve in West-France in a way which was comparable to other regions. The impact of these programmes decreased a lot after that, so that labour productivity in West-France (the main French region in milk production) dropped below the European average in 2002.

Ranking of production areas based on the indicator "investment in buildings and equipment for 1,000 kg milk" as well as its evolution only partially fit the analysis of labour productivity level and gains. Figure 17 shows that the European average, perfectly stable in inflation-adjusted euros (slightly less than 25 €/ton.year), hides diverging evolutions between zones.

Not surprisingly, investments in Denmark (40 €) and in the Netherlands (30 €) are above the average and rising, particularly in Denmark where a logical explanation is that investments came with and were necessary for the strong increase in labour productivity observed since 10 years. Investment level appears quite high and more stable in the Netherlands on the same period; a drop is to notice between 1995 and 1997, which corresponds to a fall in milk price (around 30 € per ton).

Investments depend on milk price

More generally, it seems that there is a relationship between milk price evolution in each region (figure 19) and investments in buildings or machinery. This is not surprising considering the economic effect of this criterion on specialised dairy farms. Milk price in Denmark, high on a long-term basis, is favourable to investments unlike the English milk price which does not bring about the same opportunities and entails a mean investment level four times lower (10 €/ton/year).

The fall of milk price recorded in England from 1997 had a perceptible effect on the level of investments (in buildings and even more in machinery). However weakness of investment in buildings and machinery in England also have other causes: economic environment unfavourable to agriculture, high interest rates, high cost of paid labour, see part II).

Milk price is far more stable in France because it is decided by agreements within the dairy sector. After an increase at the beginning of the period studied here, this price is quite stable in current euros since 1994. Its relative position gets even better compared to the European average. The stability was a favourable factor to investments, which increased particularly after 1998. However this growth is partly due to the application of environmental standards and to the public support programmes which came with it.

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Figure 16

Evolution of labour input for 100 000 kg milk in specialised farms

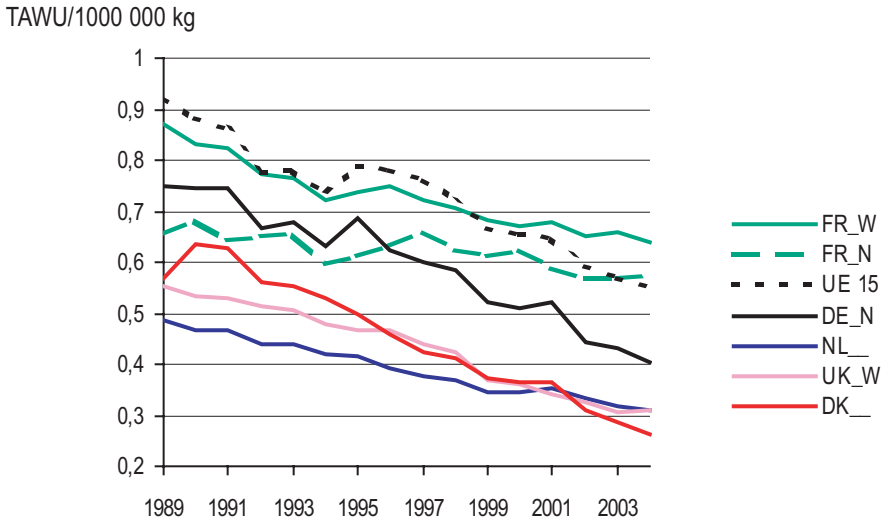
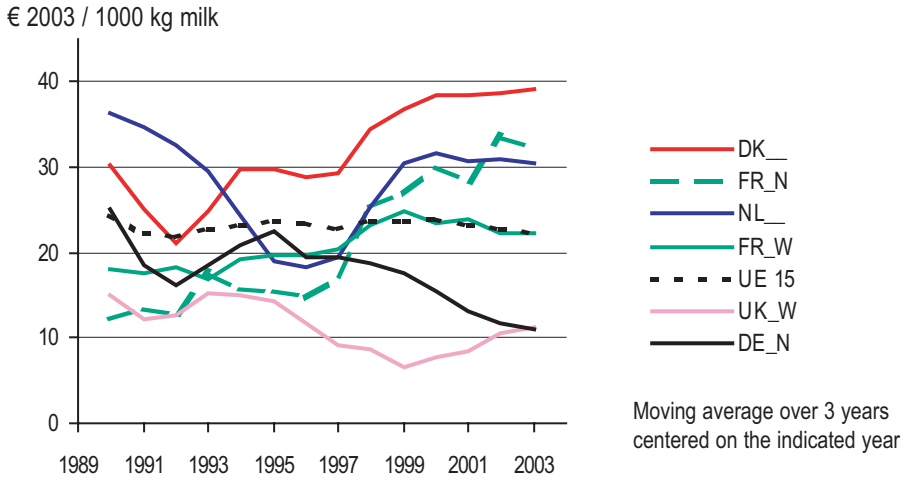


Figure 17

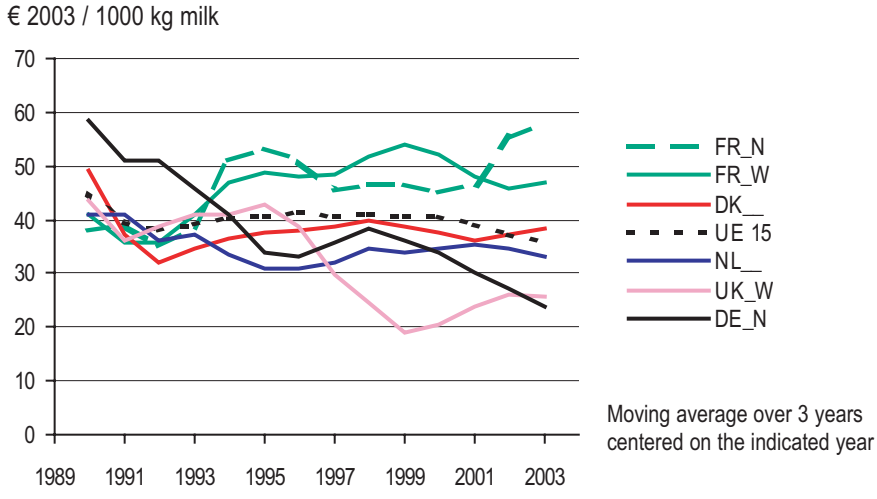
Evolution of investments in buildings for 1000 kg milk in specialised farms (constant euros)



Moving average over 3 years centered on the indicated year

Figure 18

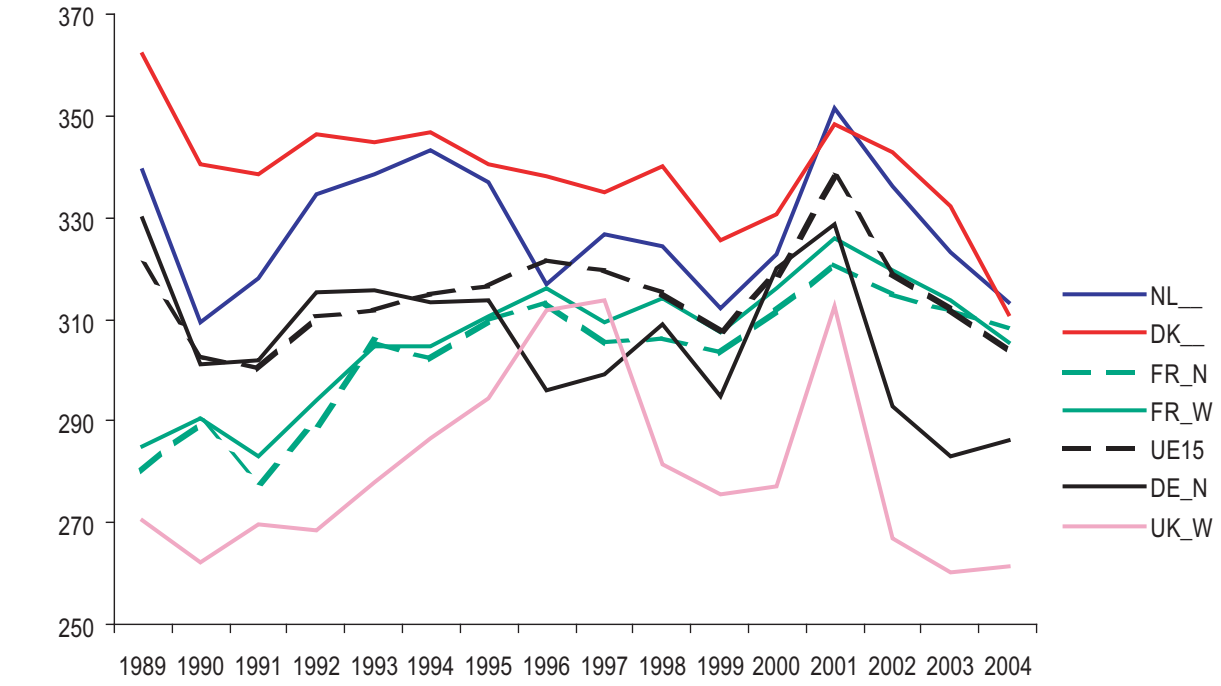
Evolution of investments in machinery for 1000 kg milk in specialised farms (constant euros)



Moving average over 3 years centered on the indicated year

Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Evolution of the milk price (current euros per ton) *Figure 19*



Source: FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Finally, investments in North-Germany seem to sink at the end of the period despite the continuation of very high gains in labour productivity. How can it be explained ? Are the gains in productivity the result of the diminution of a certain inefficiency of the initial system, as suggested by the level of productivity in 2003 which is still clearly below the Danish and Dutch levels? Is it due to the rapid decrease of milk price at the end of the period? To lower investment for environmental standardisation than in France? This last argument is also valid for the English situation, where the manure storage capacity rarely fits the current environmental rules.

Investments in machinery (traction, tillage operations, harvesting, forage distribution) per ton vary less in time and between regions. What should be noticed is a decrease of investments in England from 1997 on as well as in North-Germany in the end of period (for already given reasons: milk price etc.); at the opposite a high level of investments per milk ton was recorded in the French regions. This seems to confirm the analysis proposed about the French mechanisation costs, that is to say similar investments per farm (due to similar surfaces and objectives in working conditions) which are not diluted by large volumes of production and result in high fixed costs per kg milk.

The strength of investments in buildings and equipment (excluding machinery) in Denmark and in the Netherlands as well as their scarcity in England can be highlighted thanks another statistical analysis targeting on the geographical origin of FADN sample farms having invested more than 50,000 € in buildings and equipments over the period 1999-2003 (figure 20). If the analysis focuses on a semi-constant sample of farms[1] appearing in FADN during 3, 4 or 5 years between 1999 and 2003, 8% of the English farms, 12% of the German farms, 13% of the European farms, 14% of the French farms, 25% of the Dutch farms and 33% of the Danish farms exceed this threshold of 50,000 euros investments in buildings and equipments.

It appears that farms having invested 350,000 € or more between 1999 and 2003 (which corresponds to a complete new installation for 100 cows or more) come from Denmark for 18%, from the Netherlands for 24%, whereas these two countries only gather respectively 2 and 7% of the European specialised dairy farms. England is almost out of this sample of high investing farms whereas France and Germany appear in the same proportion (at the country scale, as samples of FADN farms per region are not big enough). It is however noticeable that German farms already produce

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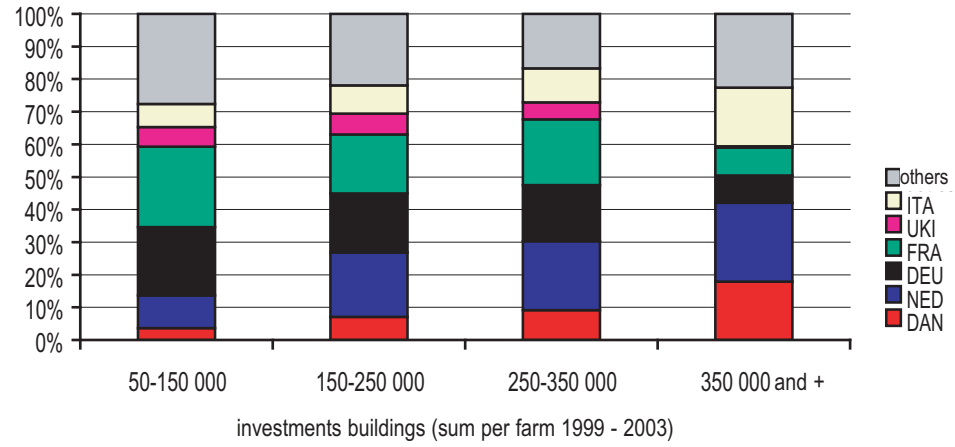
[1] Weighted by the mean statistical weight over the time of presence in FADN

Geographic origin of specialised farms which invested more than 50 000 € in building-equipements from 1999 to 2003

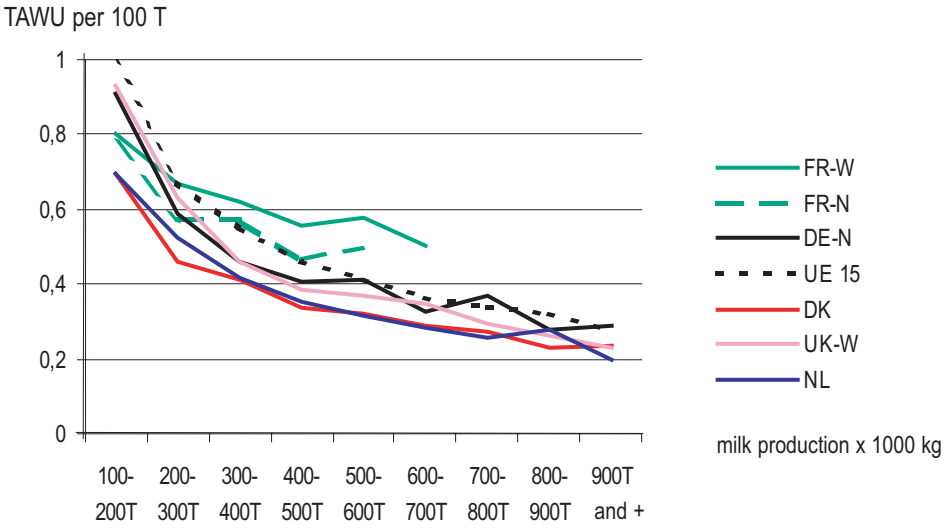
Figure 20



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage. Semi-constant sample 1999-2003, specialised farms

Total labour input for 100 T milk (in 2003, specialised farms) according to the size of the farm

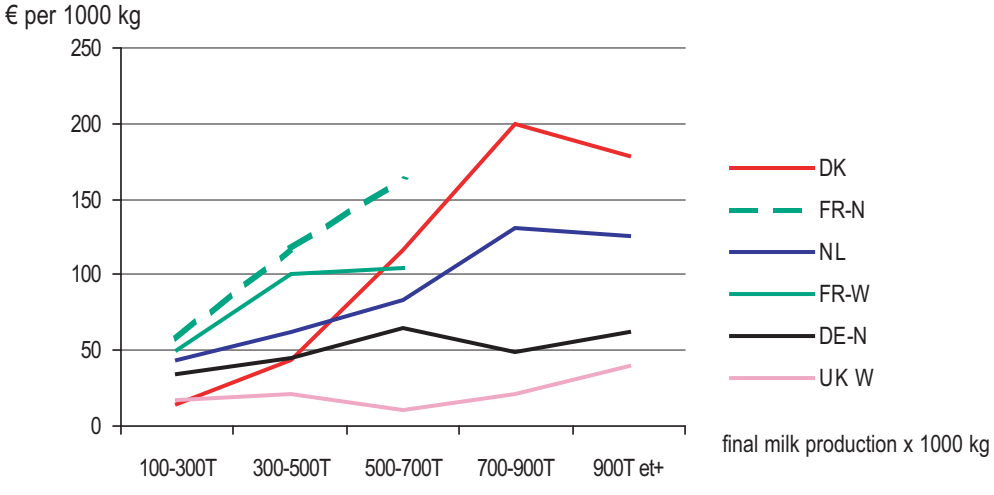
Figure 21



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Investments in buildings-equipement (apart from machinery) in specialised farms on the period 1999-2003

Figure 22



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage. Semi-constant sample 1999-2003, specialised farms

at least 50% milk more than French farms for a equal level of investment.

Substitution between assets and work are necessary for labour productivity gains

Farm size is an determining factor of labour productivity (figure21). Labour input for 100,000 kg milk in European farms vary from 1 AWU for farms producing 100,000 to 200,000 kg to 0.27 AWU for farms producing more than 900,000 kg. Labour productivity is lower in small farms because labour input (only composed of family workers) is less likely to vary there: workers are present on farm for "demographic" reasons more than because the level of production makes it necessary. In large farms at the opposite, labour input can be more easily adjusted to the production level as it is generally composed of paid workers. The largest French farms do not follow the rule: these types of farms are generally organised in familial associations (French GAECs: agricultural groups of farms, with limited responsability) and thus hire mainly family workers. In these large specialised French farms (300,000 to 700,000 kg, rarely more), labour productivity seems to be low in comparison with labour productivity of equivalent farms in the North of Europe, or even with the European average. Labour input for 100 tons milk decreases rarely below 0.5 AWU. On the contrary, labour productivity of French small and medium-sized specialised dairy farms (up to 300,000 kg) remains similar, for an equivalent production, to what measured in the other European regions (0.6 to 0.8 AWU / 100 tons).

Several reason may explain why labour productivity in specialised French large farms is lower than in other regions and seems even to reach a maximum: predominance of family labour units; the public management of quotas with quota pre-emption on growing farms in some French departments, directly aiming at limiting the concentration of milk production; the strong attachment of the quota to the land. This factors reduce the opportunities of productivity gain in decreasing much the possibilities of adjustment either of labour input (family workers, steady for a farm) or of produced volume (quotas difficult to get in areas with strong land pressure and dense production, or reduced by administrative pre-emption). The strong differences between France and other regions is then not surprising, when free purchase of quota unattached to the land makes it possible to adjust the volume of production while employment of paid workers allows an adjustment of labour input. French quota management rules made it de facto difficult for French dairy farms to gain in labour productivity or to develop. Therefore, labour input optimisation often led French farmers to diversify, when possible. This is an explanation for the good position of French diversified farm in the European ranking (see previous part).

The other possible explanation for the fact that the highest labour productivity is found in the largest farms may be a substitution between work and assets in these farms: a lower labour input may be allowed by the use of high-performance equipments (for milking, food distribution,…).

Substitution of work by assets in large dairy farms can be underscored from FADN data. In the recent period, the level of investments per farm in buildings and equipment increases with the milk production obtained in 2003 (figure 22). The current largest farms developed production and labour productivity in investing more per kg milk. This is particularly noticeable for France, Denmark and the Netherlands, where the largest farms invested between 100 € and 200 € per ton (total in the period 1999-2003). The highest values appear in the Danish farms which produce 700,000 to 900,000 kg or more than 900,000 kg in 2003: it corresponds to a mean investment of 1,500 € per cow. Knowing that the cost of a new complete installation approximately reaches 4,000 € per cow, these investments are synonym of a high modernisation of the installations of these large dairy farms.

Compared with farms of the same size, French farms invested more than other countries. This is in particular true for small and medium-sized farms (100,000 to 300,000 kg), which correspond to the French average, whereas there are almost no investments in Danish farms of the same size (15 €/ton in the period 1999-2003 against 50 €/ton in France), which do not fit anymore to the new production system.

However relationship between investment and production is lower in North-Germany and very weak in England. Economic environment are there less favourable to investments, which may lead to a lower anticipation of farm development. Weaker environmental standards did not impose investments in this domain. Moreover, the lowest cost of paid labour can lead to different strategies in Germany or in England (higher use of paid labour than assets), even if the quantity of paid labour in the largest farms is comparable to Denmark.

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Conclusion on labour productivity

Comparing the average size of dairy farms can lead to erroneous conclusions – particularly in terms of labour productivity - because of differences in rates of specialisation between European production areas. Among the region analysed in this study, North-Germany and French zones of plains (West, North, East) are characterized by smaller farms and higher rates of diversified dairy farms, in comparison with regions where dairy farms are larger and more specialised (Denmark, the Netherlands, West-England). Only East-England combines a large average size with a lower specialisation rate; however milk production is globally decreasing in this region.

20% of mixed crop-livestock farms out of the 41% diversified dairy farms located in French zones of plain have a higher productivity level as well as a higher labour income level as the averageEuropean dairy farm. The 59% specialised dairy farms are far from this results however.

Several factors explain the labour productivity level measured in French specialised dairy farms, which is twice lower than in Denmark or in the Netherlands:
- A higher externalisation of certain tasks in the most specialised regions (Denmark, the Netherlands, West of England).
- More small and medium-sized farms in French regions
- A specific organisation of work in the larger French farms. In the French GAECs, family labour input seems a much more rigid production factor than the paid labour, mobilised elsewhere in Europe according to the production level.
- Quota management rules (control of dairy structures, link to the land) are limiting the opportunities of production growth in specialised dairy farms. These rules aim at maintaining the milk production in all the French regions, privileging medium-sized farms.

Analyses of labour productivity in value (data 2003) outline the economic impact of a milk price below the European average in England (17% lower) and in North-Germany (10% lower). In the case of North-Germany, this impact strongly decreases the gap in labour productivity observed with North-France (33% difference in productivity in volume against 5% in productivity in value).

In the majority of the regions studied, high levels of labour productivity (in average or in the largest farms) where obtained with high investments in buildings and equipments in the recent period, that is to say with an efficient substitution between assets and work, at least in terms of productivity. What are the consequences in terms of labour income ?

Are the gaps observed in labour productivity likely to be found in an analysis of labour income?

The progression of the analysis using several income statements will show that these gaps are strongly reduced in the accounts of dairy farms.

From productivity to labour income

Exploration of economic results will include cash balances in order to assess the real impact of investments. Analysis will be based on the semi-constant sample made of farms present 3, 4 or 5 years in the FADN between 1999 and 2003. Source data used in this analysis will be pluriannual means per farm, in order to smooth the results of different years and to have access to more structural determinants. For each farm of the sample, data are weighed by the mean statistical weight.

Levelling of the gross margin in the most productive regions

On figure 23, the different regions are ranged by decreasing average annual production for the semi-constant sample (West-England: 640,000 kg, Denmark : 550,000 kg, the Netherlands: 500,000 kg). Levelling of the gross margin per farm is spectacular in these three regions, due to gaps in milk price and control of costs.

Although West-English dairy farms produce 100,000 kg milk more than Danish dairy farms, their gross output is similar because of a milk price lower by 40 € per ton (1999-2003 average) and a lower price for byproducts. Furthermore, West-English farms probably tried to adapt to an unfavourable context by reducing fixed costs more than operating costs, which are thus quite high (130 € per ton, see figure 24). This is why the rate of margin is particularly low (60% against 68% in European average or 74% in the Netherlands).

Danish farms get a slightly higher milk price compared with Dutch farms (both having a better price than the European mean) and produce 50,000 kg more per

> > >

farm in average. However they loose both advantages when considering the gross margin, spending 144 € per ton in food, fertiliser and other operational costs against 102 € in the Netherlands (the European mean is 125 €).

The Gross Farm Income measures the output from production activity, free of charges related to this current activity and independently of the decisions of investment and their financing mode. Calculated initially out of expenses related to labour and considered per total labour unit (i.e. family and paid labour), it leads to a hierarchy of the production areas quite similar to the classification established after the analysis of labour productivity in value.

Impact of investments: income statements and cash balance

However, analysis cannot be completed only with the gross farm income since the strongest question concern the short- and medium-term impact of the great investments recorded in certain production areas as well as their financing mode.

The most traditional way consists in going from the gross farm income to the Family farm income by cutting off financial costs (i.e. interest) really paid to financing institutes loans on one hand, and calculated charges corresponding to an estimate consumption of assets (depreciation) on the other hand.

This accounting approach can be very different from the real cash balance at a precise time, whereas the cash balance is determining for the income of family labour.

This is the case for example if large external financial resources are completing the output from production, so that investment are not decided in function of the actual production level but in order to generate bigger volumes in the near future.
This is typically the case in some of the regions studied here. Aiming at this type of analysis, European FADN calculates two Cash-Flows, focusing therefore on cash balance. Cash-Flow 1 (revenues minus expenses over the year) measures the ability of a farmer to save, to be financed and to remunerate its labour. This indicator is not very different from the indicator "gross farm income – interest paid"; the only difference concerns inventory variation (revenue – expenses instead of output – charges).

Self-financing investment or taking loans: diversity of practices and consequences

Danish farms benefit from an facilitated access to loans[1] (refillable mortgage loan). This is why loans are the main way of financing for the takeover or development of farms in this country. Total liabilities reach 650,000 € per farm there, out of which 520,000 € long and medium-term loans. Annual interest reach 43,000 € per farm, which makes 50% of the gross farm income. The loans, very high, are often managed in a dynamic way (see part II). There are numerous types of loans (fixed or variable rate, interest-only loans…) and repaying by anticipation or refinancing is far easier than elsewhere. All this leads to consider the balance of these financing operation globally at the farm scale. The balance over the period is clearly positive: new loans are far larger than repayments and finance the largest part of new investments.

Contrast between Denmark and the Netherlands is great in the different steps going from Cash-Flow 1 to Cash-Flow 2 (figure 26). Although the size investments is quite comparable between the two countries, external resources mobilised for their financing are different. Dutch farms use the half of the output from productive activity in order to finance their investments whereas self-financing is seldom in Denmark.

Investments are a lot smaller in the other regions, as well as mobilisation of new financial resources. It seems that new loans are exactly replacing older loans (details of operations corresponding to new loans and repaying of the capital are not known). Total liabilities are almost stable, particularly in North-Germany and in West-France, where the ability of repaying new loans appears limited in a situation of moderate developing of farms.

Nature of investments also notably differs between regions (figure 27). The smallest variation concerns investments in machinery as already explained, due to comparable agricultural areas and similar wishes in terms of level of equipment between regions. Investments in building and corresponding equipment (milking parlour…) are once again clearly higher in Denmark and in the Netherlands.

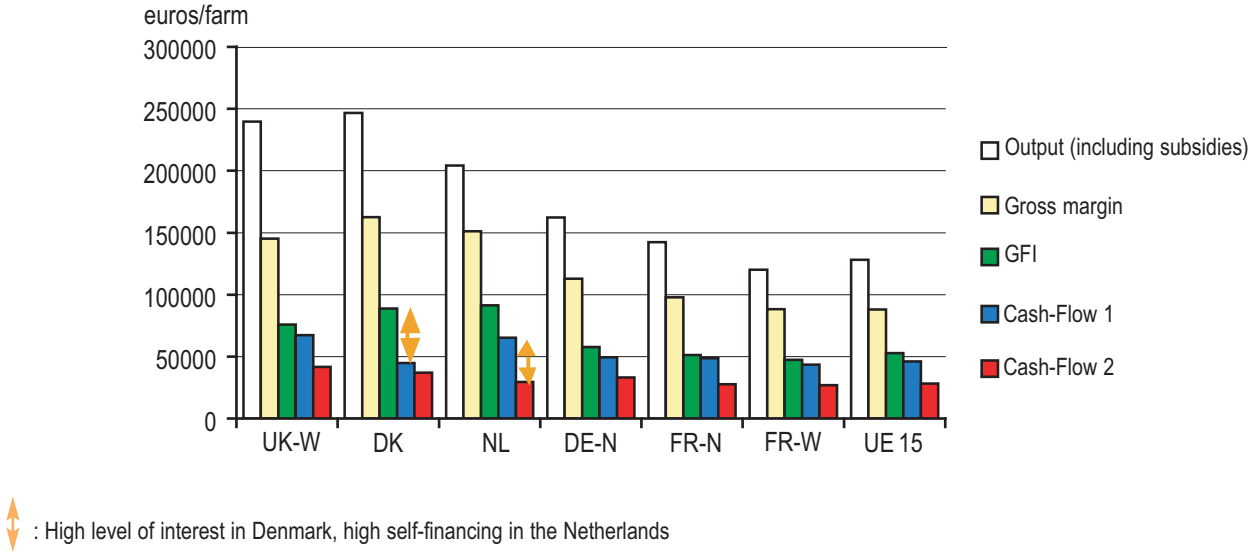
The biggest differences concern annual investments in land or milk quotas. However this comparison is slightly biased due to national FADN agreements or national rules.

> > >

[1] Easy access to loan is general in Denmark. It is not specific for agriculture and the average Dane has 4 times more debt as the average French.

From Gross Output to Cash-Flow in specialised dairy farms

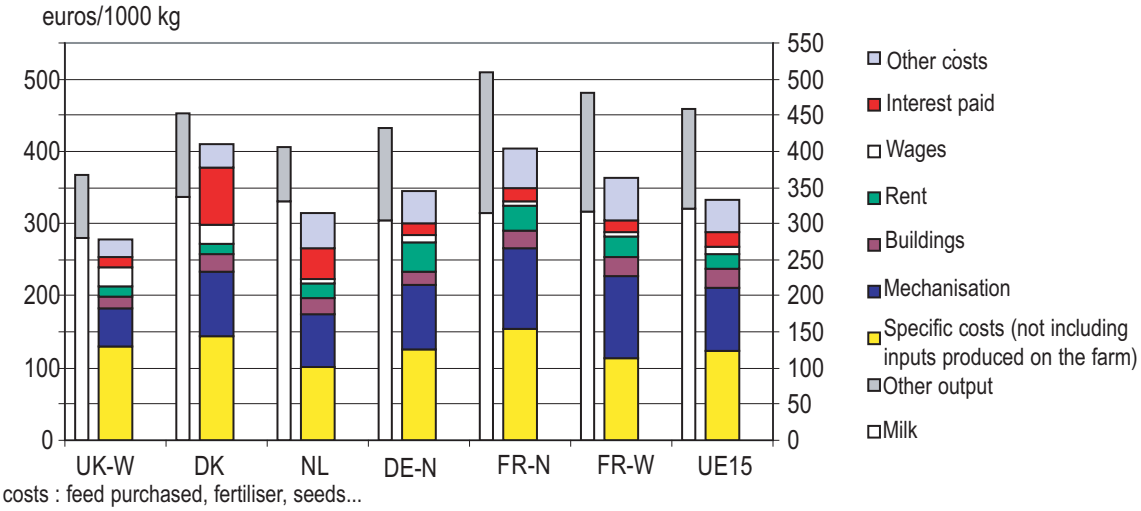
Figure 23



: High level of interest in Denmark, high self-financing in the Netherlands

Costs and Outputs for 1000 kg milk in specialised farms

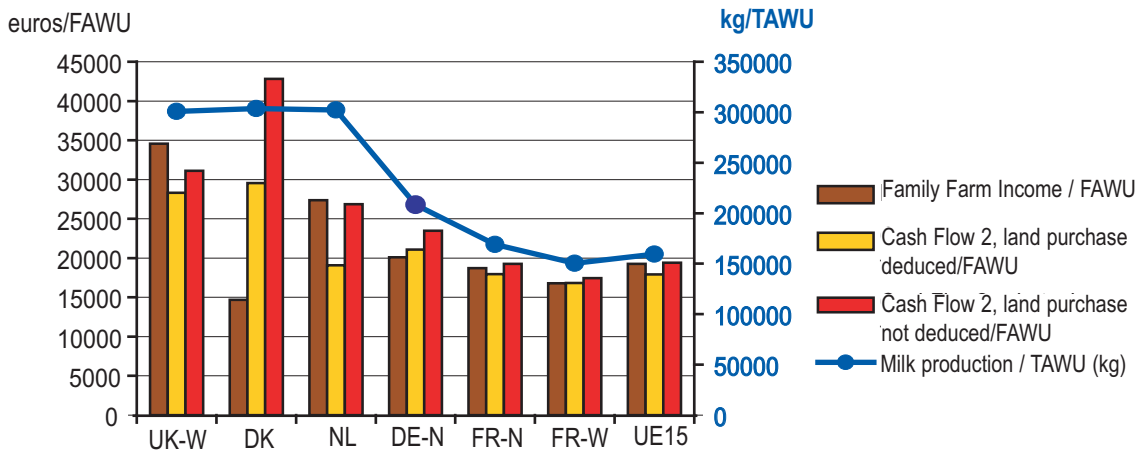
Figure 24



* Specific costs : feed purchased, fertiliser, seeds...

Labour income indicators in specialised farms

Figure 25



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage. Semi-constant sample 1999-2003, specialised farms

In Germany, milk quotas are bought by farmers in the frame of quota bourses. Yet these purchases are not recorded as quota and are not taken into account in FADN (although they exist in the national accounts).

In France, purchase of land is only recorded in a small proportion. For farm having the status of a society, national regulations allow farmers not to record land in the balance sheet of the account and to put their land at the society's disposal in return of the payment of a "rent". This is easily observed in FADN: the percentage of land "in owner-occupation" decreases a lot when the size of the farm increases (West-France: 31% between 100,000 and 200,000 kg, 5% between 300,000 and 500,000 kg, 1% over 500,000 kg).

Investment in Land

In France, one hectare of agricultural area is far cheaper (10 times less than in the Netherlands, 5 to 10 times less than in Denmark, 3 to 5 times less than in England or in Germany), but the total annual value of land purchase per farm is not known for our country. A possibility to correct this bias is not to take investment in land into account in the countries where this information is available. Especially since this kind of investment is particular, in the way that it can be compared to saving or to the constitution of a property, notably in regions where land appears to be scarce and expensive (the Netherlands), even though the apparition of an economic bubble is evocated in some cases (over the year 2005, land price increased by 20% in Denmark). For international comparisons, it would be more rigorous to include in the income the rent paid by French agricultural societies to their associates. Unfortunately a precise valuation of this amount is hard to realise. Its order of magnitude (6€ per ton, slightly more than 1,500 € per farm) makes the correction unnecessary here.

Cash-Flow 2: a better estimation of the cash balance really available

Using the Cash-Flow 2 instead of the family farm income as an income indicator gives a more understandable indicator for Denmark (where the family farm income is negative for almost one farm out of four). Analysis is still more favourable to Denmark if the patrimony saving represented by land purchase is included in the income. It can be considered as a differed income, received at the end of the farmer's career, when the farm is sold (becoming the main way of farm transmission in this country). The less favourable conclusion drawn from the Family farm income simply means that this calculation does not fit to the cash balance already existing in Danish farms. In fact, the balance really available is not decreased by a capital consumption which is assessed by the calculation of depreciation. Farms mobilised large financial resources to be able to produce more and to be tomorrow in a better position to face the costs related to this recapitalisation. And we still have to consider that theses agricultural holdings do not aim anymore at repaying all the debts when being sold: it can be transmitted with its loans. Nevertheless, interest payments are already the reality, and they are extremely high.

Analysing Dutch farms with both these indicators gives an other result. Family farm income seems to be high compared to other regions. However the family farm income does not integrate the negative effect of the huge amounts mobilised each year (30,000 €) for the purchase of dairy quota (15,000 kg) at a very high price (2 € per kg). It is biased by the fact that quota purchase are not depreciated in FADN although they are in national accounts. However, due to specific rules of taxation, this depreciation leads in fine to a decrease by two of the cost supported by the farmer with a marginal tax rate reaching 50%. At the opposite, impact of quota purchase as well as other investments weight even more on the Cash-Flow 2 since they are self-financed for almost 50% (unlike in Denmark). Therefore the mobilisation of resources generated by an very efficient production and completed by own resources is very strong.

Labour income is higher in the most productive areas

Comparison between labour productivity in volume and several indicators approaching labour income let us conclude that farms having a better labour productivity give a higher remuneration to their family workers (figure 25). Nevertheless differences are a lot reduced. Indeed the link between income and productivity is not proportional as the income per kg of milk produced varies in the other way (it is smaller for the most productive farms). On this point, considering the Cash-Flow 2 (land purchase not deducted) per kg milk, France is in the European average (110 € per kg) whereas Germany and Denmark are 10% below , the Netherlands 25% and Denmark 33%. In these regions, the main limiting factors are a lower milk price in North-Germany and in England, and the size of investment as well as their financing in the Netherlands (milk quota purchase and place of self-financing).

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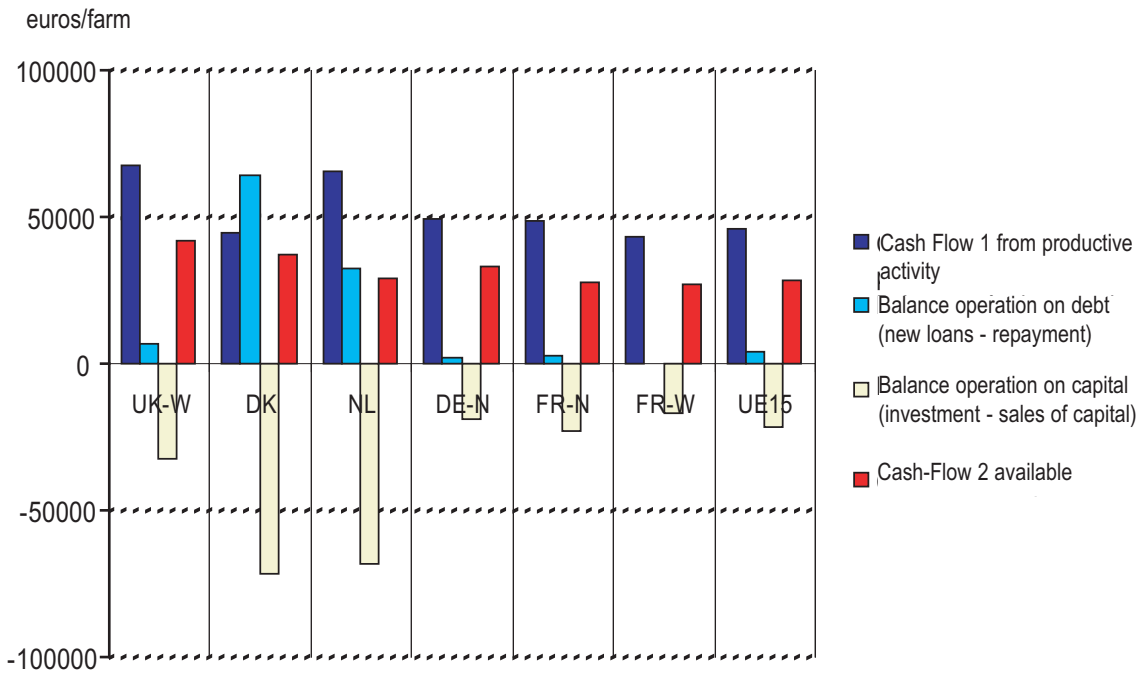
From Cash-Flow 1 to Cash-Flow 2 in specialised farms

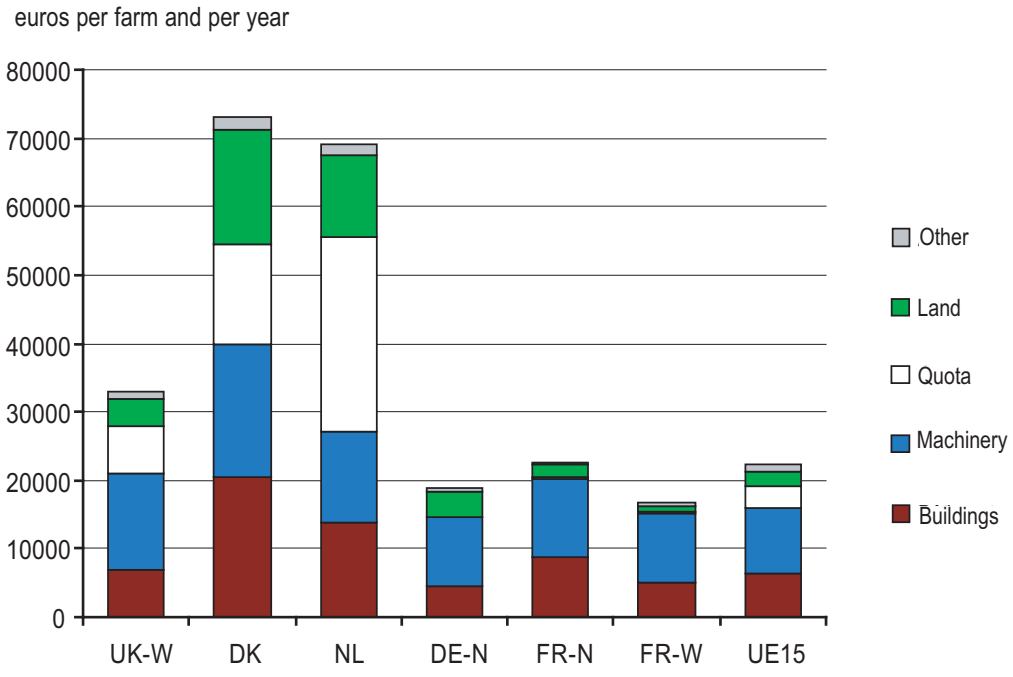
Figure 26



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage.
Semi-constant sample 1999-2003, specialised farms

Annual investments in specialised farms

Figure 27



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage.
Semi-constant sample 1999-2003, specialised farms

The analysis is more difficult to implement for Denmark since milk production was in the middle of its transition in the study period. Yet Cash-Flow analysis – unlike Family farm income analysis - shows that cash balance allows the current labour income to be comparable with the productivity level, and that the benefit of a part of this income is differed until the end of the career (by land purchase and sale of the farm). This way of managing is financially risky, but it already gives high levels of income to some Danish farmers and thus give them access to equal pay compared with other economic sectors (Denmark being in the first place in EU 15 according to Eurostat, with a mean salary reaching 42,000 € per year in 2002 in industry and services).

Variability of income per labour unit, size and labour productivity

Previous analysis mainly focused on the explanation of the differences of average economic results between regions, calculated on the set of specialised dairy farms. Beyond this first approach, a great variability of the Family farm income (FFI) per AWU within each region should be outlined. The spreading is however not the same in all the studied regions : it is quite limited in the two French regions and more dispersed elsewhere, notably in the United-Kingdom (figure 28).

In West-France, 44% of the specialised dairy farms have in 2003 a FFI per family AWU ranging between 10,000 and 20,000 € (this range gathers 30% of the dairy farms at the European scale). All the same 5% of the farms of West-France have negative income and 7% have an higher income than 30,000 € per family AWU. Spreading is slightly greater and more favourable in North-France. It remains however concentrated in comparison with situations observed in the North of the European Union. In the case of England for example, 12% of the farms have a negative FFI per family AWU whereas FFI is higher than 50,000 € for 23% of them. These gaps are partly due to the size of the production units and above all to their labour productivity.

Labour productivity has more effect on labour income per unit than the size of the farm

Considering the European scale, FFI per family AWU goes in average from 11,500 € for farms producing less than 200,000 kg per year up to 77,900 € for those producing above one million kg (figure 30). Beyond these results, the distribution of the income level per family unit according to the size of the farms also gives significant results.

Less than 10% of the European dairy farms producing less than 200,000 kg get a higher income than 30,000 € per family AWU, whereas the rate is over 70% for farms producing more than one million kg (figure 31). Moreover the evolution of the distributions between the two extremes is very steady, considering either EU, the Netherlands, North-Germany or West-England. The case of Denmark is not studied here insofar as calculation of FFI gives a negative result for the quarter of the dairy farms in the current period, for the reasons already explained.

Distribution of the labour income level according to the size gives different results for West and North of France. Compared to other regions, evolution of these distributions is not the same beyond 300,000 kg per farm. For the same size, farms having the highest incomes are less represented (figure 31) and correlation between size and income per family worker is less significant..

Yet labour income and size of the farm are strongly related, especially in the North-European regions

This difference between French and other regions in the intensity of connection between farm size and labour income is much explained by another difference in the intensity of connection between farm size and labour productivity (figure 32). This second connection is much more intense in the North-European regions studied whereas it is much weaker in French regions on the grounds of national specificities in terms of nature of the labour input and regulations on milk quotas.

Labour income differences are mainly due to differences in labour productivity: indeed, considering total costs per ton of milk (per farm), average gaps are quite moderate between size classes despite different production systems (figure 30). In other words, it means that economies of scale are limited.

Analysis of FFI per family AWU according to the farm size, based on European averages, should be considered cautiously insofar it may be biased by the region's relative weight in each size class. Therefore the analysis should be carried on in order to check if the same results are found in each region, and with which intensity.

In West-England, the FFI of specialised dairy farms reaches 33,300 € per family AWU in average. The largest

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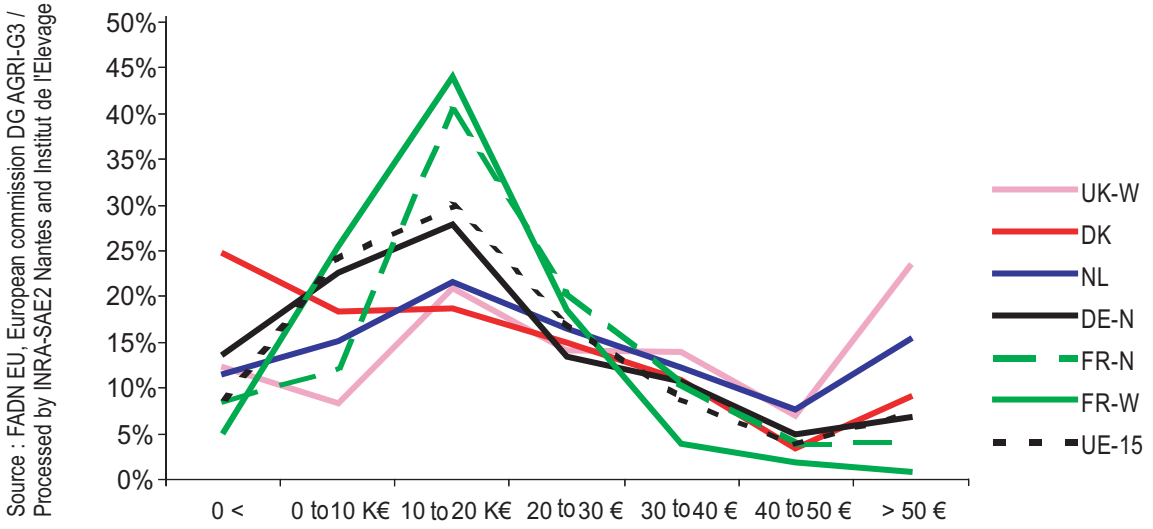
Distribution of the specialised dairy farms of each region according to the FFI per Family AWU (2003)

Figure 28



Distribution and characteristics of specialised dairy farms (2003) according to the milk production per farm and per year

Figure 29

	RU-W	DK	NL	DE-N	FR-N	FR-W	UE-15
Number of dairy farms							
Under 200 T	9%	8%	12%	18%	24%	35%	45%
From 200 T to 300 T	13%	10%	10%	16%	32%	33%	20%
From 300 T to 500 T	23%	23%	32%	37%	32%	28%	20%
From 500 T to 700 T	16%	20%	18%	14%	10%	4%	7%
From 700 T to 1 000 T	16%	24%	19%	12%	2%	0%	5%
Over 1 000 T	23%	16%	9%	3%	0%	0%	4%
Together	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Milk production per AWU (kg per year)							
Under 200 T	105 000	133 300	128 700	99 600	119 200	116 300	84 700
From 200 T to 300 T	159 100	215 900	191 500	170 000	175 500	150 500	147 900
From 300 T to 500 T	240 400	270 600	261 600	234 000	186 600	169 500	195 500
From 500 T to 700 T	277 900	330 500	331 700	264 600	191 200	182 300	255 300
From 700 T to 1 000 T	357 200	396 900	382 900	306 500	ns	ns	314 600
Over 1 000 T	445 300	434 900	519 400	ns	ns	ns	368 900
Together	**325 600**	**349 000**	**322 200**	**231 700**	**176 100**	**151 300**	**179 500**
GFI / (agricultural output + subsidies)							
Under 200 T	22%	26%	34%	27%	29%	37%	43%
From 200 T to 300 T	28%	36%	33%	31%	36%	36%	40%
From 300 T to 500 T	32%	36%	40%	29%	35%	39%	40%
From 500 T to 700 T	32%	33%	41%	31%	36%	40%	38%
From 700 T to 1 000 T	31%	35%	45%	32%	ns	ns	37%
Over 1 000 T	31%	31%	46%	ns	ns	ns	33%
Together	**31%**	**33%**	**42%**	**30%**	**35%**	**38%**	**39%**
Family farm income / FAWU (euros)							
Under 200 T	3 800	3 600	8 900	4 500	11 500	12 500	11 500
From 200 T to 300 T	12 100	12 300	9 900	8 900	16 900	12 400	16 700
From 300 T to 500 T	19 600	17 200	20 100	15 300	21 100	17 000	22 400
From 500 T to 700 T	28 300	10 100	23 800	23 600	16 800	20 600	27 600
From 700 T to 1 000 T	34 900	15 100	33 600	30 600	ns	ns	33 100
Over 1 000 T	66 600	15 900	57 700	ns	ns	ns	77 900
Together	**33 300**	**13 700**	**26 300**	**17 100**	**17 500**	**14 800**	**20 800**

Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

farms (over one million kg milk per year) get an average FFI of 66,600 € per AWU (figure 29). These farms have a production cost per kg milk comparable to the national average: a high labour productivity (445,300 kg milk per AWU and per year) is therefore responsible for their economic advantage. Nearly 85% of these farms have a FFI per family AWU greater than 30,000 €. This percentage only reaches 29% for the 2,300 units producing between 500,000 kg and 700,000 kg milk each year. Average rate of investment (gross investments/agricultural output + subsidies) as well as the weight of financial costs per ton of milk do not depend much on the size of the production unit. Milk price is not very high and production costs per unit are quite similar between classes in this country; this is why the labour income level is highly depending on the size.

In Denmark where labour productivity is the highest among all state members of EU, specialised dairy farms producing less than 200,000 kg milk only represent 8% of the population. Farms producing more than one million kg milk per year represent 16% of the population avec get a FFI of 15,900 € per family AWU. This is a very low income compared to the European average for farms of equivalent size (77,900 €). As previously explained, this is mainly due to the intense investments (this is why the analysis of dispersion of the FFI per family AWU according to the size is not presented in this document). As for the Cash-Flow2 per family AWU, it is clearly higher (57,000 € per family AWU in the large farms), yet its increase according to the size of the farm is not as steady as in the majority of the other production areas. Milk production cost is quite stable between size classes in average.

In the Netherlands, more than half of the specialised dairy farms have a greater labour productivity than 300,000 kg. The link between farm size and economic results per labour unit (FFI or Cash-Flow) is even more perceptible since large farms benefit from a higher mean economic efficiency besides a better labour productivity (this was not the case in the United-Kingdom and in Denmark). Thus, milk production cost goes from 349 € per ton in average for farms producing less than 300,000 kg down to 312 € per ton in farms producing more than one million kg per year (which makes 21 € per kg below the EU average). Nearly 80% of these farms get a FFI per family AWU higher than 30,000 €; this percentage reaches 9% producing between 200,000 kg and 300,000 kg milk per year.

In North-Germany, the average milk production cost slightly decreases with farm size like in the Netherlands. Labour income (measured by the FFI or the Cash-Flow per family AWU) is increasing with the size in this country also. In this region, the average FFI of specialised dairy farms reaches 17,100 € per AWU. However this income is higher than 30,000 € for 60% of the farms producing between 500,000 and 700,000 kg milk per year.

In West-France, large dairy farms are often under the form of society, especially GAECs. Whereas being several associates on a farm gives better working

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Mean characteristics of the European specialised farms (2003) according to the milk production per farm and per year

Figure 30

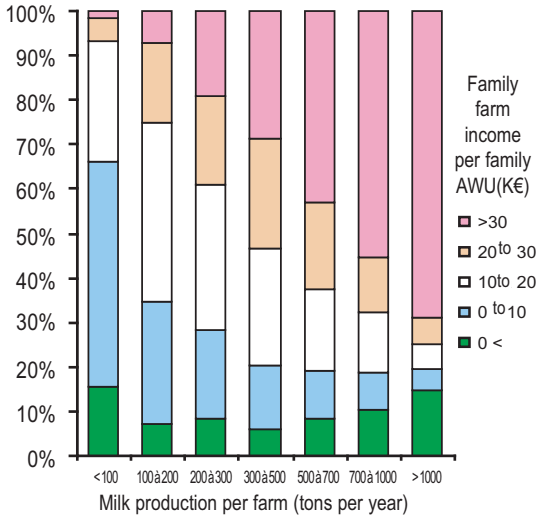
	100 T<	100-200 T	200-300 T	300-500 T	500-700 T	700-1000 T	> 1000 T	TOTAL
Number of farms	43 920	88 520	58 170	59 440	19 780	14 460	12 020	296 620
Annual work unit (AWU)	1,35	1,49	1,66	1,95	2,29	2,62	4,76	1,83
- of which % paid AWU	1%	3%	5%	11%	18%	27%	58%	14%
Utilised agricultural area (UAA in ha)	19	35	50	66	84	97	173	54
FS / UAA (%)	83%	84%	80%	78%	78%	78%	71%	79%
Grazing LU / ha FS	1,4	1,5	1,7	1,9	2,1	2,3	2,8	1,9
Milk production per farm (kg/year)	66 600	149 600	245 600	381 300	584 700	824 200	1 756 100	328 500
Milk production per AWU (kg/year)	49 300	100 400	147 900	195 500	255 300	314 600	368 900	179 500
Milk production per dairy cow (kg/year)	4 700	5 600	6 100	6 600	7 100	7 400	7 800	6 600
Milk production per ha of FS (kg/year)	4 200	5 200	6 100	7 400	8 900	10 900	14 300	7 800
Total costs per ton of milk (€)	366	342	346	339	332	318	315	333
Agricultural output + Subsidies / AWU (€)	27 300	49 900	69 700	89 000	110 100	128 500	159 100	81 200
GFI / Agricultural output + Subsidies (%)	42%	43%	40%	40%	38%	37%	33%	39%
FFI / Family AWU (€)	7 000	13 600	16 700	22 400	27 600	33 100	77 900	20 800
Gross investment / Output + Subsidies (%)	9%	13%	14%	15%	19%	21%	15%	16%

Source :FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

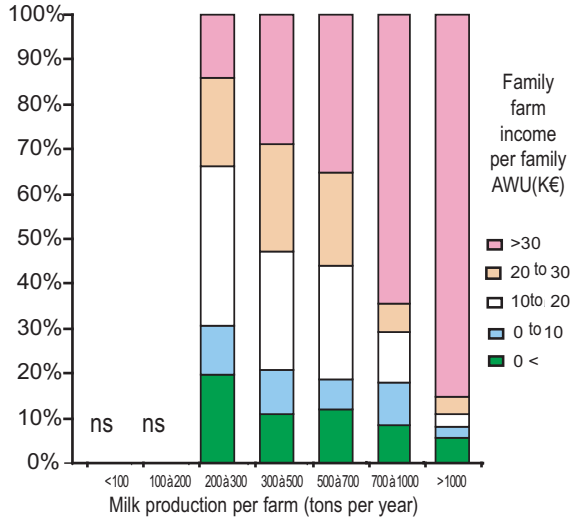
Distribution of the specialised dairy farms of each region according to the size (milk production per year) and the FFI per Family AWU

Figure 31

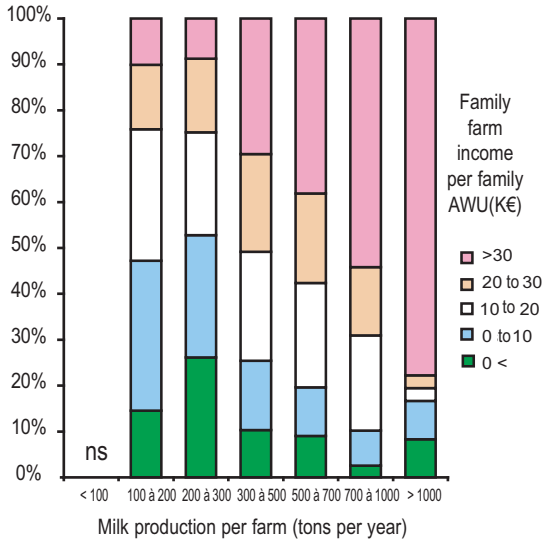
European Union 15



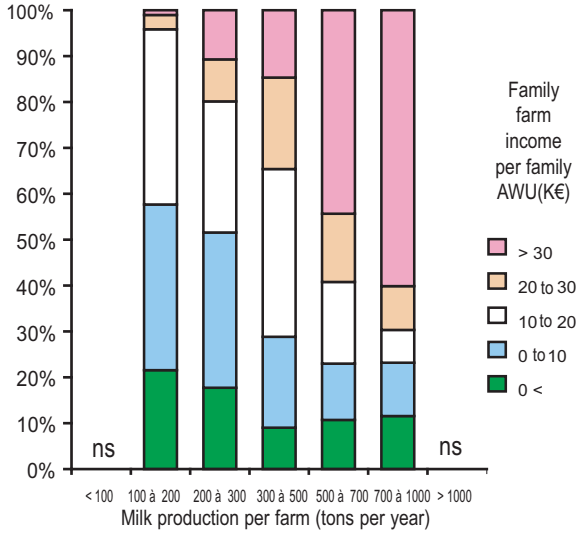
United-Kingdom (West)



Netherlands

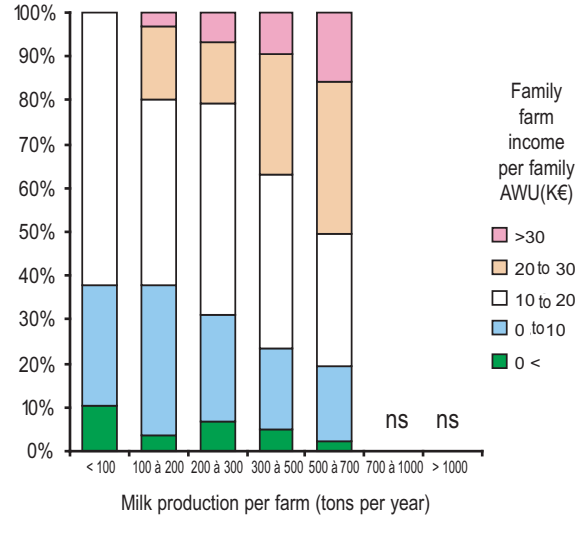


North Germany



North France

West France



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

conditions, another effect is the decrease of labour productivity as explained previously. Therefore, the level of FFI per family AWU varies less in average than in the other regions and the increase of the income according to the size is more moderate. Thus, only 10% of the farms producing more than 300,000 kg milk get a higher FFI than 30,000 € per family AWU (against 43% in the Netherlands).

Economic results : strengths, weaknesses, perspectives

In French regions, not studied thereafter (investigations are implemented in other studies, in particular in the frame of French farm networks), the main limiting factor of the income highlighted in this first part seems to be the gap between equipment level and production level more than the equipment level itself. The investments realised in order to satisfy purposes of working conditions and implementation of environmental standards seem to have been beyond what was authorised by the limited gains in labour productivity. By-products (beef and sometimes cereals) and a good control of variable costs (mainly feeding costs) still make it possible for these farms to get a labour income approaching the income observed in several regions of the North of Europe, which have yet a better labour productivity in volume.

In Denmark, important progress margin in production costs seem possible. Even without aiming at the efficiency of Dutch production systems (-41 € of variable costs per ton of milk), the difference with the European mean is quite high (-17 € per ton over the period 1999-2003, which makes a 9,000 € loss per farm). Another factor is the fact that the recent high investments in buildings and equipments have been realised for ten or twenty years. The investments will make it possible to have a higher level of production in the future, when the time comes to repay a part of the capital of the loans mobilised for these same investments. This makes the continuation of restructuring "necessary". In other words, the 3,000 farms which have entirely rebuilt their installation seem today facing only a part of the financial weight of their investments, taking into account the way depreciation is calculated as well as the access to loans which lead farmers to increase their debts instead of decreasing them. These investments systematically anticipate a higher production than the current volumes; it is the same for financing and repayment strategies. All of this can explain the fact that predictions regularly expect a decrease in the number of producers (from approximately 6,000 today down to 3,000 in 2015) as well as the position of Denmark, highly favourable to the suppression of quotas or first to their relocation (Sweden-Denmark mutualisation project for example).

In the Netherlands, optimisation of the production systems (in terms of input consumption, mechanisation and subcontracting) is already high and is responsible for an excellent economic efficiency in average. Combined with one of the highest milk price in the EU, the efficiency allows good economic results, which are certainly linked to the high price of milk quotas. In such conditions of price and efficiency, the growth in volume of farms appears as one solution to increase the short-term income per unit.
England and North-Germany have two common characteristics , certainly linked to each other: a milk price per ton of milk clearly below the EU average (respectively –41 € and –19 €, 1999-2003 average); a level of investment per ton of milk produced also below the average (especially in buildings and equipments). Whereas this situation leads to an underlying decline of the English milk production, the situation is different in North-Germany, where important individual developments of the milk production seem to be possible. In both these regions, if producers could get a milk price equivalent to the European average (calculated for 1999-2003), labour income would increase by approximately 20% in North-Germany and 60% in England, all things being equal… unless it results in higher investments.

The specific positioning of France (in comparison with the North-European region studied here at least) allowed the development of a milk production relatively rich in employment and certainly more favourable to a certain quality of life. According to the amount of investments realised and the wish for development expressed by many milk producers, there are still important room to manoeuvre for the increase of the income per AWU. Their implementation would probably require an evolution of certain national choices, as for example the choice of a policy aiming at the largest number of installations or the choice of a strong link between quota and land.

The opportunity or the necessity of such a strategy will also depend on the positions adopted by our European partners who also have certain room to manoeuvre in case of necessity, that is to say in case of strengthened competition on a European or a world-wide scale.

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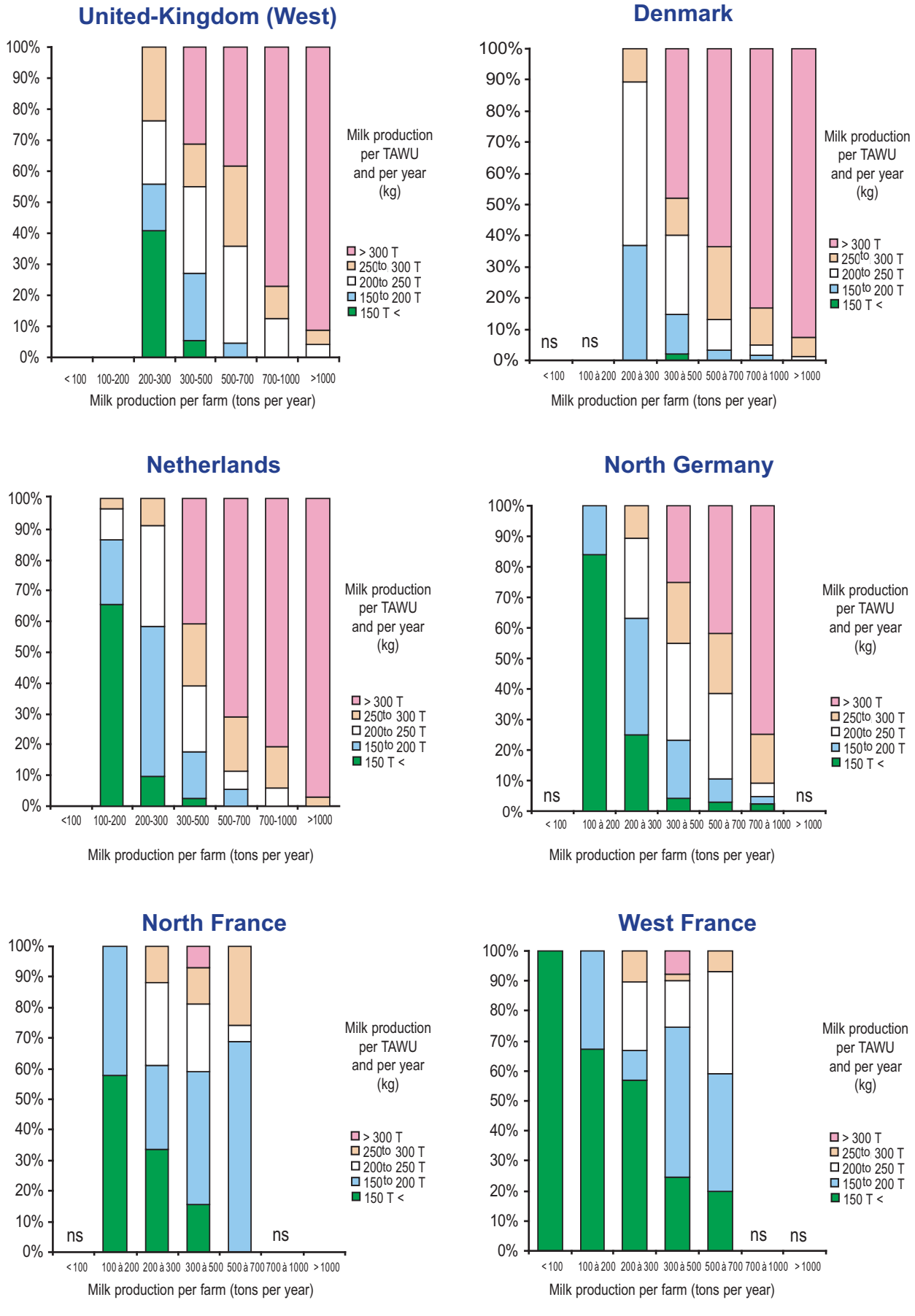
Distribution of the specialised dairy farms of each region according to the size (milk production per year) and the labour productivity (milk production / total AWU)

Figure 32



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage.

The first part of this document allowed, on the one hand, a better understanding of the factors explaining for differences in labour productivity and, on the other hand, a better approach of the link between labour income level, farm size and labour productivity within each production area studied. This work, mainly based on an analysis of individual FADN data, should be now completed by qualitative approaches. Giving importance to interviews of experts should give a better view of the national contexts and the farm's strategies of development. Evolution of productivity and labour income is indeed the result of factors which were not enough investigated at this stage of the study: organisation of work; national choices in terms of agricultural policy, fixing of the milk price in relation with the situation of dairy industry; technical models defended by agricultural development organisations;

2

Dairy context in four European production areas

The second part of this document will focus on the national contexts and the main specificities of milk production in four production areas (in the right order: Denmark, the Netherlands, North-Germany and the United-Kingdom). On the one hand, his step seems to be useful for a better interpretation of the results from FADN data and on the other hand, to successfully understand the strategies of the producers and of all operators in milk production (collect and processing companies, financing etc.). Moreover it will make it possible to get a clearer view of the situation of each zone in terms of opportunities and/or threats and thus to anticipate the development strategies as well as the political strategies of the representatives of each region in Brussels. Each zone was submitted to investigations based on information from the literature as well as interviews on the spot (this step was implemented by four engineers-master students completing their study with a period of probation in the French Institut de l'Elevage. Interviews concerned experts of the sector (farmers, researchers, agricultural advisers, economists, members of FADN offices etc.) and visits of farms considered as being "typical".

Results presented in the first part of this document (in terms of farm size, labour productivity, economic efficiency and economic results) should be interpreted regarding the environment of dairy farms. This concerns mainly :

- Conditions of the natural environment: climate, relief, agronomic potential of the grounds, environmental constraints (related to the density of population), etc.
- Economic and financial environment: membership or not of euro zone, tax levies (tax rate); financing of investments (loan facilities, interest rates, repayment modes and loan periods); power and strategies of food companies implementing milk collection and processing.
- Social conditions : wishes of the farmers in terms of working conditions, position of women and relations between generations on farm, transmission methods of the property between the rescuer and other heirs, etc.
- National agricultural policy : implementation (more or less supervised) of European regulations relative to milk quotas (quota market versus free-of-charge quota), support by research an development, etc.

This second part will let the reader discover quite different realities and orientations between regions : they are actually, and they will remain mainly the consequence of a national context. Are there indeed any similarities between the dynamism expressed by Danish farmers running for expansion at the expense of a huge debt, and the economic management of English farmers giving a greater place to immediate income than to the preparation for the future? At the end of this review, it appears that the birth of one single European dairy model is not about to happen.

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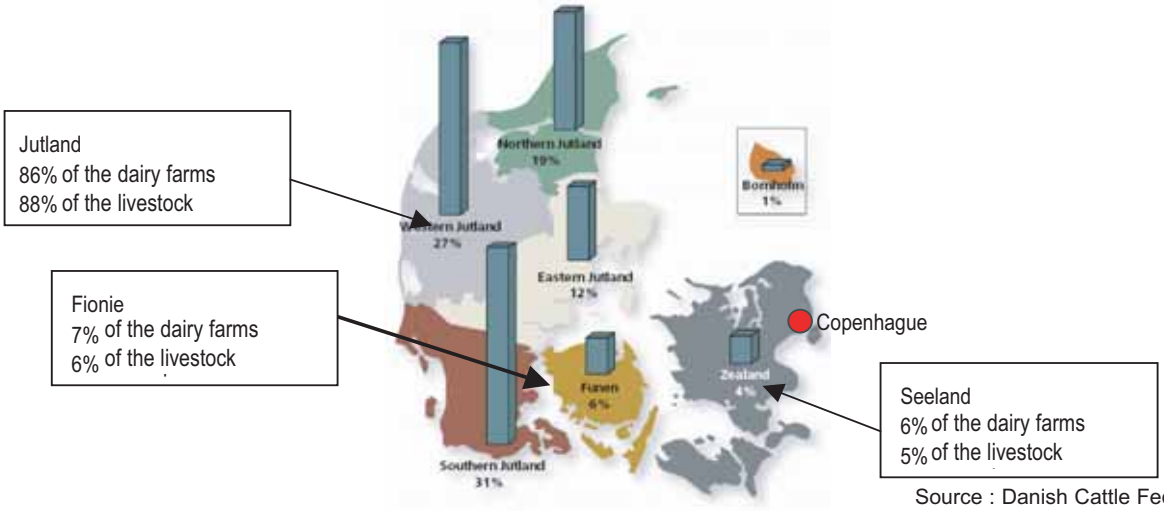
Denmark: Distribution of dairy farms and cattle population in 2003

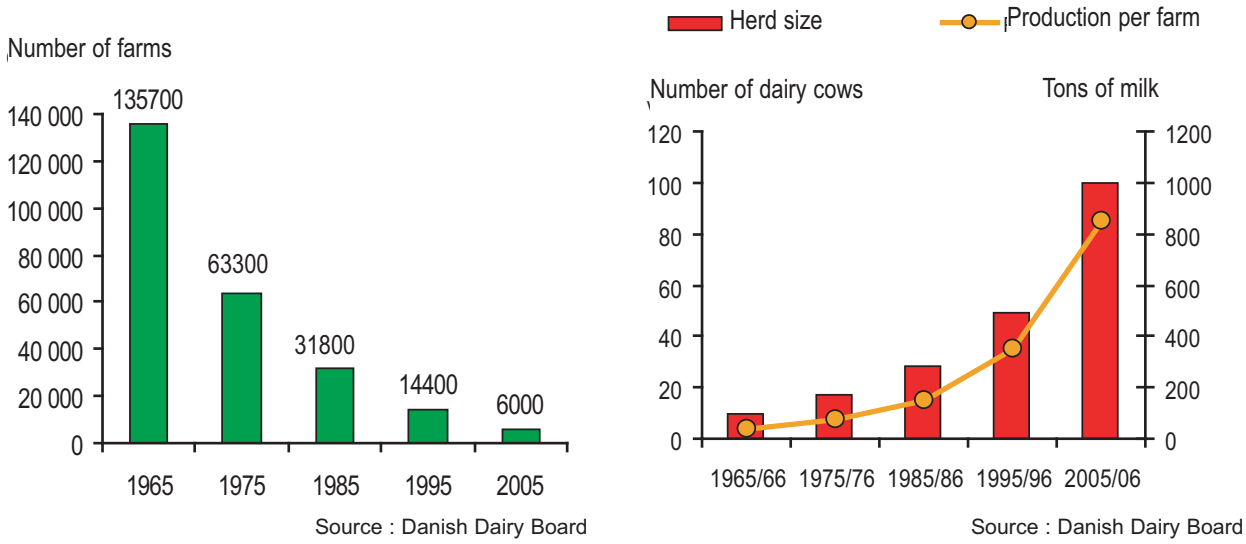
Figure 33



Source : Danish Cattle Federation

Evolution of the number of dairy farms (left) and of the size of the herds (right) in Denmark

Figure 34



Source : Danish Dairy Board

Source : Danish Dairy Board

DAIRY FARMS IN DENMARK (FADN 2003 – AVERAGE RESULTS)

1.86 AWU of which 1.23 family AWU and 0.63 paid AWU,

90 ha UAA of which 60 ha FS,

9 ha permanent pasture, 20 ha temporary pasture and 15 ha fodder maize,

84 dairy cows with an average yield of 7,700 kg milk/cow/year,

2.2 LU/ha FS,

649,200 kg annual milk production,

260 K€ output of which 83% from milk and 8% from beef and veal.

DENMARK

From family farming to dairy business culture

Danish dairy farms are characterised by the highest average level of labour productivity in the European Union. This situation is to the large extent the result of a national choice of agricultural policy ; it is also made possible by the farmer's voluntarism and the strategies of different organisations upstream and downstream. Danish dairy farms are thus in a transition period, in a context of strong restructuring. The technical model traditionally used until now (herds of forty dairy cows, tied-up barns, grazing) seems to disappear. It is replaced by another model which gives greater place to larger herds (100 to 120 cows) in loose-housing systems with cubicles, and fed with total mixed rations.

A strong restructuring

With a national milk quota of 4.45 millions tons, Denmark provides approximately 3% of the milk production of European Union (EU 27). In 2005, some 5,900 Danish dairy farms, mainly located in Jutland, the West border of the country (figure 33), produced as much milk as the French region Brittany where there are three times as many producers. Danish dairy farms have in average a herd of 94 cows for an agricultural area of 95 hectares. With Spain and Italy (where farms remain however a lot smaller), restructuring of the Danish dairy sector has been the most spectacular in the European Union: the herd size has doubled during the last ten years (from 45 cows in 1995) and the number of farms was divided by two (figure 34). The mean annual milk production per farm reaches 850,000 kg in 2006, a record level in the European union.

Towards new systems

According to estimations made by Danish organisations of research and development, the number of dairy farms should reach approximately 3,000 units in 2014/2015 (which is equivalent to a division by slightly more than ten in thirty years). The size of the farms would be 150 dairy cows for a mean quota of 1.5 million kg.

Even if the rapid restructuring taking place in Denmark tend to limit the heterogeneity of production systems, there are still two main models coexisting nowadays. The first one was strongly represented at the beginning of the 90s and gathers a high proportion of farmers who are now close to retiring. These farms have 40 dairy cows in average for a yield close to 6,000 kg milk per cow and per year. Housing consists generally in tied-up barns and animals are grazing in most of the cases. Moreover, Jersey and Danish Red, traditionally used in Denmark, are likely to be found.

The second model is more characteristic of the future models and gathers younger farmers and larger herds (100 to 200 cows). Milk yield per cow often reaches 10,000 kg per year (standard milk : 4.2% fat and 3.2% proteins). This is allowed by the use of a new feeding system based on total mixed ration with a mechanised distribution as well as the rebuilding of cattle houses (in 2003, 60% of the dairy cows were housed in buildings build or renovated less than six years before). New buildings have a mean capacity of 150 places. They are often made of a long metal frame (approximately 40 meters) with a natural ventilation due to an opening in the ridge of the roof and windscreen nets on both lengths over a 1.2 to 1.5 meters high wall in perpend. Moreover the new production method is characterised by a higher presence of Holstein cows and an increase in paid labour. As for the number family labour units, it is low and steady.

The increase in the size of the mean herd observed at a national scale is the result of the disappearance of many "small" farms, particularly due to the farmers' retirement. It is also caused by a rapid transition of "small farms" towards the new model, accompanied by a consequent increase of the herd's size. The average farm size increased a lot over the period 2000-2003 (figure 35). This was also the case afterwards (however it was not possible to study the period 2003-2005 from FADN data).

A strong debt and a specific financing method

Danish financing organisations offer large and quite flexible financing capacities to farmers, favouring thus the expansion of dairy farms. Danish specialised farms increased highly their level of annual investments from the end of the nineties, mainly in land and buildings (figure 36). Medium- and long-term debts (figure 35) progressed similarly over this period, leading to the conclusion that investments are largely financed by loans.

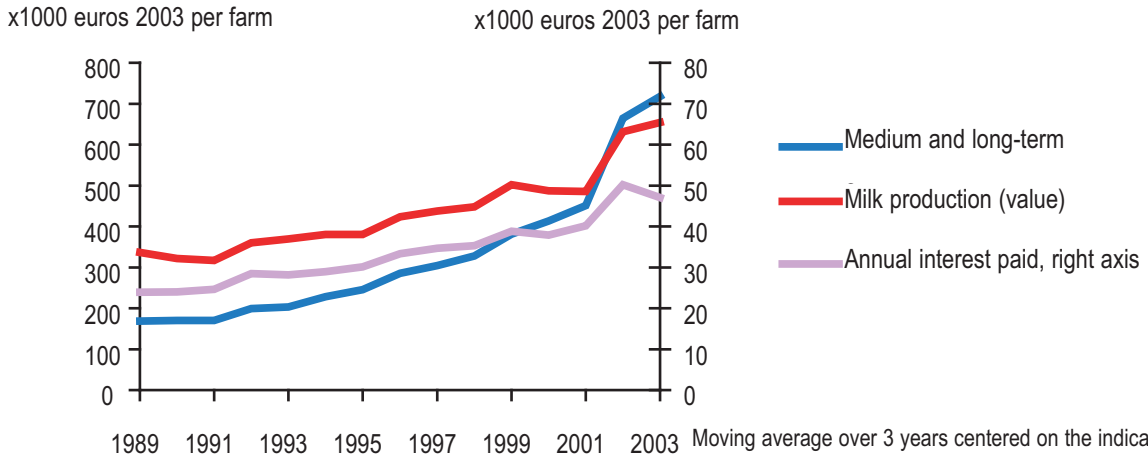
A farmer can be financed in theory up to nearly 95%. Whereas this situation rarely concerns farmers in the middle of their carrier, a debt rate of 70 to 75% is to be found among farmers[1]. FADN 2003 records a mean

> > >

[1] Among the farms visited, the debt rate was: 95% for a young farmer; 86% for a farmer of cruising speed ; 38% for the minimal value. The box, next page, presents the financing structure of one of the farms visited.

Figure 35

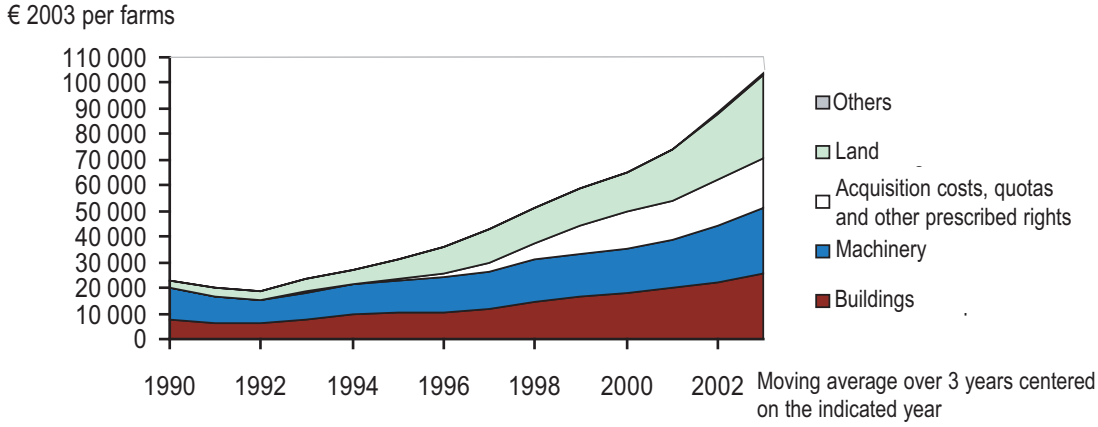
Evolution of milk production, debt and annual interests paid in Danish specialised dairy farms (constant euros)



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Figure 36

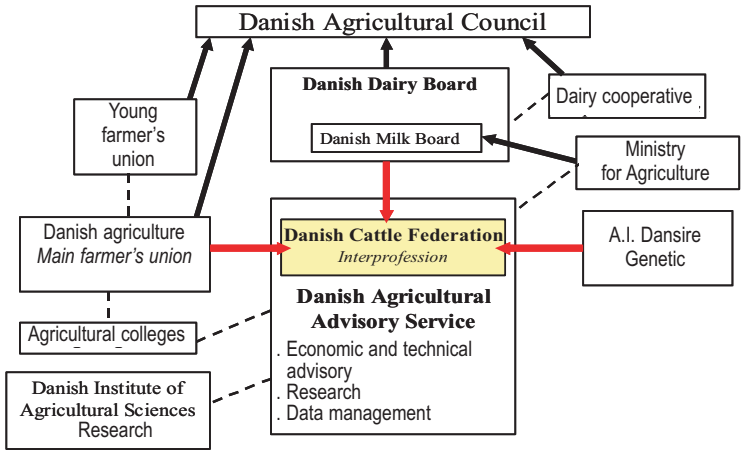
Evolution of investments per farm in the Danish specialised dairy farms



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Figure 37

Relationship between the different organisations of the dairy sector in Denmark



Source : GEB - Institut de l'Elevage from different Danish sources

debt rate of 62% for Denmark (given by the indicator "total debt/total assets"). However this rate should be considered cautiously given the fragility of the indicator "total assets" which seems to strongly underestimate land (using its tax value, far below the market value) and to overestimate buildings, also calculated according to their tax value.

Mortgage banking institutes are the main financers of agriculture. These old and nearly cooperative organisations were set up in 1797 (at this time, the implementation of a mortgage market by the government allowed the rebuilding of the areas destroyed by fire in Copenhagen to be financed). These institutes play the role of intermediate between Danish investors, mainly institutional (insurances, pension funds…) and borrowers (agriculture companies, private individuals particularly for real estate). They issue mortgage bonds of a value equivalent to every new loan given to farmers. The interest rates of the loan and the bond are nearly equivalent as well, as the institute takes a very low margin at this level. There is a secondary mortgage bonds market which makes it possible for the farmers to repay their debt by buying the corresponding bonds. In the case of a young farmer, the loan can be completed by a young farmers loan granted by the mortgage institute after agreement of the governments which guaranties the loan.
Mortgage loans are refillable and are granted according to the value of the assets, estimated by the mortgage institute. According to the law, the total mortgage debt cannot exceed 70% of the value of the assets: this criterion seems to weigh more on the granting of the loan than the real capacity of the farmer to repay his debts.

This loan facility is essentially based on two parameters considered to be stable by the investors: low interest rates and a steady increase in the land price which ensure an increase in the farm value with the passing years: thus the farmer will be able to repay his debts if he realises his capital.

A strong technical management of milk producers

The increase of the restructuring rate and the implementation of a new production model from the end of the nineties are mainly due to collective decisions taken by the different organisation related to the dairy sector.

Cooperation abilities between organisations (trade unions, research and development, Danish Cattle Federation, agricultural colleges, etc.) are much stronger in Denmark than in many other members states. This is part of a global, efficient and often united in its decisions system concerning the orientation of dairy industry (figure 37 shows the interdependence and the cohesion among organisations). The creation of a quota bourse in 1997, which favoured a rapid restructuring of the milk production sector, is a good illustration of this quest for cohesion. The Danish government indeed took the decision to introduce the quota bourse after a study led by the Danish Agricultural Advisory Service (DAAS), which proved that dairy farms tended to limit their investments at that time. It was considered that Danish milk production may regress if the quota exchanges were not liberalised.

The organisations of the dairy sector as well as the research and development accompany the evolution of the Danish milk production and promote the new production model. They all wish to adapt farms to the perspective of the end of dairy quotas in 2014-2015, evolution wished and defended by Danish authorities. The new Danish production model was set up by applied research organisations notably through study farms; it is popularised and supervised by agricultural advisers. The model is taught in agricultural colleges and young farmers complete their study by a practical application of their knowledge in large farms during obligatory training periods.

A concentration of the industry and a high-performance in exportation

In Denmark, nearly 90% of the milk collection and processing is implemented by one company with a cooperative status: Arla Foods. The company was created by the fusion between the Danish cooperative MD Food and the Swedish Arla. It is the main dairy company in Europe, the French group Lactalis being second. It processes over 9 billions litres of milk out of which the half in Denmark. Collection of the milk is completed in Denmark by thirteen private or cooperative very small dairies.

Arla Food is highly structured and favours an export strategy. Nearly the three quarters of the Danish milk production are exported, of which 60% towards member states of European Union. The United-States,

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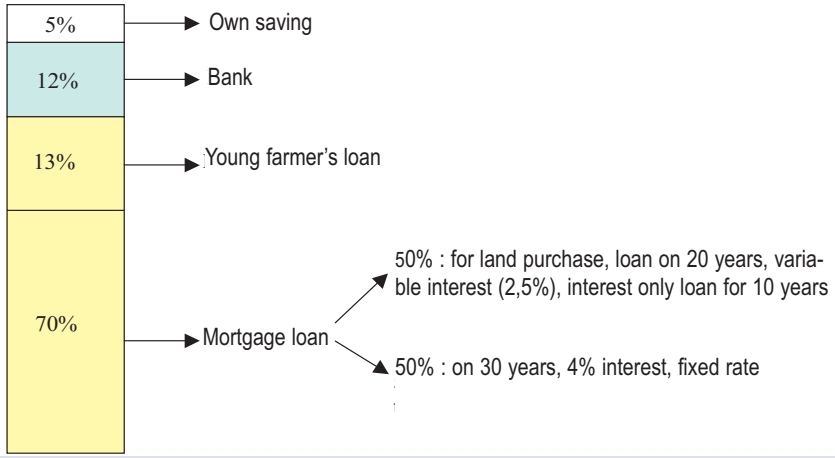
A YOUNG FARMER FINANCED FOR 95%: A NORMAL SITUATION IN THE FRAME OF A NON-FAMILY TRANSMISSION

Jens (24 years old) was installed since 10 months at the time of our visit. He bought the holding of a 92-years-old farmer on the free market in 2006. He selected this farm through the Internet website of a Danish real estate agency. The total cost was 2.8 million euros. It comprised the house (around 5% of the total), the purchase of quota and the cost of the first renovations. The price seemed correct to Jens regarding the market prices. Today Jens owns 100 cows (Holstein and Red Danish), 170 ha of which 120 ha in ownership, and 1 million kg quota (of which 600,000 kg comprised with the farm). The graph explains how this investment was financed. Jens wishes to renovate and enlarge the barn (built 29 years ago). He also wishes to increase the herd and quota size (aiming at 2 millions kg and 200 cows in one and half year) and to build a new milking parlour (2*20, the current parlour is 2*6 side by side) and a new slurry pit. This project will cost around one million euros. Financial institutes already agreed for the financing. Jens wishes to reach 500 or 600 cows on a long-term basis. This development will be implemented in accordance with his repayment capacities.



Japan and Saudi Arabia are the other main clients. In a situation of quasi-monopole, Arla Foods is able to maintain its milk price (336 € per ton in 2003) above the French average, especially because of cheese production and stringent management. In conformity with the CAP reform of June 2003, the milk price decreased down to 305 € per ton over 2004-2005. According to experts from Arla Foods, this decrease was also caused by the negative commercial effects of the Muhammad cartoons controversy in the end of 2005 (at this moment, the sales turnover of Arla temporarily decreased by 95% in Saudi Arabia, its first market in the Middle-East).

Danish farmers consider the presence of this large cooperative group to be a strength. Its commercial know-how in the export is important and results in a good milk price; on the assumption of a suppression of the dairy quotas eventually, breeders might not be really affected, as private agreements with Arla would then take the place of maximal guaranteed quantities fixed by the authorities.

Strength for the future…

In Denmark, the adaptation of the milk production sector is intense, with the common hypothesis that this sector will be more liberalised at the European scale in the next decades (notably because of the end of milk quotas). Denmark began its transition soon enough and will gather very large dairy farms in 2015, with high levels of assets. Farmers, advisory services and research and development will then aim at optimising the chosen production model by growing in volume and thus limiting the weight of costs (fixed and variable) per production unit. Moreover less investment will be necessary in 2015, as some of them (for example in buildings) were already realised between 2000 and 2005. This will participate in the decrease in the total costs. This factors lead to the perspective of a labour income increase in the next years for some categories of farms.

Beside the stability provided by Arla Foods (concerning milk price and the outlet perspectives for the products), breeders can count on an efficient supervising in terms of advisory and research and development. They also benefit from the trust of Danish investors: this is typical for the Scandinavian culture which is based on trust and citizen responsibility.

The increase in the land price gives (until now) the farmers a certain economic safety margin, as they own their land. They often make (until now) an interesting profit with the resale. This favours restructuring and influences positively the morale of farmers who are well aware of the value of this capital (see box).

…But also doubts

Danish breeders seem to be quite confident in the possibility to realise the capital gathered year after year on the farm at the end of their activity. This is due, amongst other things, to the common idea that the price of the land should not decrease in medium or long-term. Thus the land price had a spectacular increase by 20% in 2005-2006. This hypothesis that the land price will go on increasing forever should however be considered cautiously. According to OECD works, the first signs of overheating appear for the Danish economy.

Farms concerned with the new model of production appear to be very large and often modern; this is also the consequence of a high level of debt. Breeders often contracted debts over thirty years and the personal financial commitments are large. On the individual scale, this situation does allow the farmer to do many mistakes. It should be noticed that the transition from family farming to dairy business farming with high levels of capital is not followed by any change on the juridical level. The creation of holdings is seldom in milk production although it is common in pig production; thus the farmers generally engage their own property. It seems however that bankrupt are exceptional until now.

Advisory services and financers seem to leave only few opportunities to farmers who would wish to produce milk without following the logic of the dominant model. Therefore it seems that the Danish milk production progressively tends to homogenise. "Organic" farms are for example as large as the others (except that they preserve grazing) and they gather as much capital. Some of the farmers we met seem to have heavily invested because they feared not to be able to be a farmer anymore in the future: according to them, this is the only way not to see their farm disappear and they seem to be more induced to implement the change than convinced.

The implementation of the change of production model is so fast that the limits of the new model are not always clearly foreseen. Projects leading to an increase of the herd up to 300 or 500 cows were maid for a labour input equivalent to a couple of farmers and paid labour periodically employed. Are the consequences of this growth anticipated enough in terms of work quantity? On a long term the requirement imposed in terms of quantity of work could lead to a shortening of the farmers' carrier (production stops, which allow the farmer to realise his capital, are already becoming numerous). The existence of a steady number of potential successors would then be the condition for the durability of this system.

> > >

NETHERLANDS

Specialised, simple and efficient production systems

Dutch dairy farms are often highly specialised family structures; they have a high productivity per labour unit and a good level of technical and economic efficiency. A good control of variable costs allow the farmers to have a good income in average. This makes it possible to realise large investments on the one hand and to capitalise by accumulating land on the other hand. These farms are developing in a context of lack of land, strict environmental rules and high price of milk quotas.

A dense production area

With an area of 41,500 km² and 16.3 millions inhabitants, the Netherlands are characterised by a high density of population (390 inhabitants per km²). This interferes with a high level of intensification of the agricultural production and explains the difficulties of its extension. In 2005, the country gathered 23,500 dairy farms with a mean agricultural area of 41 hectares and a total dairy quota of 10.7 millions tons (this is equivalent to slightly more than 7% of the milk production of EU-27). This milk production is equivalent to milk production in West-France for a number of producers twice lower. Milk production per hectare (11,840 kg per hectare of agricultural area and per year in national average) is one of the highest in the European union.

A fast restructuring of farms and dairy companies

Like in Denmark, milk collection and processing are realised by a limited number of operators. The two main dairy cooperatives (Campina and Friesland Coberco Dairy Food (FCDF) collect nowadays the three quarters of the national milk production; the rest is collected by DOC Hoogeveen (company specialised in cheese process) and ten other companies (Nestlé, Bel, Kaas, …). The average milk price was 325 € per ton in 2003. This quite high level of milk price is the result of the dynamism of Campina and FCDC in the export (60% of the milk is exported) and of the development of cheese production (53% of the annual tonnage in dairy products).

The number of Dutch dairy farms was divided by four since 1975 (figure 38). The rate of restructuring is high; however it is not as spectacular as what was observed in Denmark or in Spain. The growth of the average size of the herd in dairy farms was limited by the high increase of the milk yield per cow (especially over the period 1985-2000) in a context of control of the milk production. The milk yield was almost steady over the recent period (2000-2005, figure 39).

A typical Dutch dairy farm

According to the statistical data of the Ministry of Agriculture, Dutch farms have an average herd of 61 dairy cows and an annual milk quota of 544,700 kg in 2005. Milk yield reaches 7,400 kg per cow and per year.

Farms are modern and well-equipped. Large-size milking parlours are often seen and the country gathers 700 milking robots. The Netherlands were pioneer in acquisition of milking robots; however they are progressively caught up by France and Denmark in this domain.

Farm's labour is mainly familial. Paid labour is overall rare and considered to be too expensive, not very flexible and less productive than family labour. According to the FADN data of 2003, a Dutch dairy farm gathers in average 1.56 family AWU and 0.13 paid AWU (8% of the total AWU).

Dutch dairy farming is characterized by the place of grazing (82% of the Dairy cows graze). Grazing reduces the input of concentrate food in the ration; this is one of the explanations for the very good efficiency of the Netherlands in terms of variable costs. It also reflects the wish to answer the demands of the consumers who associates grazing with traditional breeding.

Dutch dairy farms are highly specialised in milk production and labour is mainly devoted to the tasks directly dealing with the dairy herd. Thus farmers often externalise the rearing of heifers and use subcontracting for the agricultural tasks (employing specialised companies and/or farmers equipped with the adapted machinery).

A low feeding cost

According to FADN data of 2003, it appears that Dutch dairy farms take the advantage in terms of feeding costs (468 € per cow per year for the specialised farms), especially in comparison with Denmark where labour productivity is similar but with different production system (figure 40). This favourable situation is due to several factors:

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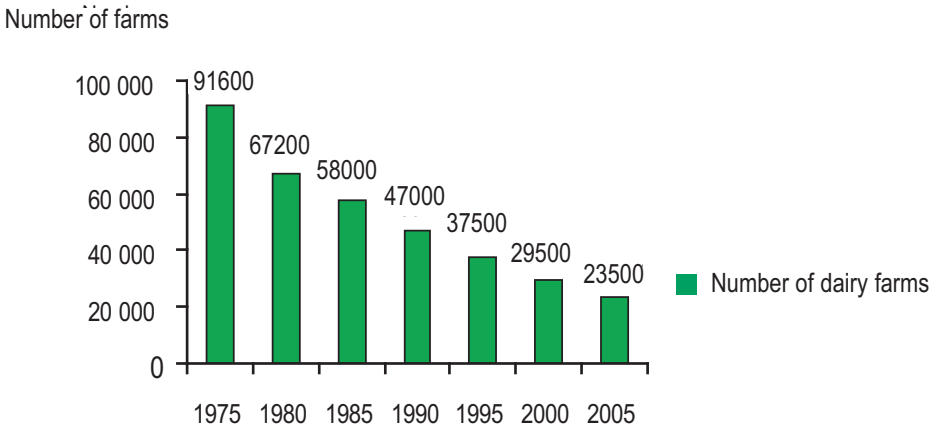
Evolution of the number of dairy farms in the Netherlands

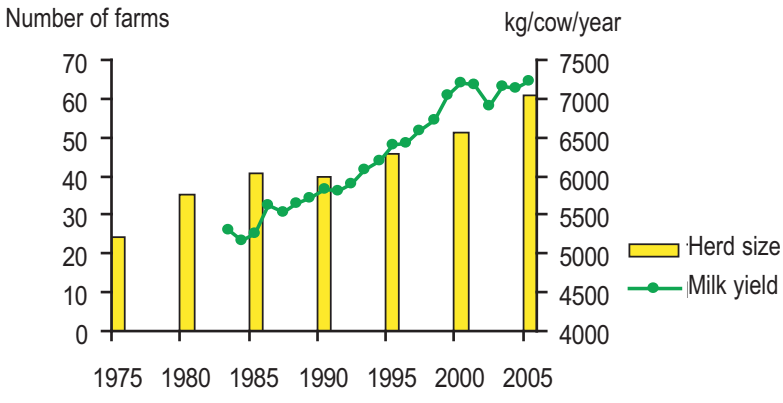
Figure 38



Source : LEI, Centraal Bureau voor de Statistiek. Land- en tuinbouwcijfers 2006

Evolution of the size of the herds and the milk yield per cow in the Netherlands

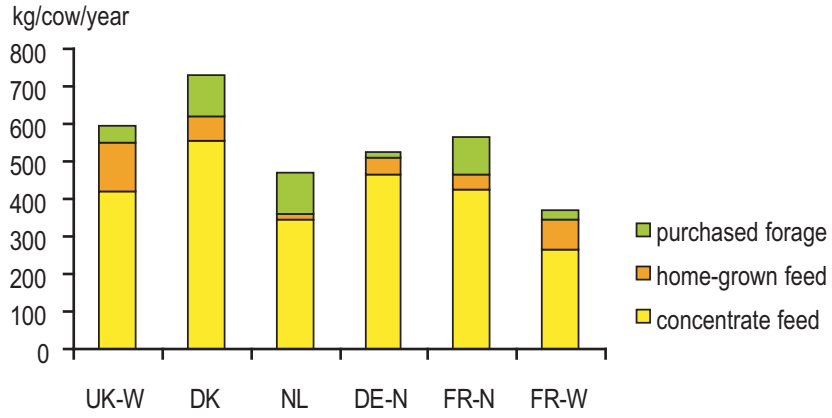
Figure 39



Source : LEI, Centraal Bureau voor de Statistiek. Land- en tuinbouwcijfers 2006

Feeding costs per cow in specialised dairy farms in 2003

Figure 40



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

- the amount of concentrates used is lower as Dutch farms give a great place to grazing in the diet. Moreover this type of diet implies that the concentrates are poorer in protein than in other production areas.
- The price of concentrates seems to be lower because of the geographical proximity of Rotterdam. This is also due to a larger use of cereal substitutes (notably corn gluten feed) in the formulation of concentrates as well as to the competitive pressure of the numerous processing companies.

Land is scarce and expensive

Agricultural area occupies 69% of the area of the country (against approximately 55% in France). The rest of the area is occupied for 16% with "green zones" (forest, parks, green spaces) and for 15% with "red zones" (buildings, infrastructures, others). Due to the high density of population and to a limited number of land transactions, price of agricultural land is extremely high (between 30,000 and 35,000 € per hectare). The price is clearly above this level for areas switching from an agricultural status to the status of building land.

Pressure on agricultural land should still increase in the coming years. "Red zones" will surely increase considering the demographic growth, whereas the Dutch wish to increase "green zones" by 500,000 hectares in the next thirty years.

Large investments, mainly self-financed

In comparison with other production areas (including France), the annual level of investment in Dutch dairy farms has remained durably high, especially for buildings, in the last 15 years. Yet this trend was softened in the middle of the nineties, probably because of variations of the milk price (see figure 16, first part).

Generally speaking, Dutch banks are often careful in the financing of farmers. Financing seems to require more conditions than in Denmark and many factors are taken into account before granting a loan: competence of the breeder, intrinsic quality of the farm (modernity, size, etc.); history of investments; market rates, business plan. Banks also give a great importance to the "Cash-Flow" indicator reflecting the capacity of the farmer to repay his loans. They are sensitive to the ability of the farmer to self-finance a part of the investments as well.

A large part of the investments of Dutch dairy farms (between 25% and 50% in overall) corresponds to the acquisition of milk quotas. The tax policy of the country allows the depreciation of the investments devoted to milk quotas, which tends to the reduction of their real cost. Unlike in Denmark, there is no quota bourse in the Netherlands. Trade is generally done at a very high price(2 € per kilo of quota), through a broker. Despite this high level of price, approximately

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DAIRY FARMS IN THE NETHERLANDS
(FADN 2003 – AVERAGE RESULTS)

1.69 AWU of which 1.54 family AWU and 0.15 paid AWU,

46 ha UAA of which 43 ha FS,

35 ha permanent pasture and 7 ha fodder maize,

74 dairy cows with an average yield of 7,400 kg milk/cow/year,

2.4 LU/ha FS,

544,500 kg annual milk production,

210 K€ output of which 84% from milk and 7% from beef and veal

5.8% of the national quota were the subject of transactions during the marketing year 2004-2005. According to the interviews of experts, the trading price of milk quota is not likely to decrease in the next years as the demand is sustained. They also consider that the introduction of a quota bourse would not change the level of price, even if they agree on the fact that it would make the trade more transparent.

The large amount of investments in Dutch dairy farms should be compared to the high level of economic efficiency (measured by the ratio "gross farm income/agricultural output + subsidies"). This high efficiency allows many farms to handle with the high cost of the acquisition of milk quotas and give a certain freedom in self-financing.

An environmental pressure

According to the nitrate directive, the Netherlands are totally located in vulnerable zone. In this country, the first studies reporting pollution of the underground water by nitrates were realised in the sixties. Based on scientific conclusions, policies were progressively implemented in order to limit emissions coming from agriculture. This concern the management of the growth of livestock population (especially pig population) and the adoption of certain rules followed by the dairy sector since then: the obligation of covering the outside slurry pits and burying of slurry. From 1989 on, the MINAS mineral accounting system was set up to assess the balance of nitrogen and phosphorus elements on the farm. Based on the "polluter pays" principle, it fixes a maximum surplus. Exceeding this limit leads to a tax of 9 € per kg phosphorus and 2.3 € per kg nitrogen. This measure encourages farmers to transport surplus slurry towards crop culture areas. A new measure is applied for farms since 2002: the "manure disposal contract" requires the breeder to define his management of waste (spreading on his own land in accordance with the nitrate directive, export towards another farmer, transformation). In 2003, the European Court of Justice ruled that the Netherlands had not properly implemented the Nitrates Directive, National authorities submitted a request for a derogation. It was accepted in 2005 by the European Commission. This derogation authorises a maximal level of organic nitrogen per hectare of 250 kg/ha (against 170 kg/ha before that). Nowadays, uncertainties remain concerning the future of this derogation.

Strengths and weaknesses of the system

Dutch dairy farms have important assets: the size, the existence of an optimised system, an excellent technical control and reduced variable costs per ton of milk. Which progress margins remain in this favourable initial context ?

Due to the scarcity of land, to the actual density of this production area and to growing environmental issues, the national milk production would not be able to increase much in the future even if the policy of limitation of the milk production was questioned. Therefore a growth of farm sizes will only happen if some farms give up milk production for the benefit of others. Some of the current farmers or potential young farmers could be attracted by an emigration strategy. According to the experts, around one hundred Dutch breeders leave the Netherlands every year to settle in Germany for the majority, but also in the United-States, in Canada or in Denmark.

Dutch farmers cannot count on a strong increase in the national milk production; they cannot expect substantial economic gains related to a decrease in variable costs either, for a majority of them (as variable costs are often already optimised). As for fixed costs per ton of milk, it appears that they are quite stable between size classes (see the treatments of FADN data in annex). This result suggests that economies of scale are often limited concerning fixed costs.

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DAIRY FARMS IN NORTH-GERMANY
(FADN 2003 – AVERAGE RESULTS)

1.85 AWU of which 1.55 family AWU and 0.30 paid AWU,

70 ha UAA of which 59 ha FS,

42 ha permanent pasture and 13 ha fodder maize,

60 dairy cows with an average yield of 7,200 kg milk/cow/year,

2.0 LU/ha FS,

429,000 kg annual milk production,

160 K€ output of which 76% from milk and 14% from beef and veal.

NORTH-GERMANY

Solid family farms

Dairy farms of North-Germany present midway characteristics between North-France and the three other countries studied here: intensive livestock and forage production; large resort to family labour; quite good labour productivity; moderate investments and limited debt. Milk price is lower than in Denmark and in the Netherlands. These two countries are geographically close to North-Germany, therefore they cause debates within the advisory organisations as for the production models to be favoured in the future.

A strong diversity among Länder

Germany is the first milk producer in Europe with an annual milk production of 28.5 million tons (19% of the total production of EU-27).The number of dairy farms (30% of the German farms) decreased by 5.1% per year during the period 1995-2005; this rate is higher than in France (4%) and lower than in Denmark. Amongst the 4.1 millions dairy cows recorded in 2005, 53% belong to herds over 50 cows (against 82% in Denmark, 87% in United-Kingdom and 75% in the Netherlands). Nearly one quarter of the German cow population is located in farms over 100 cows.

Globally, German milk production is made of three regional subsets which are quite contrasted in terms of technical models and farm size :
- The two Länder of South-Germany (Bavaria and Baden-Württemberg) gather 60% of the dairy farms for 35% of the milk production. In this area, farmers are often multiple joholding.
- East-Germany (the former German Democratic Republic) gathers around 4,800 dairy farms and implements 22.5% of the national collection. Production units are very large (around 170 dairy cows) and mobilise a high proportion of paid labour.
- North-Germany (studied here) is composed of Lower Saxony and Schleswig-Holstein and makes 26% of the national milk production. Its quite intensive milk production shows many similarities with the neighbouring countries. In Lower-Saxony (especially in the Weser-Ems), the production model is close to the one observed in the Netherlands (high rate of specialisation and large place for grazing). In Schleswig-Holstein, similarities can be found with the Danish model (lower milk density per hectare than in the previous case and larger areas and stocks).

Farms are moderately specialised in the North

According to the FADN data of 2003, North-Germany gathers 23,800 dairy farms (see annex) out of which 60% are considered as "specialised" (meaning that output from milk represents more than 60% of the agricultural output). The proportion of specialised farms is lower than in West-England, in Denmark and in the Netherlands. Diversified farms generally have a milk quota below the regional average and are mainly oriented towards crop, poultry and pig productions.

In 2005, nearly one quarter of the dairy farms of North-Germany produced also young bulls. This production is often low in investments requirements because it is realised in already depreciated buildings. It is generally stopped when the quantity of work is too high or when an increase in the milk production requires more fodder surface.

According to the 2003 FADN data, the milk production of 10% of the dairy farms exceeds 700,000 kg in North-Germany. This always increasing proportion was 40% in the United-Kingdom, 36% in Denmark and only 1% in France. In 2003 German farms produced 343,000 kg milk in average, which is half as much as in West-England and one third more than in West-France.

Rather intensive farming

North-German farms produce in average 4,960 kg milk per hectare of agricultural area and 6,860 kg per hectare of fodder surface. This level is higher than in North- and West-France (respectively 6,500 kg and 5,200 kg per hectare of fodder surface); however it is lower than in West-England (8,500 kg), in Denmark (10,800 kg) and in the Netherlands (12,500 kg).

In North-Germany, maize silage represents 23% of the fodder surface. This rate is lower than in North- and West-France and close to the rate found in Denmark. It is higher than in the Netherlands (17%) and in England where the production systems are based on grass.

> > >

Figure 41

Milk price paid to specialised farms: average 1999-2003

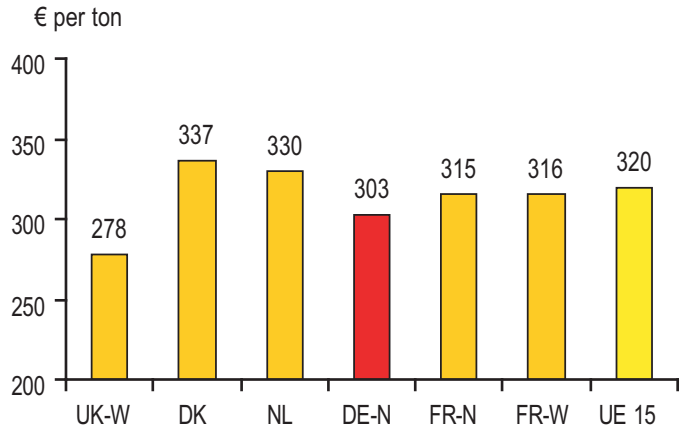
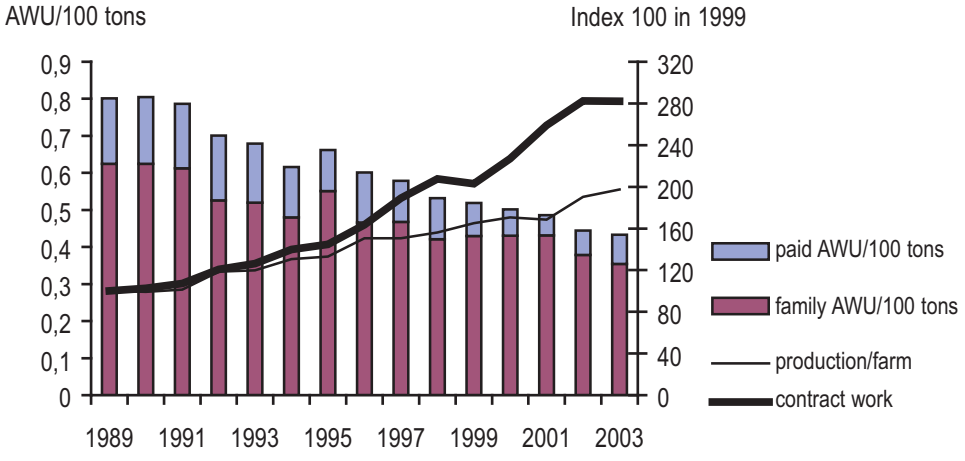


Figure 42

Evolution of labour input in specialised farms of Schleswig-Holstein



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Considering the regional/national average, milk yield of dairy cows (7,000 kg per year) is slightly lower than for the Dutch cows (7,400 kg) and for the Danish cows (7,700 kg). However it is quite similar when considering the average by size class (see annex). This highlights the genetic (and not only geographical) proximity between these North-European regions.

Milk price is rather low

According to estimations realised from the FADN data, milk price paid to producers located in North-Germany was 303 € per ton in average over the period 1999-2003 (figure 41). This mean price is clearly higher than in England (278 €), yet it is far lower than in both French region studied (315 €), in the Netherlands (330 €) and in Denmark (337 €). This low milk price is mainly due to the low production of cheese (25% of the collected milk). In this region, a large part of the collected milk is processed into industrial products.

Family farms

Labour is mainly familial (figure 42) and there are in average 1.52 family AWU and 0.27 paid AWU per farm. Farms with a milk quota below 500,000 kg employ at the most two persons, the farmers and someone of the family (wife or child), mostly part-time. The farmers generally spend most of their time on the farm and only have little free time or holidays.

Large farms with a milk quota over 500,000 kg (20% of the dairy farms in North-Germany) employ also mainly family labour, which is more numerous in this case: two or three persons from the same family generally associated in de facto companies. Associations in civil companies are mainly encountered in case of family transmission. Employment of paid labour, generally limited to one person, is systematic in farms producing more than 700,000 kg, where they occupy polyvalent and low-qualified positions.

However employment of paid labour is not the way favoured by breeders who increase their production capacity. They turn rather to service companies for cultivation and harvesting. They also have more and more resort to professional collective organisations like agricultural unions, which guarantee an employee to stand in for the farmer in case of illness or holidays. The proportion of paid labour in the total labour input even decreased between 1989 and 2003 in large herds. Like in other countries of the North of the European Union, farmers with large herds specialise on the management of livestock and subcontract as much as possible seasonal tasks. It should be noticed that the "French way" of agriculture in groups (with the example of GAECS) remains marginal.

Family transmissions

Like in other countries, transmissions are mostly done within the family. This allows the successor to set up progressively without indebtedness at the beginning of his carrier and thus to maintain the unity of the farm. The successor takes over the property of the farm in totality during the transition. The amount paid by the successor is equivalent to the "farm value", that is to say one and a half time the standardised tax value minus loans. Based on this, he repays (if need be) financial compensations to his brothers and sisters, usually far below the market value of the production factors he took over. For example, a farm of Schleswig-Holstein was valuated 480,000 € according to its tax value whereas its assets would be sold for 3 millions euros (before the repayment of loans). Therefore it happens frequently that parents give compensations to the other children (building land, financing of the study, etc.) The successor also gives a compensation to his parents who generally go on living on the farm. It takes often the form of a monthly pension, the Altenteil.

A thirst for growth

Globally, milk volumes traded each year via quota bourses are weak and represent between 1% and 2% of the regional quota. Even if quota transmissions take place essentially apart from quota bourses (that is to say during land transmission or farm merger), it remains a relevant indicator to estimate the appetite for growth of producers in activity. Quota bourses take place in Länder three times a year. In 2003, the value of quota traded in this zone reached 0.50€ per kg, one of the highest amounts amongst German Länder. Since several years and until now, demand for quota volumes is three to five times higher than offer. Organisation of quota bourses at the level of the Land limits production shifts between zones.

Milk producers increase their agricultural area mainly by renting land. A reduced offer makes the land market rather expensive (around 7,500 € per hectare of land traded in Schleswig-Holstein), even if it remains far below the Dutch or Danish situations.

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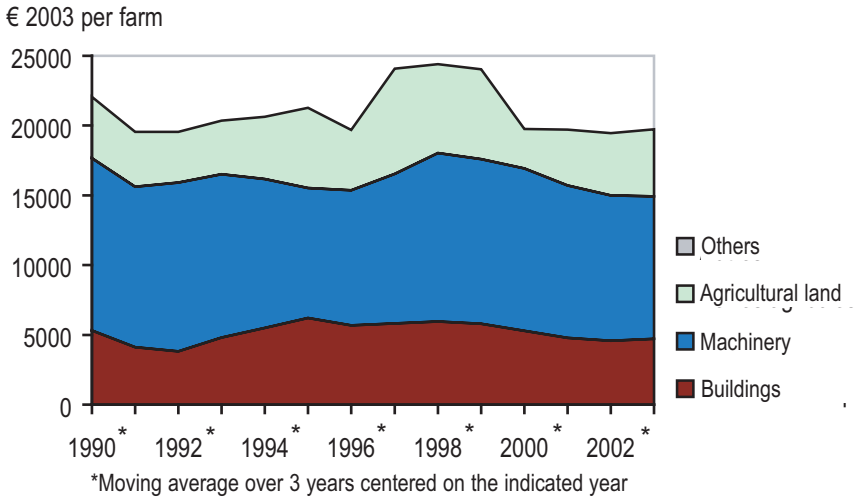
Figure 43

Evolution of investments per farm in specialised dairy farms of North-Germany



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

The temptation of the Danish model

According to the interviews realised during this study, it appears that professional leaders, advisers and financers of this zone agree on the fact that the growth of production factors in dairy farms is both necessary for the preparation of the future and economically interesting. The geographical proximity of Denmark and the Netherlands certainly influences this point of view. Some of the experts we met are already favourable to the adoption of a model based on herds of 150 to 160 dairy cows in 2010-2015. Only the lack of attraction for the profession of farmer and the lack of trust shown by financers for the realisation of such projects could put a brake on the set up of this model (in this domain, the context is very different from the one observed in Denmark).

Moderate investments

Over the period 1999-2003, gross investments realised by specialised dairy farms of North-Germany reached 17,900 € per year in average. Investments concern machinery for 55%, land fir 25% and buildings for 20 % (figure 43).

Investments represent 47 € per ton of milk (not taking into account eventual purchases of milk quota unrelated to land in the German FADN data). This level is similar to West-England, below the French regions (69 € in West-France and 74 € in North-France) and above all below Denmark (128 €) and the Netherlands (142 €).

The average moderate level of investments realised by North-German units is the result of the coexistence of several type of farms: farms with a quota below 200,000 kg make very low investments (10 € per ton of milk over the period 1999-2003) and are therefore not likely to be transmitted as they are; as for farms producing over 500,000 kg, they invest around five times more per ton of milk. The largest part of investments in buildings corresponds to extensions or renovations of existing stables. A limited number of farms realise investments in order to build new stables, more modern and larger.

… Self-financed

As investments are mainly realised by self-financing, the amount of interests is rather limited. In 2003, they reach 16 € per ton of milk in specialised farms, which is comparable with England and far below the Dutch (44 € per ton) or Danish situations (72 € per ton). The significant part of self-financing is explained by the strategy of German banks which demand important financial guaranties before granting a loan. They pay particularly attention to the size of the land property and are more favourable to loans allowing an increase in the production potential of the farm. Purchase of quotas are rather easily financed by loans with a period of ten years maximum (equivalent to the time of depreciation used by farm management centres for this type of investment).

Strengths and weaknesses

Some of the dairy farms of North-Germany are rather diversified and probably the most competitive in the country. They give great importance to family labour and their technical system is characterised by a quite high milk yield of cows and a large resort to maize silage in the diet. Therefore they usually invest less than Danish and Dutch farms and favour self-financing. Yet large farms often have a strategy of growth in volume and try to acquire further milk quota through quota bourses (where demand is far higher than offer) whereas small farms realise less investments. The appetite for growth of certain farms takes place in a low milk price context.

Large family farms could benefit from the evolution of the quota management: the creation of two quota markets, one in West-Germany (old Länder) and the other one in East-Germany (new Länder) from the 1st January 2007 could favour the development of these farms. Finally the evolution of milk quotas after 2013 appears to be an important and difficult debate because of the diversity of the regional production models in this country.

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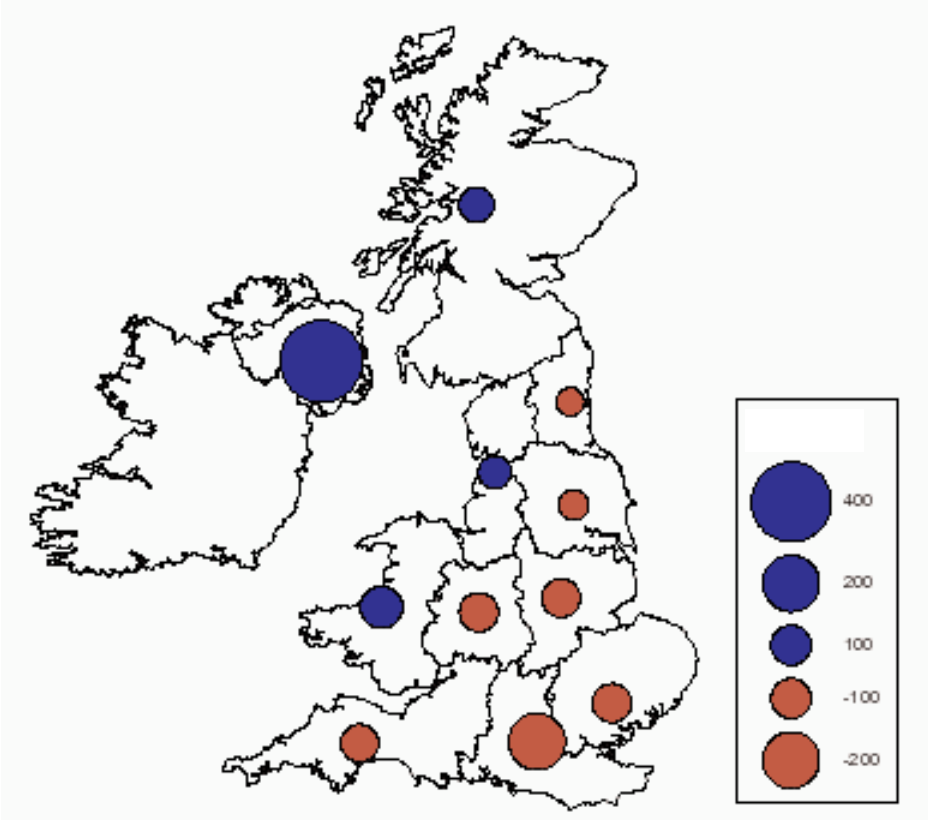
Figure 44

Evolution of the location of milk quotas in the United-Kingdom between 1994 and 2005 (thousand tons)



Source : Institut de l'Elevage from RPA

DAIRY FARMS IN THE WESTERN PART OF THE UNITED-KINGDOM (FADN 2003 – AVERAGE RESULTS)

2.24 AWU of which 1.50 family AWU and 0.74 paid AWU,

86 ha UAA of which 75 ha FS,

43 ha permanent pasture, 24 ha temporary pasture and 5 ha fodder maize,

102 dairy cows with an average yield of 7,130 kg milk/cow/year,

2,0 LU/ha FS,

730,000 kg annual milk production,

240 K€ output of which 79% from milk and 10% from beef and veal.

240 K€ de produits dont 79% du lait et 10% de viande bovine et ovine.

ENGLAND

Economical or obsolete production ?

English dairy farms are developing within the context of liberal agricultural policy (allowing a geographical mobility of quotas), a low level of milk price and difficulties to maintain the global volume of production. Farms are characterised by a strong labour productivity and low investments, enabling one of the highest mean agricultural income per family AWU among the different regions of the European Union.

A fast restructuring and a decrease of production

Some 20,500 British dairy farms are producing in average 713,000 kg milk per year (DEFRA data for 2004/2005) ; the United-Kingdom has a national quota of 14.5 millions tons, which makes 10% of the EU-27 milk production. Thus this country takes the third place in Europe, after Germany and France. With 12,100 dairy farms, England provides 67% of this production whereas the rest of the production is made by Northern Ireland (13%), Wales (11%) and Scotland (9%). English milk production dropped by around 600,000 tons since 1995 whereas it provided 72% of the milk produced in the United-Kingdom at this time. This decrease benefited the other constituent countries (mainly Northern Ireland, see figure 44); it is the result of a free circulation of milk quotas within the United-Kingdom. Milk production declined mainly in East-England which produces more and more cereals and only provides a quarter of the national collection now. On the contrary, the production remained steady in the South-West and slightly increased in the North of England (+3% in 10 years).

Even if production units are large, the number of dairy farms decreases rapidly in the United-Kingdom (-5.5% per year over the period 1995-2005). At the regional level, the strongest decrease was recorded for England where a half of the farms disappeared within ten years. English milk production had a strong restructuring between 2000 and 2005 with a yearly rate of 7.5%, which is the double of the rate observed in the other constituent countries. It is even higher in the South-West of England (10% per year) where there are more opportunities for other productions. Herds are larger in this zone than elsewhere (115 cows in average in 2003 against 100 in the other English regions) ; dairy farms are also more diversified especially because of the place of cash crops (25% of the agricultural output against less than 10% in the rest of England). On the opposite, dairy farms are mainly specialised (83% of the population according to FADN 2003) in the rest of England, which corresponds to the zone referred to as "West-England".

A low milk price linked to a rather mediocre valorisation

Since 1997, milk price paid to the producer is the lowest amongst the states members of the European Union, despite the United-Kingdom being a net dairy products importing country (cheese, yoghourts and butter). The average milk price paid to producers reached 278 € per ton against 315 € in France and 337 € in Denmark (which makes +21%) according to estimations from FADN data for the period 1999-2003.

Besides the disappearing of the Milk Marketing Boards which weakened the management of the dairy industry, this low level of price is explained by the positioning of transformation companies towards innovation. Development of importation has been the main strategy to meet the increase of demand especially for diversified products, in a country with a global deficit in dairy products. Therefore only few industries invested in innovation and creation of dairy products with high added value (like yoghourts, fresh cheese, ice creams, etc.). Nowadays, more than the half of milk collection is transformed into drinking milk. Even if the part of milk transformed into cheese increased these last years (from 23% of the collection for the quota year 2000/2001 up to 28% in 2005/2006), it remains low.

The low milk price is also the consequence of the pressure from the food distribution network. This network is powerful and concentrated in the United-Kingdom: the first four supermarket chains (Tesco, Asda, Sainsbury and Morrisons) supply the two-thirds of the total purchase of households and the three quarters of the cheese sales. These large chains have a commercial policy based on their own brands: almost all the liquid milk, in the main pasteurised, is sold the distributor's brand.

Between 1995 and 2000, the mean milk price paid to the producer decreased by 32% in pound sterling. This decrease only reaches 7% in euros (figure 45). Milk price stabilised in pounds between 2000 and 2005; yet it slightly decreased in euro due to the rise of euro against the national currency. This shows that a rise of pound sterling against euro reduces the significance of support from the European market expressed in national currency.

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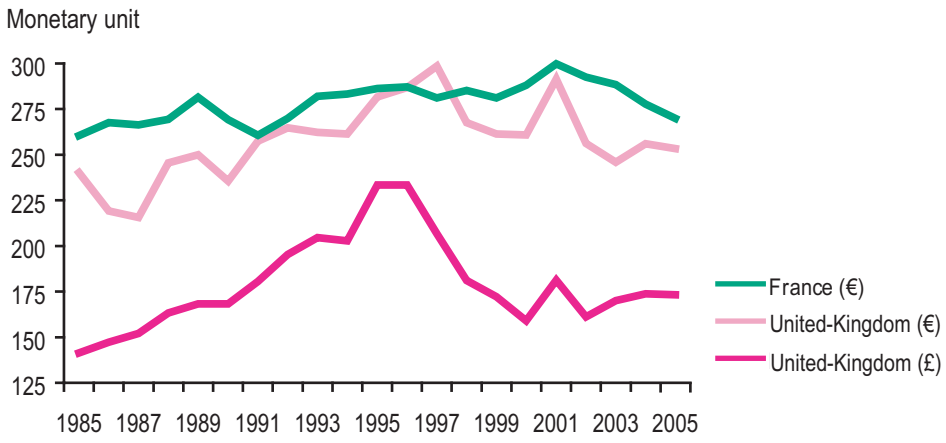
Evolution of the standard milk price in England and in France

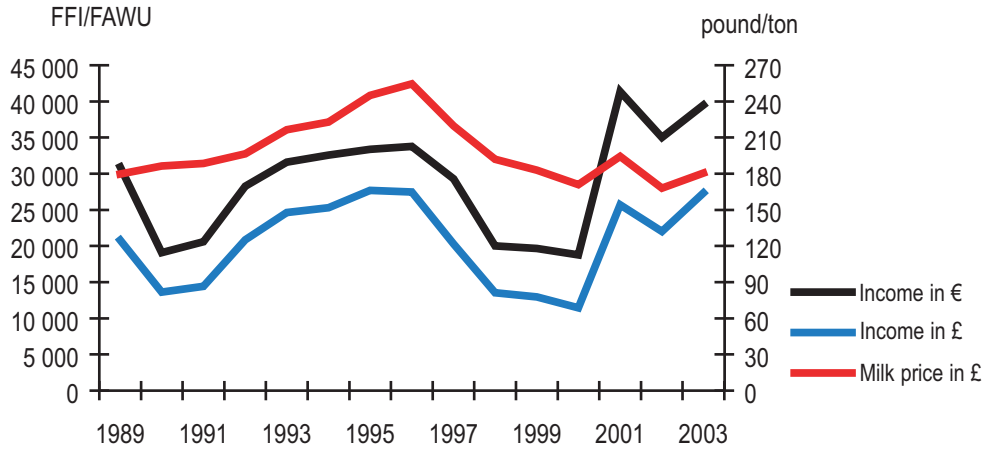
Figure 45



Source : GEB - Institut de l'Elevage from Eurostat

Evolution of the Family Farm Income in specialised dairy farms of the western part of the United-Kingdom

Figure 46



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Good incomes despite unfavourable milk prices

Since 1995 the unfavourable evolution of milk price had consequences on the income of the producers and reduced their morale and their dynamism. This was still increased by the effects of the BSE crisis. The ban on the sale of beef older than 30 months (OTMS: Over Thirty Months Scheme) almost resulted in the disappearing of the beef and veal byproducts in dairy farms. Subsidies were certainly granted; however they appeared to be insufficient.

The Family Farm Income per family labour unit declined in the second half of the nineties despite a strong increase of labour productivity (figure 46). The income level increased after this for three reasons: a quasi-stability of the milk price in the period 2000-2006; further gains in labour productivity; and an economic management of costs and investments.

Therefore specialised dairy farms of West-England got the highest Family Farm Income per family labour unit among the different areas studied in the period 1999-2003 (29,000 €, +50% in comparison with the EU-15 average) despite the low milk price. The income level of milk producers should however be considered regarding the buying power parity (for comparisons between countries) and the situation of the other English citizens (for an analysis at the scale of the country).

A strong intensification per hectare or per animal

Dairy farms of South-West England are highly specialised and use mainly pasture (90% of the fodder surface), managed in a rather intensive way.

Intensification per animal is quite strong as well (7,130 kg milk per cow and per year), with a large delivering of concentrates (between 1,500 kg and 2,000 kg per cow and per year, mostly purchased because of the small place of cereals production). Intensification reaches in average 2 LU and 9 700 kg milk per hectare of fodder surface.

This high level of intensification and the implementation of rules relative to the single farm payment cross-compliance could put the farmers not able to respect the nitrate directive in a difficult position. This will be all the more the case since areas under cereal production will be small. The largest dairy farms could be the most concerned as they have the highest level of intensification: milk production per hectare of fodder surface reaches 12,000 kg in farms producing more than 700,000 kg milk per year (these farms represent 40% of the total set of dairy farms) against 4,700 kg in farms producing less than 300,000 kg.

Role of paid labour and outsourcing

The quantity of family labour input in dairy farms of West-England is quite low: the farm manager and a second person, wife or child, often part-time working. Total labour (2.24 AWU per farm in average) is salaried for one third (figure 47). Unlike the French situation, the amount of family labour does not increase with the size of the farm, in particular because there are no form of society similar to the French GAEC. English milk production suffers from the ageing of farm managers. More than half of the English breeders are 55 years old or more against 25% of the French breeders. 5% only are under 35 years old whereas this percentage is twice bigger in France. New establishments are rare and careers are always longer because of the low pensions and the absence of successor. This is allowed by the frequent employment of salaried labour and the use of outsourcing.

English milk production could not run without paid labour. Salary labour is rather frequent in farms producing between 500,000 kg and 700,000 kg ; it is the rule over 700,000 kg (in these farms the quantity of paid labour is as high as the amount of family labour). Although paid labour is more frequent in England than in the other North-European countries, it seems to decline on a long-term period even in large farms. Farmers happen to be confronted to a lack of local labour force, discouraged by the low salaries (less than 12 € per hour in 2006) and the hard working conditions in a country approaching full employment. This situation leads more and more farmers to employ immigrated labour, mainly from Poland.

Moreover, many English dairy farmers outsource some tasks (seasonal work, tillage, seeding, forage harvesting, spreading of manure) to companies specialised in agricultural work or to neighbour farmers. This allows farmers to focus only on the management of the herd. Some farmers may even outsource the rearing of heifers to a specialised breeder.

The increasing use of service companies also allows dairy farmers to limit the level of investments in machinery and thus to limit the fixed costs. Besides a relative good control of variable costs and in comparison with the other regions studied, English milk production is characterised by low investments in machinery and buildings. Over the period 1999-

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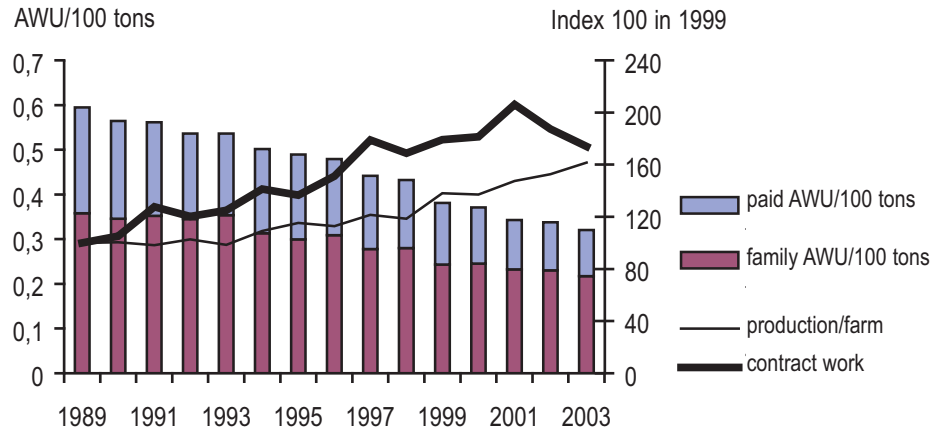
Figure 47

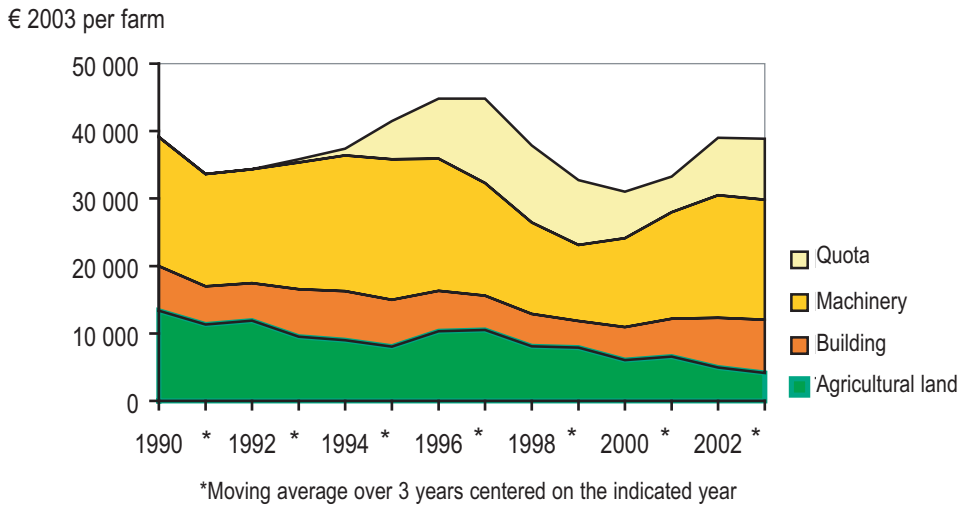
Evolution of labour input in specialised dairy farms of the western part of the United-Kingdom



Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

Figure 48

Evolution of investments per farm in specialised farms of the western part of the United-Kingdom



*Moving average over 3 years centered on the indicated year

Source : FADN EU, European commission DG AGRI-G3 / Processed by INRA-SAE2 Nantes and Institut de l'Elevage

2003, in annual average, investments only reached 19 € per ton of milk in machinery and 10 € per ton of milk in buildings (as a comparison, they reached respectively 36 € and 37 € in Denmark). Farm managers first invest in equipments likely to increase labour productivity (mechanised distribution of food, milking equipment, etc.) and/or to optimise the quality of milk. Nowadays, quality of working conditions remains secondary in particular in large farms where paid workers realise most of the daily work and the difficult tasks.

Healthy finances with few investments…

In average, English dairy farms have healthy finances despite the low milk price thanks a high level of income. Over the period 1999-2003, debt represented 19% of the capital in average for specialised dairy farms of West-England. Capital itself reaches a mean of 928,700 € of which 18% represents the capital linked to the value of quotas and other prescribed rights. Therefore interest paid are low (13 € per ton of milk) in comparison with the Netherlands (46 €) and Denmark (78 €). In the United-Kingdom, there is neither government-subsidised loans nor national support to investment. Moreover, breeders have to face higher interest rates than in the euro zone.

The low dynamic of investments is reflecting a production decline linked to one part of the farmers who are not confident in the future of their farm. It shows also the evolution of the farms towards "low-cost" systems. This orientation is inspired by the New-Zealand model, based on grazing and only requiring limited infrastructures and equipment.

The part of investments in land seems to have declined (figure 48): they represented 10% of the annual average investments in 2003 against nearly one third in 1990. This is due to the increase of rented areas on the one hand and to the evolution of the national rules relative to milk quotas on the other hand. Trade of milk quota stopped being linked to land in 1995. This situation contributed towards the decline in land price following investments in quotas (which made a quarter of the amount of gross investment in 2003).

A decrease in the price of milk quotas

Unlike France, there is a quota market in the United-Kingdom, meaning that it is possible to sell, to purchase or to rent quota through a broker at a clearing-market price. The purchase price of milk quota dropped in the United-Kingdom since the quota year 2003-2004. This drop seems to be very strong since 2005, when the decoupling was implemented: however it is still difficult to make this link because of a lack of historical hindsight. Milk quota value was approaching the price of the litre of milk in 2003-2004 (17.5 pence per litre) whereas it was only 4 pence per litre in April 2006. A decrease in the volumes traded came with this decrease in value (700,000 tons in 2004-05 and 470,000 tons in 2005-06). The quota rental market is depressed as well. Due to the chronic deficit of the country, farmers producing more than their quota are not forced to rent some extra quantities any longer.

An uncertain future

English milk producers get a high income in spite of a low milk price, thanks to low interest payments and a high labour productivity. In terms of prospective, this high level of income should not obscure some difficulties encountered by the English dairy sector:

- The national deficit in the quota realisation, the drop of the milk quota value and the limited investments reflect the lack of engagement and/or trust in the future of one part of the producers. The "low-cost model", allowing the development of milk production without a high mobilisation of capital, will not be able to develop intensively as far as it is not compatible with the demand of the fresh products industry (which implies a regular milk production throughout the whole year).

- The ageing of farm managers and the difficulty in finding salary labour on the local labour market are also partly responsible for the unfavourable image of agriculture.

- The lack of interest shown by the British authorities and citizens for their agriculture does not encourage farmers' children to establish.

- The power of supermarket chains on the sector does not give the opportunity to the national dairy industry to innovate much in dairy products with high added value. Its pressure on price controls the part of the collect transformed into staple products, which may decrease the price of the milk transformed into industrial products (in particular under the perspective of a further opening of the European market).

■ ACKNOWLEDGEMENTS

The authors thank the FADN Office of the European Commission General-Directorate for having accepted to confide us the necessary data for the implementation of this study. They also particularly thank the FADN contacts for Europe (Sophie Hélaine) and for France (Emmanuel Chantry) for their advise on the use of this data base, André Pflimlin from Institut de l'Elevage for his precious knowledge on European dairy farming, Jean Lossouarn, professor at the National Institute for Agronomy Paris-Grignon (INA P-G), for the supervision of the engineers-master students training period as well as all the members of the steering comity.

This study was financially supported by the French National Interprofessional Centre of the Dairy Economy (CNIEL) and National Office for Meat and Dairy Products (Office de l'Elevage).

This work is based on numerous interviews and visits realised in Denmark, in the Netherlands, in North-Germany and in England. The authors and the four engineers-master students warmly thank the following persons who agreed to answer our questions and whose cooperation was precious for the realisation of this study :

Denmark

- Klaus Jørgensen and Leif Nielsen, Danish Agricultural Council, Nils Juhl Andreasen, Confederation of Employers' Associations in Agriculture (SALA),
- Poul Erik Jørgensen, Carsten Schmidt, Nykredit (Mortgage credit institute),
- Per Kejser Jørgensen, Thomas Brock Jacobsen, DLR Kredit (Mortgage credit institute),
- Henning Porskrog, Steffen Møllenberg, Vøgg Løwe Nielsen, Statistics division, Institute of Food and Resource Economics,
- Johannes Christensen, Production and Technology Division, Institute of Food and Resource Economics,
- Kirsten Pedersen Due and Kristian Svendsen, Danish Dairy Board,
- Susanne Clausen, Ole Kristensen, Erik Bendix Jensen, Jesper Krøjgaard, Hans Fink Pedersen and Morten Haarh Jensen, Danish Agricultural Advisory Service,
- Rasmus Andersen, Danish Agricultural Advisory Service, Brørup local centre,
- Steffen Damsgaard and Lene Mouritsen, Young Farmers Union,
- John Erik Hermansen, Troels Kristensen, Ib Sillebak Kristensen, Department Agroecology and Environment, Danish Institute of Agricultural Sciences,
- Daniel Blanc, Michèle Pilverdier, Ambassade de France au Danemark, Mission Economique, secteur agricole,
- Mrs and Ms Just, Bartholomeaussen, Jensen, Uhre, Moustsen, Christensen, Kristensen, Nielsen, Pedersen, Christensen, Dalgaard Christensen, Engemann, dairy farmers.

Netherlands

- P. Berentsen, Wageningen University, professor of Animal Sciences,
- J. Rijpma, Alfa Accountants&Adviseurs,
- M.H.A. de Haan, Animal Sciences Group,
- K.J. Osinga, Noord LTO (Farmer's Union),
- H.H.E Lammertink, DLV Rundvee Advies,
- H.B. van der Veen, J.H. Jager, W.H. van Everdingen, J.A. (Koen) Boone, LEI (Agricultural Economics Research Institute),
- W.J.H. Meulenkamp, W.A. Rienks, Alterra, Wageningen University,
- R. van Melle, Young Farmers Union,
- B.J. (Nard) Elsman, Elsman International Consultants b.v.,
- C.T.J Gosselink and B. Ijntema, Rabobank Nederland,
- Mrs and Ms. Laar, Rijke, Mensink, Lange, Gaast, Post, Eggink, Drietelaar, dairy farmers.

North-Germany

- Ulrich Klischat, Landwirtschaftskammer Niedersachsen,
- Karl-Heinrich Deerberg and Johannes Thomsen, Landwirtschaftskammer Schleswig Holstein,
- Klaus Hein, Nordmilch,
- Josef Hauser, Rainer Meyer and Wolfgang Brandhoff, Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft, BMVEL,
- Werner Kleinhanss, Federal Agricultural Research Centre (FAL),
- Torsten Hemme, IFCN Dairy,
- Hans-Hennig Sundermeier and Constanze Hofacker, landwirtschaftliche Buchführungsverband,
- Rüdiger Fuhrmann, Norddeutsche Landesbank, division for agricultural financing,
- Mrs and Ms. Gülk, Beneke, Boye, Harder, Karstens, Lorenz, Winter, dairy farmers.

England

- Brian Lindsay and Ken Boyns, Milk Development Council,
- Roger Price, Anne Freeman, Keith Mitchell, Robert Young and Claire William, DEFRA– Department for Environment, Food and Rural Affairs,
- Nick Holt-MartYn and Christine Turner, The Dairy Group,
- Ducan Forbes and Kathryn Buckland, Kingshay Farming Trust,
- Tim Brigstocke and Sophie Jenkinson, Royal Association of British Dairy Farmers,
- Tom Phillips, Pasture to Profit,
- Tom Hind, National Farmers Union,
- Peter Dawson, Dairy UK,
- Matt Sheehan, Dairy Farmers of Britlany,
- David Colman, Professor, Centre for Agricultural Food and Resource Economics), Manchester University,
- John Barker, Agricultural division, HSBC,
- Mrs and Ms. Bush, Bacon, Taylor, Boley, Down, Rossiter, Mecker, Baker, Randle, dairy farmers.

Annexes

Annexe 1

Definition of economic indicators

Annexe 1

Definition of economic indicators

Economic indicators used in this document correspond to precise definitions. Even though these definitions are harmonised by the FADN Office (European Commission Directorate-General for Agriculture), some aspects do not benefit from an agreement between member states. This concerns in particular the method of estimation of the assets (land, buildings, quotas…); the time of depreciation for machinery and buildings; the national tax policies (which can imply different strategies between farms); the belonging to euro-zone (which modifies the relation with the mechanism of agricultural policy support); the conditions of granting of the loans (time, rate, etc.).

In what follows, name of the variable are the same as given in the Farm return or in the mean results published on line by the European Commission (http://ec.europa.eu/agriculture/rica/index_en.cfm), so that FADN users can use this work more easily.

Agricultural production

The total output (SE 131) is the sum of the gross vegetal production, the gross animal production and the other gross production. Subsidies are not taken into account.

Total output = Sales and use of (crop and livestock) products and livestock + change in stocks of (crop and livestock) products + change in valuation of livestock - purchases of livestock + various non-exceptional products.

Gross margin

Gross margin = Total output (SE131) + Total subsidies (SE605) – Specific costs (including inputs produced on the holding).

Specific costs (except home-grown feed)

Specific costs = Feed for grazing livestock except home-grown feed (SE310-SE315) + Other livestock specific costs (SE330) + Seeds and plants (SE 285) + Fertilisers (SE295) + Crop protection (SE 300) + Other crop specific costs (SE305) + Feed for pig and poultry, except home-grown (SE320-SE325) + Other specific costs (SE331).

Mechanisation costs

Mechanisation costs = Contract work: costs linked to work carried out by contractors and to the hire of machinery (SE350) + Costs of current upkeep of equipment (F61) + motor fuels and lubricants (F62) + Depreciation of machinery (G101DP).

Building costs

Building costs = Current upkeep of buildings (F78) + Depreciation of farm buildings (G98DP).

Total farming overheads

Total farming overheads = Mechanisation costs (see definition above) + Building costs (see definition above) + Rent paid (SE375) + Taxes (SE390) + Wages paid (SE370) + Interest paid (SE380) + Other depreciation (not taken into account in mechanisation costs and building costs) + Energy (except motor fuels and lubricants: SE345-F62) + Car expenses (F63) + Insurance of buildings (F87) + Other direct inputs (SE356)

Gross added value

Gross added value = Total output (SE131) – Total intermediate consumption (SE275) + Rent paid (SE375).

The item “Total intermediate consumption” (SE275) is made of: 1) Specific costs including inputs produced on the holding (SE281): seeds and seedlings, fertilisers, crop

protection products, feed, other specific costs for crop, livestock and forestry; 2) Total farming overheads (SE336): upkeep of buildings and machinery, energy, contract work, other farming overheads.

gross farm income (GFI)

GFI = Gross added value + Subsidies (SE605) + VAT balance (SE395)- Taxes (SE390) – Wages paid (SE370).

Family Farm Income (FFI)

FFI = gross farm income (GFI) – Depreciation (SE360) – Interest paid (SE380) + VAT balance on investments (SE408).

FFI represent the remuneration of fixed family production factors (labour, land and capital) and the remuneration of the risk taken by the manager (loss/profit) for the accounting year. FADN standard results do not use any estimation of this remuneration of family factors (costs calculated for labour, land and capital).

Cash Flow 1

Cash Flow 1 = Sales of products + Other receipts + Sales of livestock - All costs paid - Purchases of livestock + Farm subsidies - Farm Taxes + VAT balance + Subsidies on investments - Taxes on investments.

Cash Flow 1 represents the balance “receipts – expenses” of the accounting year, not taking into account operations on capital and on debts and loans.

Cash Flow 2

Cash Flow 2 = Cash Flow 1 + Sales of capital – Investments + Closing valuation of debts - Opening valuation of debts.

Cash-Flow 2 represents the balance “receipts – expenses” of the accounting year, taking into account operations on capital and on debts and loans.

Annexe 2

Structures and economic results of the dairy farms in each production area (2003)

European Union (15) - Mean characteristics of dairy farms according to specialisation and dairy production per farm (2003)

	Diversified								Specialised								Whole set							
	100 T <	100-200 T	200-300 T	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	100 T <	100-200 T	200-300 T	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	100 T <	100-200 T	200-300 T	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Number of farms	78 760	42 470	21 260	15 800	3 830	1 880	3 270	167 270	43 920	88 520	58 170	59 440	19 780	14 760	12 020	296 620	122 680	130 990	79 430	75 240	23 610	16 650	15 290	463 890
Employment																								
Agricultural Work Unit (AWU)	1,49	1,75	2,04	2,62	3,50	5,13	19,19	2,16	1,35	1,49	1,66	1,95	2,29	2,62	4,76	1,83	1,44	1,57	1,76	2,09	2,48	2,90	7,83	1,95
Family AWU	1,45	1,61	1,78	2,10	2,34	2,21	1,17	1,61	1,34	1,44	1,56	1,74	1,87	1,90	1,99	1,58	1,41	1,49	1,62	1,82	1,95	1,93	1,81	1,59
Non family (paid) AWU / total AWU	3%	8%	13%	20%	33%	57%	94%	25%	1%	3%	5%	11%	18%	27%	58%	14%	2%	5%	8%	13%	22%	33%	77%	18%
Surfaces																								
Usable Agricultural Area (UAA) in ha	28	57	92	122	161	274	859	74	19	35	50	66	84	97	173	54	25	42	61	78	97	117	319	61
* UAA in owner-occupation (%)	51%	33%	23%	20%	22%	25%	16%	28%	60%	50%	38%	34%	39%	49%	48%	43%	53%	42%	32%	29%	35%	42%	29%	36%
Fodder surface (FS) in ha	19	33	52	67	80	122	248	38	16	29	40	52	66	76	123	42	18	30	43	55	68	81	149	41
* Permanent pasture (ha)	12	20	27	35	43	66	123	21	10	18	23	30	39	42	60	24	11	19	24	31	40	45	73	23
* Temporary pasture (ha)	4	7	12	15	13	28	35	8	4	7	11	11	12	15	30	10	4	7	11	12	12	16	31	9
* Fodder Maize (ha)	2	5	11	16	22	25	73	7	1	3	6	9	12	14	27	6	1	4	7	10	13	15	37	7
FS / UAA (%)	66%	58%	56%	55%	50%	44%	29%	51%	83%	84%	80%	78%	78%	78%	71%	79%	71%	72%	71%	70%	70%	69%	47%	67%
Cattle and intensification																								
Grazing Livestock Unit (LU)	26	57	88	121	157	225	506	65	22	43	67	96	136	173	345	80	25	48	73	102	139	179	379	75
Grazing LU / ha of FS	1,4	1,7	1,7	1,8	2,0	1,8	2,0	1,7	1,4	1,5	1,7	1,9	2,1	2,3	2,8	1,9	1,4	1,6	1,7	1,9	2,0	2,2	2,5	1,8
Dairy cows	13	26	40	57	82	119	293	32	14	27	40	57	82	112	226	49	13	27	40	57	82	112	240	43
Dairy cows / bovine LU (%)	49%	47%	48%	49%	54%	55%	59%	50%	66%	62%	60%	60%	62%	65%	66%	62%	54%	56%	56%	57%	60%	64%	64%	59%
Milk production (in volume) and labour productivity																								
Milk production per farm (kg per year)	52 900	141 700	242 900	377 700	574 700	834 400	2 233 100	192 200	66 600	149 600	245 600	381 300	584 700	824 200	1 756 100	328 500	57 800	147 000	244 900	380 500	583 000	825 300	1 857 400	279 400
Milk production per AWU (kg per year)	35 500	81 000	119 100	144 200	164 200	162 700	116 400	89 000	49 300	100 400	147 900	195 500	255 300	314 600	368 900	179 500	40 200	93 700	139 100	182 100	235 100	284 600	237 200	143 300
Milk production per dairy cow (kg per year)	4 200	5 400	6 000	6 600	7 000	7 000	7 600	6 000	4 700	5 600	6 100	6 600	7 100	7 400	7 800	6 600	4 400	5 500	6 100	6 600	7 100	7 300	7 700	6 500
Milk production per ha of FS (kg per year)	2 800	4 300	4 700	5 700	7 200	6 800	9 000	5 100	4 200	5 200	6 100	7 400	8 900	10 900	14 300	7 800	3 300	4 900	5 600	6 900	8 600	10 200	12 400	6 900
Specialisation (% of the total output before subsidies)																								
Animal production (%)	64%	69%	72%	74%	73%	67%	58%	67%	84%	90%	89%	90%	90%	91%	87%	89%	69%	80%	83%	85%	86%	86%	75%	81%
* Milk (%)	35%	39%	41%	43%	44%	44%	39%	40%	72%	76%	76%	77%	79%	80%	79%	77%	45%	59%	62%	66%	70%	73%	63%	63%
* Beef and veal (%)	18%	16%	14%	12%	9%	9%	5%	12%	11%	13%	13%	12%	11%	9%	7%	11%	16%	15%	13%	12%	10%	9%	6%	11%
* Ovine and caprine (%)	2%	1%	2%	1%	1%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	0%	1%	0%	1%
* Pig and poultry (%)	8%	11%	14%	16%	19%	10%	12%	13%	0%	0%	0%	1%	1%	1%	1%	0%	6%	5%	6%	6%	5%	3%	5%	5%
Vegetale production (%)	23%	22%	21%	20%	21%	27%	31%	24%	12%	7%	8%	8%	7%	7%	11%	8%	20%	14%	13%	12%	11%	11%	19%	14%
Other production (%)	13%	9%	7%	6%	5%	6%	11%	9%	4%	3%	3%	3%	3%	3%	2%	3%	11%	6%	4%	4%	3%	3%	6%	5%
Output per ton of milk (euros)																								
Output milk (€)									326	318	313	313	310	306	320	315								
Output beef and veal (€)									51	55	53	48	42	34	28	43								
Output vegetal production €)									3	2	10	12	13	11	13	10								
Subsidies (€)									103	79	57	47	36	28	25	46								
Other output (€)									20	17	14	16	15	14	13	15								

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United-Kingdom (South West) - Mean characteristics of dairy farms according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Number of farms	950					2 090	2 250	2 330	1 610	1 700	2 410	10 300	3 200	2 670	1 730	1 990	2 800	12 390
Employment																		
Agricultural Work Unit (AWU)	1,64					2,81	1,50	1,69	2,13	2,34	3,49	2,24	1,54	1,75	2,22	2,55	3,75	2,34
Family AWU	1,46					1,48	1,32	1,48	1,55	1,60	1,62	1,51	1,36	1,47	1,56	1,60	1,59	1,50
Non family (paid) AWU / total AWU	11%					47%	13%	12%	27%	32%	54%	33%	12%	16%	30%	37%	58%	36%
Surfaces																		
Usable Agricultural Area (UAA) in ha	80					177	47	61	81	94	144	86	57	71	83	122	179	101
* UAA in owner-occupation (%)	56%					44%	66%	64%	61%	58%	64%	63%	62%	58%	64%	50%	57%	57%
Fodder surface (FS) in ha	70					117	44	59	69	83	118	75	51	68	71	98	126	82
* Permanent pasture (ha)	57					83	35	46	41	41	50	43	42	54	42	56	55	50
* Temporary pasture (ha)	12					26	7	11	24	33	47	24	9	12	24	34	48	24
* Fodder Maize (ha)	0					5	0	1	4	5	16	5	0	1	4	5	17	5
FS / UAA (%)	87%					66%	93%	96%	86%	87%	82%	87%	90%	96%	85%	81%	71%	81%
Cattle and intensification																		
Grazing Livestock Unit (LU)	95					175	69	105	131	175	278	153	77	116	134	187	281	157
Grazing LU / ha of FS	1,4					1,5	1,6	1,8	1,9	2,1	2,4	2,0	1,5	1,7	1,9	1,9	2,2	1,9
Dairy cows	30					77	39	65	86	120	196	102	37	65	87	121	191	98
Dairy cows / bovine LU (%)	45%					54%	63%	68%	68%	70%	73%	70%	57%	66%	67%	67%	70%	67%
Milk production (in volume) and labour productivity																		
Milk production per farm (kg per year)	155 200					516 000	206 300	406 300	591 900	835 900	1 554 100	729 500	191 100	404 300	594 300	835 200	1 509 800	693 400
Milk production per AWU (kg per year)	94 700					183 600	137 500	240 400	277 900	357 200	445 300	325 600	124 100	231 000	267 700	327 500	402 600	296 300
Milk production per dairy cow (kg per year)	5 200					6 700	5 200	6 300	6 900	7 000	7 900	7 100	5 200	6 300	6 800	6 900	7 900	7 100
Milk production per ha of FS (kg per year)	2 200					4 400	4 700	6 900	8 500	10 100	13 200	9 700	3 700	5 900	8 400	8 500	12 000	8 500
Specialisation (% of the total output before subsidies)																		
Animal production (%)	84%					72%	92%	94%	90%	92%	89%	91%	89%	92%	90%	88%	84%	87%
* Milk (%)	39%					45%	74%	78%	78%	81%	80%	79%	61%	72%	73%	75%	73%	72%
* Beef and veal (%)	24%					14%	14%	11%	12%	10%	7%	9%	18%	12%	11%	11%	8%	10%
* Ovine and caprine (%)	13%					5%	3%	4%	1%	1%	1%	1%	7%	6%	1%	1%	1%	2%
* Pig and poultry (%)	6%					7%	0%	1%	0%	0%	1%	0%	2%	2%	3%	0%	2%	2%
Vegetale production (%)	11%					20%	5%	3%	7%	7%	9%	7%	7%	4%	7%	9%	13%	10%
Other production (%)	6%					8%	4%	3%	2%	1%	2%	2%	5%	4%	2%	3%	3%	3%
Output per ton of milk (euros)																		
Output milk (€)							258	255	259	260	263	260						
Output beef and veal (€)							50	35	39	31	25	31						
Output vegetal production (€)							1	-1	7	7	9	6						
Subsidies (€)							38	23	28	23	19	22						
Other output (€)							25	24	10	8	12	13						

United-Kingdom (South West) - Mean economic results according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Economic results (euros per farm)																		
Total agricultural output (€)	94 700					295 900	72 100	132 000	197 200	267 900	511 900	239 900	78 800	142 500	209 700	287 900	545 600	249 400
Gross added value (€)	15 600					86 600	17 500	41 300	64 800	86 600	188 900	81 600	16 900	43 400	72 100	96 500	191 600	82 400
Gross farming income (€)	31 900					99 500	21 100	45 500	67 500	87 800	168 700	79 300	24 300	49 600	73 600	100 700	174 400	82 700
Family farm income (€)	20 000					59 600	11 400	29 100	43 800	55 900	107 900	50 300	14 000	31 900	47 800	65 300	107 600	51 900
Cash flow 2 (€)	27 700					45 000	16 500	21 000	26 000	51 700	88 200	41 500	19 800	23 200	29 900	58 400	81 700	42 100
Costs (euros per ton of milk)																		
Total costs							317	265	269	261	258	265						
Specific costs (except home-grown feed)							140	125	120	119	115	119						
* Feed for grazing stosk (except home-grown)							76	69	65	65	62	65						
* Other specific costs for animals							46	36	33	33	31	33						
* Fertilizers, crop protection, seeds and plants							16	16	20	19	18	18						
* Other specific costs							3	3	3	3	4	3						
Fixed costs							177	140	149	142	143	145						
* Mechanisation							68	56	55	50	48	52						
* Buildings							14	14	11	12	15	14						
* Rent paid (for land)							18	17	17	20	15	17						
* Farm taxes							1	1	1	1	0	1						
* Wages for non family AWU							19	12	22	21	31	25						
* Interest paid							12	10	14	13	11	12						
* Other fixed costs							44	31	29	26	22	26						
Labour productivity, economic efficiency and labour income																		
(Agricultural output + Subsidies) / AWU (€)	70 300					122 700	53 300	83 600	100 300	122 800	155 000	114 400	58 700	88 500	102 100	123 900	156 500	115 900
Specific costs / Output + Subsidies	34%					30%	36%	36%	33%	35%	33%	34%	35%	36%	33%	32%	33%	33%
Fixed costs / Output + Subsidies	43%					46%	46%	40%	41%	41%	41%	41%	45%	41%	41%	42%	43%	42%
Gross farming income / Output + Subsidies	28%					29%	26%	32%	32%	31%	31%	31%	27%	32%	32%	32%	30%	30%
Gross farming income / Family AWU (€)	21 900					67 200	16 000	30 800	43 600	54 900	104 200	52 500	17 900	33 700	47 200	63 000	109 700	55 100
Family farm income / Family AWU (€)	13 700					40 300	8 700	19 600	28 300	34 900	66 600	33 300	10 300	21 700	30 700	40 800	67 700	34 600
Cash Flow 2 / Family AWU (€)	18 900					30 400	12 500	14 200	16 700	32 300	54 400	27 500	14 600	15 800	19 200	36 500	51 400	28 100
Weight of subsidies																		
Subsidies (€)	20 700					48 900	7 800	9 300	16 300	19 400	29 000	16 300	11 600	12 300	16 800	28 000	41 400	21 800
Subsidies / AWU (€)	12 600					17 400	5 200	5 500	7 700	8 300	8 300	7 300	7 600	7 100	7 600	11 000	11 000	9 300
Subsidies / ha of UAA (€)	257					276	166	152	201	205	201	190	204	173	202	231	232	215
Subsidies / Family farm income (%)	103%					82%	68%	32%	37%	35%	27%	32%	83%	39%	35%	43%	38%	42%
Assets (€ per farm)																		
Total assets (€)	474 800					1 163 800	433 400	615 000	866 700	1 015 000	1 817 600	960 400	445 700	644 800	921 000	1 099 700	1 934 300	994 800
* Land, permanent crops (€)	281 800					615 200	280 300	336 800	486 700	514 100	821 700	489 900	280 800	355 100	524 600	542 600	895 400	511 100
* Building (€)	10 600					38 200	5 200	12 400	11 700	29 900	75 400	28 300	6 800	14 500	15 200	34 500	77 300	29 900
* Machinary (€)	35 700					128 900	28 800	50 400	73 000	79 600	142 500	75 400	30 800	54 800	77 500	97 600	169 800	84 500
* Quotas and acquisition cost (€)	43 100					132 300	46 600	101 400	118 400	187 000	403 800	176 600	45 600	100 100	124 000	188 800	391 500	169 100
Total liabilities (€)	40 600					167 200	48 200	75 400	145 100	224 600	355 300	170 100	46 000	83 200	153 200	212 600	374 400	169 600
Investments																		
Gross investments / Output + Subsidies (%)	-3%					13%	7%	15%	19%	22%	16%	17%	3%	16%	18%	21%	16%	16%
Gross investments (€)	-4 000					46 000	5 600	21 800	40 600	63 300	88 200	43 500	2 800	24 200	41 600	67 900	94 600	43 900
* Land, permanent crops (€)	-1 400					2 000	400	1 700	10 700	14 900	4 200	5 600	-100	2 700	10 400	10 700	5 700	5 000
* Quotas and acquisition cost (€)	-6 500					7 600	-1 200	7 900	10 800	15 200	33 700	13 600	-2 800	7 500	10 000	19 600	31 700	12 600
* Building (€)	5 000					10 200	1 500	1 500	3 300	10 300	23 900	8 500	2 600	2 700	3 700	10 500	23 600	8 800
* Machinary (€)	7 900					31 900	5 800	10 700	14 600	15 500	24 300	14 200	6 400	13 300	15 700	19 600	32 500	17 200

European Union (15) - Mean economic results according to specialisation and dairy production per farm (2003)

	Diversified								Specialised								Whole set							
	100 T <	100-200 T	200-300 T	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	100 T <	100-200 T	200-300 T	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	100 T <	100-200 T	200-300 T	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Economic results (euros per farm)																								
Total agricultural output (€)	46 300	110 300	180 400	268 200	405 900	595 300	1 748 400	147 200	30 000	62 600	101 700	155 700	230 900	313 800	712 700	133 500	40 500	78 000	122 800	179 300	259 300	345 500	932 800	138 400
Gross added value (€)	14 700	34 100	50 800	76 100	125 200	197 200	510 900	44 000	8 800	21 000	34 000	54 500	83 300	115 900	264 500	46 900	12 600	25 200	38 500	59 000	90 100	125 100	316 800	45 900
Gross farming income (€)	26 100	51 300	74 600	102 200	149 400	222 300	428 100	58 500	15 700	32 300	46 600	69 100	96 800	123 600	249 100	57 400	22 300	38 400	54 100	76 100	105 400	134 800	287 100	57 800
Family farm income (€)	15 600	29 000	40 400	52 500	71 900	124 500	203 200	31 700	9 400	19 600	26 100	38 900	51 500	62 900	155 000	32 900	13 400	22 600	29 900	41 800	54 900	69 800	165 200	32 400
Cash flow 2 (€)	16 300	27 400	39 900	45 900	72 600	138 100	259 200	32 200	11 400	20 500	26 700	38 200	49 900	66 000	155 100	33 500	14 600	22 700	30 200	39 800	53 600	74 100	177 200	33 000
Costs (euros per ton of milk)																								
Total costs									366	342	346	339	332	318	315	333								
Specific costs (except home-grown feed)									138	120	126	126	127	128	145	130								
* Feed for grazing stosk (except home-grown)									86	69	73	72	73	77	100	79								
* Other specific costs for animals									24	22	21	22	25	27	24	23								
* Fertilizers, crop protection, seeds and plants									25	26	30	28	25	21	17	25								
* Other specific costs									3	3	2	4	4	4	3	3								
Fixed costs									228	222	220	212	204	191	170	203								
* Mechanisation									103	100	96	88	79	70	54	81								
* Buildings									34	29	29	26	22	20	18	24								
* Rent paid (for land)									12	16	21	24	24	21	15	20								
* Farm taxes									5	5	4	4	4	4	3	4								
* Wages for non family AWU									3	4	6	9	13	18	36	15								
* Interest paid									8	10	14	18	25	28	17	18								
* Other fixed costs									64	57	50	44	37	30	27	41								
Labour productivity, economic efficiency and labour income																								
(Agricultural output + Subsidies) / AWU (€)	38 800	74 200	102 500	117 000	129 800	133 000	107 800	80 100	27 300	49 900	69 700	89 000	110 100	128 500	159 100	81 200	34 900	58 700	79 900	96 400	114 900	129 500	132 300	80 700
Specific costs / Output + Subsidies	22%	27%	30%	32%	33%	28%	28%	28%	25%	24%	27%	28%	29%	31%	34%	29%	22%	25%	28%	29%	31%	31%	31%	28%
Fixed costs / Output + Subsidies	44%	47%	48%	49%	49%	49%	56%	49%	41%	45%	47%	47%	47%	47%	39%	45%	43%	46%	47%	47%	48%	47%	47%	47%
Gross farming income / Output + Subsidies	45%	40%	36%	33%	33%	33%	21%	34%	42%	43%	40%	40%	38%	37%	33%	39%	44%	42%	38%	38%	37%	36%	28%	37%
Gross farming income / Family AWU (€)	18 000	31 900	41 900	48 700	63 800	100 600	365 900	36 300	11 700	22 400	29 900	39 700	51 800	65 100	125 200	36 300	15 800	25 800	33 400	41 800	54 000	69 800	158 600	36 300
Family farm income / Family AWU (€)	10 800	18 000	22 700	25 000	30 700	56 300	173 700	19 700	7 000	13 600	16 700	22 400	27 600	33 100	77 900	20 800	9 500	15 200	18 500	23 000	28 100	36 200	91 300	20 400
Cash Flow 2 / Family AWU (€)	11 300	17 000	22 400	21 900	31 000	62 500	221 500	20 000	8 500	14 200	17 100	22 000	26 700	34 700	77 900	21 200	10 300	15 200	18 700	21 900	27 500	38 400	97 900	20 800
Weight of subsidies																								
Subsidies (€)	11 500	19 400	28 700	38 400	48 500	87 000	320 400	25 800	6 800	11 800	13 900	17 800	21 100	22 900	44 700	15 100	9 800	14 200	17 800	22 100	25 600	30 100	103 300	19 000
Subsidies / AWU (€)	7 700	11 100	14 100	14 700	13 900	17 000	16 700	11 900	5 100	7 900	8 400	9 100	9 200	8 700	9 400	8 300	6 800	9 100	10 100	10 600	10 300	10 400	13 200	9 700
Subsidies / ha of UAA (€)	404	339	313	315	301	317	373	348	358	341	275	269	251	236	259	283	391	340	290	284	264	258	324	311
Subsidies / Family farm income (%)	73%	67%	71%	73%	67%	70%	158%	81%	73%	60%	53%	46%	41%	36%	29%	46%	73%	63%	60%	53%	47%	43%	62%	58%
Assets (€ per farm)																								
Total assets (€)	312 600	500 000	617 200	866 200	1 385 300	2 024 600	5 643 200	596 000	209 400	347 900	474 800	737 300	1 195 300	1 822 500	3 195 400	672 300	275 500	397 000	512 900	764 400	1 226 100	1 845 300	3 715 500	644 800
* Land, permanent crops (€)	105 200	171 400	192 200	275 000	403 800	638 800	2 298 900	203 600	76 000	128 000	173 400	261 100	436 700	657 600	1 297 600	249 000	94 700	142 000	178 500	264 000	431 300	655 500	1 510 300	232 600
* Building (€)	65 700	83 700	109 100	161 700	263 900	312 800	857 100	107 200	39 800	52 800	72 600	106 500	152 400	217 900	372 200	92 900	56 400	62 700	82 400	118 100	170 500	228 600	475 200	98 100
* Machinary (€)	35 500	62 100	82 600	105 000	150 600	217 700	613 400	70 400	20 100	34 200	50 500	67 500	89 300	116 400	201 000	56 300	30 000	43 200	59 100	75 400	99 200	127 800	288 600	61 400
* Quotas and acquisition cost (€)	4 900	12 700	29 300	59 800	210 300	249 400	145 900	25 200	7 700	16 900	33 300	115 400	266 500	518 700	598 300	102 900	5 900	15 500	32 300	103 700	257 400	488 300	502 200	74 900
Total liabilities (€)	23 100	77 400	165 100	241 700	462 300	562 600	959 200	109 300	12 100	37 600	81 700	159 100	325 700	503 800	686 500	134 700	19 100	50 400	104 000	176 500	347 800	510 400	744 400	125 500
Investments																								
Gross investments / Output + Subsidies (%)	12%	14%	16%	17%	14%	14%	7%	13%	9%	13%	14%	15%	19%	21%	15%	16%	11%	14%	15%	16%	18%	20%	12%	15%
Gross investments (€)	7 000	18 700	33 700	53 300	65 700	92 400	147 700	22 700	3 500	9 800	16 100	26 600	48 300	71 600	115 500	23 300	5 800	12 700	20 800	32 200	51 100	74 000	122 300	23 000
* Land, permanent crops (€)	500	1 100	2 800	4 500	4 800	2 500	32 800	2 100	300	600	1 900	2 700	5 700	11 500	9 200	2 400	400	800	2 100	3 100	5 500	10 500	14 200	2 300
* Quotas and acquisition cost (€)	0	100	700	1 800	5 800	16 100	5 300	700	-200	600	1 100	4 100	11 200	21 000	33 000	4 200	-100	400	1 000	3 600	10 300	20 400	27 100	3 000
* Building (€)	3 000	6 400	11 800	23 100	20 400	22 800	35 400	8 100	2 400	3 400	4 000	7 800	12 200	15 100	40 300	6 900	2 700	4 400	6 100	11 000	13 500	15 900	39 300	7 300
* Machinary (€)	4 200	11 400	18 900	24 000	32 900	44 500	74 600	12 200	2 400	5 700	9 100	12 100	18 000	21 900	31 200	9 800	3 600	7 500	11 700	14 600	20 400	24 500	40 400	10 600

Denmark - Mean characteristics of dairy farms according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Number of farms	540					1 050	1 100	1 410	1 240	1 580	1 070	6 390	1 640	1 590	1 410	1 650	1 150	7 440
Employment																		
Agricultural Work Unit (AWU)	1,56					2,32	1,10	1,46	1,80	2,12	2,96	1,86	1,25	1,52	1,92	2,16	3,22	1,93
Family AWU	1,30					1,32	1,06	1,16	1,29	1,30	1,37	1,23	1,14	1,18	1,29	1,30	1,38	1,25
Non family (paid) AWU / total AWU	17%					43%	4%	20%	29%	38%	54%	34%	9%	22%	33%	40%	57%	35%
Surfaces																		
Usable Agricultural Area (UAA) in ha	61					117	32	65	90	113	157	90	41	68	98	116	177	94
* UAA in owner-occupation (%)	80%					73%	84%	73%	67%	71%	66%	70%	82%	74%	67%	71%	66%	71%
Fodder surface (FS) in ha	14					35	21	40	58	79	108	60	19	39	59	79	107	57
* Permanent pasture (ha)	5					8	5	7	9	13	14	9	5	7	10	12	14	9
* Temporary pasture (ha)	6					9	9	15	20	25	29	20	8	14	19	25	28	18
* Fodder Maize (ha)	0					9	2	7	14	19	38	15	1	7	15	19	38	14
FS / UAA (%)	23%					30%	67%	61%	65%	70%	69%	67%	46%	57%	60%	68%	61%	60%
Cattle and intensification																		
Grazing Livestock Unit (LU)	44					91	52	90	126	171	247	135	49	89	125	171	250	128
Grazing LU / ha of FS	3,2					2,6	2,4	2,3	2,2	2,2	2,3	2,2	2,6	2,3	2,1	2,2	2,3	2,3
Dairy cows	21					52	31	55	78	109	157	84	27	55	77	108	159	80
Dairy cows / bovine LU (%)	47%					58%	59%	61%	62%	64%	64%	63%	55%	61%	62%	63%	63%	62%
Milk production (in volume) and labour productivity																		
Milk production per farm (kg per year)	127 000					386 100	197 300	395 000	594 900	841 500	1 287 300	649 200	174 300	395 600	591 700	840 400	1 292 500	611 600
Milk production per AWU (kg per year)	81 400					166 400	179 400	270 600	330 500	396 900	434 900	349 000	139 400	260 200	308 200	389 100	401 400	316 900
Milk production per dairy cow (kg per year)	6 200					7 400	6 400	7 200	7 700	7 700	8 200	7 700	6 400	7 200	7 700	7 800	8 200	7 700
Milk production per ha of FS (kg per year)	9 200					11 100	9 300	10 000	10 200	10 600	11 900	10 700	9 200	10 200	10 100	10 700	12 100	10 800
Specialisation (% of the total output before subsidies)																		
Animal production (%)	69%					71%	92%	90%	91%	93%	92%	92%	83%	88%	88%	92%	87%	88%
* Milk (%)	36%					41%	81%	81%	83%	84%	83%	83%	62%	76%	76%	81%	75%	76%
* Beef and veal (%)	10%					5%	11%	8%	8%	7%	7%	8%	10%	7%	7%	7%	7%	7%
* Ovine and caprine (%)	0%					0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
* Pig and poultry (%)	18%					22%	1%	0%	0%	2%	1%	1%	8%	3%	4%	4%	5%	4%
Vegetale production (%)	25%					23%	7%	9%	8%	5%	6%	7%	14%	10%	11%	6%	10%	9%
Other production (%)	6%					6%	1%	2%	1%	2%	2%	2%	3%	2%	1%	2%	3%	2%
Output per ton of milk (euros)																		
Output milk (€)							325	339	336	334	327	332						
Output beef and veal (€)							43	32	31	30	29	31						
Output vegetal production (€)							15	26	20	13	16	17						
Subsidies (€)							40	47	46	39	37	40						
Other output (€)							8	10	6	14	13	11						

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Denmark - Mean economic results according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Economic results (euros per farm)																		
Total agricultural output (€)	115 300					310 600	79 500	164 600	241 700	336 100	505 100	260 300	91 300	175 900	261 500	347 700	563 300	267 500
Gross added value (€)	26 500					89 900	23 800	57 900	80 400	124 800	180 600	91 900	24 700	61 800	86 300	127 600	192 700	91 600
Gross farming income (€)	36 900					87 600	28 800	65 400	88 800	127 300	172 800	95 500	31 500	68 600	93 000	129 300	179 800	94 400
Family farm income (€)	1 200					-3 000	8 800	20 000	13 000	19 600	21 800	16 800	6 300	19 300	12 600	18 000	14 100	14 000
Cash flow 2 (€)	28 600					44 800	32 300	22 800	49 200	49 000	78 000	44 800	31 100	24 400	56 700	56 800	63 100	44 800
Costs (euros per ton of milk)																		
Total costs							386	405	418	407	406	407						
Specific costs (except home-grown feed)							155	148	142	141	142	143						
* Feed for grazing stosk (except home-grown)							92	87	84	84	88	86						
* Other specific costs for animals							33	29	30	29	29	29						
* Fertilizers, crop protection, seeds and plants							23	26	23	20	19	21						
* Other specific costs							7	6	4	8	6	7						
Fixed costs							231	257	275	266	264	264						
* Mechanisation							87	87	93	91	86	89						
* Buildings							28	27	25	24	22	24						
* Rent paid (for land)							7	15	18	14	20	17						
* Farm taxes							7	7	6	6	5	6						
* Wages for non family AWU							8	21	25	30	38	29						
* Interest paid							54	67	77	77	71	72						
* Other fixed costs							41	32	30	25	22	27						
Labour productivity, economic efficiency and labour income																		
(Agricultural output + Subsidies) / AWU (€)	87 200					150 400	79 500	125 500	149 300	173 900	186 600	154 100	82 700	128 600	151 500	176 700	191 700	153 100
Specific costs / Output + Subsidies	36%					37%	35%	32%	31%	32%	33%	32%	35%	33%	32%	33%	34%	33%
Fixed costs / Output + Subsidies	59%					60%	52%	55%	61%	61%	61%	60%	55%	56%	61%	61%	62%	60%
Gross farming income / Output + Subsidies	27%					25%	33%	36%	33%	35%	31%	33%	30%	35%	32%	34%	29%	32%
Gross farming income / Family AWU (€)	28 400					66 400	27 200	56 300	68 800	97 900	126 100	77 700	27 600	58 200	72 100	99 500	130 300	75 500
Family farm income / Family AWU (€)	900					-2 200	8 300	17 200	10 100	15 100	15 900	13 700	5 500	16 300	9 800	13 900	10 200	11 200
Cash Flow 2 / Family AWU (€)	22 000					33 900	30 500	19 600	38 100	37 700	57 000	36 400	27 300	20 700	43 900	43 700	45 800	35 800
Weight of subsidies																		
Subsidies (€)	20 800					38 200	7 900	18 600	27 100	32 400	47 100	26 200	12 100	19 600	29 300	33 900	54 000	28 000
Subsidies / AWU (€)	13 300					16 500	7 200	12 800	15 000	15 300	15 900	14 100	9 700	12 900	15 300	15 700	16 800	14 500
Subsidies / ha of UAA (€)	341					327	250	285	301	287	300	291	294	287	300	292	306	297
Subsidies / Family farm income (%)	1798%					-1293%	90%	93%	208%	165%	216%	156%	192%	102%	232%	188%	383%	199%
Assets (€ per farm)																		
Total assets (€)	849 100					1 738 800	468 700	881 400	1 318 800	1 824 100	2 510 900	1 381 100	593 400	936 500	1 417 500	1 882 000	2 810 900	1 432 100
* Land, permanent crops (€)	169 700					318 200	83 800	156 300	190 600	267 200	313 900	202 000	112 000	169 100	213 700	274 500	379 800	218 600
* Building (€)	419 200					786 800	201 800	378 800	528 100	788 700	1 061 200	584 300	273 100	403 600	577 900	816 200	1 192 700	613 200
* Machinary (€)	60 800					147 600	27 100	59 600	119 000	169 500	235 500	120 000	38 200	68 600	123 100	175 700	262 900	124 000
* Quotas and acquisition cost (€)	46 800					172 500	80 500	173 000	273 700	365 100	532 000	279 900	69 400	174 500	274 100	365 700	536 800	264 600
Total liabilities (€)	329 400					989 000	168 000	443 100	854 700	1 235 200	1 783 500	879 700	220 900	478 600	908 100	1 268 300	1 982 800	895 300
Investments																		
Gross investments / Output + Subsidies (%)	-18%					22%	4%	20%	51%	41%	28%	34%	-5%	25%	49%	40%	27%	32%
Gross investments (€)	-23 800					77 700	3 200	36 900	136 700	151 300	157 200	97 200	-5 700	48 100	143 500	154 100	166 300	94 400
* Land, permanent crops (€)	7 000					16 700	7 100	26 100	26 900	62 100	19 100	30 400	7 100	24 000	27 500	58 200	25 800	28 400
* Quotas and acquisition cost (€)	-39 700					-4 800	-7 500	0	26 200	35 900	45 300	19 700	-18 100	2 800	28 700	36 600	42 700	16 200
* Building (€)	2 100					32 900	1 100	2 600	35 900	21 200	48 400	20 700	1 500	8 900	40 800	25 100	46 800	22 400
* Machinary (€)	16 600					39 000	4 700	9 700	36 900	31 100	45 800	25 100	8 600	13 200	37 800	33 400	52 700	27 100

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Netherlands - Mean characteristics of dairy farms according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Number of farms	1 590	800				3 260	4 570	6 750	3 780	3 940	1 810	20 850	6 160	7 550	4 340	4 160	1 890	24 110
Employment																		
Agricultural Work Unit (AWU)	1,58	2,06				1,90	1,19	1,49	1,78	2,14	2,57	1,69	1,29	1,55	1,87	2,15	2,53	1,72
Family AWU	1,40	1,89				1,71	1,18	1,41	1,60	1,92	1,97	1,54	1,23	1,46	1,68	1,94	1,93	1,56
Non family (paid) AWU / total AWU	11%	8%				10%	1%	6%	10%	10%	23%	9%	5%	6%	10%	10%	24%	9%
Surfaces																		
Usable Agricultural Area (UAA) in ha	29	38				47	22	37	49	66	94	46	24	37	52	68	97	46
* UAA in owner-occupation (%)	61%	48%				52%	66%	59%	61%	69%	66%	64%	64%	58%	59%	66%	67%	63%
Fodder surface (FS) in ha	20	33				33	22	35	46	60	87	43	21	34	47	59	87	42
* Permanent pasture (ha)	15	20				23	19	29	37	46	68	35	18	28	37	45	69	33
* Temporary pasture (ha)	0	2				2	0	0	0	1	2	0	0	0	0	1	2	1
* Fodder Maize (ha)	4	10				8	2	5	8	13	16	7	3	6	9	13	15	8
FS / UAA (%)	70%	87%				70%	99%	95%	94%	91%	92%	94%	90%	94%	91%	87%	90%	90%
Cattle and intensification																		
Grazing Livestock Unit (LU)	46	80				78	42	78	114	148	244	104	43	79	114	148	243	101
Grazing LU / ha of FS	2,3	2,4				2,3	1,9	2,3	2,5	2,5	2,8	2,4	2,0	2,3	2,4	2,5	2,8	2,4
Dairy cows	29	52				52	29	55	81	105	174	74	29	54	81	105	173	71
Dairy cows / bovine LU (%)	68%	71%				70%	70%	71%	72%	72%	72%	71%	70%	71%	72%	72%	72%	71%
Milk production (in volume) and labour productivity																		
Milk production per farm (kg per year)	188 900	365 000				369 200	189 300	389 800	590 400	819 400	1 334 900	544 500	189 200	387 200	591 200	820 200	1 322 200	520 900
Milk production per AWU (kg per year)	119 600	177 200				194 300	159 000	261 600	331 700	382 900	519 400	322 200	146 600	249 800	316 200	381 500	522 600	302 800
Milk production per dairy cow (kg per year)	6 600	7 000				7 100	6 500	7 100	7 300	7 800	7 700	7 400	6 500	7 100	7 300	7 800	7 700	7 400
Milk production per ha of FS (kg per year)	9 300	11 000				11 100	8 700	11 300	12 800	13 700	15 400	12 600	8 900	11 200	12 500	13 800	15 200	12 500
Specialisation (% of the total output before subsidies)																		
Animal production (%)	71%	92%				79%	95%	93%	94%	93%	93%	93%	85%	93%	91%	90%	91%	91%
* Milk (%)	41%	39%				40%	83%	83%	84%	85%	86%	84%	66%	75%	71%	81%	84%	76%
* Beef and veal (%)	4%	4%				4%	9%	7%	7%	7%	6%	7%	7%	7%	6%	7%	6%	7%
* Ovine and caprine (%)	6%	2%				2%	1%	0%	0%	0%	0%	0%	3%	1%	0%	0%	0%	1%
* Pig and poultry (%)	18%	44%				32%	1%	2%	1%	1%	1%	1%	8%	10%	14%	2%	1%	7%
Vegetale production (%)	16%	4%				15%	1%	1%	2%	2%	2%	2%	7%	2%	5%	5%	4%	4%
Other production (%)	13%	4%				6%	4%	6%	5%	4%	5%	5%	8%	5%	4%	5%	5%	5%
Output per ton of milk (euros)																		
Output milk (€)							322	326	322	319	338	325						
Output beef and veal (€)							37	28	29	27	24	28						
Output vegetal production (€)							2	2	5	7	7	5						
Subsidies (€)							27	15	16	13	13	15						
Other output (€)							27	33	26	20	24	26						

Netherlands - Mean economic results according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total	300 T <	300-500 T	500-700 T	700-1000 T	> 1000 T	Total
Economic results (euros per farm)																		
Total agricultural output (€)	143 000	292 800				293 500	73 800	152 500	226 600	307 700	526 200	210 100	91 500	167 300	269 900	321 400	530 700	221 300
Gross added value (€)	33 900	94 100				95 400	23 300	62 500	94 100	140 400	251 800	90 600	26 000	65 900	105 700	145 600	253 700	91 300
Gross farming income (€)	39 800	91 700				98 300	26 200	63 900	96 400	142 600	247 900	92 200	29 700	66 900	107 600	148 500	249 900	93 000
Family farm income (€)	10 000	29 700				36 400	11 100	28 400	38 100	64 500	113 800	40 500	10 800	28 500	43 800	67 500	111 700	39 900
Cash flow 2 (€)	24 300	-5 000				40 700	6 700	24 300	24 200	49 000	121 000	33 400	11 200	21 200	28 500	53 600	134 200	34 400
Costs (euros per ton of milk)																		
Total costs							349	326	329	305	312	319						
Specific costs (except home-grown feed)							112	106	106	107	109	107						
* Feed for grazing stosk (except home-grown)							59	60	59	62	65	61						
* Other specific costs for animals							25	23	24	24	25	24						
* Fertilizers, crop protection, seeds and plants							15	14	15	16	13	15						
* Other specific costs							13	10	8	4	5	7						
Fixed costs							236	220	223	198	203	212						
* Mechanisation							79	72	76	72	69	72						
* Buildings							25	23	21	23	22	23						
* Rent paid (for land)							35	25	23	16	17	21						
* Farm taxes							9	7	6	6	5	6						
* Wages for non family AWU							1	5	6	6	12	7						
* Interest paid							29	42	50	44	46	44						
* Other fixed costs							57	46	41	31	33	39						
Labour productivity, economic efficiency and labour income																		
(Agricultural output + Subsidies) / AWU (€)	99 200	145 300				161 000	66 400	106 200	132 500	148 700	211 300	129 100	76 600	111 700	149 700	154 500	216 500	133 700
Specific costs / Output + Subsidies	39%	44%				41%	27%	26%	27%	27%	27%	27%	32%	29%	32%	28%	27%	29%
Fixed costs / Output + Subsidies	53%	45%				46%	57%	54%	56%	51%	50%	53%	55%	53%	51%	51%	51%	52%
Gross farming income / Output + Subsidies	25%	31%				32%	33%	40%	41%	45%	46%	42%	30%	39%	38%	45%	46%	40%
Gross farming income / Family AWU (€)	28 400	48 500				57 500	22 200	45 300	60 300	74 300	125 800	59 900	24 100	45 800	64 000	76 500	129 500	59 600
Family farm income / Family AWU (€)	7 100	15 700				21 300	9 400	20 100	23 800	33 600	57 700	26 300	8 800	19 500	26 100	34 800	57 900	25 600
Cash Flow 2 / Family AWU (€)	17 400	-2 600				23 800	5 700	17 200	15 100	25 500	61 400	21 700	9 100	14 500	17 000	27 600	69 500	22 000
Weight of subsidies																		
Subsidies (€)	13 700	6 600				12 400	5 100	5 800	9 300	10 400	16 900	8 100	7 300	5 900	9 900	10 900	16 900	8 700
Subsidies / AWU (€)	8 600	3 200				6 500	4 300	3 900	5 200	4 900	6 600	4 800	5 700	3 800	5 300	5 100	6 700	5 100
Subsidies / ha of UAA (€)	474	174				261	235	158	190	158	180	176	309	160	190	159	175	188
Subsidies / Family farm income (%)	137%	22%				34%	47%	20%	25%	16%	15%	20%	68%	21%	23%	16%	15%	22%
Assets (€ per farm)																		
Total assets (€)	1 232 600	2 130 200				2 124 700	903 900	1 647 400	2 415 800	3 449 300	5 545 500	2 299 000	987 900	1 698 600	2 534 400	3 467 000	5 584 500	2 275 500
* Land, permanent crops (€)	538 500	644 100				795 900	409 100	593 300	859 300	1 254 500	1 794 900	829 400	442 200	598 700	903 300	1 253 000	1 859 400	824 900
* Building (€)	134 300	275 900				245 500	55 500	108 100	159 400	214 400	394 700	150 600	75 600	125 900	195 400	223 700	394 600	163 400
* Machinary (€)	36 100	60 700				70 300	21 200	45 000	72 900	121 200	167 000	69 700	25 000	46 700	79 200	122 500	171 700	69 800
* Quotas and acquisition cost (€)	383 300	763 900				750 700	333 900	738 200	1 102 500	1 562 900	2 703 400	1 040 200	346 500	740 900	1 115 000	1 567 800	2 678 700	1 001 200
Total liabilities (€)	299 600	544 500				628 200	124 800	391 100	696 000	869 100	1 703 100	591 000	169 500	407 400	716 200	896 600	1 809 700	596 000
Investments																		
Gross investments / Output + Subsidies (%)	5%	17%				11%	11%	28%	31%	38%	46%	34%	9%	26%	26%	36%	44%	30%
Gross investments (€)	7 400	51 200				35 200	9 000	45 100	72 800	119 700	252 500	74 100	8 600	45 700	71 800	118 900	242 300	68 900
* Land, permanent crops (€)	600	2 300				1 000	-2 700	6 200	2 600	12 300	26 900	6 500	-1 800	5 800	2 100	11 900	25 600	5 800
* Quotas and acquisition cost (€)	-3 100	4 000				7 600	5 500	21 800	34 600	47 600	102 500	32 300	3 300	19 900	33 500	48 000	97 700	29 000
* Building (€)	3 300	34 800				12 800	2 400	9 200	18 700	28 700	75 000	18 800	2 700	11 900	18 200	27 300	71 500	18 000
* Machinary (€)	5 300	8 000				11 700	3 200	7 100	14 900	29 400	41 900	14 900	3 700	7 200	15 500	30 200	41 400	14 400

Germany (North) - Mean characteristics of dairy farms according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	200 T <	200-300 T	300-500 T	500-700 T	> 700 T	Total	200 T <	200-300 T	300-500 T	500-700 T	> 700 T	Total	200 T <	200-300 T	300-500 T	500-700 T	> 700 T	Total
Number of farms	5 770	1 590	1 450	470		9 460	2 660	2 300	5 460	2 050	2 170	14 640	8 430	3 890	6 920	2 520	2 350	24 100
Employment																		
Agricultural Work Unit (AWU)	1,42	1,86	2,03	2,85		1,69	1,40	1,48	1,70	2,18	2,86	1,85	1,41	1,64	1,77	2,31	2,89	1,79
Family AWU	1,33	1,65	1,62	1,91		1,47	1,35	1,44	1,49	1,72	1,94	1,56	1,34	1,53	1,52	1,76	1,94	1,52
Non family (paid) AWU / total AWU	6%	11%	21%	33%		13%	4%	3%	12%	21%	32%	16%	6%	7%	15%	24%	33%	15%
Surfaces																		
Usable Agricultural Area (UAA) in ha	51	81	89	134		68	34	52	67	92	120	70	45	64	72	100	124	69
* UAA in owner-occupation (%)	42%	34%	42%	32%		40%	46%	44%	39%	40%	29%	38%	43%	39%	40%	38%	32%	39%
Fodder surface (FS) in ha	24	46	51	85		37	30	45	56	75	99	59	26	46	55	77	100	50
* Permanent pasture (ha)	16	28	32	57		24	22	36	41	53	63	42	18	32	39	54	63	35
* Temporary pasture (ha)	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
* Fodder Maize (ha)	6	13	14	22		10	6	7	11	18	31	13	6	9	12	18	32	12
FS / UAA (%)	47%	57%	58%	63%		54%	86%	87%	84%	82%	83%	84%	57%	72%	77%	77%	81%	72%
Cattle and intensification																		
Grazing Livestock Unit (LU)	46	92	111	184		74	52	81	109	152	210	115	48	85	109	158	212	99
Grazing LU / ha of FS	1,9	2,0	2,2	2,2		2,0	1,8	1,8	1,9	2,0	2,1	2,0	1,9	1,9	2,0	2,0	2,1	2,0
Dairy cows	19	37	53	78		32	25	41	58	78	117	61	21	40	57	78	116	49
Dairy cows / bovine LU (%)	41%	41%	48%	42%		43%	48%	51%	53%	52%	55%	53%	43%	47%	52%	50%	55%	50%
Milk production (in volume) and labour productivity																		
Milk production per farm (kg per year)	107 500	249 900	387 700	573 500		210 900	139 400	251 500	397 900	576 800	910 000	428 600	117 600	250 900	395 700	576 200	900 500	343 200
Milk production per AWU (kg per year)	75 700	134 400	191 000	201 200		124 800	99 600	170 000	234 000	264 600	318 200	231 700	83 400	153 000	223 600	249 400	311 600	191 700
Milk production per dairy cow (kg per year)	5 800	6 700	7 300	7 400		6 600	5 500	6 100	6 900	7 400	7 800	7 100	5 700	6 300	7 000	7 400	7 800	7 000
Milk production per ha of FS (kg per year)	4 500	5 400	7 500	6 800		5 800	4 700	5 600	7 100	7 700	9 200	7 300	4 600	5 500	7 200	7 500	9 000	6 900
Specialisation (% of the total output before subsidies)																		
Animal production (%)	68%	75%	80%	80%		74%	89%	91%	92%	92%	93%	92%	72%	82%	88%	89%	91%	85%
* Milk (%)	32%	38%	50%	49%		40%	74%	74%	76%	76%	77%	76%	40%	54%	69%	69%	75%	63%
* Beef and veal (%)	12%	14%	12%	16%		13%	16%	16%	14%	14%	15%	14%	12%	15%	13%	14%	15%	14%
* Ovine and caprine (%)	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
* Pig and poultry (%)	24%	22%	18%	15%		20%	0%	1%	2%	2%	0%	1%	19%	13%	6%	6%	1%	8%
Vegetale production (%)	23%	18%	14%	14%		19%	5%	5%	5%	5%	4%	5%	20%	12%	8%	7%	6%	10%
Other production (%)	9%	8%	6%	7%		8%	6%	4%	3%	3%	3%	3%	8%	6%	4%	4%	3%	5%
Output per ton of milk (euros)																		
Output milk (€)							275	279	284	285	285	284						
Output beef and veal (€)							58	60	51	51	55	53						
Output vegetal production (€)							8	9	12	11	10	11						
Subsidies (€)							55	42	36	39	33	37						
Other output (€)							22	20	19	22	13	18						

Germany (North) - Mean economic results according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	200 T <	200-300 T	300-500 T	500-700 T	> 700 T	Total	200 T <	200-300 T	300-500 T	500-700 T	> 700 T	Total	200 T <	200-300 T	300-500 T	500-700 T	> 700 T	Total
Economic results (euros per farm)																		
Total agricultural output (€)	96 500	181 600	224 700	335 900		148 800	52 100	95 100	148 500	216 600	336 400	159 800	82 400	130 300	164 500	238 800	343 400	155 500
Gross added value (€)	15 300	37 500	54 500	83 100		30 700	8 900	23 200	36 200	58 400	97 400	41 300	13 300	29 000	40 000	63 000	100 200	37 200
Gross farming income (€)	28 500	60 000	74 300	107 200		47 200	15 900	33 200	47 900	75 300	115 500	53 600	24 500	44 200	53 400	81 300	118 600	51 100
Family farm income (€)	12 000	29 300	40 200	62 000		23 300	6 100	12 900	22 800	40 600	63 300	26 700	10 200	19 500	26 400	44 600	65 400	25 300
Cash flow 2 (€)	16 200	23 300	52 000	75 900		27 400	14 900	19 000	31 900	38 800	85 400	35 600	15 800	20 700	36 100	45 700	85 900	32 400
Costs (euros per ton of milk)																		
Total costs							378	361	349	341	329	344						
Specific costs (except home-grown feed)							131	128	132	135	128	131						
* Feed for grazing stosk (except home-grown)							67	68	68	63	67	67						
* Other specific costs for animals							30	27	32	37	35	33						
* Fertilizers, crop protection, seeds and plants							30	27	26	27	23	26						
* Other specific costs							4	7	6	8	3	5						
Fixed costs							247	233	217	206	202	213						
* Mechanisation							97	94	86	83	82	85						
* Buildings							21	22	16	15	14	16						
* Rent paid (for land)							36	37	41	38	44	41						
* Farm taxes							8	6	4	4	3	4						
* Wages for non family AWU							5	4	9	12	16	11						
* Interest paid							15	20	18	17	13	16						
* Other fixed costs							66	51	43	37	30	40						
Labour productivity, economic efficiency and labour income																		
(Agricultural output + Subsidies) / AWU (€)	78 600	111 200	123 300	131 400		100 000	42 600	71 300	95 700	109 800	128 100	95 000	67 500	89 500	102 300	114 500	129 500	96 700
Specific costs / Output + Subsidies	35%	38%	35%	35%		35%	30%	31%	32%	32%	32%	32%	34%	35%	33%	33%	32%	33%
Fixed costs / Output + Subsidies	50%	46%	46%	46%		48%	58%	55%	53%	50%	50%	52%	51%	50%	51%	49%	50%	50%
Gross farming income / Output + Subsidies	26%	29%	30%	29%		28%	27%	31%	29%	31%	32%	30%	26%	30%	30%	31%	32%	30%
Gross farming income / Family AWU (€)	21 400	36 400	45 900	56 100		32 100	11 800	23 100	32 100	43 800	59 600	34 400	18 300	28 900	35 200	46 200	61 200	33 600
Family farm income / Family AWU (€)	9 000	17 700	24 800	32 500		15 800	4 500	8 900	15 300	23 600	32 600	17 100	7 600	12 800	17 400	25 300	33 700	16 700
Cash Flow 2 / Family AWU (€)	12 200	14 100	32 100	39 700		18 600	11 000	13 200	21 400	22 600	44 000	22 800	11 800	13 500	23 800	26 000	44 300	21 300
Weight of subsidies																		
Subsidies (€)	15 100	25 100	25 700	38 600		20 200	7 600	10 500	14 200	22 700	29 900	15 900	12 800	16 500	16 600	25 700	31 000	17 600
Subsidies / AWU (€)	10 700	13 500	12 600	13 500		11 900	5 400	7 100	8 300	10 400	10 400	8 600	9 100	10 000	9 400	11 100	10 700	9 800
Subsidies / ha of UAA (€)	300	311	288	287		297	222	203	211	248	248	227	281	259	231	258	251	254
Subsidies / Family farm income (%)	126%	86%	64%	62%		87%	125%	82%	62%	56%	47%	60%	126%	84%	63%	58%	47%	69%
Assets (€ per farm)																		
Total assets (€)	570 900	786 100	1 055 100	948 800		733 600	366 700	628 000	694 700	918 500	1 154 700	723 800	506 200	692 500	770 600	924 200	1 242 800	727 600
* Land, permanent crops (€)	345 400	378 100	602 900	465 200		409 900	227 400	400 500	390 800	529 900	553 100	406 000	308 000	391 400	435 500	517 900	590 900	407 500
* Building (€)	40 900	96 600	112 400	105 800		67 000	35 400	67 500	74 200	94 900	139 400	78 600	39 200	79 300	82 300	96 900	141 800	74 100
* Machinary (€)	36 400	65 800	68 800	87 100		51 100	19 000	38 200	50 000	66 400	118 500	55 000	30 900	49 500	54 000	70 300	121 300	53 400
* Quotas and acquisition cost (€)	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
Total liabilities (€)	63 700	153 700	182 600	277 300		111 700	42 800	101 800	146 800	212 600	282 300	150 000	57 100	122 900	154 300	224 700	281 500	135 000
Investments																		
Gross investments / Output + Subsidies (%)	6%	11%	7%	11%		8%	2%	10%	6%	15%	8%	8%	5%	10%	6%	14%	8%	8%
Gross investments (€)	6 300	21 700	16 300	40 300		13 100	1 500	10 000	9 200	36 000	28 300	14 500	4 800	14 800	10 700	36 800	30 600	13 900
* Land, permanent crops (€)	1 300	4 100	-1 100	11 200		2 200	100	500	1 600	16 100	1 700	3 200	900	2 000	1 000	15 200	2 900	2 800
* Quotas and acquisition cost (€)	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0
* Building (€)	2 800	7 500	4 800	4 500		4 100	1 800	3 300	2 600	10 300	2 000	3 600	2 500	5 000	3 100	9 200	2 600	3 800
* Machinary (€)	4 700	12 300	10 200	23 500		8 100	1 900	6 200	6 600	9 600	19 100	7 900	3 800	8 700	7 400	12 200	19 400	8 000

France (North) - Mean characteristics of dairy farms according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total
Number of farms	870	3 250	2 180	1 850	460	8 610		970	1 410	1 440	530	4 460	990	4 220	3 590	3 290	990	13 070
Employment																		
Agricultural Work Unit (AWU)	1,40	1,65	1,95	2,54	3,90	2,01		1,18	1,47	1,98	2,82	1,73	1,39	1,54	1,76	2,29	3,32	1,91
Family AWU	1,33	1,52	1,65	2,10	3,00	1,73		1,18	1,36	1,73	2,51	1,58	1,33	1,44	1,53	1,94	2,74	1,68
Non family (paid) AWU / total AWU	5%	7%	15%	17%	23%	13%		0%	7%	13%	11%	9%	4%	6%	13%	16%	17%	12%
Surfaces																		
Usable Agricultural Area (UAA) in ha	59	74	100	136	193	99		40	60	85	134	72	57	67	84	113	161	89
* UAA in owner-occupation (%)	14%	14%	9%	2%	1%	8%		22%	12%	10%	5%	11%	16%	15%	10%	5%	3%	9%
Fodder surface (FS) in ha	15	27	42	54	83	38		28	39	52	73	44	16	27	41	53	77	40
* Permanent pasture (ha)	11	16	27	32	46	23		17	24	33	38	27	12	16	26	32	42	25
* Temporary pasture (ha)	0	1	1	3	3	2		2	1	2	5	2	0	1	1	2	4	2
* Fodder Maize (ha)	3	9	13	19	34	13		8	14	17	28	15	3	9	14	18	31	14
FS / UAA (%)	25%	36%	42%	40%	43%	39%		69%	66%	62%	54%	62%	28%	41%	49%	47%	48%	45%
Cattle and intensification																		
Grazing Livestock Unit (LU)	30	60	83	111	176	80		50	78	105	148	88	32	58	81	108	161	83
Grazing LU / ha of FS	2,0	2,2	2,0	2,0	2,1	2,1		1,8	2,0	2,0	2,0	2,0	2,0	2,1	2,0	2,0	2,1	2,0
Dairy cows	16	26	39	55	94	38		26	41	54	80	46	17	26	40	55	87	41
Dairy cows / bovine LU (%)	53%	44%	47%	50%	54%	48%		52%	53%	51%	54%	52%	52%	46%	49%	50%	54%	50%
Milk production (in volume) and labour productivity																		
Milk production per farm (kg per year)	72 700	146 200	244 300	375 400	650 000	239 000		152 700	258 000	369 500	587 600	304 700	71 500	147 700	249 700	372 800	616 600	261 400
Milk production per AWU (kg per year)	51 900	88 600	125 300	147 800	166 700	118 900		129 400	175 500	186 600	208 400	176 100	51 500	95 900	141 900	162 800	185 700	136 900
Milk production per dairy cow (kg per year)	4 500	5 500	6 300	6 800	6 900	6 200		5 800	6 200	6 900	7 400	6 600	4 300	5 600	6 300	6 800	7 100	6 400
Milk production per ha of FS (kg per year)	4 800	5 400	5 800	6 900	7 900	6 200		5 500	6 600	7 100	8 100	6 900	4 500	5 400	6 100	7 000	8 000	6 500
Specialisation (% of the total output before subsidies)																		
Animal production (%)	40%	55%	59%	58%	64%	57%		84%	83%	81%	78%	82%	41%	59%	66%	65%	70%	64%
* Milk (%)	23%	37%	43%	42%	45%	41%		71%	69%	69%	68%	69%	24%	42%	51%	51%	54%	49%
* Beef and veal (%)	8%	12%	11%	10%	9%	11%		14%	14%	12%	11%	12%	8%	13%	12%	11%	10%	11%
* Ovine and caprine (%)	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
* Pig and poultry (%)	9%	4%	4%	5%	9%	5%		0%	0%	0%	0%	0%	9%	4%	3%	3%	5%	4%
Vegetale production (%)	57%	40%	36%	36%	33%	38%		14%	14%	17%	19%	16%	55%	36%	29%	30%	27%	32%
Other production (%)	3%	5%	5%	7%	4%	5%		1%	3%	2%	2%	2%	3%	4%	4%	5%	3%	4%
Output per ton of milk (euros)																		
Output milk (€)								314	314	313	313	313						
Output beef and veal (€)								60	61	53	49	55						
Output vegetal production (€)								57	61	68	82	68						
Subsidies (€)								67	68	67	71	69						
Other output (€)								6	13	10	10	10						

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France (North) - Mean economic results according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total
Economic results (euros per farm)																		
Total agricultural output (€)	96 200	120 100	173 100	277 800	448 700	182 000		68 000	116 500	166 200	271 200	137 800	88 100	108 200	150 700	228 800	353 800	167 000
Gross added value (€)	22 500	31 100	51 900	84 000	146 100	52 900		14 300	33 400	47 800	80 400	38 600	20 100	27 300	44 600	68 100	111 000	48 000
Gross farming income (€)	36 500	51 500	74 700	119 000	186 900	77 400		23 300	47 700	66 800	113 200	55 200	33 200	45 000	64 000	96 100	147 500	69 800
Family farm income (€)	15 400	28 800	47 900	70 900	100 800	45 000		14 900	23 000	36 500	45 400	27 700	14 100	25 700	38 000	55 800	71 200	39 100
Cash flow 2 (€)	12 100	26 700	43 800	44 800	82 200	36 300		8 100	41 200	19 600	74 000	29 900	11 000	22 500	42 800	33 800	77 800	34 100
Costs (euros per ton of milk)																		
Total costs								409	434	427	454	433						
Specific costs (except home-grown feed)								160	146	148	159	151						
* Feed for grazing stosk (except home-grown)								83	75	78	82	79						
* Other specific costs for animals								15	16	15	16	15						
* Fertilizers, crop protection, seeds and plants								61	54	55	61	57						
* Other specific costs								0	0	0	0	0						
Fixed costs								248	288	279	295	282						
* Mechanisation								117	127	120	122	122						
* Buildings								18	36	32	44	34						
* Rent paid (for land)								30	37	38	36	37						
* Farm taxes								9	7	7	6	7						
* Wages for non family AWU								0	6	9	9	7						
* Interest paid								10	18	22	25	20						
* Other fixed costs								64	58	51	53	55						
Labour productivity, economic efficiency and labour income																		
(Agricultural output + Subsidies) / AWU (€)	81 100	87 700	104 500	127 400	130 700	106 400		66 400	91 300	96 400	110 900	91 700	75 000	84 100	100 100	115 900	121 800	102 100
Specific costs / Output + Subsidies	32%	30%	27%	27%	28%	28%		31%	28%	29%	30%	29%	32%	30%	27%	28%	29%	28%
Fixed costs / Output + Subsidies	54%	51%	51%	53%	52%	52%		48%	55%	54%	55%	54%	54%	50%	53%	53%	53%	53%
Gross farming income / Output + Subsidies	32%	36%	37%	37%	37%	36%		30%	36%	35%	36%	35%	32%	35%	36%	36%	36%	36%
Gross farming income / Family AWU (€)	27 500	33 900	45 300	56 700	62 300	44 700		19 700	35 100	38 600	45 100	35 000	25 000	31 300	41 800	49 600	53 800	41 600
Family farm income / Family AWU (€)	11 500	19 000	29 000	33 800	33 600	26 000		12 600	16 900	21 100	18 100	17 500	10 600	17 800	24 900	28 800	26 000	23 300
Cash Flow 2 / Family AWU (€)	9 100	17 600	26 500	21 400	27 400	21 000		6 900	30 300	11 300	29 500	18 900	8 300	15 600	27 900	17 400	28 400	20 300
Weight of subsidies																		
Subsidies (€)	17 400	24 600	30 700	45 700	60 900	31 800		10 300	17 600	24 800	41 600	20 900	16 200	21 300	25 500	36 500	50 600	28 100
Subsidies / AWU (€)	12 400	14 900	15 800	18 000	15 600	15 800		8 700	12 000	12 500	14 700	12 100	11 600	13 800	14 500	15 900	15 200	14 700
Subsidies / ha of UAA (€)	293	330	307	337	316	323		257	294	293	310	291	286	320	304	322	314	314
Subsidies / Family farm income (%)	113%	85%	64%	64%	60%	71%		69%	77%	68%	92%	75%	115%	83%	67%	65%	71%	72%
Assets (€ per farm)																		
Total assets (€)	267 400	303 700	398 300	559 900	941 400	412 300		173 300	291 600	404 200	696 700	345 000	248 700	273 900	356 000	491 600	810 500	389 300
* Land, permanent crops (€)	36 900	36 200	41 400	13 400	10 000	31 300		37 100	28 200	35 100	23 000	32 500	39 200	36 400	36 200	22 900	17 000	31 700
* Building (€)	31 900	39 200	53 700	138 700	256 800	74 900		13 200	47 800	96 900	195 000	72 200	28 600	33 200	51 400	120 300	223 800	74 000
* Machinary (€)	89 400	83 800	107 800	131 400	212 700	107 400		41 200	71 900	81 400	191 300	80 600	79 500	74 100	93 600	109 500	201 200	98 300
* Quotas and acquisition cost (€)	5 400	11 800	7 300	12 000	39 300	11 500		300	2 500	14 400	8 000	6 400	4 800	9 200	5 400	13 100	22 500	9 800
Total liabilities (€)	105 200	100 600	154 000	245 200	434 900	163 100		40 500	130 300	200 900	367 300	158 800	96 300	86 900	144 600	225 800	398 700	161 600
Investments																		
Gross investments / Output + Subsidies (%)	15%	17%	19%	24%	19%	20%		17%	10%	22%	23%	19%	13%	17%	16%	23%	21%	20%
Gross investments (€)	16 600	25 100	39 100	76 400	97 300	42 500		13 600	13 400	43 000	73 100	29 500	14 000	22 500	28 900	61 700	84 400	38 100
* Land, permanent crops (€)	4 400	1 000	1 700	200	1 500	1 400		3 700	1 400	1 600	-2 600	1 500	4 200	1 600	1 600	800	-700	1 400
* Quotas and acquisition cost (€)	0	100	700	400	10 900	900		0	0	0	0	0	0	100	400	200	5 100	600
* Building (€)	5 200	5 900	10 400	37 200	24 500	14 600		2 600	-600	20 200	28 700	10 300	4 600	5 200	6 000	29 700	26 700	13 100
* Machinary (€)	8 100	18 100	26 800	39 200	58 500	25 900		5 900	13 800	21 000	48 500	18 200	7 300	15 300	21 600	31 300	53 200	23 300

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France (West) - Mean characteristics of dairy farms according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total
Number of farms	1 780	4 180	4 510	3 400	570	14 450	1 690	8 860	10 090	8 550	1 420	30 600	3 460	13 040	14 600	11 950	2 000	45 050
Employment																		
Agricultural Work Unit (AWU)	1,45	1,64	2,01	2,97	4,62	2,17	1,08	1,28	1,66	2,24	3,23	1,75	1,26	1,39	1,77	2,45	3,63	1,88
Family AWU	1,45	1,54	1,79	2,55	3,04	1,90	1,08	1,26	1,56	2,11	3,05	1,67	1,26	1,35	1,63	2,23	3,05	1,74
Non family (paid) AWU / total AWU	0%	6%	11%	14%	34%	12%	0%	1%	6%	6%	6%	5%	0%	3%	8%	9%	16%	7%
Surfaces																		
Usable Agricultural Area (UAA) in ha	53	67	84	118	149	86	22	41	61	89	126	64	37	49	68	97	133	71
* UAA in owner-occupation (%)	22%	14%	12%	3%	1%	9%	41%	31%	20%	5%	1%	15%	28%	24%	16%	4%	1%	13%
Fodder surface (FS) in ha	38	45	52	67	89	53	19	33	46	65	89	48	28	37	48	65	89	50
* Permanent pasture (ha)	14	14	13	16	10	14	10	11	13	18	15	14	12	12	13	17	14	14
* Temporary pasture (ha)	17	18	22	26	42	22	5	12	20	26	42	20	11	14	20	26	42	20
* Fodder Maize (ha)	7	12	17	24	37	17	4	10	14	20	32	15	6	11	15	21	33	15
FS / UAA (%)	72%	67%	62%	57%	60%	62%	87%	80%	76%	73%	70%	75%	76%	75%	71%	67%	67%	70%
Cattle and intensification																		
Grazing Livestock Unit (LU)	57	71	82	119	163	88	25	48	70	101	145	73	41	55	74	106	151	78
Grazing LU / ha of FS	1,5	1,6	1,6	1,8	1,8	1,7	1,3	1,4	1,5	1,6	1,6	1,5	1,4	1,5	1,5	1,6	1,7	1,6
Dairy cows	16	27	38	55	88	38	15	29	40	56	85	42	15	28	39	56	86	41
Dairy cows / bovine LU (%)	29%	38%	46%	46%	54%	43%	58%	60%	57%	56%	58%	57%	38%	51%	53%	53%	57%	52%
Milk production (in volume) and labour productivity																		
Milk production per farm (kg per year)	66 400	154 100	240 800	372 700	636 200	241 800	67 300	159 500	249 800	379 600	594 300	264 800	66 900	157 800	247 000	377 600	606 300	257 500
Milk production per AWU (kg per year)	45 800	93 900	119 800	125 500	137 700	111 400	62 300	124 600	150 500	169 500	184 000	151 300	53 100	113 500	139 600	154 100	167 000	137 000
Milk production per dairy cow (kg per year)	4 100	5 700	6 400	6 800	7 200	6 300	4 600	5 500	6 300	6 800	7 000	6 400	4 300	5 600	6 300	6 800	7 100	6 400
Milk production per ha of FS (kg per year)	1 800	3 400	4 600	5 600	7 100	4 500	3 500	4 800	5 400	5 900	6 700	5 500	2 400	4 300	5 100	5 800	6 800	5 200
Specialisation (% of the total output before subsidies)																		
Animal production (%)	83%	81%	82%	79%	81%	81%	91%	92%	90%	89%	87%	90%	85%	87%	86%	85%	85%	86%
* Milk (%)	30%	40%	37%	41%	42%	39%	78%	77%	74%	73%	71%	74%	44%	60%	57%	60%	59%	58%
* Beef and veal (%)	30%	20%	12%	13%	10%	15%	14%	14%	16%	15%	14%	15%	25%	17%	14%	14%	12%	15%
* Ovine and caprine (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
* Pig and poultry (%)	21%	14%	26%	22%	26%	22%	0%	0%	0%	0%	0%	0%	15%	7%	12%	9%	11%	10%
Vegetale production (%)	16%	15%	12%	15%	14%	14%	6%	7%	8%	8%	11%	8%	13%	11%	10%	11%	12%	11%
Other production (%)	1%	3%	6%	6%	5%	5%	3%	1%	2%	3%	2%	2%	2%	2%	4%	4%	3%	3%
Output per ton of milk (euros)																		
Output milk (€)							307	311	313	314	315	313						
Output beef and veal (€)							53	56	67	66	61	64						
Output vegetal production (€)							12	15	23	23	37	23						
Subsidies (€)							80	50	51	58	55	55						
Other output (€)							10	8	12	16	18	14						

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France (West) - Mean economic results according to specialisation and dairy production per farm (2003)

	Diversified						Specialised						Whole set					
	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total	100 T <	100-200 T	200-300 T	300-500 T	> 500 T	Total
Economic results (euros per farm)																		
Total agricultural output (€)	66 900	119 000	202 900	285 900	475 600	192 900	26 500	64 200	106 300	164 100	262 500	112 600	46 200	81 600	136 300	198 600	323 800	138 200
Gross added value (€)	14 500	31 000	53 300	78 900	146 000	52 000	7 300	20 200	33 700	54 800	93 000	36 800	10 800	23 600	39 800	61 600	108 200	41 600
Gross farming income (€)	29 700	43 300	71 800	106 500	160 500	70 300	12 000	26 600	43 000	72 500	118 700	48 100	20 600	31 900	52 000	82 100	130 700	55 200
Family farm income (€)	21 000	15 500	31 100	48 500	60 900	30 600	8 900	16 700	19 400	36 000	63 700	24 600	14 800	16 300	23 000	39 500	62 900	26 500
Cash flow 2 (€)	26 800	13 100	37 000	54 300	72 900	34 300	17 000	19 100	20 400	38 500	75 000	27 300	21 800	17 200	25 500	42 900	74 400	29 600
Costs (euros per ton of milk)																		
Total costs							331	337	392	388	385	379						
Specific costs (except home-grown feed)							107	103	105	110	109	107						
* Feed for grazing stosk (except home-grown)							39	43	46	48	49	47						
* Other specific costs for animals							13	13	12	13	12	13						
* Fertilizers, crop protection, seeds and plants							54	47	47	48	48	47						
* Other specific costs							0	0	0	1	0	0						
Fixed costs							223	234	287	278	275	272						
* Mechanisation							101	107	124	119	115	118						
* Buildings							20	19	35	35	36	32						
* Rent paid (for land)							18	23	29	32	34	29						
* Farm taxes							10	9	7	5	6	7						
* Wages for non family AWU							0	1	6	6	6	5						
* Interest paid							9	13	20	19	20	18						
* Other fixed costs							66	61	67	61	58	62						
Labour productivity, economic efficiency and labour income																		
(Agricultural output + Subsidies) / AWU (€)	57 500	82 300	113 200	109 200	113 200	100 500	29 500	56 400	71 600	83 100	91 400	72 600	45 200	66 300	86 200	92 000	99 300	83 000
Specific costs / Output + Subsidies	29%	29%	33%	31%	33%	31%	23%	23%	22%	22%	22%	22%	27%	26%	27%	26%	27%	26%
Fixed costs / Output + Subsidies	44%	58%	52%	53%	55%	54%	47%	52%	60%	57%	55%	57%	45%	55%	57%	55%	55%	55%
Gross farming income / Output + Subsidies	36%	32%	32%	33%	31%	32%	38%	37%	36%	39%	40%	38%	36%	35%	34%	36%	36%	35%
Gross farming income / Family AWU (€)	20 500	28 100	40 100	41 800	52 800	37 000	11 100	21 100	27 600	34 300	38 900	28 800	16 400	23 600	31 900	36 800	42 900	31 700
Family farm income / Family AWU (€)	14 500	10 000	17 400	19 000	20 000	16 100	8 200	13 300	12 400	17 000	20 900	14 800	11 700	12 100	14 100	17 700	20 600	15 300
Cash Flow 2 / Family AWU (€)	18 500	8 500	20 700	21 300	24 000	18 100	15 700	15 100	13 100	18 200	24 600	16 400	17 300	12 700	15 700	19 300	24 400	17 000
Weight of subsidies																		
Subsidies (€)	16 500	16 000	24 600	38 400	47 300	25 300	5 400	8 100	12 600	22 200	32 600	14 500	10 800	10 600	16 300	26 800	36 800	17 900
Subsidies / AWU (€)	11 400	9 800	12 300	12 900	10 200	11 700	5 000	6 300	7 600	9 900	10 100	8 300	8 600	7 600	9 200	10 900	10 100	9 500
Subsidies / ha of UAA (€)	312	239	294	326	317	295	246	195	208	250	259	227	292	214	241	276	277	253
Subsidies / Family farm income (%)	78%	104%	79%	79%	78%	83%	61%	48%	65%	62%	51%	59%	73%	65%	71%	68%	59%	67%
Assets (€ per farm)																		
Total assets (€)	168 800	269 800	401 100	543 800	891 900	388 600	75 200	144 400	252 900	362 900	526 800	254 100	120 700	184 200	298 900	414 300	631 800	296 900
* Land, permanent crops (€)	23 500	22 400	31 300	14 200	40 400	24 100	24 200	34 400	33 900	17 300	7 400	27 600	23 900	30 600	33 100	16 400	16 900	26 500
* Building (€)	18 800	59 300	111 000	168 100	311 800	106 600	4 100	17 800	58 800	105 000	157 100	61 100	11 300	31 000	75 000	122 900	201 600	75 500
* Machinary (€)	19 300	55 900	79 800	107 000	156 600	75 200	4 100	16 800	42 900	69 000	103 800	43 100	11 500	29 200	54 300	79 800	119 000	53 300
* Quotas and acquisition cost (€)	0	200	0	700	100	200	300	0	100	300	1 000	200	100	100	100	400	700	200
Total liabilities (€)	43 200	133 500	221 700	268 400	477 600	196 100	10 000	44 200	111 900	168 400	275 100	109 400	26 100	72 600	145 900	196 700	333 300	137 000
Investments																		
Gross investments / Output + Subsidies (%)	3%	15%	17%	14%	21%	15%	-15%	8%	13%	12%	19%	12%	-3%	11%	15%	13%	20%	13%
Gross investments (€)	2 200	20 300	38 500	45 100	107 700	33 200	-4 900	5 800	15 700	22 200	57 300	15 300	-1 500	10 400	22 800	28 700	71 800	21 000
* Land, permanent crops (€)	200	2 400	1 700	600	9 900	1 800	0	900	3 200	100	800	1 400	100	1 400	2 700	300	3 400	1 500
* Quotas and acquisition cost (€)	0	0	0	100	100	0	0	0	0	0	100	0	0	0	0	0	100	0
* Building (€)	900	3 800	16 700	17 900	49 700	12 700	200	1 400	3 600	6 900	20 300	4 500	600	2 200	7 700	10 000	28 800	7 100
* Machinary (€)	3 100	14 900	20 800	26 100	46 300	19 300	-100	3 600	9 800	17 800	34 900	10 800	1 500	7 200	13 200	20 200	38 200	13 500

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Rédaction : Département Économie (GEB)

Le GEB (Groupe Économie du Bétail), Département Économie de l'Institut de l'Élevage, bénéficie du financement du Ministère de l'Agriculture et sur contrats, du Fonds de l'Élevage, de l'Interprofession lait et viande, et de l'Office de l'Élevage

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Document publié en collaboration avec les services de la Confédération Nationale de l'Élevage par l'Institut de l'Élevage

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> CCP 3811-79 Paris > Imprimé à l'ACTA Reprographie, 149, rue de Bercy-PARIS 12e > N° ISSN 1273-8638

> Abonnement : 65 € TTC par an & Vente au numéro : 20 € : A. Cano > Email : technipel@inst-elevage.asso.fr > Tél. : 01 40 04 51 71