



# Finnish Agriculture and Rural Industries 2009



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Cover picture: Albert Edelfelt, *Girl with a Rake* (1886). Ateneum Art Museum

Photo: Central Art Archives/Jukka Romu

*Albert Edelfelt* (1854–1905) was one of the most significant Finnish painters and an influential figure in the artistic circles. He is widely known from his historical paintings, pictures of peasant life and portraits, which won fame and recognition both in Finland and abroad. Many of Edelfelt's paintings started off as studies for his larger works. This delicate picture '*Girl with a Rake*' (oil on wood) from 1886, a close-up of a young girl, is a detail of a less-known autumn harvest painting '*August*'.



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# **Finnish Agriculture and Rural Industries 2009**

Edited by  
Jyrki Niemi and Jaana Ahlstedt

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## Preface

The MTT Economic Research publishes an annual report on the state of Finnish agriculture and rural industries. The report presents the main events and current challenges within the sector during the past year and anticipates the future challenges in the light of the most recent statistics. This annual report has been published in various formats since 1979, and in its present form it has gained an important position and is much looked forward to among all of those involved in the agriculture and food sectors and in rural issues.

In the past couple of years the sudden changes in the prices of agricultural products have obviously been the main topic within the sector and also in the society. In the beginning of 2008 the cereal prices were record high, but they came down dramatically towards the end of the year. The world prices for dairy products also fell considerably from the top quotations reached a couple of years ago. The consequent fall in the producer prices took place quite rapidly, but the impacts on the input prices took more time to appear. The input prices fell the most towards the end of 2008 when the price for crude oil decreased and the impacts of the global economic recession were starting to show. During the summer there were major concerns that the profitability of agriculture might collapse due to the high production costs and poor crop outlook.

The year 2008 was very active in agriculture policy. In the early part of the year the impacts of the decisions concerning the national aid under Article 141 of the Accession Treaty, i.e. aid for serious difficulties paid in southern Finland, dominated the agenda, while towards the end of the year the main topic was the so-called health check of the EU's common agricultural policy. In November 2008 the EU agriculture ministers reached an agreement on the main outlines for agricultural policy until 2013. The main issues for Finland were how to alleviate the impacts of the abolition of the milk quota system and the application of certain coupled payments also in the future.

In the context of the health check it was also agreed that more funds will be transferred from direct payments to rural development measures (modulation). These measures relate to climate change, water protection, renewable energy and the dairy sector. During the year the discussion on agri-environmental policy was particularly vivid within Finland, and it helped to construct the necessary will to achieve an even better targeted and more efficient environmental payment system.

The Special Topics of this year's publication look into rural entrepreneurship through the people working on farms and rural enterprises. Among other things, the articles discuss the factors that influence the well-being of agricultural and rural entrepreneurs and challenges in coping with work. One of the articles deals with the introduction of a new operative model for agriculture concerning the production of environmental benefits and mitigating the negative impacts.

On behalf of the MTT Agrifood Research Finland, I wish to thank Professor Jyrki Niemi and Research Secretary Jaana Ahlstedt for compiling and editing this publication, as well as all the experts who took part in the writing process.

Helsinki 13 March 2009

Pasi Rikkinen  
Director  
MTT Economic Research

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## SUMMARY

In the past two years we have seen rapid changes on the international agricultural product market. The great and sudden fluctuations in agricultural product prices have taken all parties on the market by surprise.

The year 2008 remains in history as a year of dramatic and sudden changes on the cereal market. In the early part of the year the world prices for cereals were at times more than double the prices in the past few years, but towards the end of the year the prices fell rapidly so that in December they were on the lowest level in the past two years. The world prices for milk have also come down from the top quotations a couple of years ago. By December 2008 the dollar prices had fallen by 40–50% from 2007.

### Increased market and price risks

The changes on the world market are founded on both random and structural causes. A major share of the sudden and dramatic changes were due to variations in the yields and output caused by exceptional weather conditions in many important agricultural regions.

The drought in the southern hemisphere reduced the yields and increased the prices in 2007–2008. The higher prices in turn led to an increase in the cultivation areas in, which is why in 2008 a record high cereal yield was harvested, causing the world market prices for cereals to go down towards the end of the year.

In recent years the prices and price expectations of agricultural products have also been influenced by the growing demand for cereal to be used as raw material for biofuel, while the increased demand for food globally is a long-term trend which will continue far into the future. In

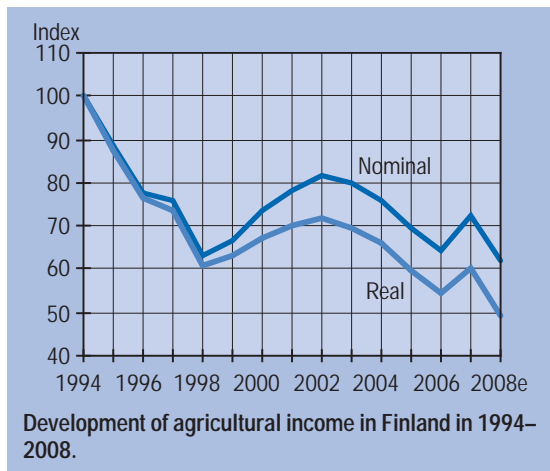
the next few years, however, the economic recession is likely to slow down the growth in the global demand for food.

The great fluctuations in the production volumes and supply of agricultural products as well the related considerable variations in the prices have come to stay. Even quite small indications of changes in crop outlook are rapidly reflected in the world market prices. Climate warming increases the variation in the weather conditions and the frequency of extreme weather events. The market interventions of the EU, which used to function as significant safety nets, have now been reduced and further action to this end is being taken.

All this means that the market risks of companies in the food sector relating to both the product sales and raw material and other purchases will be growing. At the same time the responsibility for managing the market risks is shifting from the state to the market and the companies operating on it.

### Agricultural income fell by almost 15%

The price changes on the world market are also reflected in the Finnish prices.



Thanks to the rise in producer prices, in 2007 the income of the agricultural and horticulture sector increased for the first time since 2002 but, due to the rapid rise in the producer prices, the incomes started to fall again in 2008.

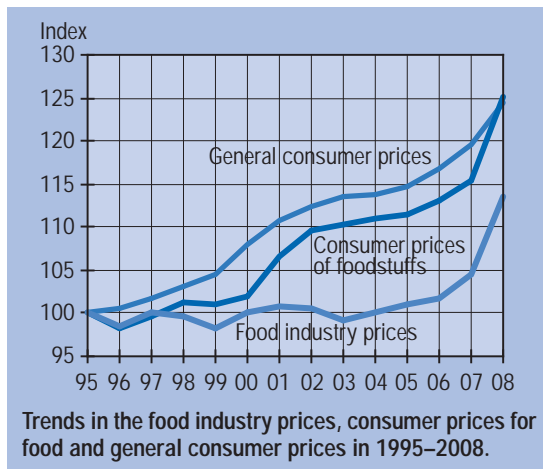
In 2008 the agricultural income fell by almost 15% to the lowest level since 1995, when Finland joined the EU.

The number of farms was a little over 65,000. Since Finland joined the EU the number of farms has been decreasing by almost 3% a year. Because of the changes in the national aid, the number of small-scale pig producers who gave up production in 2008 was exceptionally high.

### Rise in food prices

In 2008 the food prices in Finland rose by 8.6%. The annual change in the consumer price index was 4.1%, which means that the rise in the food prices was much more rapid than the average rate of inflation.

When considering the long-term trend in food prices, however, we can see that the rise in the price has followed the general consumer price trend. From 1995 until 2008 the nominal price of food rose by 25.2%. During the same period the consumer price index rose by 24.4%, showing that in real terms the food prices in 2008 were on about the same level as in 1995.



The rise in the prices in 2008 was due to the increase in the prices of raw materials, such as cereals, meat and milk, and higher costs in the food industry and retail sectors. In Finland there were additional pressures on the prices as the processing industry had not been able to raise the prices for some time despite the rise in energy prices and labour costs. The prices of dairy and bakery products increased the most.

The food prices are expected to decrease in 2009, because the world market prices of the raw material of the food industry started to fall clearly towards the end of 2008. In October 2009 the VAT on food in Finland will be lowered by 5% from 17 to 12%.

The growth in Finnish food exports slowed down in 2008. The value of food exports totalled € 1,401 million, which is 7% more than the year before. Instead, the growth in food imports accelerated. The value of food imports to Finland was 3,585 million, which is almost 15% higher than in 2007.

The deficit in food trade increased by more than € 360 million. Now imports represent about 30% of the food consumed in Finland.

### Changes in EU agricultural policy

The EU agriculture ministers decided in November 2008 on the reform of the common agricultural policy, also called the health check. The decision continues the earlier reforms and strategies, with the aim to increase the market orientation of EU agriculture.

The aim of the reform is to continue the application of decoupled payments and abolish some of the remaining production restrictions to allow the farmers to respond better to the market demand. Another aim is to transfer more funds from direct payments for agriculture to rural de-



velopment funding (modulation).

For Finland the main issues in the reform are the actions relating to the abolition of the milk quota scheme and the possibility to continue to apply coupled payments. After the reform the total amount of CAP payments funded by the EU to Finland will stay on about the current level of € 565–570 million a year.

The challenge for Finland will be to implement the health check together with the national aids so that the preconditions for profitable production are preserved. The decisions on the implementation of the reform and allocation of payments among the production sectors are made during 2009.

### New Rural Policy Programme

The rural policy agenda for 2008 was dominated by the preparation of the fifth Rural Policy Programme. The purpose of the programme is to influence decision-making and policies so that the country-

side stays a good place for work and living, while ensuring that the opportunities and resources of the rural areas are even better than before used in support of the welfare and competitiveness of the whole country.

The content of the new programme is highly diverse. It starts with a comprehensive description of the state of the Finnish countryside and the development challenges. Compared to the earlier Rural Policy Programmes, the new programme contains some new elements or more weight has been assigned to certain issues. These include more emphasis on the challenges faced by sparsely populated rural areas, reinforcing the preconditions for civic action, relationship between municipalities and villages, supply of expertise and labour, wildlife and landscape services, mining industry, mitigating the impacts of climate change, bioenergy production and significant increase in international activities.

The development and reinforcement of rural policy governance also receives more emphasis than before.

Number of active farms and agricultural income in 1994–2008.

	Number of farms	Change from previous year %	Change from 1994 %	Agricultural income at 2008 prices, € million	Index 1992–94 average: 100
2008	65,282	-2.3	-37	869	53
2007	66,821	-2.8	-35	1,063	65
2006	68,766	-0.5	-33	964	59
2005	69,088	-2.8	-33	1,059	65
2004	71,100	-1.3	-31	1,172	72
2003	72,000	-1.9	-30	1,229	76
2002	73,386	-2.7	-29	1,271	78
2001	75,384	-3.2	-27	1,239	76
2000	77,896	-5.2	-24	1,189	73
1999	82,142	-4.1	-20	1,121	69
1998	85,690	-3.0	-17	1,073	66
1997	88,370	-3.2	-14	1,304	81
1996	91,281	-4.5	-11	1,353	84
1995	95,562	-7.2	-7	1,549	96
1994	103,000 <sup>1</sup>			1,769	109

<sup>1</sup> Estimate of the MTT Economic Research, Agrifood Research Finland.

Sources: Total calculation of the MTT Economic Research, Agrifood Research Finland, Support register of the Ministry of Agriculture and Forestry (MMM).

# 1. OPERATING ENVIRONMENT OF AGRICULTURE

## 1.1. Agriculture and food sector in the national economy

In Finland the total annual consumer expenditure on food and beverages is about € 19.0 billion. Food and non-alcoholic beverages consumed at home (€ 10.9 billion) represent 12% of the consumer expenditure. The rise in incomes has led to a decrease in the share of indispensable foodstuffs in consumer expenditure. When alcoholic beverages and eating out are included, food represents about 22% of the consumer expenditure of households. The share of food consumed outside home in consumer expenditure is about 6%.

The total value of the annual money flows in the food sector is about € 22.7 billion, when food exports and agricultural support payments are taken into account, in addition to the total private and public consumer expenditure. This is about 11% of the Finnish GDP.

### Agriculture and horticulture

According to the national accounting, the gross value of agriculture and horticulture is about € 6.3 billion, when support is taken into account in the return. The value of inputs purchased from outside the farms is

about half of this, € 3.2 billion. The share of imported inputs is a little under € 0.3 billion.

In 2007 the value added produced by agriculture and horticulture to the Finnish GDP totalled a little over € 3.1 billion, which is 1.9% of the total GDP of all sectors. The share of agriculture in the GDP has decreased over the years, because production has grown much more rapidly in sectors other than primary production.

### Food processing

In 2007 the gross value of the production of food industry was € 9.6 billion and value added was € 2.5 billion. This is 1.6% of the value added in the national economy and a little over 7% of the value added of all industrial production.

Food industry is raw material intensive: purchased inputs represent more than 70% of the gross value of the production. Food processing industry still purchases most of its raw material from the domestic agriculture and horticulture. Because of the transportation costs, a significant share of the food industry depends on domestic raw material. The value of imported products used in the production is about € 1 billion.

Measured by both the gross value and value added of the production, food industry is the fifth largest sector in Finland after the electronics, forest, metal and machine industries. Measured by the value added, within food industry the main sectors are meat processing, bakery and beverage industries and milk processing.

Domestic processing industry is threatened by imports. Food imports have grown as the markets have opened and the trade sector has increased the efficiency of its buying-in activities. The share of imported foodstuffs, € 2.9 billion, is about 30% of the total consumption.

#### Total consumer expenditure on food and beverages, € million.

	2006	2007	Change %
Total	17,899	18,964	6
Foodstuffs	9,278	9,892	7
Non-alcoholic beverages	933	970	4
Alcoholic beverages	2,771	2,904	5
Restaurants and catering services	4,917	5,198	6

Source: Statistics Finland.

## Domestic trade in foodstuffs

In addition to the primary production and processing sectors, the role of the wholesale and retail trade is also highly significant in the domestic food chain. Foodstuffs require a great deal of handling, which increases the costs of the trade sector. The share of wholesale and retail trade in the food expenditure of consumers totals about € 2.8 billion. In addition to this, various kinds of trading takes place in the other parts of the agricultural and food production chain.

Domestic food trade is founded on chains of wholesalers and retailers, where the buying-in operations are highly centralised. It is not dependent on domestic basic production in the same way as the Finnish food industry.

The position of trade in the food chain relative to the domestic raw material production and food industry has strengthened. The trade sector is able to take advantage of the competition between the domestic food companies and between the domestic companies and foreign ones.

Finnish food trade is still largely in the hands of domestic chains. The entry of the German food chain Lidl on the Finnish market in 2002 increased the price competition in food trade. The more and more efficient and international food trade is go-

ing to put the value and significance of the domestic origin into a serious test.

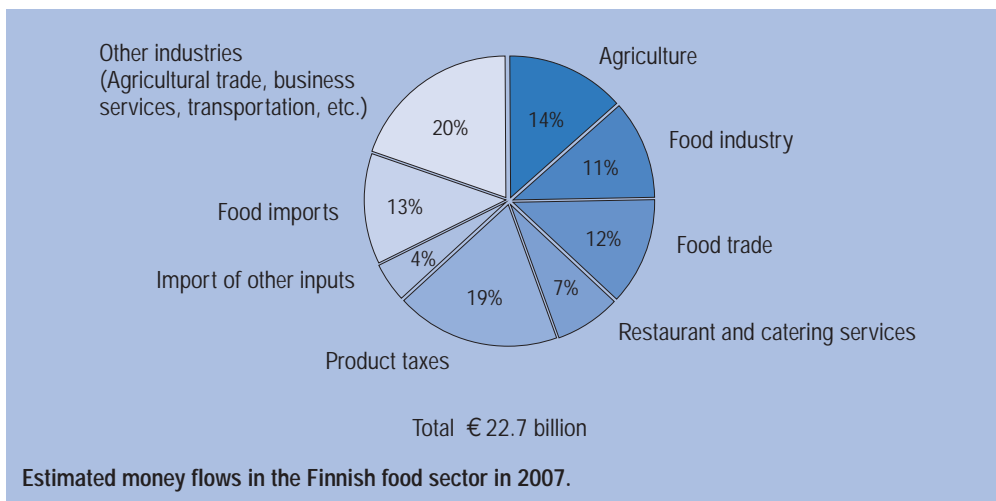
## Foreign trade in foodstuffs

In 2007 the value of food imports was about € 2.9 billion, which is about 5% of the total value of imports. The value of exports was about € 1.3 billion, which is about 2% of the total value of exports. Both food imports and exports grew in 2008. The foreign trade balance of the food sector is further weakened by the import of other production inputs, such as fuels, energy and chemicals.

Some of the imported foods are primary products which cannot be produced in Finland or the quantities produced are not sufficient. Some imported products are processed further in Finland. The share of cross-trading, i.e. both import and export of the same types of products (e.g. cheeses, beverages and confectionary) has increased. Exports also include unprocessed or low value-added agricultural raw materials, such as meat, cereal and butter.

## Taxes and support in the food sector

The State functions in the food chain as it collects taxes and allocates financial support to agriculture. In 2007 the taxes collected



on foodstuffs totalled € 4.2 billion. The annual value added tax (VAT) collected on food totals about € 1.6 billion and that on alcoholic beverages € 0.5 billion. The value added tax of 22% collected on restaurant services totals € 1.1 billion and the tax on alcohol served in restaurants about € 1 billion a year. Taxes are also collected on soft drinks and beverage containers.

Growth in the consumption increases the value added tax revenue. Changes in taxation to control alcohol consumption are reflected in the revenue. The 17% VAT on foodstuffs is high compared to the EU average. Based on the programme of the present Finnish Government, the VAT on food will be lowered to 12% in October 2009. Those opposing the reduction doubt whether the reduction will be transferred to the consumer price.

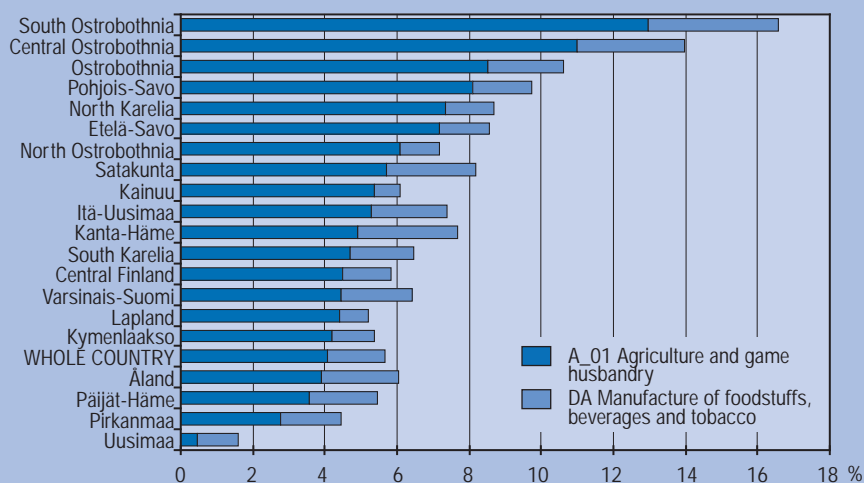
When the energy, fuel and income taxes collected in the food chain, as well as the taxes on food, are taken into account, the amount of taxes collected is more than double the amount of support payments to the chain, € 2.2 billion. Support measures are funded by the EU or nationally, or co-funded by the EU and the State. The EU contributions total about € 0.8 billion.

## Economy-wide effects of the food sector

Besides agriculture, food industry and catering services, various other sectors of the economy are also, more or less indirectly, involved in food production. The share of these in the total money flows of the food sector is about € 4 billion.

The most important sectors serving food production are agricultural trade, transport and various kinds of business services. In practice the impacts of food production extend to all economic sectors from energy production to water services and waste management. The value added created alone by the demand for purchased agricultural inputs in the other sectors totals about € 1 billion.

Indirect effects of food production are also created through consumption as the households use income earned in food production for purchasing goods and services from other sectors, where the trade, transport and other services also have a central role. Similarly, indirect effects are created through investments in sectors involved in food production. When the indirect effects of agriculture, food industry, food trade and catering services involved



Employed of agriculture and food industry (%) in different regions. Source: Tuotannon ja työllisyyden aluetilit (Regional accounts of production and employment) 2006, Statistics Finland.

in the food production chain are taken into account, the share of production relating to the food sector in the total economy is much higher than the shares of the individual parts of the chain seem to imply.

### Employment effects of the food chain

In 2008 the number of people employed in agriculture was almost 90,000 persons, which is 3.6% of the employed labour force. The number of people employed in agriculture has fallen along with the number of farms. Regionally agriculture may be a very important employer because these jobs are located in regions where the other types of production are less common.

By purchasing production inputs agriculture employs about 20,000 persons. These jobs are mainly located in population and municipal centres, not in the rural areas.

Food industry employs about 36,000 persons. Most of the about 1,800 food processing companies are small or medium-sized companies that employ less than 250 persons. Thus the few very large companies are decisive in terms of the employment in

the food sector as they employ more than half of the sector's labour force.

Some of the food companies process local raw materials so that the jobs are located close to primary production. The need to concentrate production into fewer and larger units reduces the number of both places of business and the people employed in the sector, especially in the largest companies.

Food industry also employs indirectly in the packaging and transportation business, wholesale trade and in various kinds of business services. Altogether Finnish agriculture and food industry employ about 200,000 persons.

While the jobs in primary production and processing are decreasing, more and more people find employment in restaurants and catering services and in food trade. Restaurants and catering services employ about 62,300 and food trade more than 50,000 persons. The jobs are located where the demand for foodstuffs is the greatest, i.e. in southern Finland and population centres. When the employment effect of all these sectors is taken into account, the whole food sector employs almost 300,000 persons.

The GDP share of agriculture and the food sector, at basic price (current prices).

Year	0	010, 014	DA	010, 014	DA
	Sectors total	Agriculture and related services <sup>1</sup>	Manufacture of foodstuffs, beverages and tobacco	Agriculture and related services	Manufacture of foodstuffs, beverages and tobacco
	€ million	€ million	€ million	%	%
2007	156,912	3,077	2,484	1.9	1.6
2006	145,023	2,890	2,324	2.0	1.6
2005	136,423	2,818	2,333	2.0	1.7
2004	132,516	2,715	2,295	2.0	1.7
2003	126,530	2,753	2,369	2.1	1.9
2002	125,615	2,908	2,362	2.3	1.9
2001	122,484	2,850	2,207	2.3	1.8
2000	115,154	2,755	1,818	2.3	1.6
1999	106,213	2,467	2,097	2.3	2.0

<sup>1</sup> At factor cost.

Source: National Accounts 1999–2007 (preliminary), Statistics Finland.

## 1.2. Rural enterprises

Small rural enterprises can be divided into three groups: farms engaged in basic agricultural production and farm forestry, diversified farms and small rural enterprises with no connection to farms. In 2007 there were an estimated 137,600 small rural enterprises, of which 33% were engaged in basic agriculture, 17% were diversified farms and 50% were other small enterprises. During the economic boom the number and relative share of other small rural enterprises increased slightly, while the number of basic farms has fallen. In 2007 about 45,000 Finnish farms engaged in basic agriculture.

### Diversified farms

In 2007 the number of farms practising other gainful activities besides agriculture was 23,200, which means that about 34% of the Finnish farms were diversified. Engaging in different kinds of activities has traditionally been common among farmers, but since the 1990s new kinds of operations have been started more than ever before. Starting other gainful activities is often connected to changes in the operating environment of farms, creating new demand for the products and services, while new challenges to agriculture may have encouraged the farm families to seek new sources of livelihood. New operations have been started especially in the service sector.

There has been a great deal of variation within the group of diversified farms. Of the diversified farms in 2005 about 60% had engaged in other gainful activity besides agriculture for at least five years and about 15% of them had started this after 2003. In 2007 the number of diversified farms was the greatest in South Ostrobothnia and Southwest Finland (Varsinais-Suomi). Proportionally the number of diversified farms was the highest in Uusimaa (southernmost Finland), Lapland and the Åland Islands and the smallest in North Savo and North Ostrobothnia.

The farms engage in various kinds of activities. In 2007 the majority of them operated in the services sector, i.e. in rural tourism, contracting and transport and real estate services. In recent years especially the number of diversified farms engaged in the production of renewable energy has grown rapidly and energy production has become the largest industrial sector.

More than a third of the diversified farms practice more than one gainful activity besides agriculture. These are often connected to agriculture so that the farm equipment, buildings, land or products are used and the owner of the farm, the spouse, other family member or a partner in a farm company is involved in the other business. Of the diversified farms in Finland 79% engaged in this kind of activity, using the same resources as agriculture. Most of these activities (65% of farms) were also taxed together with agriculture under the

Rural enterprises in Finland in 2000–2007.

Year	2000	2002/2003	2004/2005	2007	Change 2000–2007, %
Total	136,400	130,400	131,500	137,600	1
Basic agriculture farms	58,000	50,150	45,200	45,000*	–22
Diversified farms	21,800	23,550	24,300	23,200	6
Enterprises with no link	56,600	56,700	62,000	69,400 <sup>e</sup>	23

<sup>e</sup> Preliminary estimate by MTT Economic Research, \* incl. horticulture enterprises

Source: Information Centre of the Ministry of Agriculture and Forestry MMM/Tike. Register of small rural enterprises ([www.mtt.fi/pienyrytsrekisteri](http://www.mtt.fi/pienyrytsrekisteri)).

## Agricultural Tax Act.

Other gainful activities on farms are usually quite small in scale. In 2007 their turnover was less than € 10,000 on about 40% of the farms. However, on 15% of these farms the turnover of other gainful activities was more than € 100,000. In 2007 employment in these other activities represented about 22,300 AWU. Most of the work was done by the farm families, but the role of hired labour has been growing.

In recent years the relative share of diversified farms has grown in all parts of Europe. Within the EU about 12% of the farms are diversified. Diversification is common in Northern and Western Europe and, for example, in Finland, Norway France and Great Britain the number of diversified farms relative to the total number of farms is quite high. Diversification is less common especially in Eastern and Southern Europe.

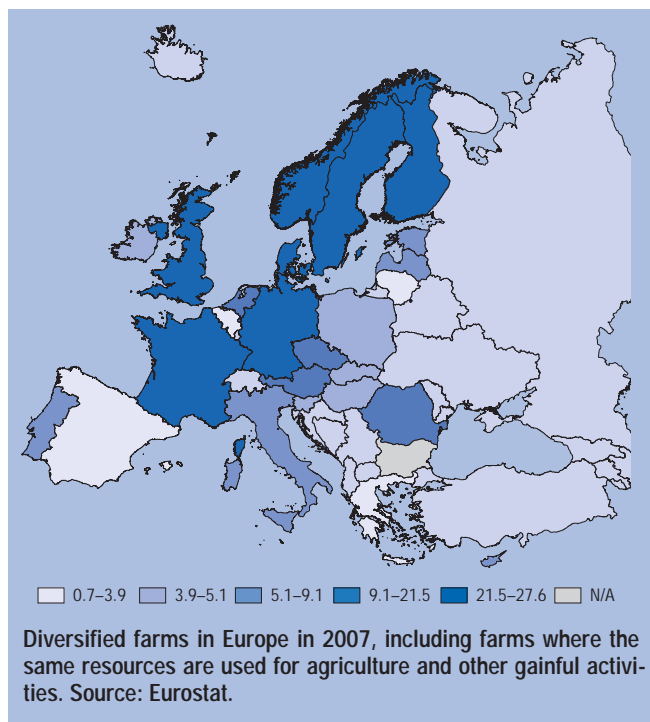
**Number of diversified farms in 2000, 2003, 2005 and 2007.**

Sector	2000	2003	2005	2007
Diversified farms, total	21,838	23,551	24,295	23,179
<i>Primary production other than agriculture and forestry</i>	744	1,328	1,815	1,505
Fish, crayfish etc. farming on farms	112	102	64	120
Fur farming	632	647	510	505
Reindeer husbandry	*	423	574	471
Fishing	*	156	144	191
Other primary production	*	*	523	218
<i>Industry</i>	4,786	4,140	3,753	4,774
Food processing	1,065	846	684	620
Other further processing	134	78	152	140
Wood processing	1,349	1,134	889	1,122
Handicraft	274	337	277	413
Production of renewable energy	648	701	820	1,286
Peat production	311	267	217	286
Manufacturing of metal products	625	580	541	700
Other manufacturing	380	197	173	207
<i>Construction**</i>	*	697	881	1,043
<i>Trade</i>	1,056	1,234	1,299	1,299
<i>Services</i>	15,019	16,143	16,547	14,470
Tourism, accommodation, recreation services	2,272	2,041	1,865	1,627
Contracting	8,880	9,039	10,013	8,539
Care services	263	249	234	309
Transportation	1,055	1,083	833	782
Services to business	*	736	680	661
Horse husbandry services (renting of stables, horse training)	*	717	734	882
Real estate maintenance, cleaning and environmental management services	*	*	264	190
Other services	2,549	2,278	1,924	1,480
Other	233	*	*	88

\*Different classification of sectors, this sector not accounted for in the year concerned.

\*\* Clearing, demolition and groundwork building included in machine contracting.

Source: Information Centre of the Ministry of Agriculture and Forestry.



### Other small rural enterprises

In 2004 the number of enterprises included in the register of small rural enterprises was 69,600, of which 62,000 were not linked to a farm. In 2007 the number of these enterprises was estimated at about 69,000, but due to the economic recession this can be expected to fall during 2009. Small enterprise means a company with one place of business with a turnover of at least € 8,409 which employs less than 20 persons. Their turnover totalled € 13.9 billion and they employed 112,900 persons (entrepreneur + staff). In 1997–2004 the number of small enterprises grew by 9%, staff 15% and turnover by as much as 29%.

The number of small industrial companies in the rural areas was about the same in 2004 as in the previous years. Since 1997 the number of industrial companies in rural areas and their staff in the whole country had grown by 2% and their turnover by 29%. Differences between regions and sectors are great. The number of rural com-

panies in the building sector had increased since 1997. In 2004 their number was 12,300 and they employed 21,000 persons. The number of small rural enterprises in the wholesale and retail business had decreased by 4% from 1997, but their staff had grown by 3% and turnover by 9%. In the service sector the number of enterprises has been growing rapidly. Since 1997 their number had increased by 15% to a total of 29,300 in 2004. They employed 44,100 persons and their total turnover was € 3.7 billion.

There are regional differences in the number and structural development of small rural enterprises. The

number of enterprises has grown in rural heartland areas and urban-adjacent rural areas, while in the sparsely populated rural areas it has stayed about the same.

### Manufacturing industry

Maintaining and increasing the number of jobs in the manufacturing industry is considered important for rural development and competitiveness. Of those employed in small rural enterprises about 17% work in the manufacturing industry, while in the whole country only 13% of the staff of similar-sized enterprises are engaged in manufacturing. In particular, food and wood processing sectors are characteristically located in the rural areas: 57% of the small food companies and 70% of small companies practising further processing of wood are in the countryside.

### Rural tourism

In recent years various policy processes have highlighted rural tourism as signifi-



cant economic activity and a target area for development. Rural tourism is the part of the tourism industry where the opportunities largely derive from the natural resources of the countryside. The total number of rural tourism enterprises is estimated at 4,900 and their total turnover is about € 510 million. Based on the follow-up of the utilisation rate of tourism services by the Theme Group on Rural Tourism, the year 2007 was the best since the follow-up was started in 2001. The long-term development prospects of rural tourism seem favourable as well.

### **Equine industry**

Equine industry is one of the most rapidly growing businesses in the rural areas. The annual money flows in the industry are estimated at more than € 700 million and it is estimated to employ about 15,000 persons. The total number of stables in Finland is over 15,000, of which about a quarter are companies. In 2008 the number of horses was about 71,000.

Trotting is a very popular sport in Finland. More than 8,000 horses start off each year at trotting races and the annual turnover of betting in horse races is over € 200 million.

### **Energy production and bioenergy**

The resources available in the countryside have an increasingly important role in the production of bioenergy and other renewable energy. Bioenergy is derived from biomass growing in forests, mires and fields as well as from organic solid, liquid and gaseous biowaste suitable for energy production from communities, agriculture and industry. Bioenergy, including wood, peat and recycled fuels, represents a little over 25% of the total energy consumption in Finland. Most of the bioenergy produced and used on farms consists of chips or fuelwood from forests. The most important energy crop in agriculture is reed

canary grass. The crop is mainly sold to large power plants to be used as fuel. In 2007 about 200 farms engaged in bioenergy contracting, which among other things comprises the production of biodiesel, ethanol and biogas. Measured by the turnover, bioenergy contracting was the main activity for 30 farms.

### **Fur farming**

In 2008 there were about 1,200 fur farms in Finland. In terms of numbers the most common fur animals are blue fox and mink. Other fur animals farmed in Finland are silver fox, finnraccoon and European polecat. Great fluctuations in the trade cycle are characteristic to the field. 98% of the fur production is exported and the export revenue totals a little over € 200 million.

### **Reindeer herding**

Reindeer herding is a highly significant business in the sparsely populated rural areas in northern Finland. It is a source of livelihood as such, and it is also significant in terms of the image of tourism and the Lappish culture. The greatest strength is the main product itself, i.e. reindeer meat, which is a widely desired as well as highly productised special foodstuff.

In the reindeer herding year 2006/2007 the number of reindeer owners was 4,900. The structure of the industry has changed as the number of herders has decreased and the herd size has grown. About 21% of the reindeer are now in small units with less than 80 animals, while households with over 200 reindeer represent 5% of all herder households and they own 31% of the reindeer.

The number of reindeer has stayed about the same during the past decade. In 2005/2006 the number of reindeer totalled about 201,000, of which 124,000 were slaughtered. In recent years the production of reindeer meat has totalled 2.3–2.8 million kg.

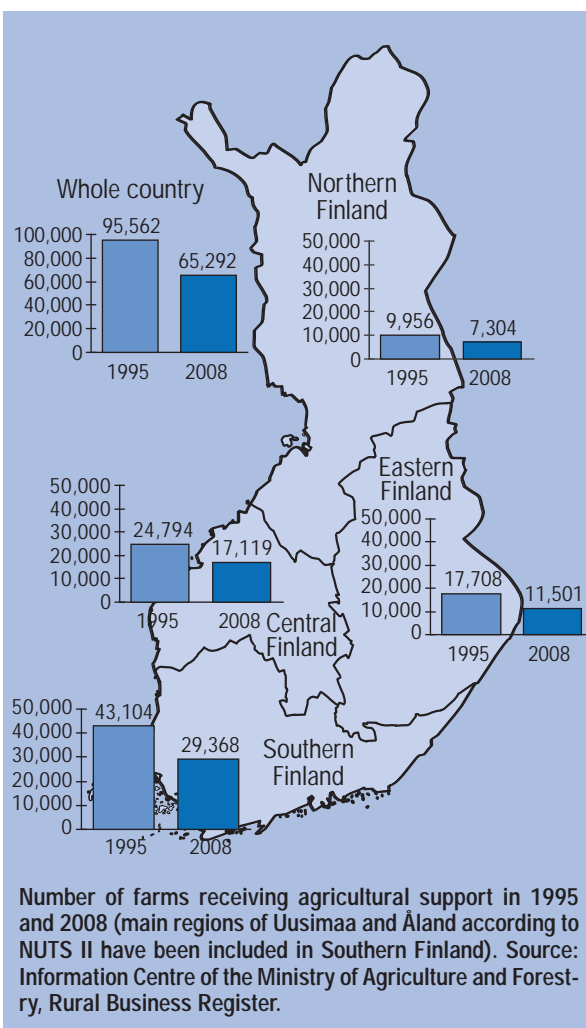
### 1.3. Finnish farm

#### Number and size distribution of farms

In 2008 the total number of farms (over 1 ha) which had applied for agricultural support was about 65,300. During the thirteen years in the EU (1995–2008) the number of Finnish farms had fallen by almost 32% from 95,562 farms in 1995 by a total of about 30,270 farms. On average the number of farms has decreased at a rate of 2.9% a year. Proportionally the decrease has been the greatest in eastern Finland (35%) and the smallest in northern Finland (27%). In both southern (32%) and central Finland (31%) the number of farms has fallen less than in eastern Finland.

From 2007 until 2008 the number of farms which applied for support fell by about 1,500 (2.3%). In both absolute and relative terms the decrease in the number of farms was close to the long-term average. During the EU membership the decrease was the greatest in 1995–1996 and 1999–2000, when the number of farms fell by about 4,000, which is about 5% of the total number of farms.

While the number of farms is decreasing, the average farm size has been growing.



In 1995–2008 the average size of farms receiving agricultural support grew by 50% from 22.8 ha of arable land to 34.2 ha. The annual growth has varied from 0.5 ha to

#### Number of farms receiving agricultural support in 1998–2008.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Whole country	85,690	82,142	77,896	75,384	73,386	72,000	71,100	69,088	68,766	66,821	65,292
Southern Finland <sup>1</sup>	38,623	37,037	35,319	34,192	33,375	32,771	32,245	31,272	30,967	29,945	29,368
Eastern Finland	15,446	14,658	13,675	13,219	12,935	12,630	12,498	12,121	12,173	11,812	11,501
Central Finland	22,072	21,108	20,019	19,443	19,023	18,656	18,458	17,986	17,947	17,574	17,119
Northern Finland	9,549	9,339	8,883	8,530	8,053	7,943	7,899	7,709	7,679	7,490	7,304

<sup>1</sup> Main regions of Uusimaa and Åland according to NUTS II have been included in Southern Finland. Source: Information Centre of the Ministry of Agriculture and Forestry, Rural Business Register.

### Size class distribution and average arable area of farms receiving agricultural support in 2008<sup>1</sup>.

Arable land	Southern Finland <sup>2</sup>				Eastern Finland				Central Finland				Northern Finland				Whole country	
	Number		Number		Number		Number		Number		Number		Number		Number			
	of farms	%	of farms	%	of farms	%	of farms	%	of farms	%	of farms	%	of farms	%	of farms	%		
< 10 ha	5,334	18	2,722	24	3,495	21	1,569	22	22,850	24	13,120	20						
10–20 ha	5,961	20	2,802	24	4,090	24	1,409	19	30,698	32	14,262	22						
20–30 ha	4,626	16	1,928	17	2,893	17	1,092	15	19,669	21	10,539	16						
30–50 ha	5,814	20	2,147	19	3,356	20	1,445	20	15,414	16	12,762	20						
50–100 ha	5,481	19	1,535	13	2,566	15	1,341	18	5,706	6	10,923	17						
> 100 ha	1,963	7	315	3	616	4	410	5	784	1	3,304	5						
Number of farms	29,179		11,449		17,016		7,266		95,121		64,910							
Average arable area, ha/farm	37.45		28.93		32.32		32.04		22.77		34.18							

<sup>1</sup> The figures do not include horticultural enterprises if they have no fields under cultivation.

<sup>2</sup> Main regions of Uusimaa and Åland according to NUTS II have been included in Southern Finland.

Source: Information Centre of the Ministry of Agriculture and Forestry, Rural Business Register.

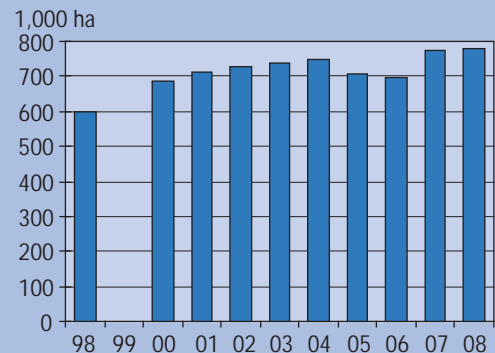
1.5 ha. The growth is due to both the decrease in the number of small farms and increase in the number of large farms.

The structural change is reflected in the proportional share of the different size categories: in the past thirteen years the share of farms with less than 20 ha has fallen from 56% to 42% and the share of farms with more than 50 ha has more than tripled from 7% to 22%. However, the share of small farms is still high in Finland, and the very large farms with more than 100 ha of arable land represent only a little over 5% of the Finnish farms.

About two-thirds of the growth in the farm size in 1995–2008 has occurred through leasing. In 2008 the total cultivated arable area of farms receiving agricultural support was 2.277 million ha, and about 780,000 ha (34%) of this was leased. In 1995 the share of leased area was 22%. In 2005 and 2006 the leased arable area fell from the previous years but it started to grow again in 2007 and 2008. In the past ten years the leased area has increased by more than 30%. There is considerable regional variation in the leased area: in the territory of the Lapland and Åland Employ-

ment and Economic Development Centres more than 45% of the arable area is leased, while in some regions in southern and central Finland and Ostrobothnia the share of the leased area is less than 33%.

The machine capacity needed for arable farming is quite high relative to the average cultivated area. Besides the small farm size, this is due to the short growing season and uncertain cultivation conditions. Cooperation in the use of machinery is difficult because of the short optimal periods for cultivation measures and harvesting and small size of the parcels, which does not allow farmers to take full advantage of



Area of leased arable land (ha) in 1998–2008. Source: Information Centre of the Ministry of Agriculture and Forestry, Rural Business Register.

efficient machines. In 2008 the average size of base parcels was 2.42 ha. It varied from over 3 ha in southern Finland to less than 2 ha in eastern and northern Finland.

Finnish agriculture is based on family farms: in 2008 as many as 88.4% of farms receiving support were privately owned and 10.4% were owned by heirs and family companies and corporations. Cooperatives, limited companies and production rings owned 0.9% of the farms and 0.1% were owned by the State, municipalities, schools and parishes.

The average age of farmers on farms receiving agricultural support is 50.7 years. Since 1995 the average age of farmers has risen by about three years, partly as a result of the small number of farms transferred to the next generation.

### Production structure of farms

Measured by the number of farms, the production structure of Finnish agriculture has changed considerably during the EU membership. The share of livestock farms has fallen while the share of crop farms has increased clearly. In 2008 31% of the farms which applied for support were livestock farms and 64% were crop farms, while in 1995 the share of livestock farms was 52% and that of crop farms was 39%. However, no major change has occurred in the share of livestock production in the return on agricultural production at market price, which was 79% in 2008.

In 2008 about 13,000 farms practised dairy husbandry as their main activity. This is almost 19% of the farms that received agricultural support. In 1995–2008 the number of dairy farms fell by about 19,000 farms, at a rate of about 6.9% a year. Measured by the total value of the production, dairy husbandry is still the most significant agricultural production sector in Finland. In recent years milk has accounted for about half of the return on agricultural production at market price (47% in 2008). Proportionally the share of dairy

farms is the greatest in eastern and northern Finland.

In 2008 the number of farms specialising in pig husbandry was about 2,480, which is about 3.8% of the farms that applied for support. In 1995–2008 the number of pig farms fell by 60.3%, i.e. 6.9% per year. Of the pig farms 860 specialised in piglet production, 778 farms specialised in pigmeat and 839 farms practised combined pig production. Most of the piglet and pigmeat farms are located in southern and western Finland. Pigmeat represents about 14% of the return on agricultural production at market price.

In 2008 about 4,030 farms (6.2% of all farms) specialised in beef production, and the share of beef in the value of agricultural production was about 9%. In 1995–2008 the number of these farms fell by about 5,000, at a rate of about 6.0% per year. The number of beef farms fell the most during the first years in the EU.

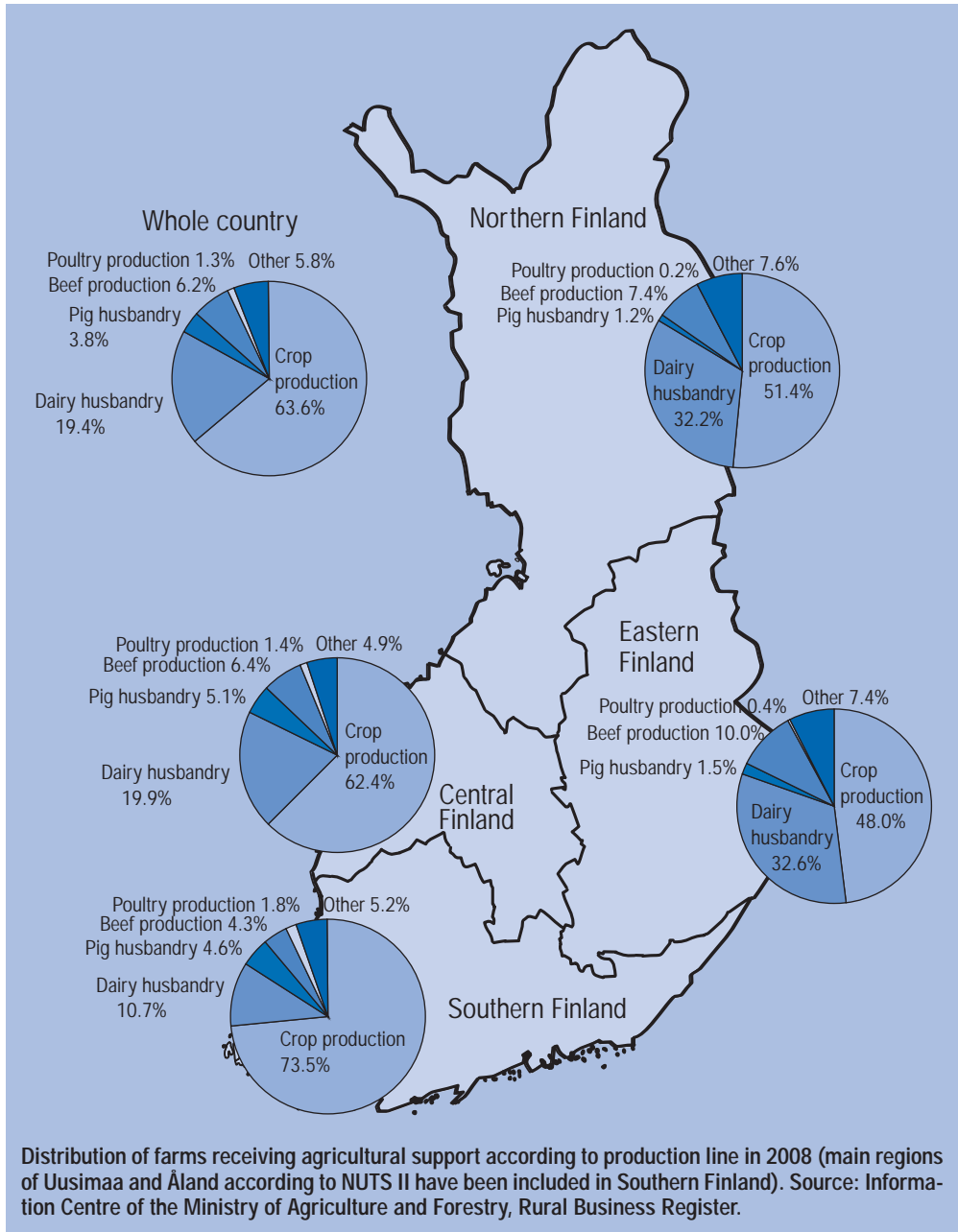
The number of poultry farms was 817, which is about 1.3% of the farms that applied for support. During the EU membership the number of poultry farms has decreased the most, by a total of 63%, i.e. about 7.3% per year. The number of farms specialised in egg production has decreased the most. Even if the number of poultry meat farms has again turned to a decrease, their relative share of poultry farms has grown. In 2008 about 58% of poultry farms specialised in egg production, 30% in poultry meat production and 12% were breeding units. In 2000 the respective shares were 68%, 21% and 12%. The regional distribution is similar to that of pig husbandry, i.e. most of the poultry farms are located in southern and western Finland.

Almost two-thirds of the farms that receive agricultural support specialise in crop production (64%). This is the only main agricultural sector where the number of farms and share of all farms have been growing in recent years. In 2008 there were about 41,500 crop farms, which is

4,200 more than in 1995. More than half of the crop farms are located in southern Finland and about a quarter are in central Finland. In 2008 the share of crop production in the return on agricultural production at market price was a little over 21%.

Forest is an integral part of Finnish farms. In 2008 the average forest area of

farms receiving agricultural support was 48 ha. Regional variation is great: in South-west Finland (Varsinais-Suomi) the average forest area of farms is less than 30 ha, while in Lapland it is over 100 ha. The income from forestry per farm is the highest in South Savo and lowest in the Province of Åland.



## Women in changing farm entrepreneurship

*Marja Kallioniemi<sup>1</sup> and Hanna-Riitta Kymäläinen<sup>2</sup>*

Structural change over the past few decades has reduced the number of women working on farms even more than that of men. According to the statistics of the Farmers' Social Insurance Institution (Mela) at the end of 2009 altogether 28,500 women covered by insurance worked on Finnish farms. In the ongoing qualitative research project at MTT concerning the occupational safety of women covered by the farmers' insurance entitled "Women's occupational safety", women working on altogether ten dairy farms were interviewed and their work was observed. This article presents some extracts of their work experiences<sup>3</sup>.

"Noora" works on a dairy farm and likes her present job. She used to be a wage earner with a great responsibility, and now she feels relieved. When working for herself she can arrange the working hours so that she can be at home to send the children to school and is also there to meet them after the school day. On schooldays she has to start milking at five in the morning, but that is no problem for her.

In terms of the field area the farm is the largest in the sample. During the growing season the work includes long days in the field and close cooperation with the husband. On the other hand, there is the joy of succeeding, and working together brings the couple closer to each other. During sowing Noora harrows the parcels, in silage harvesting she drives the forage wagon and in the autumn the combine harvester. Working with machines goes very well, especially as the husband is there to guide and encourage her.

### **Woman disappears – where?**

During the farm visit Noora reflects on the position of women on farms. Both spouses have become farmers by a transfer of the farm from their parents. Both work on the farm full-time. But why does the woman seem to fade away and disappear from the farm entity? Agricultural administration approaches the farm by the name of the husband only. The decision on the allocation of milk quotas was also addressed only to the husband, even if the spouses would have wanted to have it jointly. Cooperatives send mail only to the men. The tax return of the farm is given in the husband's name, while Noora is the farmer's spouse.

Noora is, however, by no means a subsidiary person or assistant in the farming operations. During harvesting she works 18 hours a day on the field, together with her husband. Her work input and know-how are an essential element in the operations and success of the farm. She also owns her share of the farm, but that does not improve the situation.

### **Invisible family member or a strong actor?**

Noora deliberates whether such treatment has impacts on the self-esteem and job satisfaction of women working on farms. The other interviewees also tell that the position of women on farms may be quite bad if they do not have access to any of the farm's income or they are excluded from the planning of the farm's operations. In such cases the work load may be heavy, but in other respects the women are not partners of an equal standing. The administration and public authorities do not offer any founda-

tion or support to improving the status of women. On farms women are family members, farmers' spouses.

Several research reports published abroad talk about the invisibility and imperceptibility of the work done by women on farms. However, in Finland we have also long traditions of powerful rural women. During the wars women worked hard on farms and did not hesitate to tackle any tasks at hand, thus securing the food supply of the country. In Ostrobothnia there is a saying that all madness in the region is in young men while all wisdom rests with old women.

In the "Women's occupational safety" project some interviewees highlighted the strength of women. "Virpi" notes that there is nothing wrong with her position – even her husband has said: "Well there is like a sergeant on this farm". Virpi has a clear, loud voice and she regards animal husbandry as a mission for her.

### **What would be a suitable job title?**

The main task of "Riikka" is to milk the farm's 70 cows in the morning and evening. She has worked on the farm with her husband for 23 years. What is strange is that the tax authorities persistently offer her the job title of laboratory assistants. She did work as such before starting to work on the farm. That is, more than 20 years ago. Riikka has tried to change the title several times, with no result.

The question of a suitable job title for women on farms gave rise to a lively discussion. In the public media, for example, women working on farms are still often called farmwives (emäntä). Of the women interviewed in the project only three selected this traditional title for themselves. Most of them would like to be called farm entrepreneurs. According to the Finnish Language Board, the language used should be gender neutral, and the title selected by the majority of women who participated in the project is in line with this guideline.

Most of the interviewees considered the title farmwife a thing of the past, which does not fit with their current job description. Their view reflects a more professional grip of the farm as a whole. Due to the structural change in recent years both the average size and numbers of animals have increased rapidly.

### **Who takes care of the children?**

Many of the interviewees talked about the difficulties in arranging the care for the children. "Mari" has four children that are not yet at school. So far her mother-in-law has been capable of helping out with them. She sees to the children when Mari starts milking at half past five in the morning and again during the evening milking from three thirty until seven. Between these Mari takes care of the children. Mari reflects on how the children's care could be arranged if her mother-in-law were no longer capable of doing it. The closest municipal day-care centre is 20 kilometres away – and would they be able to have the children around six in the morning?

Riikka thinks about her relationship with her mother-in-law as well. On their farm the mother-in-law also helped with taking care of their five children, now all grown up. Riikka tells that at that time the chance of municipal day-care was not offered to farmers. Now the mother-in-law is in bad health – how can they arrange for her care now that the farm has grown and Riikka has even more work to do? The fact that the mother-in-law helped with children makes Riikka feel that she is indebted to her. But one person cannot be in many places at one time.

## Catering and care for the elderly

In our social systems household work is often classified to belong to the realm of privacy. Household work may, however, be a considerable burden, in addition to the gainful employment. Running the household is often intertwined with the enterprise activity as the women may, for example, prepare food for everybody working on the farm, including hired labour. There was hired labour on half of the farms included in the project, either full time or part of the year.

The life annuities included in the transactions of real estate are not a historical thing on farms. The contract may guarantee the previous owner the right to continue living on the farm, and it may also include the meals. The contract may imply tasks relating to the care of the elderly for women. These tasks which may commonly be perceived as private may go without larger, even if they may considerably influence the total workload of women working on farms. On the other hand, they certainly create well-being and ease the everyday life of the different people living on the farm.

## The EU takes care?

Within the European Union agriculture is a significant employer for women, as well as one of the most dangerous sectors. The EU is concerned of the fact that women usually work on farms as spouses or family members, which means that the legislation on health and occupational safety may not apply to them. The Finnish Occupational Safety and Health Act also makes no reference to those working as entrepreneur's family members or spouses.

The EU has prepared a community strategy on health and safety at work. In the strategy it is stated that the special characteristics of women's work should be taken into account. If the perspective is gender neutral, the special characteristics of women's work may be ignored. In many sectors, such as agriculture, men and women carry out different kinds of tasks. On farms the women's tasks are often close to home. Accidents take place mainly when working with animals. The work may include many risks and exposures during pregnancy.

## Safety and job satisfaction

Researchers Teemu Reiman and Pia Oedewald<sup>4</sup> at the Technical Research Centre of Finland VTT have defined safety as part of managing the organisation as a whole, where safety is influenced by the organisation's, operations, structures, people working in it and their interactions, and machines, implements and methods. In their view the efficiency and safety of an organisation depends on how the core task is understood in the organisation.

For maintaining safety on farms it is not insignificant how the women working on farms define their position or how this is defined by the external operating environment. Clarifying the position of women would also improve their job satisfaction and self-esteem.

<sup>1</sup> MTT Agrifood Research Finland

<sup>2</sup> University of Helsinki, Department of Agrotechnology

<sup>3</sup> Women's occupational safety project was funded by Farmers' Social Insurance Institution (Mela), MTT and Finnish Research Foundation of Agricultural Machinery. The names of the interviewees given in the text have been altered.

<sup>4</sup> Reiman T. & Oedewald P. 2008. Turvallisuuskriittiset organisaatiot (Safety critical organisations). Edita. 475 p.



## 2. AGRICULTURAL AND FOOD MARKET

### 2.1. Trends on the world market

In the past two years we have seen rapid changes on the international agricultural product market. The great and sudden rises in agricultural product prices have taken all parties on the market by surprise.

The rise in the world market prices in 2007–2008 was quite exceptional. At the highest the prices paid for cereals were double compared to the previous years. The world market prices for milk products were also much higher than in the past few years.

After mid-year 2008, however, the cereal prices started to fall rapidly and by December 2008 the lowest level in the past two years was reached. By the beginning of 2009 the prices rose again by about a fifth, but they were still far away from the earlier peak levels. The world market prices for milk products have also come down quite rapidly from the top quotations a couple of years ago.

The changes are founded on both random and structural causes. A major share of the sudden and dramatic changes were due to variations in the yields caused by exceptional weather conditions in many important agricultural regions.

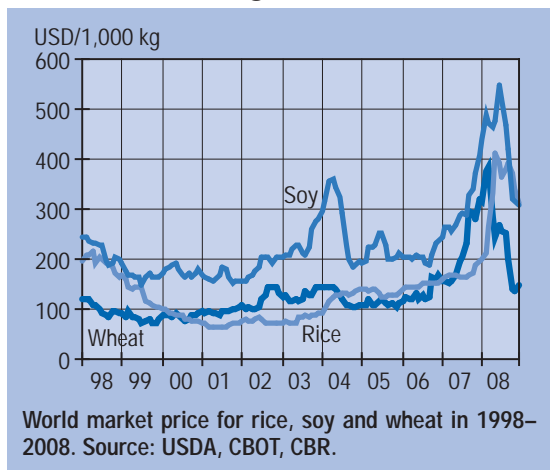
The drought in the southern hemisphere reduced the yields and increased the prices in market years 2006/07 and 2007/08. The higher prices in turn led to an increase in the cultivation areas in 2008/09, which is why in 2008 a record high cereal yield was harvested in the northern hemisphere, causing the world market prices for cereals to go down towards the end of the year.

On the world's milk product market the growth in the demand increased the prices especially in 2007,

when the supply fell in the large exporting countries, such as Australia and New Zealand. Now the demand for milk products has again decreased and the supply has grown. By December 2008 the dollar prices for milk products had fallen from the top levels in 2007 by 40–50%.

In recent years the prices and price expectations of agricultural products have also been influenced by the growing demand for cereal to be used as raw material for biofuel. The growing demand for food on the global scale, in turn, is a long-term trend which is likely to continue. On the other hand, the economic recession is expected to curb the global growth in the demand for food in the next few years.

The great fluctuations in the production volumes and supply of agricultural products as well the related considerable variations in the prices have come to stay. Even quite small indications of changes in crop outlook are rapidly reflected in the world market prices. In Europe the price fluctuations of agricultural products are going to increase simply because the market interventions of the EU, which used to function as significant safety nets, have now been reduced and further action to this end is being taken.



## 2.2. Arable crops

In the cereal sector the crop year 2008 was good. The total cereal yield was 4.2 billion kg, which is the second highest ever in Finland and 2% higher than in 2007. The total grass yield was above the average thanks to the good silage yield, but it was still 4% lower than in 2007.

### Weather conditions

The year 2008 was warm and rainy. In Finland the average annual temperature was above the average and the records for both the temperature and precipitation were broken in several locations. In the whole country the year 2008 was the sixth warmest during the history of measurements by the Finnish Meteorological Institute. The average temperature in the whole country was 1.0...2.0 °C, in certain regions in the south more than 2 °C, above the average. The average temperature in southern and central Finland was +4...+7 °C, in the Province of Oulu and southern Lapland +0...+4 °C and in central and northern Lapland +1...-2 °C.

The lowest temperature of the year, -33.9 °C, was measured on 24 February in Kittilä, Lapland and the highest, +29.7 °C, was reached at the Kiikala Airport in south-western Finland on 6 June.

The thermal growing season was a little longer than usually. In the south it started a few days ahead of the normal, on 21 April, and ended about a week later than usual, on 31 October. In southern Finland the growing season lasted for 193 days. In central Finland the growing season was also a little longer than usually, 184 days, and in the north it was 121 days, which is close to the average.

The cold spells, especially the one at the end of May, slowed down the accumulation of the temperature sum considerably. In southern Finland (Jokioinen) the temperature sum was 1,279 °C (long-term average 1,245 °C), in southern Ostrobothnia

(Ylistaro) it was 1,113 °C (1,164 °C) and in the north (Rovaniemi) 754 °C (882 °C).

In 2008 the rainfall in the whole country was higher than the average and record high annual precipitations were measured in various parts of the country. In southern and eastern Finland the annual precipitation was 700–900 mm and in Ostrobothnia and Lapland 500–700 mm. The highest annual precipitation, more than 1,000 mm, was measured in south-western Finland.

### Areas and yields

The surface area of Finland is 33.8 million ha, of which about 2.3 million ha is utilised agricultural area. The share of agricultural area of the total surface area is only 6.8%, while the average in the EU is 46.7%.

The total cultivated area (incl. set-aside area) is 2,257,400 ha. Since 2000 the cultivated area has grown steadily by altogether 66,800 ha. In the past few years the cultivated area has stayed about the same.

In 2008 cereals were grown on a larger area than ever before. The cereal area was 7% higher than in 2007, while the area under grass stayed about the same.

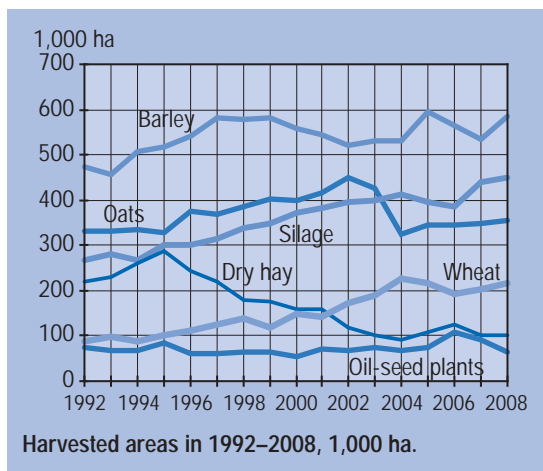
Cereal production totalled 4,228 million kg, which is about 94 million kg (2%) more than in 2007. The cereal crop harvested in Finland was the second highest ever. The main reason for this was the large area sown with cereals as the abolition of the compulsory set aside increased the area by 83,000 ha from the year before.

The harvested area of fodder cereals was 952,900 ha and the total yield was 3,379 million kg, which was 4% higher than in 2007. The growth was mainly due to the larger area, while the average hectare yield fell by 5%. The hectolitre weight of 66% of the fodder barley crop was more than 64 kg. This share is lower than the year before, and it varied from 88% in Southwest Finland to 33% in central Finland. Of the oat crop 93% exceeded

the hectolitre weight of 52 kg usually required by the feed industry, and 40% exceeded the 58 kg hectolitre weight required for oat flakes.

The yield of malting barley was almost 640 million kg, which is record high. As much as 71% of the crop fulfilled the quality requirements for malting on the basis of the low protein content and large kernel size. Mould and germinated grains reduced the amount of barley that was fit for malting.

For the past 15 years the production area of bread cereals has grown, but variation from one year to another has been considerable. The area of spring wheat has almost doubled since 1995, when Finland joined the EU, while the areas under winter wheat and rye have varied a great deal. The growth in the spring wheat area has been due to the new,



high-yielding varieties, changes in support for crop production, trends in market prices and change in the production structure of farms.

In 2008 the total yield of bread cereals was almost 848 million kg, which is about 4% lower than the year before. The hec-

Harvested areas and yields of main crops in 2007 and 2008.

	2007			2008		
	Area 1,000 ha	Yield 100 kg/ha	Total million kg	Area 1,000 ha	Yield 100 kg/ha	Total million kg
Winter wheat	36.0	42.9	154	22.8	38.2	87
Spring wheat	166.6	38.6	642	193.4	36.2	701
Rye	31.7	27.4	87	23.6	25.8	61
Barley	533.3	37.2	1,984	585.5	36.4	2,129
Oats	347.4	35.2	1,222	354.5	34.2	1,213
Mixed cereals	15.2	28.8	44	12.9	28.8	37
Peas	4.4	24.5	11	3.3	22.5	7
Potatoes	27.3	257.3	702	26.2	261.2	684
Sugar beets	16.0	421.8	673	13.6	345.2	468
Dry hay	102.4	37.4	383	102.0	36.1	368
Silage	438.0	189.9	8,319	451.4	177.9	8,033
Green fodder	11.9	92.6	110	9.6	91.1	88
Cereals harvested green	34.6	44.1	160	51.6	46.1	228
Turnip rape	78.5	12.1	95	52.5	13.5	71
Rape	11.0	16.7	18	11.3	16.2	11
Pasture	89.8			80.6		
Other crops	55.1			48.2		
<b>Total</b>	<b>1,999.2</b>			<b>2,043.0</b>		
Set aside and managed uncultivated arable land	231.6			188.5		

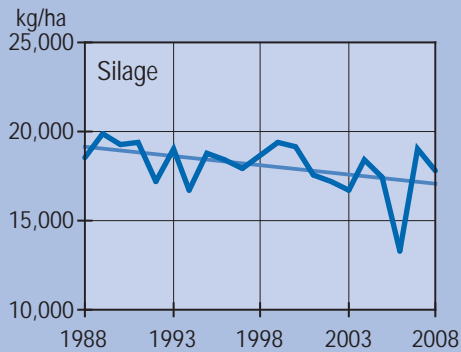
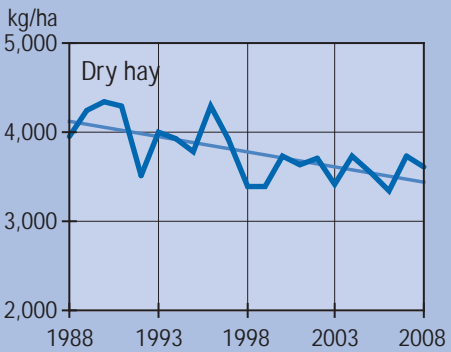
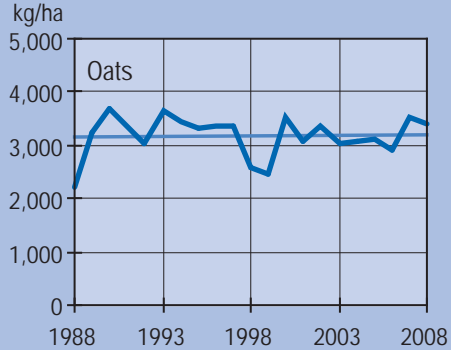
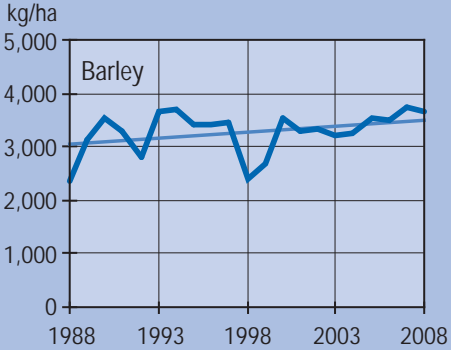
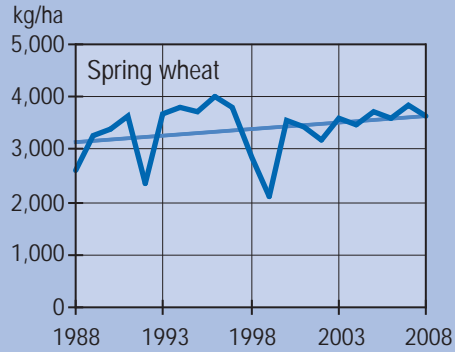
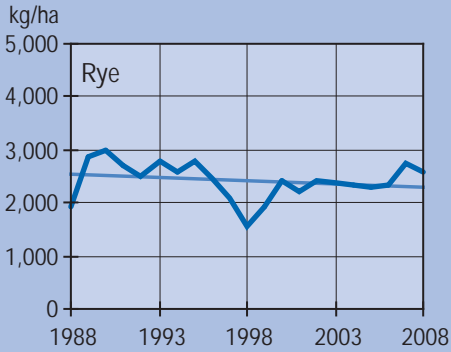
Source: Information Centre of the Ministry of Agriculture and Forestry.

tarage yields of all bread cereals decreased, but they were still clearly above the ten-year averages.

The harvested crop of spring and winter wheat totalled almost 788 million kg, of which 155 million kg (122 million kg of spring wheat and 33 million kg of winter wheat) met the quality requirements for bread wheat. The share of the spring wheat crop that was fit to be used for bread fell to 17% due to the low hectolitre weight

and protein content. Regional differences in the quality of wheat were great.

The total yield of rye was 61 million kg, which was 30% lower than the year before. The average Hagberg falling number was the lowest during the 2000s and the share of the crop that could be used as bread cereal was as low as 27%. Rye is the only cereal in which Finland is not self-sufficient: in the past ten years the 100% self-sufficiency has been reached only a couple of



Yields of main crops in Finland from 1988 to 2008. Source: Information Centre of the Ministry of Agriculture and Forestry.

times. There is a serious shortage of domestic rye as, for example, last year about 102 million kg of rye was used in Finland. Many small and medium-sized bakeries have started to use only domestic rye raw material because of the high demand for bread made from Finnish rye.

In autumn 2008 the area sown with rye fell to 14,000 ha, which is about a half compared to the year before. If the seeds winter well and a normal crop can be harvested in the autumn, the amount of rye produced that can be used for making bread should be about 36 million kg.

One reason for the small rye area were the adverse weather conditions in the autumn, which delayed the harvesting and the sowing of winter rye. Another significant cause was the rise in the prices of the main production inputs, such as fuel and fertilisers, in summer 2008. At the same time the cereal prices started to fall rapidly. To reach self-sufficiency, the area sown with rye should be 40,000 ha.

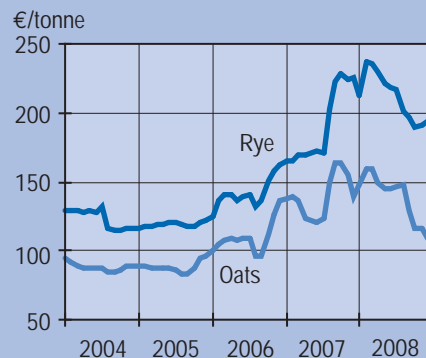
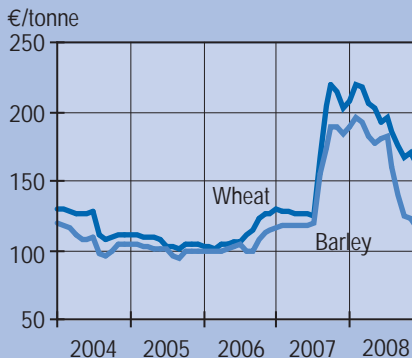
The silage area was 451,600 ha, which is 3% more than in 2007. The total silage yield was 8,033 million kg, which was 3% lower than the year before but still 16% above the ten-year average. The average yield was 17,790 kg. The area of dry hay was about the same as the year before, 102,500 ha, but the total yield was 4% lower. The hectare yield was close to the

average 3,610 ha. The total pasture area of 80,600 ha was 10% smaller than the year before, and the area under fresh fodder also decreased by 10% to 11,900 ha.

The total potato yield was 2% lower than the year before. The average hectare yield was 26,200 kg, which is the second highest ever and 10% higher than the ten-year average.

The yield of sugar beets totalled 468 million kg, which was 30% lower than in 2007 and only about a half of the total yield in the years before that. The sugar beet area fell by 15% from the year before, but the hectare yield was close to the average, 34,500 kg/ha and the total amount of sugar produced rose to 69,000 tonnes. The national sugar quota is 81,000 tonnes, and the quota was filled up when 12,000 tonnes of sugar were removed from the so-called carry-over stocks.

In 2008 the cultivation area of oilseed crops was 64,500 ha, which was 28% smaller than in 2007. The amount of turnip rape and oilseed rape harvested was 22% smaller than the year before. The main reason was the decrease in the cultivation area. The hectare yield of turnip rape was 1,350 kg/ha, which was 12% higher than the year before. The hectare yield of oilseed rape fell by 3% to 1,620 kg/ha.



Market prices of cereals in Finland from 2004 to 2008. Source: Information Centre of the Ministry of Agriculture and Forestry.

## Market prices for arable crops

The year 2008 remains in history as a year of dramatic and sudden changes on the cereal market. In the early part of the year the cereal prices were the highest since 1995 but, after the very high peak, by December the inflation-corrected market price had fallen to the lowest level in the past two years. The main reason for the collapse was the record high cereal yield in the world, a total of 1,781 billion kg, which pushed down the world market prices. In the very end of the year there were again some indications of a rise in the prices as the markets turned their looks towards the next year's crop. In Finland such great price fluctuations are extremely rare, but globally similar rises and falls have been seen before, the most recently in 1996. Following the prices and risk management are now becoming a routine on Finnish cereal farms as well.

The average price for fodder barley rose by 10% from the year before to 146 €/tonne. At its highest in February 2008 the price was 195 €/tonne, but it fell rapidly during the year so that in December the price level was under 116 €/tonne. The most dramatic decrease took place in August-October, which means that farmers who sold their barley crop immediately after harvesting got the best price. The price paid for malting barley did not fall as much as that of fodder barley. In the early part of 2008 the price of malting barley was 266 €/tonne and by October it had fallen to € 237.

In 2008 the average price of oats was 138 €/tonne, which was lower than the year before. The oats prices did not reach as high a peak as the price for barley. At the highest in February-March the price was 160 €/tonne, and by December it had fallen to € 109.

Besides barley, the average prices for bread cereals were also higher in 2008 than the year before. The average price for wheat, 189 €/tonne, was 18% and that for rye, 207 €/tonne, 8% higher than in 2007. Wheat prices reached their peak level of

Market prices of cereals in Finland from 1998 to 2008, €/1,000 kg.

	Rye	Wheat	Barley	Oats
2008	207.02	189.14	160.71	137.80
2007	192.19	159.90	145.80	149.73
2006	139.81	110.50	102.00	107.26
2005	118.41	106.20	99.51	87.13
2004	120.90	119.80	106.51	87.32
2003	124.88	126.66	105.57	92.21
2002	126.57	131.79	106.00	104.38
2001	131.31	132.36	109.66	111.37
2000	131.19	134.55	119.41	117.73
1999	142.96	137.91	122.78	114.37
1998	146.32	142.96	122.78	111.00

Source: Information Centre of the Ministry of Agriculture and Forestry (Grain bulletin and Monthly Review of Agricultural Statistics).

219 €/tonne in February, but after that the price fell steadily to € 161 in December.

The average prices paid for oilseed crops in 2008 were the highest since 1995. The average price of turnip rape and oilseed rape was 367 €/tonne, which is 29% higher than the year before. The highest level of 427 €/tonne was reached in March. After that the price came down steadily to the level of 293 €/tonne in December, which was still higher than the average price in 2007, € 285. The price is determined according to the world market prices quoted in MATIF in Paris.

Market prices of cereals in 2008, €/1,000 kg<sup>1,2</sup>.

	Rye	Wheat	Barley	Oats
Finland	234.8	220.1	211.1	163.2
Sweden	260.6	255.0	236.7	199.3
Denmark	253.1	229.0	233.0	221.7
Germany	195.4	246.2	232.4	162.8
France	221.4	266.9	211.6	219.5
England	-	317.0	271.2	203.4
Spain	225.8	273.7	246.4	201.9

<sup>1</sup>The prices of the 1st half of the year as unweighted averages. <sup>2</sup>Data indexed from the price in 2000. Source: Eurostat.

## 2.3. Livestock production

### Milk

The amount of milk delivered to dairies in 2008 totalled about 2,188 million litres, which was 2% (38 million litres) less than the year before. In the quota period that ended in 2008 milk production totalled 2,205 million litres. The production fell 149 million litres (6%) short of the national quota. 1.3% of all milk produced came from organic farms.

According to the forecast of the Gallup Food and Farm Facts, in the quota period 2008/2009 milk production will remain more than 225 million litres (9%) below the national quota. Instead, in 2009 the production is expected to rise to 2,215 million litres, which is 1.2% more than the year before.

In December 2008 the dairies received milk from 11,894 farms, which is 880 farms (7%) less than the year before. However, the number of dairy cows grew during 2008 and the average herd size increased by almost 1.6 cows to 24.2 cows in December 2008. Of the cows 4% are on farms with more than 100 cows.

Since the year 2000 the average yield of dairy cows has been rising by about 2% a year. As an exception to this, however, the average yield in 2008, 7,554 kg, was a little lower than the year before.

In 2008 the production of liquid milk totalled 716 million litres, which was 0.4% higher than the year before. The consumption of yoghurt increased by 2% and the consumption of butter-margarine blends by 3%. Instead, the consumption of buttermilk, cream, butter, curdled milk and cheese decreased by 1–3%. In the same way as the year before, imported cheeses accounted for about a third of the consumption. The share of imported yoghurts grew to more than a fifth of the domestic consumption.

Exports of butter, cheeses and powders decreased from 2007. At the

end of 2008 there was 50% more powders in stocks than the year before.

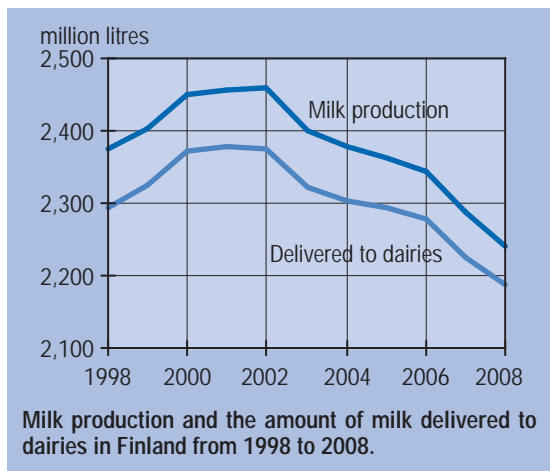
### Beef

In 2008 a total of 80.1 million kg of beef was produced in Finland, which was as much as 7.6% less than the year. Beef consumption totalled 95.1 million kg (-2.1%). According to a forecast of the Gallup Food and Farm Facts, in 2009 beef production will fall to 79 million kg, while consumption is approximately 94 million kg.

The average slaughter weight of bovines rose less than in the past few years. The average slaughter weight of cows rose by 2 kg to 272 kg and that of bulls and heifers by 4 kg to 335 and 242 kg.

The number of cattle farms specialised in beef production fell by 3%, but the number of suckler cow farms grew by 4% and the number of suckler cows grew by 10% to 48,928. Most of the suckler cow production takes place in eastern and northern Finland.

Beef exports fell to about a half from the year before (1.5 million kg), while beef imports grew by 14% to 15.9 million kg. Because of the decrease in the production domestic beef covers only 83% of the domestic consumption. Most of the beef exports went to Sweden and the imports came from Sweden, Germany and Den-



mark. Imports from Brazil fell as the EU imposed restrictions on Brazilian beef imports due to shortcomings found in animal disease control and due to outbreak of food-and-mouth disease.

According to estimates by the European Commission, in 2008 beef production in the whole EU area totalled about 8.1 billion kg, which is 2% less than the year before.

## Pigmeat

In 2008 pigmeat production hit a new record level of 217 million kg (+2%) and consumption grew to 189 million kg (+2%). The number of pigs slaughtered was 2.5 million. The increase in feed costs and low profitability of the production increased the slaughtering of sows by 10% from the year before. This will be reflected as a decrease in the production in 2009. The average slaughter weight of fattening pigs rose to 86.1 kg (+1 kg). Since 1996 the slaughter weights have increased by 6 kg.

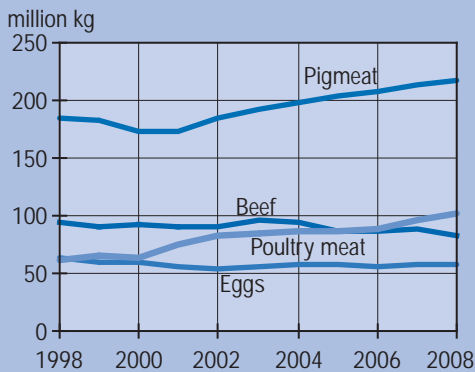
According to a forecast by the Gallup Food and Farm Facts, in 2009 pigmeat production will fall to 211 million kg (-3%) while the consumption will rise to 192 million kg (+1%). The European Commission estimates that pigmeat production in the whole EU totalled 22.5 bil-

lion kg in 2008, which is 2% less than the year before. In 2009 the production is expected to fall by 2-3%.

Despite the poor market situation the pigmeat stocks decreased during the year. Pigmeat exports increased by 16% to 54 million kg. Exports grew by 7.5 million kg, which was more than 4.2 million kg increase in the domestic production. Most of the exports went to Russia, Sweden and the Baltic States, which together represent about 2/3 of the carcass meat exports. Exports to Russia increased by almost 5 million kg, while exports to both Sweden and Norway decreased. Most of the pigmeat imports and exports of Finland are carcass meat. Growth in exports over the recent years has been due to the increase in the production as well as, among other things, regional specialisation of the production. In the past ten years meat imports and exports have grown in almost all industrialised countries.

Pigmeat imports to Finland totalled 22.7 million kg, which was 5% more than the year before. The share of imports in the consumption was 12%. Most of the low-priced pigmeat imports came from Germany, which already accounts for more than half of the carcass meat imports. Imports from Denmark fell considerably. Due to transit import, however, the country of origin is not necessarily the same as the importing country. Import of processed meat, mainly from Sweden and Germany, fell by 6%.

Rapid structural change continued in pig husbandry. The number of pig farms fell by 11% and the number of sows by almost 4%. As much as 34% of the sows are now on farms with at least 300 sows. The number of piglets per sow per year grew by as much as half a piglet. The number of piglets sold fell by 4%. In winter 2007-2008 the Postweaning Multi-systemic Wasting Syndrome (PMWS) was detected on three farms, for the



Production of beef, pigmeat, poultry meat and eggs in Finland from 1998 to 2008.



### Livestock production in Finland from 1998 to 2008.

	Dairy milk million litres	Beef million kg	Pigmeat million kg	Eggs million kg	Poultry meat million kg
2008	2,188	80	217	58	101
2007	2,226	87	213	57	95
2006	2,279	85	208	57	88
2005	2,293	84	203	58	87
2004	2,304	91	198	58	87
2003	2,323	94	193	56	84
2002	2,376	91	184	55	83
2001	2,378	90	174	57	76
2000	2,371	91	173	59	64
1999	2,325	90	182	59	66
1998	2,300	93	184	64	61

Source: Information Centre of the Ministry of Agriculture and Forestry.

first time in Finland. The disease causes wasting of piglets and increases mortality. The production losses caused by the disease may be considerable.

Support payments to pig husbandry were decoupled from the production as from the beginning of 2009. Based on an estimate of the MTT Agrifood Research Finland, the changes in the support may lead to a reduction in the production by as much as a fifth. The most profitable slaughter weight increases and more output is needed to achieve profitable production. Hence, slaughter weights can be expected to continue to rise and low-productivity farms are likely to quit production, which can improve production results.

### Poultry meat

In 2008 poultry meat production in Finland totalled 100.9 million kg (+6%). Poultry meat consumption grew by 6% to 98.3 million kg. Poultry meat exports were about the same as the year before (10.9 million kg), but imports grew by 15%. Imports consist mainly of boneless poultry meat.

Broiler production totalled 89.1 million kg (+8%) and about 87.1 million

kg of broiler meat was consumed (+8%). About 9.7 million kg of broiler meat was exported (+8%) and the imports totalled about 7.5 million kg (+21%). About 65% of the carcass meat exports went to Russia and the Baltic States. The import of processed meats grew the most. Imports came mainly from the old EU countries and Brazil and Thailand. Imports account for about 9% of the consumption.

Turkey meat production fell by 13% to 10.0 million kg and consumption by 9% to 10.7 million kg. Turkey meat exports totalled 1.2 million kg (-35%) and imports 2.1 million kg (+2%). The import of boneless meat grew the most, while the import of turkey meat products decreased. Most of the imports came from Poland, Germany and Brazil. The share of imports in the consumption was 20%.

The Gallup Food and Farm Facts estimates that in 2009 broiler meat consumption will total 90 million kg and production 92 million kg. The production of turkey meat should be about 10 million kg and consumption about 11 million kg. The national payments to poultry production were also decoupled from the production as from the beginning of 2009.

## Eggs

In 2008 egg production totalled a little less than 58 million kg, which was 5% more than the year before. Egg consumption was 49.5 million kg (+2%). The consumption of shell eggs grew the most. Of the domestic production 17% was exported. The total egg exports of 9.9 million kg were 2.5% smaller than the year before. Imports of egg products and shell eggs totalled 2.1 million kg, which was much more than in 2007. Most of the egg exports went to Sweden, Germany and Norway.

Hatching of chicks decreased by 6%. Of egg production in Finland 78% still takes place in traditional battery cages, even if these will be prohibited after the year 2012. The average size of production units was about 5,500 hens.

The Gallup Food and Farm Facts estimates that in the early part of 2009 egg production decreases by 4% and consumption increases by 1% from the year before. Based on an estimate by the European Commission, the production and consumption of eggs in the EU will grow by 2% by the end of the decade.

## Producer prices

The market prices of livestock products in the EU influence their prices in Finland, but the Finnish prices also have special characteristics. For example, the market prices for pigmeat and milk usually vary less in Finland than in most other EU countries. In Finland there is oversupply in eggs, and their producer price is low compared to the other parts of the EU. The prices paid to the Finnish milk producers are slightly higher than the prices paid to the producers in the EU on average, and in Finland the differentiation by season is also greater. Studies carried out at the Agrifood Research Finland show that price changes observed on the European meat markets are reflected in the Finnish prices quite slowly.

The producer prices of the most important livestock products in Finland from 1998 to 2008 including production support (€/100 kg, milk €/100 l). The figures include estimated retroactive payments<sup>1</sup>.

	Milk	Beef	Pigmeat	Poultry meat	Eggs
2008	44.05	241	144	130	92
2007	38.25	221	132	114	77
2006	36.39	212	126	109	62
2005	35.22	205	128	114	60
2004	35.75	190	120	117	74
2003	36.68	186	115	117	80
2002	36.83	190	137	120	79
2001	36.26	208	150	117	69
2000	34.97	206	129	111	82
1999	34.44	216	113	112	74
1998	34.48	224	126	116	65

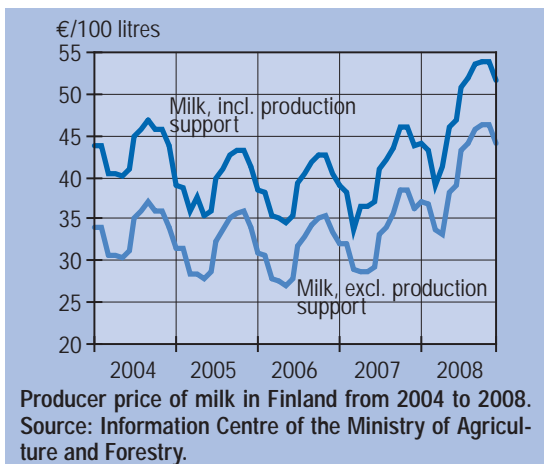
<sup>1</sup> Producer price for milk with standard protein and fat content, does not include quota levies. The price for 2008 includes estimated retroactive payment of 1.80 cents/l. Source: Information Centre of the Ministry of Agriculture and Forestry.

In 2008 the average producer price for standard milk containing 4.3% fat and 3.3% protein without retroactive payments was 42.37 €/100 l (+23%). In addition to this, the average of 7.35 €/100 l was paid as production aid. The quality premiums for milk paid on the basis of low bacterial and cell counts increased slightly to 2.29 €/100 l. The final price for milk

Market prices for livestock products in certain EU countries in 2008<sup>1</sup>, €/100 kg.

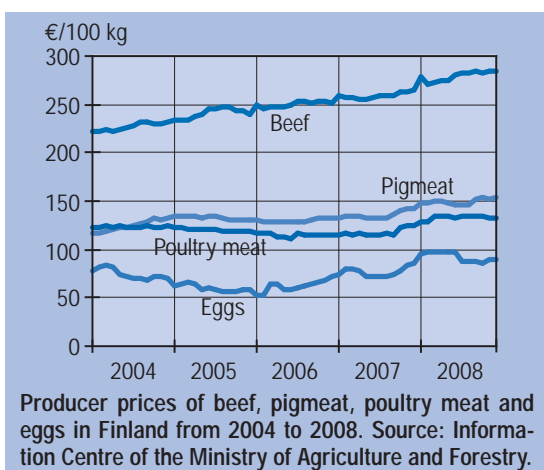
	Milk	Pigmeat	Beef (bull)	Poultry meat <sup>2</sup>	Eggs <sup>3</sup>
Finland	43.99	150.2	294.9	227.2	121.6
Sweden	36.57	152.0	294.3	203.4	186.4
Denmark	37.34	130.5	311.5	203.0	158.5
Estonia	30.50	156.1	215.2	198.2	118.7
Germany	34.74	160.7	317.5	228.8	98.7
France	37.05	142.1	323.5	221.2	100.2

<sup>1</sup> For milk the average of January–September, <sup>2</sup> Sale price of slaughterhouses, <sup>3</sup> Sale price of packaging plants. Source: European Commission.



is determined when the dairies complete their financial statements and the retroactive payments based on the result are decided. In 2007 the average retroactive payment was 3.94 €/100 l and in 2008 it was 1.80 €/100 l. The difference between the highest and lowest price paid for standard milk by different dairies in December 2008 was 2.72 €/100 l.

Within the EU milk prices rose due to the strong demand on the world market and increase in the production costs. In Finland the price stayed high even if in the other EU countries the prices started to fall towards the end of 2008. However, during the winter 2007–2008 the prices had also risen more slowly in Finland than in the other countries.



The average price for beef was 2.41 €/kg and that for bull meat was 2.80 €/kg. On average the beef prices rose by 9%. The average prices for beef have been rising steadily since 2003. The average price paid for calves rose by 5% from the year before. The price for male colostrum calf was € 148, which was only 3% higher than in 2007. The average price for female colostrum calf was € 73.

The average producer price for meat of fattening pigs was 1.49 €/kg and for all pigmeat 1.44 €/kg. From the previous year the prices rose by 10%. The average price of piglets (25 kg) was € 54. Besides the rise in feed prices, large numbers of piglets on the market also weakened the profitability of pigmeat production and possibly prevented the rise in the prices of piglets and increased the weight of piglets offered for sale.

The prices paid for piglets in Finland were still among the highest in the EU. The price was even higher only in Sweden, Italy, Malta, the Czech Republic and Slovakia. Instead, in most other countries the pigmeat prices were higher than in Finland. Much lower prices were paid in Denmark, Belgium, Ireland and the Netherlands.

The producer price for poultry meat rose by 13% from 2007. The average price was 1.33 €/kg. The average price for broiler meat was 1.30 €/kg.

The OECD has forecast a considerable increase in meat consumption in the near future, which may increase the world market prices for beef, pork and poultry meat. However, the economic crisis may slow down the growth in the demand.

The average producer price for eggs in 2008 was 0.92 €/kg (+ 20%). The increase was due to the low prices in the previous year and rise in the feed costs. In the autumn, however, the producer prices started to decrease. The producer prices for organ-

ic eggs and eggs produced in barn systems were higher than that for eggs coming from cage systems. In 2008 the difference between the prices for eggs from barn and cage production rose to 0.15 €/kg.

## 2.4. Horticultural production

### Areas and number of enterprises

In 2008 the total horticulture area was about 14,900 ha, which was almost 500 ha (more than 3%) smaller than the year before. The cultivated area of vegetables grown in the open and berries decreased, but the production area of fruit, mainly apples, increased.

Despite the decrease in the area, vegetable production in the open is still the most significant outdoor sector, with a 55% share of the total horticulture area. The share of berry production was 41% and that of fruit about 4%.

The total greenhouse area was about the same as the year before, about 400 ha. Vegetables were grown on about 62% of the greenhouse area and the rest was used for ornamental plants. The area under ornamental plants decreased slightly from the year before.

In 2007 the number of horticulture enterprises was about 5,200. The number of

enterprises engaged in production in the open was a little over 4,000 and a little under 2,000 enterprises practiced greenhouse production. Some enterprises have both production in the open and greenhouse production. From the year before the number of enterprises fell by about 500 (9%). There was no decrease in the total area, which means that the size of the remaining enterprises grew.

The most significant horticultural production regions in Finland are Varsinais-Suomi in south-western Finland, with 18% of cultivation in the open and 21% of greenhouse enterprises, North Savo in east-central Finland with 15% of the berry production, and Ostrobothnia, where 24% of the greenhouse enterprises are located.

### Weather conditions

The early winter of 2008 was exceptionally mild and there was little snow. Thanks to the mild winter, the berry plants and bushes showed indications that the winter rest period was ending and frost resistance was weakening already after Christmas. Luckily the temperatures never fell very low in the south and south-western parts of the country and there were no serious winter damages. Instead, night frost in May caused damage to the blooming fruit and berry plants. Strawberry did not suffer very much as the damages could be prevented

Areas under horticultural production in 2002–2008, ha.

	2002	2003	2004	2005	2006	2007	2008
Production in the open, total	16,466	16,469	16,025	15,417	15,468	15,357	14,917
Vegetables grown in the open	8,918	8,983	8,837	8,254	8,327	8,405	8,138
Berries	7,004	6,886	6,552	6,495	6,470	6,283	6,084
Fruits	544	600	636	667	671	669	695
Greenhouse production, total	400	398	399	405	404	399	395
Vegetable production	237	236	239	245	243	242	243
Ornamental plants	164	163	161	160	161	157	152

Source: Ministry of Agriculture and Forestry, Support Register.

by means of sprinkler irrigation, but the frost damaged the flowerage of currants and apples, causing heavy yield losses in some regions.

The conditions during the summer were quite unstable. There were no very warm spells and the fruit and berry crop ripened at a steady pace. The strawberry season was very long. Even if it rained on and off all through the summer, thanks to the cool and windy weather there was not much grey mould, which is quite a common problem for strawberries and raspberries. Steady moisture increased the size of berries and thus improved the yield. Heavy hail showers during the blooming or early ripening caused major damage in various parts of Finland. On some farms the whole crop was lost. Unstable conditions also slowed down the ripening of vegetables in the open.

In greenhouse production there were cost savings due to the mild winter, but the cloudy weather increased the need for artificial lighting.

### Production in the open

Based on the cultivation area, the most common vegetable grown in Finland is garden pea, which in 2007 was grown on about 2,600 ha. The second was carrot, with a cultivation area of about 1,600 ha. In 2007 these two accounted for almost a half of the production area in the open. Other significant outdoor vegetables are onion (950 ha) and white cabbage (520 ha).

The main products cultivated under contracts with the processing industry are garden pea, carrot, beetroot and gherkin. Only about 1% of the total vegetable area was under organic produc-

tion. As regards the area, the most significant organic vegetables grown in the open were carrot (28 ha), garden pea (27 ha) and onion (25 ha).

Strawberry is the most significant berry plant in terms of both the area and the crop yield. In 2007 strawberry was cultivated on almost 3,000 ha and the yield totalled 10 million kg. In the past ten years both the cultivated area and the number of strawberry enterprises have been on the decrease. Instead, the crop volumes have not decreased very much, mainly due to more efficient production. The second most important berries in Finland are black and green currants, cultivated on about 1,700

#### Areas under the most important horticultural products grown in the open and yields in 2007.

	Area ha	Yield kg/ha	Total 1,000 kg
<i>Vegetables grown in the open</i>			
Garden pea	2,618	2,428	6,356
Carrot	1,646	41,391	68,130
Onion	948	24,022	22,777
White cabbage	524	35,480	18,591
Cauliflower	305	9,858	3,008
Beetroot	381	33,936	12,913
Swede	365	36,685	13,405
Gherkin	273	40,135	10,961
Chinese cabbage	241	18,017	4,347
Other plants	1,264		
<b>Total</b>	<b>8,566</b>	<b>20,175</b>	<b>172,812</b>
– share of contract production	2,090	24,454	51,109
<i>Berries and apples<sup>1</sup></i>			
Strawberry	2,982	3,253	9,697
Black and green currant	1,678	876	1,470
Raspberries and raspberry- arctic bramble cross bred	424	1,028	436
Other berries	602		
<b>Total</b>	<b>5,685</b>	<b>2,158</b>	<b>12,268</b>
– share of contract production	865	1,569	1,357
Apple	555	6,249	3,468

<sup>1</sup> Crop yielding area

Source: Information Centre of the Ministry of Agriculture and Forestry, Register of Horticulture Enterprises 2007.

ha. The third most common cultivated berries were raspberry and raspberry-arc tic bramble cross bred in Finland.

By far the most common berries cultivated under contracts with the processing industry are black and green currants, which in 2007 accounted for 73% of the contract production area of berries. About 8% of the total berry production area (500 ha) was under organic production, and the most important organic berries were currants (290 ha), strawberry (117 ha) and raspberry (20 ha).

The cultivation area of apples has grown steadily over the past decade to 555 ha in 2007. The total yield of apples has also grown, but not as steadily as the area due to the annual variations in the crop volumes.

### Greenhouse production

In 2007 the total greenhouse area was 455 ha, of which 60% was used for vegetable production and 36% for the production of ornamental plants. Tomato is by far the most important greenhouse vegetable in terms of both the total area and yield. In 2007 the cultivation area of tomato was 117 ha and the yield was 38 million kg. The cucumber area was 72 ha and yield 29 million kg.

In 2007 the area under ornamental plants was 165 ha. Typically there are

### Areas under greenhouse vegetables (m<sup>2</sup>) and yields (kg/m<sup>2</sup>) in 2007.

	Area 1,000 m <sup>2</sup>	Yield kg/m <sup>2</sup>	Total 1,000 kg
Total <sup>1</sup>	2,549	28	71,011
Tomato	1,169	33	38,171
Cucumber	724	40	29,182
Other vegetables	656		

<sup>1</sup> Does not include potted vegetables.

Source: Information Centre of the Ministry of Agriculture and Forestry, Register of Horticulture Enterprises 2007.

several kinds of ornamental plants in the same greenhouse. In 2007 the most common bedding plant was violet, with a share of 28% of all bedding plants. A total of 13 million violets were grown, two plants for each Finn. The second most common bedding plant is petunia, but its popularity and production volumes have been decreasing since the mid-1990s. Of the potted plants poinsettia is by far the most common. The red ones are the most popular, accounting for more than 80% of the production.

The most significant cut flower is rose, with a 70% share of the area (217 ha). In the past ten years the cultivation area of rose as well as other cut flowers has decreased considerably. Instead the production of bulb flowers has increased strongly in the past few years. In 2007 a record

### Producer prices for the most important horticultural products in 2002–2008, €/kg.

	2002	2003	2004	2005	2006	2007	2008
<i>Greenhouse production</i>							
Rose (€/unit)	0.32	0.36	0.40	0.41	0.41	0.45	0.47
Tomato	1.12	1.15	1.16	1.15	1.17	1.32	1.40
Cucumber	1.05	1.16	1.08	0.99	1.04	1.34	1.21
<i>Production in the open</i>							
White cabbage	0.32	0.38	0.33	0.27	0.37	0.58	0.56
Onion	0.52	0.50	0.47	0.33	0.44	0.60	0.48
Carrot	0.39	0.47	0.45	0.37	0.40	0.47	0.48
Strawberry	2.33	3.52	3.05	2.68	2.25	3.58	3.90

Sources: Kasvistiето Ltd., Glasshouse Growers Association.

number of 71 million bulb flowers were grown, of which 79% were tulips.

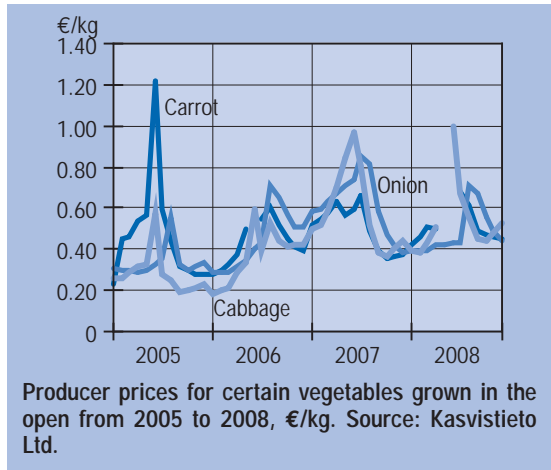
### Horticultural product market

Strong seasonal and annual variations are characteristic to the producer prices as well as production volumes of horticultural products grown in the open. Usually the producer price is low during the main crop season, when the domestic supply is high. The supply of vegetables from the stocks decreases during the storage period, which usually raises the prices.

It should be kept in mind that the annual prices for stored vegetables such as carrots, cabbage and onions include output from two different years: the crop of 2007 was still being sold from the stocks in the early part of 2008 and the growing season of 2008 did not influence the prices until the summer when the first early vegetables came to the market.

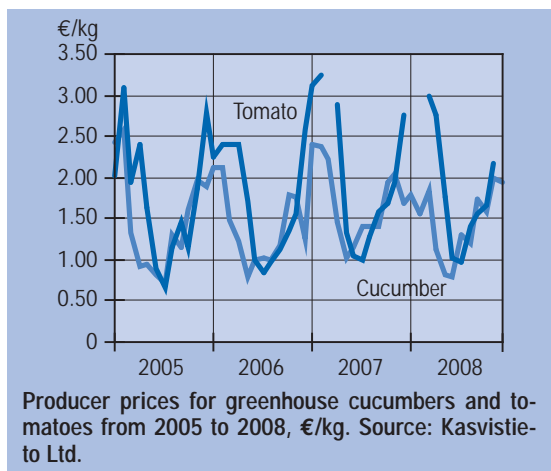
The cold nights in the early part of the summer delayed the planting of early vegetables, which is why the new crop did not enter the market until June. For most vegetables grown in the open the conditions during the growing season were quite difficult and the growth and ripening were slow. At times there was even shortage of some products on the market and the prices of most vegetables stayed good all through the summer. Until the autumn the growing conditions were wet, dark and cold, which is why the total yields of the majority of the crops, such as Chinese cabbage, leek and broccoli, were below the average. The new storage season of most vegetables grown in the open started with lower volumes, while higher prices were paid to the producers.

The first Finnish strawberries grown in greenhouses came to the market in mid-May. The first straw-



berries grown in the open, under gauze cover, ripened at the usual time, just before Midsummer. Thus the strawberry season was very long as the cool weather ripened the strawberries quite slowly. The usual oversupply on the strawberry market was avoided and the price during the main crop season in July stayed higher than the year before.

The first Finnish apples came to the market in early August. As a whole the yield of apples was quite satisfactory. Early varieties suffered the most from the night frost in the spring, but the late varieties yielded quite a normal crop. In 2008 the producer price for apples without VAT was 1.28 €/kg, which was lower than in 2007 (1.53 €/kg).



## 2.5. Food market

### Consumer prices

In 2008 the food prices in Finland rose by 8.6%. The annual change in the consumer price index was 4.1%, which means that the rising trend in food prices was much more rapid than the general rate of inflation.

Food prices started to rise already in January 2008, when the new agreements between the food industry and the retail sector became effective. Food industry managed to transfer part of the increased costs to product prices, most notably to the prices of milk and bakery products.

According to price data compiled by the Statistics Finland, e.g. one litre of light milk cost, on average, 21% more (€ 0.87) in 2008 than the year before. The price for kilo of wheat flour had risen by more than 44% to € 0.60. The prices of dairy butter, margarine and processed beef products had also risen by more than 15%.

The rise in the prices was due to the higher raw material prices paid for cereal, meat and milk as well as the increase in the costs of industry and trade. In Finland

Average consumer prices of some foodstuffs in January from 2007 to 2009, €/kg.

	January 2007	January 2008	January 2009
Wheat flour	0.41	0.59	0.62
Rye bread	3.15	3.36	3.70
Beef roast	10.10	10.43	12.36
Pork fillet	11.22	12.23	12.69
Chicken breast fillet	10.56	11.19	11.66
Light milk, €/litre	0.72	0.82	0.90
Emmenthal cheese	10.83	11.58	12.97
Eggs	2.73	2.94	3.03
Butter	4.84	5.36	5.04
Margarine	2.42	2.82	3.20
Tomato	4.43	5.07	5.21
Potato	0.68	0.70	0.79

Source: Statistics Finland, consumer price statistics.

Development of average consumer price index and the consumer price index of foodstuffs in Finland in 1995–2008, 1995=100.

	Consumer price index	Price index of foodstuffs
2008	124.4	125.2
2007	119.6	115.3
2006	116.7	113.0
2005	114.7	111.4
2004	113.7	111.1
2003	113.5	110.3
2002	112.5	109.6
2001	110.8	106.5
2000	108.0	102.0
1999	104.4	101.0
1998	103.2	101.3
1997	101.8	99.6
1996	100.6	98.2
1995	100.0	100.0

Source: Statistics Finland.

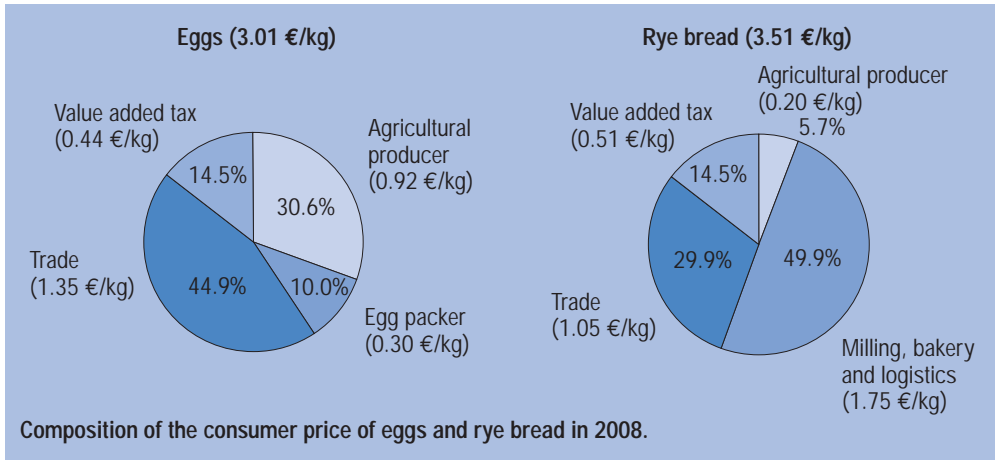
there were additional pressures as the food industry had not been capable of raising the prices for a long time even if the energy and labour costs had been rising.

Towards the end of 2008, however, the world market prices of the raw material of the food industry started to fall clearly, which is why the food prices are expected to decrease in 2009. In October 2009 the VAT on food in Finland will be lowered by 5% from 17 to 12%, which should be reflected in the prices.

The long-term trend in food prices has followed the general consumer price trends. From 1995 until 2008 the food prices in nominal terms rose by 25.2%. During the same period the general consumer price index rose by 24.4%, which means that the real price paid for food in 2008 was on about the same level as in 1995.

Relative to the level of earnings, food prices in Finland have fallen as the earnings have risen by almost 60% since 1995. In 1995 it took four hours of labour to fill a certain food basket, but in 2008 the amount of money needed for this could





be earned in three hours. Thus in the past decade the relationship between earnings and food prices had improved by about a quarter.

Within the food chain the negotiation power of the retail sector has improved and its share in the food prices has grown during the 2000s. The position of the retail sector has strengthened as it has taken advantage of competitive tendering among food industry and primary production, with even stricter terms than before. With its higher share of the consumer price the wholesalers and retailers have as-

sumed certain tasks which used to belong to the industrial sector, such as marketing and transportation.

There are several, strong trends of change in the wholesale and retail sector which create new challenges for food production in Finland. Internationalisation and concentration lead to even more powerful retail chains. The appearance of discount chains and growing share of private labels are changing the structure of the market. Private labels further reinforce the power of the trade sector over the whole food supply chain.

**Average consumer prices of some foodstuffs in 2004–2008, €/kg.**

	2004	2005	2006	2007	2008	Change % 2007–2009
Light milk, €/litre	0.73	0.74	0.73	0.72	0.87	21.2
Butter	4.92	4.96	4.87	4.79	5.78	20.8
Margarine	2.36	2.35	2.35	2.53	2.98	18.0
Emmenthal cheese	10.65	10.59	10.86	10.82	12.13	12.1
Beef joint <sup>1</sup>	8.28	9.08	9.92	10.04	11.79	17.5
Pork chops	7.69	7.87	..	..	..	-
Chicken breast fillet	10.89	10.84	10.46	10.67	11.32	6.0
Eggs	2.36	2.33	2.44	2.74	3.01	9.5
Wheat flour	0.61	0.59	0.41	0.41	0.60	44.3
Rye bread	3.09	3.15	3.18	3.15	3.51	11.6
Tomato	2.94	2.99	3.21	3.51	3.63	3.2
Potato	0.72	0.65	0.60	0.74	0.76	3.0

<sup>1</sup> From 2006 beef roast.

Source: Statistics Finland, consumer price statistics.

### Consumption of milk products, margarine, meat and eggs per capita in 2000–2007, kg.

	Liquid milk <sup>1</sup>	Butter	Margarine	Cheese	Ice cream (litres)	Beef	Pigmeat	Poultry meat	Eggs
2007 <sup>e</sup>	189.9	2.6	7.5	17.5	..	18.7	34.9	17.6	9.5
2006	183.9	2.7	7.5	19.1	13.7	18.5	34.3	15.8	9.3
2005	184.8	2.7	6.6	18.6	14.0	18.6	33.5	16.1	9.4
2004	186.2	2.6	6.6	18.4	13.2	18.6	33.8	16.0	9.4
2003	185.1	2.4	6.8	16.7	13.7	18.0	33.5	15.8	9.3
2002	190.0	3.0	7.6	16.6	13.5	17.9	31.9	15.4	9.7
2001	191.7	3.5	7.8	16.5	13.3	17.9	32.7	14.5	9.7
2000	193.9	3.8	7.7	16.5	13.5	19.0	33.0	13.2	10.1

<sup>1</sup> Including liquid milk, sour milk products and cream.

Sources: Gallup Food and Farm Facts, Information Centre of the Ministry of Agriculture and Forestry.

### Structural changes in retail trade

40

The sales of groceries and daily consumer goods have grown steadily in recent years. In 2008 they totalled € 14,098 million, which is 8% higher than the year before. About 7% of the growth is due to the rise in food prices.

During 2008 certain new features could be observed in consumer behaviour. During the economic recession more of the purchases are made in units which offer cheaper alternatives, such as discount chains and hypermarkets.

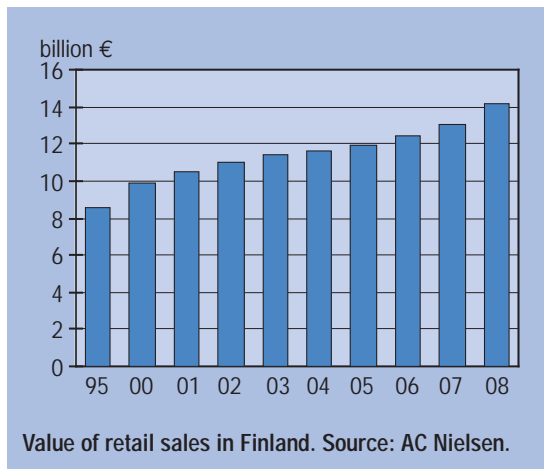
The sales grew more than the average in small retail stores (11.4%) and hypermarkets (11.8%). The preference shown to these types of stores has led the operators in the field to invest in both new large units and the local shop concept. Private labels also offer low-priced alternatives and the demand for these is growing: in 2008 the sale of e.g. Pirkka products of the K Group increased by as much as 14.6%.

The share of large companies in the sales of groceries and daily consumer goods is growing year by year. The concentration of the sales is reflected both in the number of retail stores and in the market shares of the leading chains. The number of small shops and village stores in the rural

and sparsely populated areas has fallen to a half since Finland joined the EU in 1995.

The competition for the market in groceries and daily consumer good is more and more clearly a case between two main players. The market share of the S Group has increased rapidly over the past years. In 2008, the S Group managed to raise its market share again reaching 42.4%.

The share of the K Group has been diminishing in the past few years, although this trend stopped in 2007 and there was some growth in their market share. In 2008 the sales of the K Group grew by 6%, which is less than the average. As a result, the market share of K Group decreased slightly, to 33.7% in 2008.



### Market shares of retail companies in 2000–2008.

	2000	2001	2002	2003	2004	2005	2006	2007	2008
S Group	28.9	30.5	31.1	31.1	34.3	35.9	39.9	41.0	42.4
K Group	37.6	36.5	36.0	35.8	35.3	33.9	33.4	33.9	33.7
Tradeka/Elanto	12.4	12.6	12.9	12.7	10.0	10.8	11.9	11.9	11.3
Other	21.1	20.4	20.0	20.4	20.4	19.4	14.8	13.1	12.6
Total	100	100	100	100	100	100	100	100	100

Source: AC Nielsen.

The share of the third largest chain Tradeka also experienced a fall in its market share from 11.9% in 2006–07 to 11.3% in 2008. At the end of 2008 Tradeka changed its name into Suomen Lähikauppa Oy (Finland's Local Store), which reflects the new company strategies. The control by the chain will be eased and with 550 Siwa and 187 Valintatalo stores the company aims to be perceived as Finland's leading chain of local stores. Besides the basic range of products each store will offer some local specialities to the consumers, which will also create new opportunities for local food producers.

The largest chain in the category of other companies is the German discount giant Lidl, which has spread rapidly on the Finnish market. In 2008 the share of Lidl was estimated at 5.1%, which was slightly higher than the year before, when it was 4.7%.

The large food chains consist of independent retail operators who compete on the local markets, while the wholesale and purchasing operations within the chain are strongly concentrated. Large chains take advantage of their negotiation power in their supply contracts with food processing companies.

In both leading chains the share of the concentrated purchases has risen to more than 80%, leaving very little room for local purchases by the retail operators. Of local foodstuffs mainly some bakery products, fresh meat and fresh cheeses have gained access to the shelves.

The rapid increase in raw material prices in autumn 2007 led to major changes in the practices applied in the supply contracts between the food industry and trade companies. Earlier the food processing companies would supply goods under 3 to 12 month contracts with fixed prices. In 2008 the purchasing organisations of the large chains approved a more rapid transfer of the higher raw material prices and other costs into their prices. The contract periods were shortened and now they may include a clause concerning a more rapid revision of the prices if major changes take place in the raw material prices.

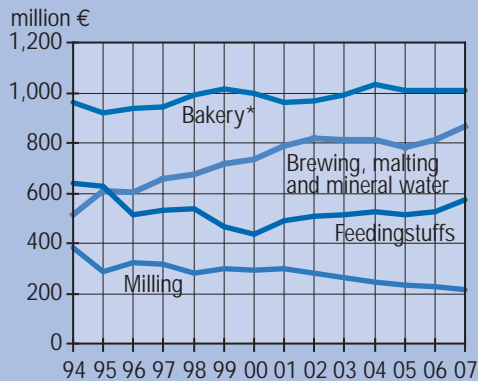
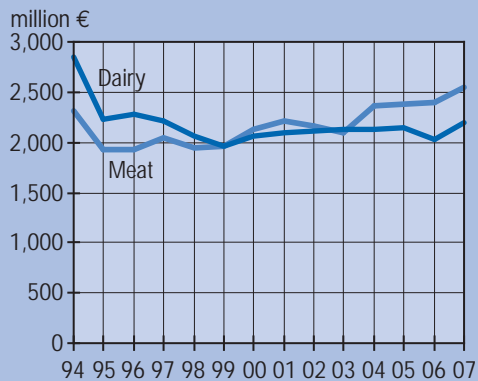
### Food industry

Structural changes in the retail sector create serious challenges to the domestic food industry. It is becoming more and more difficult to maintain the negotiating power

### Key figures on the Finnish food industry in 1997–2007.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Turnover (at current price, billion €)	8.0	7.8	7.5	7.9	8.3	8.4	8.5	8.9	8.9	9.2	9.7
Turnover (at 2007 price, billion €)	9.4	9.1	8.6	8.8	8.7	8.9	8.9	9.3	9.2	9.5	9.7
Personnel (thousands)	44.2	42.8	40.7	39.9	38.6	38.0	38.2	37.5	36.7	35.9	35.7
Turnover per person (thousand €)	182	183	184	198	214	220	222	237	242	257	272

Source: Statistics Finland, business database, Finnish Enterprises 1997–2006.



\*Includes soft bread, crispbread and biscuit manufacture.

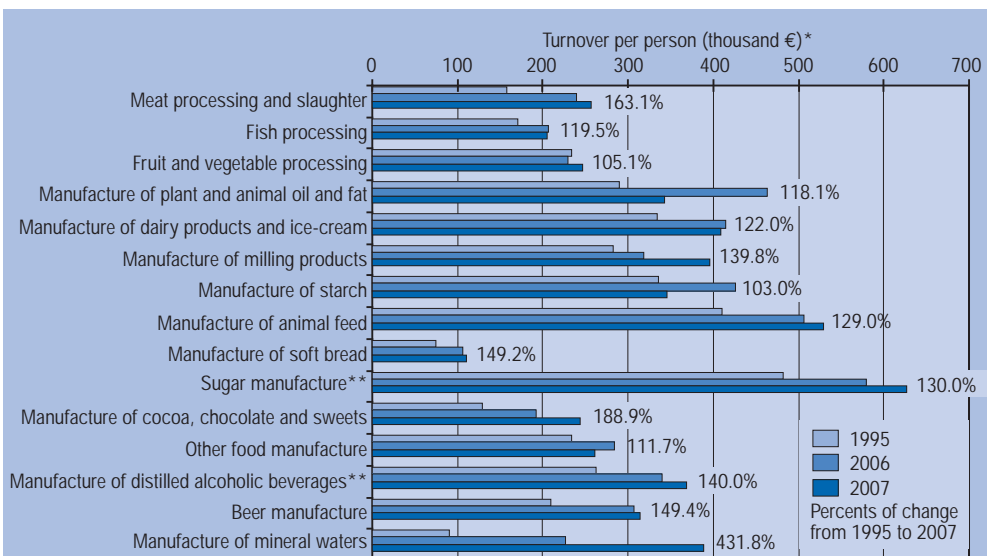
Turnover of Finnish meat and dairy industry and certain other sub-sectors of food industry at 2007 prices.

against the concentrating retail chains. In their efforts to improve the logistics the retail chains purchase a growing share of the foodstuffs from large processors, but the structural changes in the wholesale and retail sector are also putting large food companies to a serious test.

The progress of both private labels and the discount chain concept, in particular, has been pushing down the food prices.

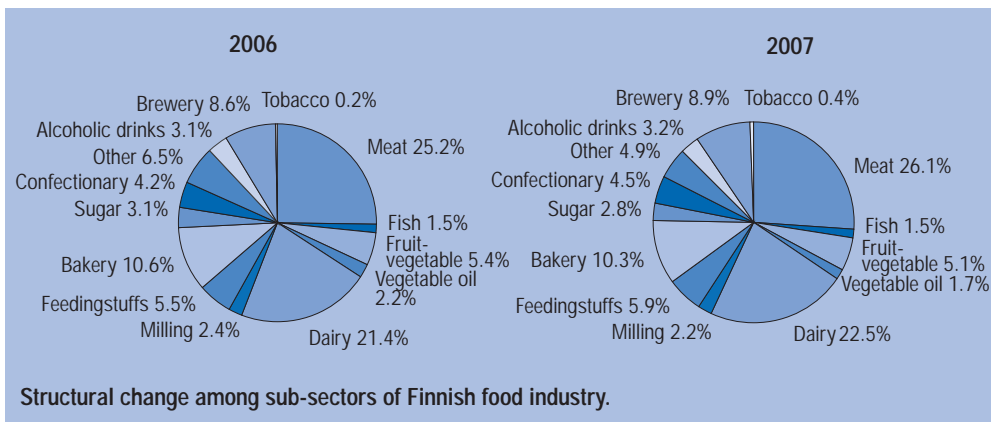
Competitive tendering to produce private label products, threat of imports, and the low price level and narrow product range of the discount stores tighten the competition between the domestic suppliers and reduce the margins of food processors.

In 2007 the turnover of the food industry rose by almost € 470 million to € 9.7 billion. At fixed prices the turnover of the sector increased by 2.5% from the



\* Turnover at current price used in the calculations. \*\*1997 instead of 1995.

Turnover per person in the food industries. Sources: Statistics Finland, business database, Finnish enterprises 1995–2006.



previous year. Due to the rapid growth the turnover at fixed prices is already almost € 270 million higher than in 1997, a record year when the exports were particularly successful.

The downward trend in the employment in the food industry slowed down. In 2004–2006 the number of employees decreased by about 740 a year, but in 2007 the decrease was less than 200 employees. The decrease in the number of employees by 0.5% and rapid growth in the turnover raised the turnover per person to € 272,000, which was 5.7% higher than the year before.

There were certain differences in the development of the turnover per person between sub-sectors, but compared to 1995 the figures for 2006 showed some growth in all sub-sectors.

Of the two largest sectors of food industry, the turnover of meat industry in real terms rose by 6.6%, dairy industry by 7.9%, feed industry by 8.5% and confectionery industry by 8.8%. In bakery industry the turnover in real terms was about the same as the year before, while in vegetable, fruit and oilseed plant processing and milling and sugar industries the turnover fell.

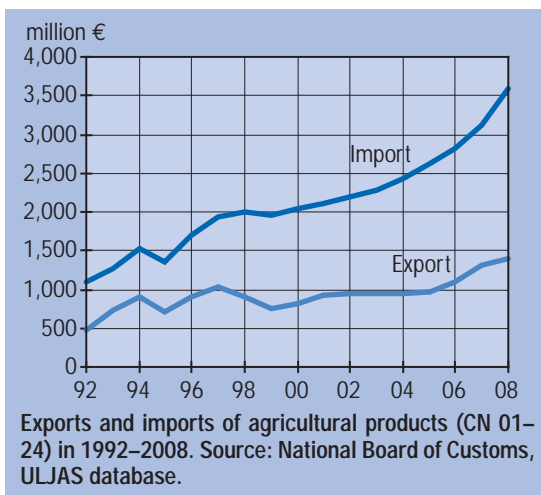
The relative position of the sectors was about the same as in 2005. The most notable change was the increase of the combined share of the

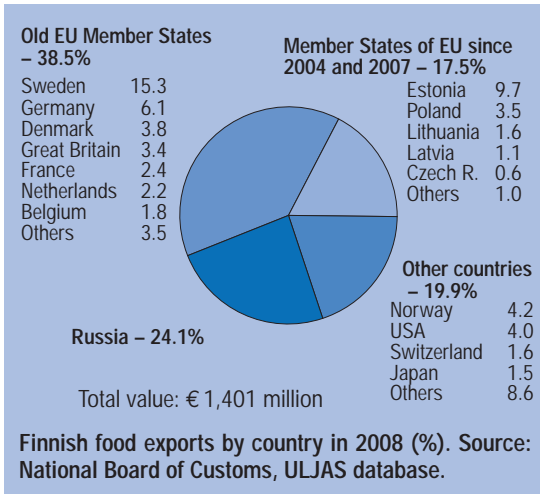
two largest sub-sectors, meat and dairy industries, from 46.6 to 48.6%.

### Foreign trade

The growth in the Finnish food exports slowed down in 2008. The value of Finnish food exports totalled € 1,401 million, which was 7% higher than the year before. Between 2006 and 2007 the exports had grown by more than 18%. Instead, the growth in imports has accelerated. In 2008 the value of food imports to Finland was € 3,585 million, which was almost 15% more than in 2007.

Because of the rapid growth in imports, the deficit in the food trade balance grew by € 369 million from € 1,815 mil-





lion to € 2,184 million. Traditionally the deficit has been due to the extensive import of fruit, vegetables, raw coffee, alcoholic beverages and tobacco. Other significant import articles are cheeses and cereal products.

A clear structural change has taken place in imports: now a growing share of food imports come from the new EU Member States. However, most of the food imports to Finland, 64%, still came from the old EU Member States, such as Germany, Sweden and the Netherlands. The share of non-EU countries was about the same as before.

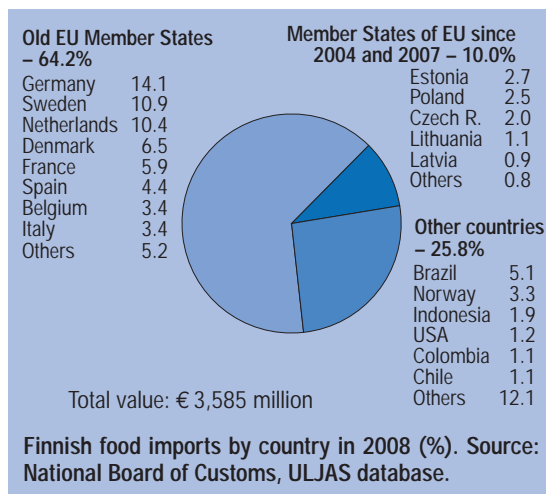
Import from the new Member States which entered the Union in 2004 and 2007 has been growing steadily. The value of imports from these EU NMSs grew more than five-fold from € 66 million in 2003 to € 360 million in 2008. Thus in 2008 these accounted for more than 10% of the total imports to Finland, while in 2007 their share was 7.6% and in 2003 2.9%. The share of Estonia grew the most, from 0.7% to 2.7%, while the shares of Poland and the Czech Republic more than doubled in 2003–2008.

EU enlargement has also opened new export markets for Finnish food companies. In 2003–2008 the value of exports to the new Member States

grew from € 105 million to € 245 million and their share in total Finnish food exports from 11.2% to 17.5%. Exports to the Baltic States, especially Estonia, and to Poland grew the most. In 2007 the Finnish trade balance relative to the new Member States turned negative and the deficit continued to grow to € 115 million in 2008.

Russia is still the main target for the Finnish food exports with a share of 24%, Sweden comes second (15%) and the third is Estonia (10%). More than 53% of the Finnish exports go to the neighbouring countries when Norway is also included.

Dairy products are still the most important product group in Finnish exports, with a share of about 26% (€ 359 million) of the total value of exports. The exports of dairy products did not grow in 2008 but the value of exports was about the same as the year before, mainly due to the shortage of raw material. Cheese exports grew by 6% and their value was almost € 154 million, 11% of the total value of exports. Other important export articles in 2008 were cereals and cereal products (€ 197 million), beverages (€ 144 million), meat (€ 130 million), butter, various kinds of processed foods and confectionery industry products.



### 3. AGRICULTURAL POLICY

Finnish agricultural policy is founded on the support schemes set down in the common agricultural policy of the EU, i.e. direct payments funded by the EU and the co-funded natural handicap and agri-environment payments.

These are supplemented by national aids, which comprise the northern aid, national aid for southern Finland, national top-ups to the natural handicap payments and certain other aids.

The new single payment scheme introduced in Finland in 2006 covers most of the payments to agriculture that are funded by the EU. The content of the agri-environment support was revised in 2007, and in 2008 the range of agricultural support measures was complemented by payments relating to animal welfare and non-production investments.

#### 3.1. Common agricultural policy of the EU

The EU markets of agricultural products are steered by administrative means in the same way as in most other industrialised countries. The common policy is implemented through common organisations of the markets for specific products. The basic idea is that the fall of the prices within the EU below a certain level is prevented by means of public intervention, while the prices of imported foodstuffs are raised to the EU level through import duties.

The EU markets are also regulated by means of production quotas and payment entitlements. The Finnish quotas and entitlements have been defined in the Accession Treaty.

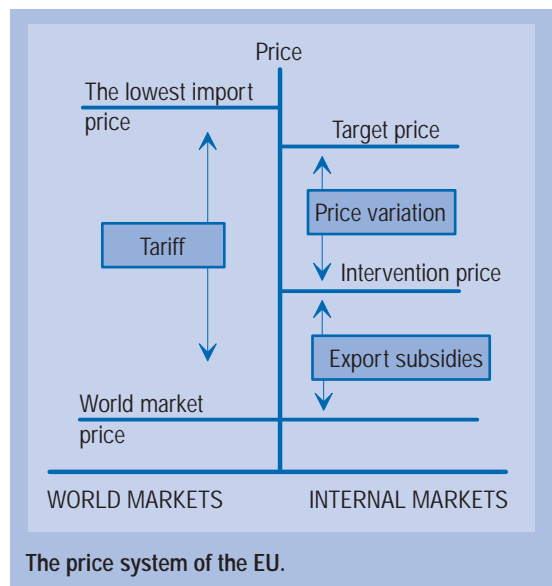
As a result of the policy reforms of 1992, 1999 and 2003 the intervention prices of cereals, beef and milk in the EU were lowered closer to the world market prices. The price reduc-

tions have been compensated for by means of direct payments, which is why area-related support payments have gained a central position in the EU policy.

In November 2008 the EU agriculture ministers approved the Commission proposal on the reform of the common agricultural policy. The aim of this so-called health check was to increase the application of decoupled payments and abolish some of the remaining production restrictions to allow the farmers to respond better to the market demand. The decision continues the earlier reforms and strategic outlines, aimed to increase the market orientation of EU agriculture.

#### Single Payment Scheme of the EU

As a result of the reform of the common agricultural policy agreed in 2003, most of the EU payments for arable crops and livestock were transferred to the decoupled single payment scheme (SPS). At the same time new conditions relating to the environment, maintaining the productivity of the land, food safety, animal welfare and



occupational safety were incorporated into the scheme.

The latest CAP reforms include the so-called modulation, in which a gradually increasing share of the CAP support is redirected to rural development measures through the EU budget. Modulation does not apply to the first € 5,000 of each farm, but 5% has been cut from the share exceeding this.

The health check causes some changes in the single payment scheme already in 2009. The modulation percentage rises to 7% and from this on by 1% a year. In addition, the compulsory set aside and, through this, the non-food payment scheme will be abolished.

### Agricultural support in Finland

In 2009 the support under the common agricultural policy to the Finnish agriculture will total about € 1,330 million. This consists of the CAP support for arable crops and livestock (€ 558 million), natural handicap payments for less-favoured farming areas (€ 423 million) and environmental support (€ 349 million). These are funded either by the EU alone or co-financed by the EU and Finland.

CAP payments are an integral element of the common market organisations and they are funded in full from the EU budget. The EU contributes a little more than a quarter of the natural handicap payments and environmental support. The rest is paid from national funds.

In 2009 the national aid for Finnish agriculture and horticulture will total about € 556 million. The national aid scheme comprises the northern aid (€ 328 million), national aid for southern Finland (€ 90 million), national top-ups to natural handicap payments (€ 119 million), and certain other national aids (€ 18 million).

Finland has been divided into seven support areas for the allocation of the payments. CAP support, environmental support, natural handicap payments and the

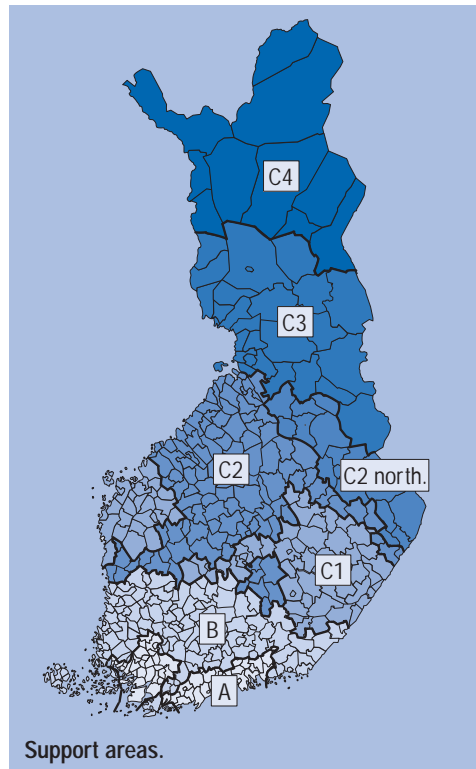
national top-ups to these are paid in the whole country.

Northern aid is paid only in support area C. This has been divided into five areas for the differentiation of the aid. National aid for southern Finland (so-called aid for serious difficulties) is paid in areas A and B.

### CAP support

Most of the so-called CAP support financed in full by the EU is paid through the single payment scheme adopted in 2003. In Finland the single payment scheme is implemented as the so-called hybrid model. Former CAP payments were converted into payment entitlements, which consist of a regional flat-rate payment and farm-specific top-ups.

CAP support has two main components: decoupled single payments and payments which continue to be coupled to the production. In Finland about 90% of the





CAP support was decoupled from the production in 2006. The CAP support for arable crops was decoupled almost completely. However, in 2009 coupled support under the SPS will be paid up to € 5.8 million for certain arable crops. Coupled payments will also continue to be applied for suckler cows, male bovines and ewes and starch potato.

According to the cross-compliance conditions included in the CAP support, the arable lands must be kept in good farming condition and minimum requirements for animal welfare and state of the environment must be met.

### Natural handicap payments (LFA)

Certain rural regions in the EU have been defined as less favoured areas. The purpose of natural handicap payments (LFA support), is to ensure the continuation of farming in these regions and keep them populated. In Finland LFA support is paid for the whole cultivated area of about 2.16 million ha.

The amount of natural handicap payments to less favoured areas in Finland budgeted for 2009 is € 423 million. The payment is 150 €/ha in area A, 200 €/ha

in areas B and C1 and 210 €/ha in areas C2–C4.

The EU has launched a major reassessment of the LFA regions. The reform should be introduced in 2010, and it is aimed to create a harmonised LFA scheme for all Member States, which takes better account of the special conditions in different countries.

### Environmental support

Agri-environmental support introduced in 1995 compensates the farmers for income losses resulting from the reduction in the production and increased costs as the farmers give a commitment to undertake measures aimed to reduce environmental loading caused by agriculture. The term of most of the environmental contracts ended in 2006 and the application of contracts concluded under the support scheme of the new programming period got started in 2007.

The main objectives of the new environmental scheme are quite similar to those of the earlier programmes. The most important goal is to produce in a way that causes less burden on the environment.

Agricultural support based on the CAP in Finland (financed in full and part-financed by the EU), € million.

	2004	2005	2006	2007 <sup>prelim.</sup>	2008 <sup>prelim.</sup>	2009 <sup>e</sup>
Total	1,223	1,229	1,255	1,286	1,325	1,330
CAP income support	502	515	541	551	557	558
Support for arable crops	362	351				
Other area-based support	10	10				
CAP support for animals	130	154				
Compensatory allowances	424	421	420	421	421	423
EU contribution	133	132	131	118	118	119
National financing	291	289	289	303	303	304
Environmental support*	297	293	294	315	320	349
EU contribution	158	144	102	88	89	98
National financing	139	149	192	227	231	251
EU financing, total	793	791	774	757	773	775
National financing, total	430	438	481	529	552	555

\*Environmental support also includes payments relating to animal welfare and non-production investments.

Biodiversity of farming environments and cultural landscapes must be preserved and conditions must be created for continuing the production in the long term. The objectives also include reducing erosion in arable lands and increasing the amount of humus in the soil.

The amount budgeted for environmental support in Finland for 2009 is € 349 million. The environmental support scheme is presented in more detail in Chapter 5.3 (pp. 68–69).

### 3.2. National aid

The national aids paid in Finland comprise the northern aid, national aid for southern Finland, national top-ups to natural handicap payments and certain other payments. The aim is to ensure the preconditions for Finnish agriculture in different parts of the country and production sectors. The principles to be applied in determining the level and regional distribution of national aid were agreed in the membership negotiations. The aid may not increase the production, nor may the amount of aid exceed the total payments before the accession.

#### Northern aid

The Accession Treaty of Finland (Article 142) allows the payment of national northern aid to areas north of the 62nd parallel and adjacent areas (support area C). A little over 1.4 million ha, 55.5% of the cultivable arable area in Finland, is eligible for this aid.

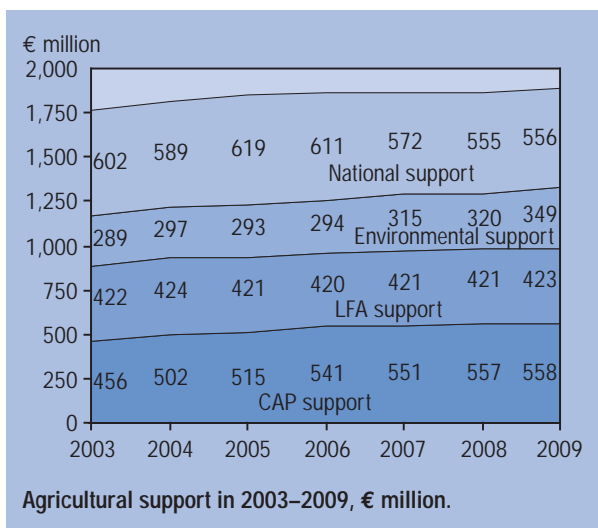
Northern aid consists of milk production aid and aids based on the number of animals and cultivated area. The northern scheme also includes the aid for greenhouse production, storage aid for horticultural products and wild berries and mushrooms and headage-related payments for reindeer.

Northern aid paid in 2009 totals about € 328 million. The most significant types of aid are the northern aid for milk production (€ 155 million) and northern aid based on livestock units (€ 100 million).

The effectiveness of the northern aid is evaluated every five years. In 2007 the European Commission commissioned an evaluation of how well the objectives set for northern aid have been reached and whether the means applied are still feasible and justified. Based on the results the Commission and Finland discussed the future and development needs of the northern aid in 2008.

As a result of the agreement reached in December 2008, the aid for pig and poultry meat production are decoupled from the production in 2009, but the payments for cattle husbandry will stay coupled in the same way as they are at present.

In the national negotiations between the State and agricultural producers in the beginning of 2009 it was agreed that as from the year 2009 the decoupled payments under Article 142 are differentiated according to the farm size. Up to 200 livestock units the aid is the same for all farms located in the area eligible for the northern aid. For the share exceeding 200 livestock units the aid is lower; in 2009 the same as in support areas A and B.



## National aid for southern Finland

The national aid for southern Finland, i.e. support areas A and B, is based on Article 141 of the Accession Treaty. This article has allowed the payment of aid due to serious difficulties resulting from the accession to the EU, but it does not define the concept of serious difficulties in any more detail or limit the duration of the measure.

The Finns have interpreted the article so that it gives the authorisation to the payment of the aid in the long term, while the Commission has seen it as a temporary solution.

Finland must negotiate with the Commission on the continuation of the aid based on Article 141 every few years. According to the outcome of the negotiations reached in November 2007, Finland may grant both national direct aids and raised investment aid for livestock production and horticulture in southern Finland until the end of 2013.

In 2009 the aid under Article 141 to southern Finland will total € 90.4 million, which is 3.7% less than the € 93.9 million paid in 2008. In the next two years the will be decreasing at the average rate of 3.7% a year. In the last two years of the period the total amount of aid under Article 141 will be reduced even more than this by a total of over € 30 million. The aid for pig and poultry farms will be cut the most. In 2013 the total amount of this aid will be € 62.9 million.

There will also be some changes in the structure of the aid under Article 141. From 2009 onwards decoupled farm payments will be applied in pig and poultry sectors, mainly according to production quantities of 2007. Instead, the aid for ruminants will continue to be coupled to the production all through the current aid period.

The aid under Article 141 also contains investment aids and start-up aid for young farmers. Finland may continue to apply higher investment aids in sectors which are eligible for direct income payments under Article 141 (in particular, investments in dairy and cattle sectors and pig and poultry production).

## National top-ups to natural handicap payments

National top-ups to natural handicap payments (compensatory allowances) have been paid in the whole country since 2005 based on a tentative agreement reached in the negotiations between Finland and the Commission in 2003. The basic top-up paid for the arable area may not exceed 20 €/ha in areas A, B and C1 and 25 €/ha in areas C2–C4. A raise for livestock not exceeding 80 €/ha is paid for the arable area of livestock farms. In 2008 the payments totalled about 95% of the maximum according to the hectares. The total of the co-financed natural handicap payments and the national top-ups may not exceed the average of 250 €/ha.

National aid for agriculture in Finland, € million (aid per production year).

	2004	2005	2006	2007 prelim.	2008 prelim.	2009 estimate
Total	588.6	619.0	611.4	571.6	554.7	555.9
Northern aid	387.1	330.2	327.3	328.8	327.4	328.4
National aid for Southern Finland	127.3	99.0	96.5	94.0	93.5	90.4
National supplement to environmental support	60.0	55.0	55.0	0.6	0.4	0.2
National supplement to the LFA support		120.1	119.9	119.6	119.3	119.3
Other national aid	14.2	14.7	12.7	28.6	14.1	17.6

## CAP health check and Finland

*Heikki Lehtonen and Jyrki Niemi*

The EU agriculture ministers decided in November 2008 on the reform of the common agricultural policy, also called the health check. The decision was in line with the earlier reforms and strategic outlines aimed to increase the market orientation of EU agriculture.

The latest reform increased further the decoupled support payments and dismantled the restrictions on production to make the farmers capable of responding better to the market demand. Modulation, i.e. transfer of funds from payments to agriculture to financing rural development, will be increased.

The main issues for Finland are the actions relating to the abolition of the milk quota system and the possibilities of payments coupled to production. In Finland the total amount of CAP payments financed in full by the EU stays on the current level of about € 565–570 mill. a year. The main challenge for Finland is how to maintain the supply of domestic foodstuffs in the context of increased market orientation.

### Changes in the intervention systems

One of the objectives of the EU agricultural policy is to stabilise the price level of agricultural products. The means to achieve this include the intervention system, where agricultural products have been bought to the intervention stocks.

As a result of the health check the intervention of durum wheat, rice and pigmeat will be abolished and the intervention volumes of fodder cereals are brought down to zero. This means that barley, which is very important for Finland, will be excluded from the intervention scheme. In practice this will weaken the access of Finnish cereal to the EU market when there is oversupply on the market. Compulsory set-aside was also abolished.

### Derogation for Finland concerning coupled payments

In the context of the 2003 CAP reform most of the direct CAP payments to farmers were decoupled from the production, meaning that certain production volumes were no longer a condition for receiving support. By the health check the majority of the remaining coupled payments will be decoupled and transferred to the Single Payment Scheme. The production support for starch potato will be decoupled in 2012. In the bovine sector the special premium for bulls and steers and other production premiums will also be abolished by 2012.

Under the so-called Article 68, however, 10% of all CAP payments may be targeted to disadvantages faced by specific sectors. Of this 10% up to 3.5% may be coupled support. Finland was granted the derogation to pay all of the 10% as coupled support, which increases the amount of coupled CAP support payable in Finland by a little under € 20 mill.

Article 68 also allows to retain part of the coupled payments for beef cattle farms after 2012. This means that the reform does not necessarily require any changes to the payments to the Finnish beef cattle farms. On the hand, there is a need for coupled payments in the dairy sector as well.

## **Funds transferred to rural development**

In recent years part of the agricultural support payments has been transferred to rural development through the EU budget. In 2008 5% of the payments to farms receiving more than € 5,000 as direct support were cut. In 2009 the cut will be 7%, and after that it rises by one percentage a year to 10% in 2012. The cut does not concern the first € 5,000 paid to the farm. Payments exceeding € 300,000 a year are cut by an additional 4%.

The aim of the modulation funds is to address the needs relating to climate change mitigation, promoting renewable energy, improving water supply and protecting biodiversity. Funds may also be used for measures accompanying restructuring of the dairy sector. In Finland the modulation funds will be increasing by € 6 to 15 mill. a year, which also requires a national contribution. The EU accounts for 75% of the financing of the transferred funds.

## **Abolition of milk quotas**

For Finland, the revision of the EU Regulation on milk quotas is the most significant issue brought about by the health check. The national milk production quotas will be raised by one percent a year so that in 2013 they are increased by 5%. The quota system will be abolished as from 2015.

For Finland and other less favoured areas regulating milk production by quotas has ensured a reasonable producer price and stabilised the market. The abolition of the quotas will considerably improve the competitive position of the more efficient countries and regions on the milk market.

The relative competitiveness of milk production in Finland will be decreasing when the production quotas are released. The supply of milk and milk products will be increasing, which leads to lower producer prices and increased price fluctuations. Up north, where Finland is located, the productivity of dairy farms is weaker, production costs are higher and less economic benefit is to be gained from increasing the farm size compared to the competitors operating in more favourable conditions.

The growth of Finnish dairy farms has been quite moderate, meaning that there should be some opportunities and potential which have not been utilised as yet. Continuing the growth and structural change is vital for the dairy sector. To ensure the profitability of investments there is a need for coupled payments under Article 68, especially to prepare for difficult economic situations and low prices. Subject to certain conditions modulation funds may also be used for the adaptation of the milk sector.

The abolition of the milk quotas offers opportunities for the relatively competitive part of Finnish dairy farms whose production expansion has been decelerated by the quotas and their prices so far. Hence the abolition of the quota costs will gradually lead to structural and regional changes in the production, also in Finland.

The profitability of starch potato production may remain much weaker than that of the cereals when the CAP payments for potato starch are decoupled completely from the production in 2012. The cultivation of starch potato is likely to stop unless a corresponding increase in the national aid is allowed.

The challenge is to carry through the CAP health check in Finland together with the national measures in such a way that the preconditions for profitable production can be maintained. Decisions on the implementation of the reforms and their targeting to different production sectors in Finland will be made during 2009.

## 4. ECONOMIC SITUATION OF AGRICULTURE

### 4.1. Agricultural income

The returns and costs of agriculture and horticulture as well as the economic result are followed by means of an annual, cash-based total calculation made at the MTT. Income development is assessed through the concept of agricultural income, which indicates the compensation for farm family's labour and capital invested in agriculture. Agricultural income is calculated by deducting the total costs from the total return on agriculture.

In 2008 the total return on agriculture and horticulture rose to a little under € 4.6 billion. The costs were a little over € 3.7 billion and the agricultural income, i.e. the difference between the two, totalled € 869 million.

In 2008 the long-term decreasing trend in agricultural income continued again, after some increase from 2006 until 2007. In 2008 agricultural income was 15% lower than the year before. The decrease was mainly due to the increase in

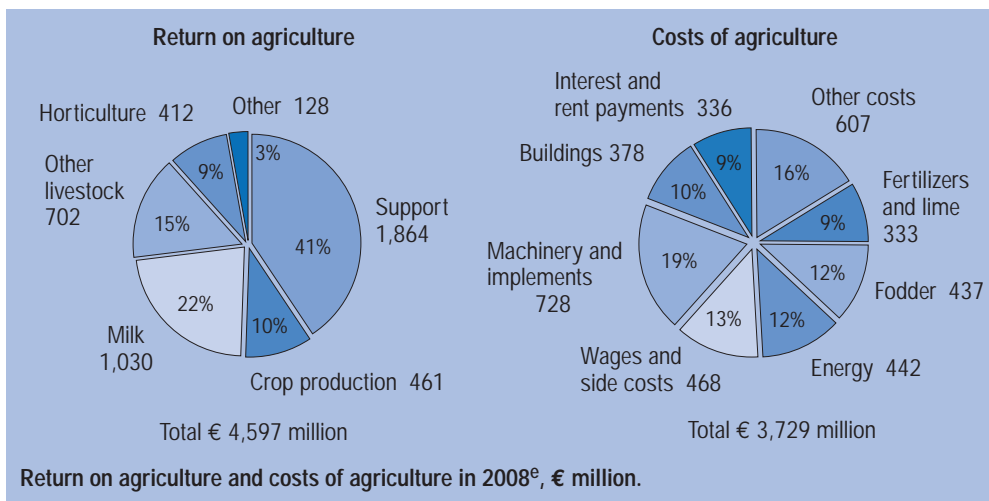
fertiliser and fuel costs. In real terms the agricultural income in 2008 was less than half the income level before the accession to the EU.

Return on livestock production rose by about 15%, a little under € 299 million, from the year before. The volume of milk production decreased but the producer price rose by more than a fifth, and the return on milk production rose by more than 18%. Pigmeat production grew by about 2%, and the increase in the average price increased the return by a little under 12%. The production and average price of poultry meat increased so that the return grew by more than 20%.

The return on crop production rose by about 3.2%, a little over € 14 million. The total yield was good but, as this consisted mainly of fodder cereals, the cereal volumes entering the markets were smaller than the year before. Due to the rise in the average price, however, the returns were higher than in 2007. The sales return on horticulture grew by a little over 2%, € 9

Agricultural income at nominal and 2008 prices in 1994–2008<sup>e</sup>, € million.

Year	Total return at nominal prices	Total cost at nominal prices	Agricultural income at nominal prices	Agricultural income at 2008 prices	Annual change at 2008 prices, %
2008 <sup>e</sup>	4,597	3,729	869	869	-15.0
2007	4,322	3,301	1,021	1,063	13.1
2006	4,021	3,118	903	964	-7.4
2005	3,986	3,011	976	1,059	-8.9
2004	3,968	2,897	1,070	1,172	-4.5
2003	3,932	2,811	1,121	1,229	-2.4
2002	3,960	2,812	1,148	1,271	4.2
2001	3,900	2,798	1,102	1,239	6.9
2000	3,753	2,722	1,031	1,189	9.6
1999	3,520	2,579	941	1,121	5.7
1998	3,484	2,594	890	1,073	-16.5
1997	3,609	2,542	1,067	1,304	-2.4
1996	3,650	2,556	1,093	1,353	-12.2
1995	3,759	2,515	1,245	1,549	-11.5
1994	4,270	2,864	1,407	1,769	27.8



million. Return on greenhouse production increased by about 1% but the return on production in the open rose by 4%, mainly due to the good crop and price level in strawberry production.

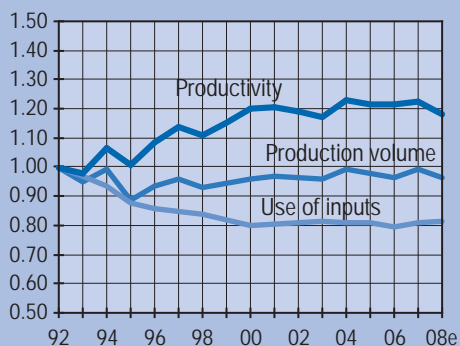
The main reason for the higher costs was the rise in the prices of fuel and lubricants, feedingstuffs and especially fertilisers due to the rise in the oil raw material price. The rise in the fertiliser cost accounted for almost a third of the total increase in the costs of agriculture. Rise in the interest-rate level and growth in the credit portfolio of agriculture increased the interest costs considerably. The rise in the building costs has also exceeded the general rate of inflation.

## 4.2. Productivity development in agriculture

Productivity means the ratio between the volume produced and the use of inputs. Productivity improves if the same use of inputs, such as arable land, labour and capital, yields a larger volume of output or if the same volume of output is achieved by means of less input. Improving productivity is important in terms of the competitiveness of the production, and together with input and output prices and support payments it is one of the main factors on which the profitability at the farm level is founded. The predominating trend in

Finnish agriculture has been that the production volume has been quite stable while the use of inputs has decreased mainly because of the rapid reduction in labour input. Growth in total productivity is desirable from the consumer perspective because weaker profitability, with no changes in the relative prices, would inevitably require increasing the support payments in order to maintain the profitability of agriculture.

In the national agricultural policy the objective concerning the development of productivity has been written down as follows: "Agricultural policy creates the preconditions for efficient food production which meets the expectations of the consumers and respects the nature." In this chapter the productivity development of agriculture is measured from both the total calculation and bookkeeping farm data by means of the Divisia index method. This can be used to calculate the quantity indices for outputs and inputs, and the change in their ratio indicates the development of productivity, i.e. output-input ratio over the period concerned. The productivity of labour and capital as separate elements is examined by comparing the volume of total production established by the Divisia index method with the labour input and capital input in turn. The productivity development of cereal farms is also examined by means of a long time series, extending



Productivity, production volumes and use of inputs in 1992–2008 based on the total calculation of agriculture (the year 1992 indicated by 1).

from 1976 until 2006, based on the definition of the production function.

As defined on the basis of the total calculation, in 2008 the same use of inputs in Finnish agriculture yielded an about 17.9% higher output than in 1992. The total production volume was 96.1% and use of inputs 81.5% of the levels in 1992. The average productivity growth in agriculture was 1.0% per year.

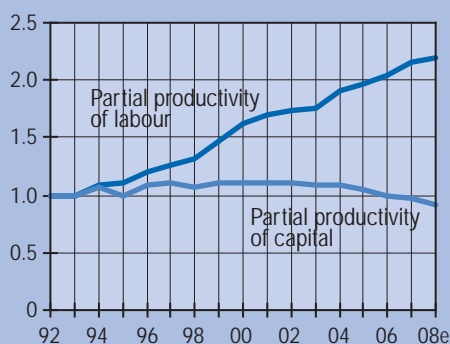
The productivity of labour in Finnish agriculture has increased rapidly in the past 15 years, by the average of a little over 5% per year in 1992–2008. In 2008 the output volume per unit of labour input was 2.2 times that in 1992. During this time the total labour input decreased from 160,000 person years to about 70,000 person years. On the long term the productivity of capital in Finnish agriculture has changed quite little. In the very recent years, however, the output volume relative to the capital invested in the production has turned into a decrease. The output volume has not decreased very much, but the amount of capital invested especially in the buildings has started to rise. In 2008 the building depreciations made in the total calculation totalled € 305 million, which means that, at a depreciation rate of 6% corresponding to the wearing out, the total building capital stock was € 5.1 billion. In the past five years the

amount of capital invested in buildings has risen by a quarter. In 2003 the total building capital stock was less than € 4 billion.

On the profitability bookkeeping farms the productivity development has been more rapid than on Finnish farms on average, largely because the unit size of bookkeeping farms has grown more than that of other farms. For example, the annual milk and meat output of dairy and pig farms included in the profitability bookkeeping has almost tripled since 1995, while the production volume of cereal farms has more than doubled.

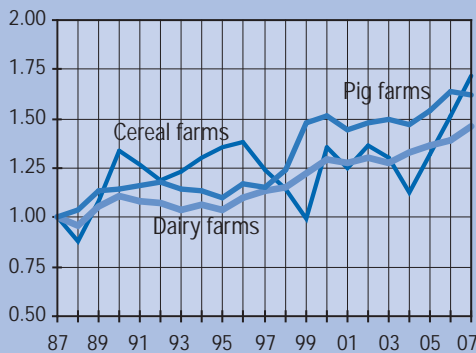
Based on the productivity development, the crop years 2006 and 2007 seemed quite favourable on cereal farms. In 2007 they achieved 1.7 more output by means of the same amounts of inputs than in 1987, which is used as the base year. However, this was the first time when the cereal farms reached a higher productivity than in 1990. The productivity development of milk farms in 1987–2007 was much more stable, with an average rise of 1.9% a year. The productivity of pig farms started to decrease in 2007. This may have been due to the reorganisation of the production to respond to the steep increase in cereal prices towards the end of 2007.

In cereal production the unfavourable conditions and small farm size are major



Partial productivity of labour and capital in 1992–2008 according to the total calculation of agriculture (the year 1992 is indicated by 1, 2008e=forecast).





Productivity development in different production lines in 1987–2007 (level of the year 1987 indicated by 1).

challenges as such, but the decoupling of the support payments has challenged the productivity development even more seriously. At the same time, the incentives offered to farmers for speeding up the productivity development have been essentially weakened through certain institutional structures, such as the short perspective in land lease arrangements.

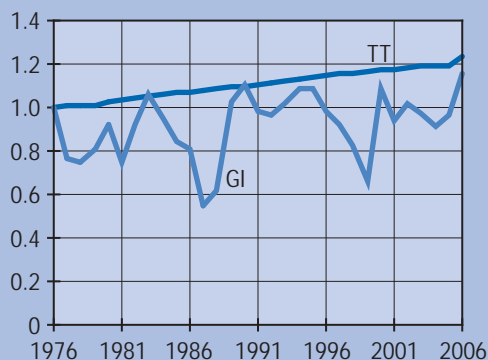
The productivity development of Finnish cereal farms is largely based on the utilisation of advanced technologies. The impact of the economies of scale, i.e. benefits derived from large-scale production, has remained quite small, and in fact this has been decreasing over time. Thus the benefits from large-scale production have not speeded up productivity growth as desired, even if the technologies have advanced the most rapidly on the largest farms.

Depending on the calculation method, in 2006 the productivity of cereal farms was 15 to 24% higher than in 1976. However, the average annual change in the productivity was so small that the total change over the whole period remained smaller than the greatest variations between individual years. This shows how dependent the productivity of cereal cultivation is on the weather conditions, which vary from one

year to another. This is a major challenge for the research methods which should show, on the one hand, the slow, continuous productivity trend and, on the other, the annual variation in the level of productivity.

The research is often asked to identify the impacts of policy changes on the productivity development. This was also the case after Finland had joined the EU in 1995. During the first years after the accession the weather conditions were quite bad and it seemed that the productivity development collapsed quite dramatically. Thus in the first years in the EU

it was impossible to assess the particular impacts of the changes in agricultural policy on the productivity development of cereal farms. Such assessment will always be difficult because of the great annual variations. What we can say, however, is that in 2006 the productivity of cereal farms exceeded for the first time the previous record level from the year 1990. The productivity development of cereal farms follows the fluctuations in the average yields, while the use of inputs varies very little compared to the variations in the output. This means that the trend in average yields can be used as an indicator for the productivity development of cereal farming, at least in the short term.



Productivity development of cereal farms in 1976–2006. In the Time Trend (TT) model time is indicated as a trend variable and in the General Index (GI) model year dummies are employed to reveal annual variation.

### 4.3. Profitability development of agriculture and horticulture enterprises

The MTT Economic Research calculates the profitability development of Finnish agriculture and horticulture annually on the basis of the results of the profitability bookkeeping farms. The results of the about 1,000 bookkeeping farms are weighted so that they indicate the average results of the 40,800 largest Finnish agriculture and horticulture enterprises. These account for more than 90% of the output of Finnish agriculture. The individual revenue and expense items and support payments are recognised as returns and costs in the year of production in accordance with the accrual principle. Thus the annual variations in the yields and returns and changes in prices and subsidies are directly reflected in the annual profitability figures.

#### Returns grew by a fifth

The average gross return of agriculture and horticulture enterprises grew to € 122,400 in 2007, which is about 18% higher than the year before. Sales proceeds increased by almost a fifth due to the rise in producer prices, especially the quite dramatic increase in cereal prices. Sales proceeds in crop production rose by as much as 48% and those of horticulture products by 25% from the year before. Sales proceeds of livestock production increased by 13%. Support payments were 4% higher than the year before, while the share of support of total return fell from 41% to 36%.

#### Rapid increase in costs

The rapid increase in the costs of agriculture and horticulture continued. The costs grew to € 94,700, which is 13% higher than the year before. Besides the higher input prices the rise was due to the increase in the costs of wages and outsourced services

and building and interest costs. The average entrepreneurial income left as compensation for entrepreneur's labour and capital grew by about 36% to € 27,700.

When the entrepreneur's wage claim calculated on the basis of the recorded working hours of 2,480 and hourly wages of agricultural employees of € 12.6 as well as the interest claim for own capital, calculated according to a rate of 5%, are deducted from the entrepreneurial income, we arrive at the entrepreneurial profit, where all production costs are taken into account. This was negative, about minus € 15,500.

#### Profitability improved

When entrepreneurial income is divided by the sum of wage and interest claims we arrive at the profitability coefficient. This rose to 0.64, which means that entrepreneurs achieved, on average, 64% of the objective set for wages and interest. The hourly wages were € 8.1 and interest on own capital was 3.2%.

The profitability coefficient of dairy farms was 0.57, other cattle farms 0.54, pig farms 0.78, horticulture 0.53, cereal farms 0.89 and other crop farms 0.81. In the past couple of years the results of especially cereal and other crop farms improved as the market prices for cereals almost doubled. The profitability coefficient of cereal farms rose from 0.45 to 0.89 and that of other crop farms from 0.47 to 0.81. Regional differences in the profitability of farms decreased. In 2007 the highest profitability was reached in support area A in southern Finland and in central Finland the profitability improved as well. Instead, in area C3 and especially C4 in northern Finland the profitability deteriorated.

In about 15% of the enterprises the profitability coefficient was negative, which means that there was no compensation for own labour and capital. On the other hand, in 26% of the enterprises the profitability coefficient was above 1.0.

## **Profitability of agriculture in relation to other enterprises**

Profitability coefficient can be applied in comparisons within agriculture, but the return on equity and total assets are more appropriate for comparisons with other enterprises. When wage claim is deducted from entrepreneurial income, we obtain the net profit left as return on equity. In 2007 this was negative, € -3,600. When the net profit is divided by the amount of own capital, we arrive at the return on equity, -1.5%.

By adding interest charges to the net profit, which includes taxes, we arrive at the compensation for total assets, which was negative, € -30. When this is divided by the total capital of the accounting period of € 323,600, we arrive at the return on total assets, which is close to zero. In 2006 the average figure was -2.9%. In the main production sectors the return on total assets varied between 3.8% on cereal farms and -4.4% in horticulture enterprises.

## **Hourly earnings of farmers**

When the interest claim of 5% is deducted from entrepreneurial income, the annual earnings of farms were € 15,800. When this is divided by the 2,480 hours of labour input of the farm family we arrive at the hourly earnings, which can be compared with the wages in other sectors. In 2007 the average hourly earnings in agriculture were € 6.3. In about 26% of the enterprises the hourly earnings were more than € 12.6, while in 28% of the enterprises there were no earnings at all.

## **Solvency**

In 2007 the own capital of agriculture and horticulture enterprises grew to the average of € 251,200, which is more than 13% higher than the year before. In the balance sheet the property items are recognised at current values and the investment subsi-

dies or used reserves are not deducted from the property values.

Growth and higher capital intensity of enterprises increases the need for capital. The growth in investments increased the amount of debt to the average of € 90,500, which is 19% higher than the year before. The equity ratio of enterprises, i.e. share of own capital in the total capital, decreased slightly, but it was still quite good, 74% on average. The equity ratio was the highest on cereal farms, 81%, and lowest in horticulture enterprises, 43%.

## **Liquidity**

The cash-based results can be investigated using liquidity calculations that are based on cash revenue and expenses. The sufficiency of cash revenue for various expenses is measured by the residuals by which the expenses and other use of funds must be covered.

On average the cash revenue of agriculture and horticulture from sales and support payments grew by 11%. This is less than the growth in returns, partly due to the increase in the stocks. The funds used for short-term production expenses were 15% higher than the year before. On average the revenue from the production is not sufficient to cover the direct expenses, but together with support payment the average of € 43,400 per farm was left as operating surplus. On average the operating surplus grew by only 5%.

After the financing expenses and taxes the average of € 34,500 was left as financing surplus, which is just 1% higher than the year before. Financing surplus can be used for investments, repayment of loans and private household expenses. The net amount of investment expenses grew to € 31,000 per enterprise, which is 64% higher than the year before. Investments of cereal farms and horticulture enterprises grew the most. Less than 10% of the investment expenses are covered by subsidies, which means that the net increase in in-

debtedness was € 8,400. The cash surplus decreased by a fifth to € 14,100 per farm. This is the amount left from agriculture and horticulture operations for the private consumption.

### **Model for result and profitability forecasts**

The result forecasts for the year 2008 have been calculated from the bookkeeping data of 2007 using the model for forecasting the trend in the results and profitability. The forecasts for individual enterprises take account of the changes of input and producer prices by product and cost items in 2008, changes in support payments by type of support, and regional changes in the average yields of different crops.

In the model the production structure and size of the enterprises stay the same as in the previous year, but the changes in the crop yields are taken into account. These changes are based on the regional and crop-specific estimates of the Information Centre of the Ministry of Agriculture and Forestry.

### **Forecasts for 2008**

According to the forecast, in 2008 the total return of enterprises was € 131,000, which was 7% higher than the year before. The growth was mainly due to the rise in sales proceeds by almost 12%, while the support payments were about the same as before. However, the costs of agriculture increased by 15% to € 109,000, mainly due to the rise in the prices of fertilisers, purchased feed and fuel. The average entrepreneurial income left as compensation for own labour and capital of the farm family was € 21,600, which is 22% lower than in 2007.

When the wage claim of € 32,000 of the farm family's labour, calculated according to the hourly wages of € 12.9 set as the target, and the interest claim of € 11,900 of own capital calculated according to the

interest rate of 5% are deducted from the entrepreneurial income, we obtain entrepreneurial profit, which was € -22,300.

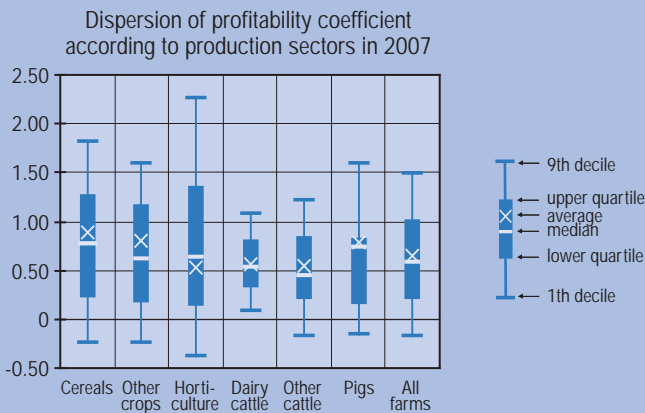
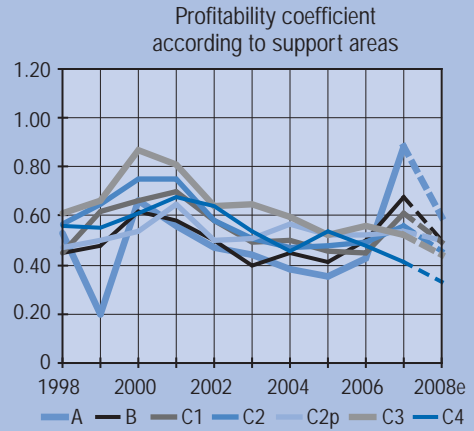
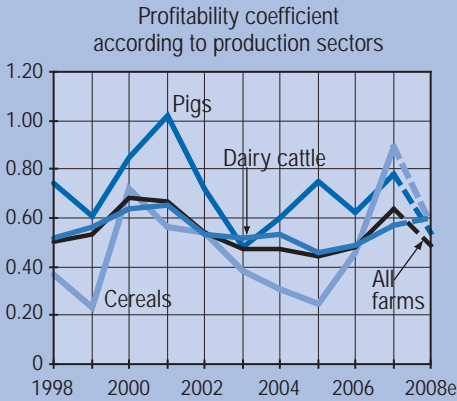
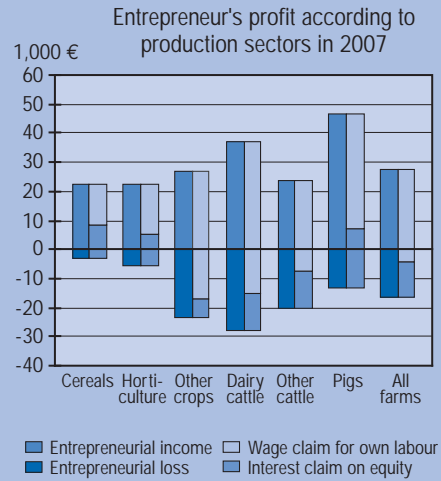
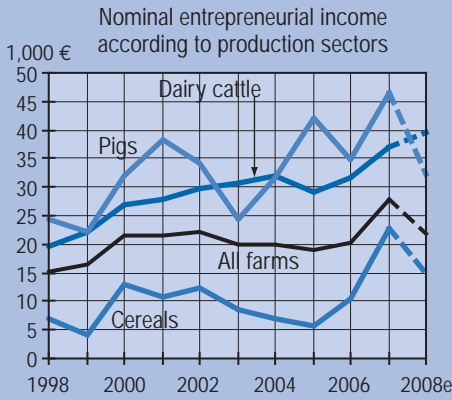
The average profitability coefficient fell from 0.64 to 0.49. This means that the entrepreneur reached 49% of the hourly wage claim of € 12.9 and interest claim of 5%. The coefficient was 0.60 on dairy farms, 0.29 on other cattle farms, 0.54 on pig farms, 0.09 on horticulture farms, 0.58 on cereal farms and 0.48 on other crop farms. From the previous year the profitability deteriorated the most in crop production and horticulture, while in milk production the profitability stayed about the same. The profitability of agriculture deteriorated in all support areas, but the decrease was the greatest in southern Finland, where crop production is more common than in the north.

In more than 20% of the enterprises there was no entrepreneurial income, i.e. the profitability coefficient was less than zero. In 2007 this share was 15%. Less than a fifth of enterprise reached a profitability coefficient of more than 1, while in 2007 this was 26%.

### **Economydoctor online service**

Economic results and forecasts on Finnish agriculture, horticulture and reindeer husbandry from 1998 onwards are available in the online service of the MTT Economic Research at [www.mtt.fi/economydoctor](http://www.mtt.fi/economydoctor). The service provides access to, for example, the average results of enterprises representing different production types and size classes according to regional classifications.

Economydoctor (Taloustohtori) also gives access to the basic results of agriculture of all EU Member States (FADN Standard Result) as well as the indicators for profitability and solvency calculated at the MTT (FADN Advanced Results). The FADN contains the results of about 74,000 farms which are weighted to represent the economy of the altogether more than 4 million farms in the EU.



Development in the results and profitability of agriculture and horticulture enterprises in 1998–2008e.

#### 4.4. Profitability differences in agriculture and horticulture enterprises

From the profitability bookkeeping data the MTT Economic Research calculates the annual average results of farms representing different regions, production sectors and size classes. The results are weighted so that they can be generalised to represent Finnish agriculture as a whole, which means that they can also be used for making agricultural policy decision. However, the average figures do not show whether most of the results of the farms are close to the average or whether they vary a great deal around it.

The annual dispersion has been described by means of the lower and upper quartile determined from the farm group ranked according to the profitability ratio. Lower quartile is the profitability ratio of the best farm in the weakest quarter and upper quartile is the profitability ratio of the weakest farm in the best quarter. These or even the other variables for these two farms do not provide a sufficient basis for analysing the differences in profitability. If the quartiles were calculated separately for each variable, figures of different farms would be included in the analysis.

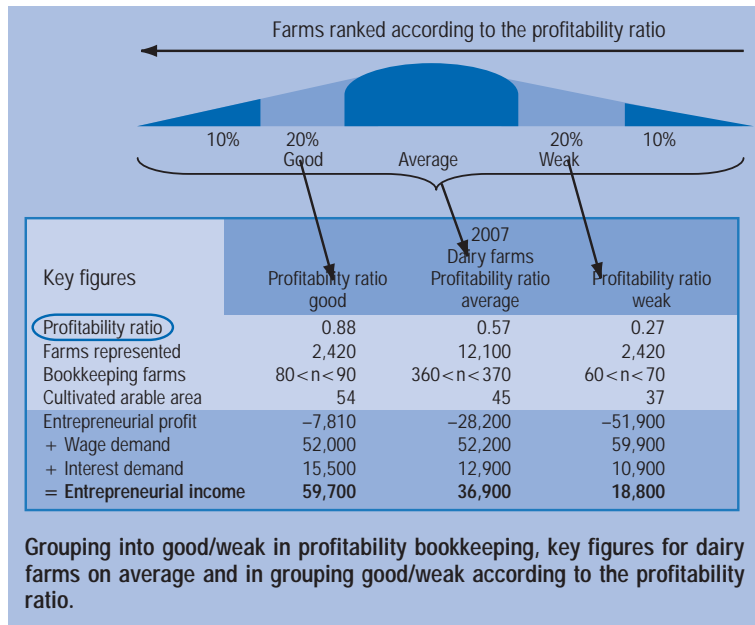
To analyse profitability we need to determine the average results of groups representing different profitability levels. If the best group contains the best farms (best quarter or the like), exceptional successes may raise the profitability to such a high level that it

invariably decreases in the following year. Similarly, results of farms whose profitability is weak due to large investments or exceptional failures improve in the following years, which means that the difference in the profitability between the groups decreases to a half in three years.

#### Analysis of dispersion in profitability bookkeeping

In 2008 the possibility to examine the result reports of the groups of good and weak farms was added to the agriculture and horticulture online service of Economydoctor ([www.mtt.fi/economydoctor](http://www.mtt.fi/economydoctor)). The aim is to base the profitability comparisons on more permanent differences so that random and exceptional events do not interfere with the analysis. This is why the weakest 10% of farms have been excluded from the group of weak farms and the next 20%, i.e. deciles 2 and 3, have been included and, similarly, the best 10% have been left out of the group of good farms and the next 20%, i.e. deciles 8 and 9, have been included.

In Economydoctor the division into good and weak farms can be made on the



**Key figures for dairy farms on average and in the fifths containing the best and weakest farms according to the profitability ratio in 2007.**

Key figures	Profitability ratio best	Profitability ratio average	Profitability ratio weakest
Profitability ratio	1.12	0.57	-0.01
Farms represented	2,410	12,100	2,420
Bookkeeping farms	100 < n < 110	360 < n < 370	70 < n < 80
Cultivated arable area	65	45	43
Entrepreneurial profit	8,100	-28,200	-66,200
+ Wage demand	51,100	52,200	54,300
+ Interest demand	18,500	12,900	11,500
= Entrepreneurial income	77,700	36,900	-430

basis of total return, entrepreneurial income, number of livestock units, cultivated area or farm size (large/small), as well as the profitability ratio. When the groups are established based on the profitability ratio, in 2007 the coefficient of dairy farms was 0.27 in the group of weak farms and 0.88 in the group of good farms.

**Impact of exceptional farms on dispersion**

The self-sufficiency ratio of dairy farms in the group of weak farms is 66%, which is only a little lower than the average for the whole country, 72%. This shows that the most heavily indebted farms that have made large investments are included in the weakest 10%, which is here excluded from

**Key figures for dairy farms included in the farm size class "large" on average and in the groups of good and weak farms according to the number of livestock units.**

Key figures	Livestock units good	Livestock units average	Livestock units weak
Livestock units	61	50	39
Farms represented	750	3,760	750
Bookkeeping farms	20 < n < 30	130 < n < 140	20 < n < 30
Cultivated arable area	67	63	51
Entrepreneurial profit	-24,400	-25,400	-28,500
+ Wage demand	66,700	61,100	60,300
+ Interest demand	18,900	17,300	15,200
= Entrepreneurial income	61,300	52,900	47,100
Profitability ratio	0.72	0.68	0.62

the group of weak farms. In the fifth (20%) with the weakest farms the self-sufficiency ratio is as low as 52% and the profitability ratio is negative, -0.01. In the best fifth the profitability ratio is 1.12.

However, in three years the great difference in the profitability between the extremes decreases to about a half. Due to random factors, no reasons for differences in profitability between the best and weakest 20% relating to the actual production operations can be found. Instead, investigating the groups of good and weak farms where the extremes have been excluded and which represent a more stable level of profitability allows a more through analysis of the differences in profitability.

For an analysis of differences in profitability the groups should be established on grounds other than profitability indicators. The farms should be divided into groups of good and weak farms on the basis of factors that do not directly relate to the economy of farms, such as number of livestock units,

cultivated area or economic farm size. The studies should be made according to farm size classes so that the differences are not due to the size. This provides us with a reliable foundation to investigate the reasons for the differences in profitability.

# Mental well-being and coping at work among farmers

Juha Suutarinen

The structural change of agriculture and accession to the European Union have not only tested the ability of farmers to adapt and develop their production operations, but they have also challenged their mental and physical capabilities and adaptive capacity. The stress experienced by farmers has increased from the early 1990s. On average, symptoms of mental problems were not found to have increased from 1992 until 2004, but more depression was observed in 2004. Factors causing stress mentioned by farmers included increased paperwork, visits by EU inspectors, lack of appreciation of one's own profession and negative image of agriculture. Lack of appreciation has been identified as one of the major causes of work-related fatigue.

## Workforce is ageing – how can we cope?

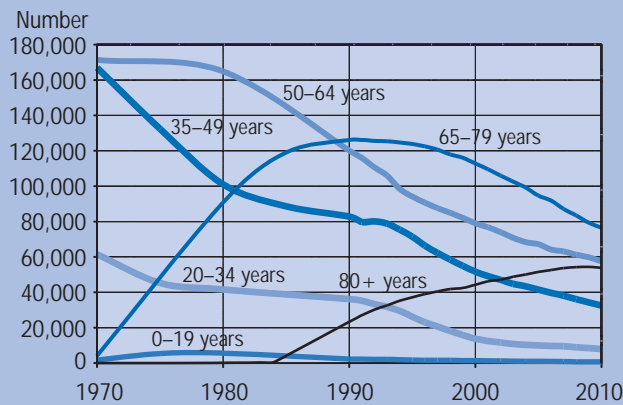
From 1995 until 2007 the average age of farmers rose by almost 3 years. In 2007 it was 50 years on farms that received agricultural support payments. In 2009 about 45% of those covered by the farm insurance were 50 years old or older. The insurance systems cover fewer and fewer people from the younger generations. If in the future the decrease in the share of the 20–34-olds slows down less than the decrease in the share of the older generations, there is hope that the population structure will gradually turn into a more positive one. In 2007 the average age of the employed labour force in Finland was about 41 years, which means that agriculture has to cope with the productivity and profitability challenges with a much older workforce.

From the perspective of occupational health and safety, the strongest change factors which determine the development of agriculture in the near future are unanticipated changes as regards profitability, even more dramatic structural change, and the consequent increase especially in the mental burden. Based on an enquiry, the capability of farmers to cope decreases considerably as they grow older. Of the owners of animal farms that intend to continue until 2012 13–16% tell that in the next few years they can cope with the work very or quite poorly. The share of those who cope poorly is going to increase slightly in the near future. Of the present farms the problems with coping

are the greatest among the owners of cereal and hen farms, where the share of elderly farmers is also the greatest. The larger the total amount of work required on the farm, the more stress this workload causes.

## Coping with work and competitiveness

In all production sectors, coping with work suffers the most from disturbanc-



Trend in the number of persons covered by farmer's pension insurance by age group 1970–2010. Source: Mela.



es at work and in the machinery and implements, amount of work and state of health. The significance of the state of health was the greatest on small farms, where the owners are often older. On more than half of the large dairy farms the excessive amount of work was the main problem in terms of coping. The smooth running of work usually suffers more from various kinds of disturbances on larger farms than on small ones. Lack of planning, quality of work and personal relations are problems on about a fifth of the large dairy farms. However, farmers who have expanded their production tend to have more positive attitudes towards enterprise than those who have not, and they also experience less stress as regards possible changes in the operating environment.

The legislation on the agricultural sectors is increasing and it is also under constant revision. For example, the latest review of the CAP introduced new requirements concerning the state of the environment and animal health and welfare. Detailed requirements are also given, for example, for the dust, gases and indoor air of the animal production premises. The farmers must meet these requirements in order to receive support payments from the common EU funds.

### **New legislation?**

In the negotiations within the EU it has been proposed that the CAP reforms should also include an occupational health section. This has not been realised as yet, but the growing demands relating to the social responsibility of the food chain should be anticipated on the national level. As the uncertainty relating to the agricultural and trade policy will continue (and the support measures will be reduced), the mental burden in the sector can be expected to grow. The risks relating to diseases transmitted by animals from other countries will be increasing as well. Besides the direct risk (avian influenza, salmonella) this is also a mental burden to the producers.

The bio-based economy of the future will be an economy of knowledge and skills, founded on human competence. However, most of the development inputs in the field have been targeted to the physical production inputs, such as energy and the related and other new technologies. Yet, the opportunities offered by advanced technologies cannot be utilised in full without investments in labour force and its competence. Skilled labour force is one of the main sources of growth besides the R&D activities, software solutions, organisation structures and brand names. On the other hand, accidents at work or occupational diseases, such as work-related fatigue, may weaken or even totally damage the opportunities to reach the growing productivity requirements. In the sectors competing for labour force with agriculture the wages and work conditions are getting better and the share of heavy and dangerous tasks is decreasing. The attractiveness of occupations in agriculture, rural areas and natural resource sectors may suffer and their relative competitiveness may lag behind unless their working conditions are improved and occupational well-being is taken care of in the same way as in the other sectors.

### **Changes in the nature of work**

Mechanisation and automation change the content of the work. Technology intervenes to a growing extent between people and the object of their work (e.g. animals) and makes the work seem less rewarding, thus increasing the mental burden and dissatisfaction. On the other hand, the design of machines, implements and systems that take the people better into account offers lots of opportunities to facilitate the work and make it more meaningful and to reduce the amount of work. Due to the weakening profitability

of enterprises, however, there is not much room for long-term safety investments, but the decision-making is dominated by the need to ensure the profitability and survive in the short term. Because of the difficult economic situation the farms may decide, for example, on technology investments whose impacts on occupational safety, costs and work load in the long term weaken the viability of the farm.

The shift of the focus of the work content from physical performance to knowledge-intensive management changes the nature of the work-related physical and mental risks. For example, static loading may increase in the process control tasks, while mental burden increases due to the growth in information-related and decision-making tasks. Some of the growing information flows may be unnecessary or difficult to utilise, which also increases the mental burden. However, risk management may also become easier, if better tools for information management improve the access to essential information.

### **Outsourcing and controlling the workload as solutions**

In the future the entrepreneur's own work input will be sufficient on very few animal farms. One way to solve the problem is to considerably increase the use of contractors, especially in harvesting and the spreading of manure. According to studies by the Work Efficiency Institute, outsourcing is felt to reduce the work-related burden and improve the occupational safety of the farm family, because in contracting the burden and risk are transferred to the hired contractor. The contractor is likely to have more experience in different kinds of working conditions, disturbances and risks than the farmer. The contractor is likely to have modern, efficient and well serviced equipment. Apart from the risk to individual farmers, outsourcing the most dangerous agricultural work to qualified professionals can be expected to reduce the total number of accidents due to a certain type of work.

Based on a study on the needs relating to the managerial skills of farmers, 60% of farmers who used hired labour considered it difficult to reconcile the business operations with family life, while only about 30% of farmers with no hired labour felt the same. In addition, 40% of those with hired labour considered the scheduling of work a difficult task, while only 7% of farmers with no hired labour considered this a problem. Thus there seems to be an obvious need to develop the management skills of farmers.

The farmers perceived maintaining health, safety, ability of work and motivation as the most challenging farm management tasks. In terms of risk management these are key questions on farms: haste, fatigue, stress and signs of depressions have been linked to an increased accident risk. Excessive workload increases susceptibility to risks and thus the number of accidents. Working in haste because of too much work easily leads to taking risks, which increases the incidence of accidents and occupational diseases.

Besides increasing the risk of accidents, excessive workload as such is both an occupational health hazard and a factor which weakens the quality of the activity. Disability of the key person may seriously damage the operating capacity and performance of an enterprise, and often it is impossible to find qualified substitute labour. Based on a project concerned with the development of the social sustainability of milk production in the Netherlands, sustainability can be improved by developing the management. The feeling of insufficient control is a major concern among farmers, which means that both coping at work and well-being of farmers and other workforce and, directly and indirectly, the competitiveness and profitability of agriculture can be improved through better management.

## 5. AGRICULTURE AND THE ENVIRONMENT

Modern societies direct various kinds of expectations to farming. Apart from producing staple foods, agriculture should contribute to, for instance, the maintenance of managed and open farming landscapes, biological diversity and rural viability. The significance of environmental commodities as the products of multifunctional agriculture has been growing since Finland's accession to the EU in 1995, while the producer prices of staple foodstuffs have mainly been on the decrease. The rapid increase of crop prices in 2007 weakened the relative competitive position of the public goods produced by agriculture and increased the challenges for the agri-environment policy.

During 2008, the discussion on agri-environment policy was still largely dominated by the amendments and revisions to the Rural Development Programme for Mainland Finland 2007–2013, as well as the evaluation of the previous programme. The Rural Development Programme includes the agri-environment scheme, which is the main EU instrument for the environmental policy of agriculture. The scheme is mandatory for all Member States, and the main goals are to reduce loading on surface waters and groundwater, reduce emissions to the air, protect the biodiversity of farming environments, and manage the cultural landscapes.

In Finland, agri-environment support is the largest item in the state expenditure on environmental protection. A total of one billion euro a year is used for environmental protection, of which the agri-environment payments represent about a third. Thus, it is no wonder that the agri-environmental support gives rise to strong feelings among actors outside agriculture as well.

Water management plans under the Water Framework Directive have now been circulated for comment and they will be finalised during 2009. The aim of the

Directive is to protect, improve and restore waters so that their chemical and ecological status is good in the whole EU area by 2015. In Finland, the agri-environment scheme is highly important in the implementation of measures required under the Water Framework Directive.

### 5.1. Environmental impacts of agriculture

Besides food production, agriculture has an important role in maintaining biodiversity and as a producer of rural landscape and recreational services. In the future, agriculture may also have a significant role as a producer of renewable energy. In addition to the positive effects, however, agriculture also has negative impacts on the environment, i.e. the soil, waters and air.

#### Soil

Soil is one of our most important natural resources: most of the nutrition consumed by humans derives either directly or indirectly from the land. Of the surface area of Finland about 7% is arable land. The soil type, cultivation properties and crop rotations influence the environmental loading from arable land. As regards crop production, in the Finnish soil there are no heavy metals, the average phosphorus levels are satisfactory, acidity is increasing, and the amount of organic matter is decreasing. Besides these mainly chemical indicators, there are a number of biological and physical phenomena to be taken into account when assessing the ability of the soil to mitigate environmental loading. These include the numbers of soil organisms, activity of symbiotic microbes and binding and release of nutrients in soil organic matter.

The phosphorus level in arable land is an indicator of both its productive capacity and environmental loading. Phosphorus is

one of the three indispensable macronutrients for plants, but at the same time it is one of the main causes of the eutrophication of inland waters. Most of the phosphorus loading of waters comes as non-point source loading from arable lands. The phosphorus levels of Finnish arable lands have been rising up to the present, even if phosphorus fertilisation has been considerably reduced through, for example, the agri-environment scheme. At present, the increase in phosphorus through purchased fertilisers is less than 8 kg/ha, and this is decreasing slightly. About the same amount enters the land in animal manure. Based on recent studies, phosphorus fertilisation could be further reduced to some extent without a decrease in yield levels, except in parcels where the phosphorus levels are particularly low. In the light of current knowledge, turning the phosphorus balance into a negative one is the only efficient way to achieve a permanent reduction in phosphorus loading.

The ownership of arable land is quite decisive in terms of the long-term productivity of the land. Ownership and management of arable lands have become topical issues in Finland especially due to the rapid increase in land leasing. Studies have shown that much less land improvement work is being done on leased areas than on lands owned by the farmer.

### **Biodiversity and rural landscape**

Agricultural production is based on the utilisation of biological diversity. Similarly, many wild plant and animal species have over centuries adjusted to utilising agricultural environments created by man. For some wild species, changes in their habitats due to new and more efficient production methods have been too rapid and they have not been capable of adjusting to the new conditions. Especially organisms which depend on meadows and forest pastures have declined and become endangered due to the decrease in grazing and

cattle husbandry.

The decline in biodiversity is considered a serious problem because biological diversity is the foundation for the functioning of ecosystems and ecosystem services. Without diversity, the ecosystems are not capable of adjusting to changes in the environment.

There are fewer species in intensive plant production regions with monotonous landscape structure than in regions with extensive and varied plant and animal production. Recently, one major topic has been the so-called high nature value farmland with extensive agricultural production. MTT Agrifood Research Finland and Finnish Environment Institute SYKE have launched a joint research project to define such areas. Based on the preliminary results, about 10% of the Finnish agricultural area could be classified as high nature value farmland. The most valuable areas are located on the Åland Islands and south-west coast as well as in the Oulu region.

Based on the results of the follow-up studies on the impacts of the Finnish Agri-Environment Programme (MYTVAS 1 and 2), the agri-environment measures have contributed to the preservation of biodiversity and open farming landscapes. In spite of this, the actions taken so far have not been sufficient to stop the long continued impoverishment of the farming environments. This is why efforts are being made to find new, more efficient measures for enhancing biodiversity to be incorporated in the agri-environment scheme.

### **Loading of waters**

Agriculture is still the greatest single source of nutrient loading on waters caused by human activity. Loading is caused by both arable farming and livestock production. Now that the direct discharges from livestock buildings have all but stopped, the focus in nutrient loading from agriculture has shifted to arable farming. Because

of the concentration of livestock production, in many places the amount of manure produced is excessive relative to the utilised agricultural area and the needs of the crops cultivated on this. The phosphorus contained in manure, in particular, has become a problem. The Finnish Environment Institute estimates that at present about 50% of the nitrogen loading and 60% of phosphorus loading comes from agricultural sources. In the nutrient loading of the Baltic Sea, Finnish agriculture accounts for about 3.8% of the phosphorus and 3.7% of the nitrogen loading. In the loading on the Archipelago Sea and coastal waters, the share of Finnish agriculture is much greater.

Nutrients leach to rivers, lakes and the sea from arable land, causing eutrophication. This can be seen from the turbidity of the water, the increase in the algae and the mass blooming of toxic blue-green algae in the summer. Although the emissions have been reduced, the eutrophication of waters continues and no improvement in the state of waters has been observed.

The use of pesticides began to increase in Finland towards the end of the 1990s after a long downward trend. The main reason for this was the wider use of no-tillage technology and the switch over to pesticides which need to be used in larger doses. On the European scale, however, the

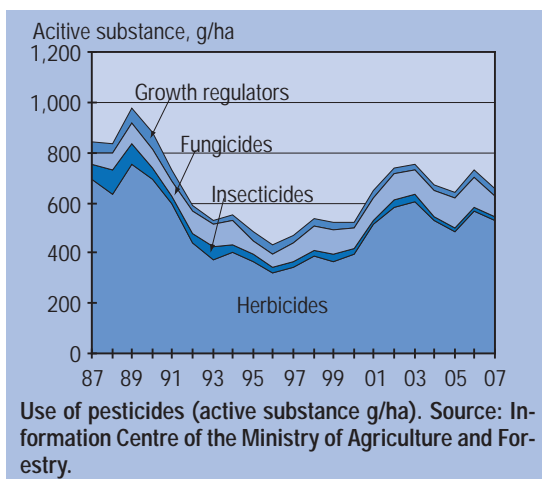
quantities of pesticides used in Finland are still quite moderate. Since 2004, some decrease has again been observed in the use of pesticides.

The load on waters from arable farming depends on the soil structure. Soil compaction reduces the permeability of the soil, which increases the risk of nutrient leaching and erosion. It also weakens the nutrient intake of plants, which lowers the utilisation rate of nutrients. Poor permeability may also increase the release of greenhouse gases.

### Emissions to the air

Climate change poses new challenges to Finnish agriculture as well. The measures to adapt to climate change are changing the relative profitability of different crops and production methods. Climate change is also influenced by agriculture. Greenhouse gas emissions from the agricultural sector represent about 9% of the total emissions in Finland. Since 1990, the emissions from agriculture have decreased by about a fifth as a result of the decrease in agricultural production. In relative terms, the emissions from agriculture have decreased even more since the total emissions from other sectors have grown. Despite the positive trend, agriculture will continue to be considered as a source of environmental loading in this respect as well.

Most of the greenhouse gas emissions from agriculture are due to the digestion of ruminant livestock, the decomposition of organic matter in the soil and the decomposition of manure. Minor emission sources include nitrogen fertilisation, the liming of arable lands and the use of fossil energy in agriculture. A common feature in all emissions from agriculture is that it is difficult to reduce them without directly influencing the volume of agricultural production. Through agri-environment measures, efforts are made to transfer peaty arable



lands from continuous cereal production to the cultivation of grasses on a long-term basis.

## 5.2. Agri-environment regulation

Environmental protection in the agricultural sector is influenced by both national and international environmental legislation. National regulation includes, among others, environmental permits and waste legislation. The EU environmental legislation related to agriculture includes the Natura 2000 network, the Nitrates Regulation issued under the Nitrates Directive and the Water Framework Directive. The Act on Water Resources Management adopted in 2004 implements the Water Framework Directive in Finland. Water protection is founded on the assessment of the status of waters, where the current status is compared with the natural state. Management plans and action programmes are drawn up for each water management area.

Decoupling support from production and the new single-payment scheme introduced the concept of cross-compliance, according to which agricultural land must be maintained in good agricultural and environmental condition.

Another significant regulatory instrument as regards farming environments is the agri-environment scheme. The main objective is to reduce the load on waters, and thus most of the support is directed to measures which contribute to water protection, while only about 2–3% of the support is used for measures which are primarily targeted at enhancing biodiversity. In spite of this, the support has greater impact on biodiversity, because certain measures that are primarily targeted at water protection, such as headlands, filter strips, and riparian zones, also contribute to biodiversity. Based on the MYTVAS studies on the impacts of agri-environment measures, however, the significance of headlands and filter strips established by means

of environmental support has been small compared to sloping ditch banks and other headlands in arable areas.

Agri-environment policy is faced with pressures due to changes in both the society and the environment. The agri-environment scheme and overall increase in environmental awareness have shaped the farmers' attitudes. Consumer awareness has grown, resulting in pressures on the EU to reform its agricultural policy to respond to the public opinion. On the global scale, meeting the obligations relating to the WTO binds the EU to review the support payments to agriculture.

## 5.3. Agri-environment payments in 2007–2013

The European Commission approved the Rural Development Programme for Mainland Finland 2007–2013 in August 2007. Rural development is funded from the European Agricultural Fund for Rural Development (EAFRD) and from national sources. The total public funding for the programme is about € 6.6 bill., of which a third comes from the EU. The programme has four axes, of which Axis 2 includes the agri-environment and natural handicap payments, non-productive investments and promoting the welfare of production animals. The funding for Axis 2 totals about € 2.3 bill.

During the Commission proceedings, certain measures proposed by Finland had to be excluded from the agri-environment scheme and the conditions for certain measures had to be revised. For example, the Commission did not approve the contracts concerning more efficient use of manure, but considered that in this matter the polluter pays principle must be applied, meaning that the farmer who produces the manure is responsible for any extra manure. However, the five-year contracts concerning more efficient utilisation of manure made in the programming period 2000–2006 remained in force and sup-

port may continue to be paid under these until the end of the contract period. The Finnish Minister of Agriculture and Forestry was not satisfied with the Commission decision but set up a working group to consider and prepare amendments to the programme regarding, among other things, the use of manure.

In 2008, three new contracts concerning special measures were included in the agri-environment scheme. These concern more efficient reduction in nutrient loading in support areas A and B in southern Finland, incorporation of liquid manure into the soil and long-term grass cultivation on peaty arable lands. In addition to these, a new special measure concerning nature management fields will be included in the programme in 2009, with the aim to reduce the negative impacts on biodiversity due to the abolition of compulsory set-aside.

### **Experiences on the programme from the first two growing seasons**

The measures of the third agri-environment scheme are quite similar to those of the two earlier schemes. The programme consists of the basic, additional and special measures. Compared to the previous programming period, there are some changes regarding, for example, the reference situation according to which the costs and income losses to be compensated for under the programme are calculated, the minimum requirements for the use of plant protection products and fertilisers, commitment periods and target groups for beneficiaries. Besides the basic measures, in support areas A and B one to four additional measures are required, while in support area C no additional measures are required and no more than one or two of these may be selected. The most popular additional measures have been more accurate nitrogen fertilisation of arable crops, the different forms of plant cover on arable land in winter and calculation of nu-

trient balances. The number of farms participating in the agri-environment scheme decreased slightly from the previous period, but the scheme still covers more than 95% of the arable area.

The establishment of headlands and filter strips under the basic agri-environment measures and especially the establishment of riparian zones as a special measure have, in addition to their positive impacts on waters, partly compensated for the negative trends in farming landscapes and biodiversity. In terms of biodiversity, it is positive that under the new programme a headland covered by grass may be left on the every side of the parcel instead those bordering on main ditches or water bodies.

Experts regard the special measure concerning traditional biotopes as the best measure for enhancing biodiversity. During the programming period 2007–2013, the Leader action groups may also apply for support for non-productive investments for the initial clearing of traditional biotopes and conclude contracts concerning their management as a special measure. This option is expected to extend regular management to new valuable traditional biotopes.

The study on the impacts of agri-environment measures, MYTVAS 2, again raised the question how efficient the environmental payments really are. The Minister of Agriculture and Forestry expressed her concern how to motivate the farmers to continue to implement the measures in the future if the desired environmental impacts cannot be shown. In the ex post evaluation of the second programming period, it was noted that the agri-environment payments had also failed in terms of the objectives set for it. However, these objectives were also considered somewhat unrealistic, especially if proportioned to the means employed. The high participation of farmers, about 95%, was considered a success. As a means for improving the agri-environment scheme, the evaluation proposed a basic programme intended for

all farmers, combined with more efficient measures customised for each farm. The National Audit Office of Finland presented its own view of the relatively small environmental impacts of the scheme and suggested in its report that e.g. the cultivation of steep fields located on the shores should be stopped.

### 5.4. Water protection

According to the Government Resolution on guidelines for water protection issued in November 2006, by 2015 nutrient loading from agriculture should be reduced by at least a third from the average in 2001–2005 (phosphorus by 3,000 t/a and nitrogen by about 30,000 t/a). These objectives continue the work done to reach the reduction target of 50% by 2005, which failed. The planning and implementation of water protection in agriculture needs to be improved further now that the Water Framework Directive sets even more detailed quality standards for specific water areas.

The objective of the Water Framework Directive is to prevent the decline in the status of surface waters and groundwater, guarantee a good status of waters by 2015, restrict the entry of harmful substances to waters, and reduce the damages caused by floods and drought. The Member States are obligated to ensure that these objec-

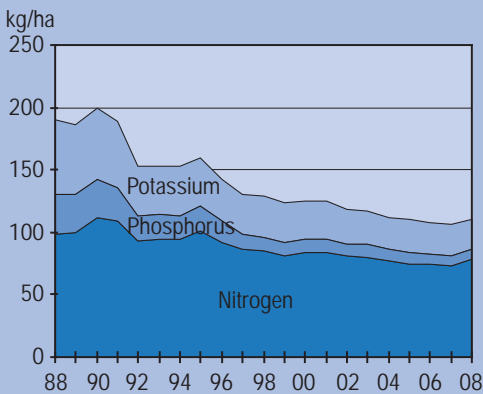
tives are met in each water area. In Finland, the implementation of the Directive has been started and the Act on Water Resources Management entered into force at the beginning of 2005. Finland is divided into eight water management areas and detailed water management plans will be prepared for each of these. The classifications of surface waters and groundwater were completed in 2008 and in the spring of 2009 they are circulated for comment to allow the citizens to give feedback on the planned actions. After that, the plans will be finalised and they will be implemented by the Regional Environment Centres.

#### What do the objectives mean for agriculture?

Nutrient loading from agriculture is non-point source loading from over a million agricultural parcels with highly varied characteristics. Besides the physical characteristics, such as slope and soil type, the water loading from parcels depends on the weather conditions and cultivation and tillage practices. In Finland, the calculation of loading is founded on a monitoring system established in 1957, which has since then been developed to make it better suited for the monitoring of nutrient loading. At present, the system covers 253 sites, 211 lakes and 5 artificial lakes, and it will be

further developed to take the ecological properties better into account, as set down in the Directive. According to the Directive, the assessment of the status of waters takes place by comparing the current status with an estimated natural state.

As fertilisation is one of the principal factors in nutrient loading, it is also used as an indicator of the loading potential. In 1995–2008, the fertiliser sales per hectare of cultivated land decreased from 92.3 kg to 78.7 kg for nitrogen and from 16.1 kg to 7.8 kg for phosphorus. This did not lead to a corresponding reduction in



Use of fertilizers (kg/ha). Source: Information Centre of the Ministry of Agriculture and Forestry.



the yields per hectare, which means that the nutrient balances improved. Thus, the trend is desirable considering both the efforts to reduce nutrient loading and the profitability of agriculture. However, we should bear in mind that the average per hectare may hide highly varied quantities of fertilisers, whose loading potential may be manifold in parcels which are susceptible to erosion. Certain risk areas load the waters much more than the average. In Finland, 90% of the loading occurs outside the growing season, which means that it is important to consider what happens between the harvesting and sowing. The development is also right in this respect, because the agri-environment scheme and legislation have increased plant cover in winter, which reduces erosion, and less manure is spread on the lands in the autumn.

Now that the agri-environment scheme as the most important environmental policy instrument for agriculture continues for the most part as before and water protection targets are set for specific water bodies, we can well expect that the current trend in the loading potential will not be sufficient to reach a good status in water areas where the loading from agriculture is the strongest by 2015. Especially as regards phosphorus, the soil reacts very slowly to changes and even significant reductions in the annual nutrient balance are not immediately reflected in the loading. The growing unit size and concentration of livestock production make it difficult to meet the objectives in certain regions. Transporting manure is costly and the decisions on spreading are often made based on the lowest price or the need for nitrogen, which means that phosphorus levels may be too high for the plants and the loading potential increases. The pressure to improve the profitability of agriculture pushes towards more efficient production and larger units. A new threat to water quality is climate change, which is expected to increase precipitation especially outside the growing season.

## **5.5. Main topics in 2008 and future perspectives**

### **Natural values trading in agriculture**

Natural values trading by competitive tendering (see pp. 73–74) has been suggested as an alternative to the present agri-environment scheme or to supplement it. Through natural values trading the agricultural operators themselves would propose to undertake measures to promote water protection, biodiversity or other protection and conservation of agricultural environments and present a bid for the implementation of these measures to the competent environmental authority. The authority would process the bid and accept or reject it based on commonly approved criteria. A similar system is already being applied in the environmental protection in forestry, and in some countries also in agriculture (e.g. USA).

### **Manure and its processing**

Now that the Commission has assumed a negative position on the continuation of the manure spreading contracts concluded in the previous programming period, solutions to the manure problem have even been sought from the possibility to apply a similar mechanism for the treatment of manure as is being applied in carbon dioxide emissions trading. In manure trading, quotas would be established for operators who produce and use manure (arable farming and other users of manure), and manure could be transferred from one place to another based on these. LSO Foods Oy has already started to coordinate the production of manure and its use on crop farms. Due to stricter environmental regulations, manure has become the most restrictive factor for the growth in the unit size of many farms, which is why other solutions for using manure are being searched for from biogas production or

in plaster, separation, burning, etc. MTT Agrifood Research Finland has launched a manure research programme financed by the Ministry of Agriculture and Forestry to find solutions to these problems.

### **Cost-efficient emissions reduction in the Baltic Sea**

Each year the blooming of blue-green algae makes headlines during the best swimming season. Based on the most recent research results, the most efficient way of improving the state of the Gulf of Finland and the Finnish Archipelago would be to improve the purification of the wastewater discharges in the major emissions sources, such as St. Petersburg and cities in Poland. Investments in the treatment of the unpurified wastewaters from St. Petersburg would also be more cost-efficient than reducing the loading from Finnish agriculture in the coastal areas of the Gulf of Finland. However, local cuts in the load to the Gulf of Finland would be more rapidly reflected in the sea water quality than the impacts of the cuts in the catchment area of the Main Basin of the Baltic Sea. Thus, cutting the emissions in Finland is important especially for our own coastal waters. External nutrient loading to the Gulf of Finland relative to the surface area is two to three times the average loading of the Baltic Sea. A pre-study on the application of the so-called Stern model to managing the loading to the Baltic Sea was completed at MTT Agrifood Research Finland.

### **Biodiversity on farmland**

Due to the abolition of compulsory set-aside, a proposal for a new measure was prepared during 2008 to promote biodiversity under the agri-environment scheme. The first contracts concerning these so-called nature management fields will be concluded in the spring of 2009.

### **Radical changes in cultivation practices and experimental project TEHO**

Certain measures of the agri-environment scheme have been proven inefficient in various surveys and assessments, mainly due to inappropriate targeting and, in some cases, insufficient implementation. The Ministry of the Environment and Ministry of Agriculture and Forestry granted a three-year appropriation for improving the efficiency of the agri-environment measures to the Southwest Finland Environment Centre and Satakunta Farmers' Union of the Central Union of Agricultural Producers and Forest Owners MTK. The idea is to test the intensification of certain measures included in the current scheme as well as proposed measures which were excluded from the scheme. The working methods of this TEHO project consist of advice and planning relating to innovative measures based on farm- and parcel-specific needs as well as testing, implementation and monitoring of the impacts of the measures. The project takes advantage of the ideas and impact assessment methods produced by the most recent agricultural and environmental research.

### **Work group report on reducing environmental load from agriculture**

A work group chaired by Permanent Secretary of State Raimo Sailas was appointed by the Ministry of Agriculture and Forestry to assess the current environmental impacts of agriculture and environmental management. The work group considered the monitoring of nutrient levels as the main instrument for controlling nutrient loading on the farm level. Other measures proposed by the group were additional inputs in research on further processing and productisation of manure, use of natural values trading in agri-environmental policy through e.g. competitive bidding, and revision of the agri-environment scheme to take better account of sensitive and critical areas.

# Competitive bidding in producing environmental commodities

*Antti Iho*

Agricultural production creates various kinds of environmental commodities and damages. For more than ten years the agri-environment payments have encouraged farmers to increase the positive environmental impacts of farming, such as maintaining heritage biotopes or enhancing biodiversity. Efforts have also been made to reduce the negative impacts, especially nutrient loading of waters.

The role of environmental payments in the income formation of agriculture is notable, but the desired water protection impacts have not been achieved. The report of the National Audit Office of Finland (175/2008) criticizes the wide coverage of environmental payments and their poor performance as steering instruments. More accurate targeting of the payments is considered indispensable to reach the environmental objectives. The final report of the work group on agricultural policy chaired by Permanent Secretary of State Raimo Sailas proposes that research should be done on the applicability of competitive bidding in agri-environmental policy guidance.

## Competitive bidding procedure

By means of competitive bidding, environmental protection measures can be targeted more accurately and according to the real need than when using flat-rate payment. The leading idea of the bidding procedure is simple. The environmental authority defines an index that describes, as accurately as possible, the environmental property to be regulated, for example, nutrient runoff. A value based on this index can be given to each farm or parcel included in the bidding procedure. A high index value shows that the parcel in question is a particularly important producer of the environmental commodity. The authority also defines the actions to be included in the bidding competition. The bid submitted by the farmer states that the farmer is willing to undertake a certain measure on a certain parcel at a certain price. The points that the bid receives are determined by the ratio of the environmental index and the price given in the bid. The authority launches the implementation of the measures in the order given by the points. Measures are approved for either as long as allowed by the budget or until the calculated target level for the environmental impact has been reached. Thus the number of the approved measures depends either on the amount of money available or the level of ambition of the environmental objective.

This can be illustrated by a simple model calculation. Let us assume that the bidding competition comprises an arable area of 10,000 ha. The environmental authority wishes to reduce the leaching of particle-bound phosphorus by means of a budget of € 2,000. The susceptibility to erosion defines the environmental index, which here for the sake of simplicity is the same as the average slope of an individual parcel.

The measure selected for bidding by the authority is plant cover round the year. In

Price (€)	150	40	80	120	140
Index	8	2	4	5.5	6
Points	0.053	0.050	0.050	0.046	0.043
Total price (€)	150	190	270	390	530

this example the bid includes the price and site, because there is only one measure to be selected. After the competition the

authority has received 100 bids, each concerning an individual parcel of 1 ha, of which 20 are selected. In the bid with the highest points the price is € 150 for a parcel with a slope of 8%. The five bids with the highest points are presented in the table.

The top five in the imaginary bidding competition presented in the table reflect the factors which together influence the targeting of environmental protection measures: 1) significance in terms of environmental quality, 2) costs of protection and 3) willingness to protect the environment. The sites that are the most important in terms of the desired environmental impact are likely to be selected through the competitive bidding. Of two bids with the same price the bid selected is that with the greatest environmental impact. If the bidders are assumed to act independent of each other, the real costs of the protection are directly reflected in the price. This means that successful competitive bidding is a cost-efficient way of targeting state funds to environmental protection.

### **Practical challenges in competitive bidding**

The index created by the environmental authority and publicized before the submission of the bids is decisive as regards efficiency. If the index does not reflect the desired environmental impact, the measures are not correctly weighted according to their environmental effects. The practical challenges in defining the index must be taken into account when selecting the indicators for environmental impact. This is why in international programmes competitive bidding has often been applied in case of clear and unambiguous environmental commodities mainly derived from the surface area or other factors that are easy to measure.

Competitive bidding does not influence farmers' incomes in the same way as the traditional flat-rate payments. Instead, it allocates the payments to the most favourable and efficient farms in terms of the environment. The support element would no longer exist on farms and sites for which no bids are submitted or approved. In theory the amounts involved in the approved bids are very close to the costs of protection. This, however, is based on the assumption that the bids are fully independent. In the programmes that are under way there are already indications that those who submit bids tend to learn from the earlier bids, which is why it is difficult to maintain the efficiency of the competition model over several programme periods. Also, is it realistic to expect that the bids will only be known by each farmer? Agreeing on too high bids across the line might be tempting, especially as the farmers are well organised. On the other hand, individual farmers may be tempted to ensure the approval of their bids by offering a slightly lower price.

Competitive bidding must be assessed as an economic instrument that may target protection measures to the desired sites in a cost-efficient way. If an index designed for the bidding were available for other uses as well, it might be possible to target the measures also without the competition procedure as the measures as such could be conditioned on a certain parcel or special characteristic on the farm level. If we wish to incorporate competitive bidding in the agri-environmental system, its functioning and efficiency should be tested first. In theory the advantages are easy to show, but will these be realised in the domestic operating environment? Can environmental impacts be achieved at a lower total cost than through the traditional methods? The final report of the work group chaired by Raimo Sailas suggests that a pilot project be launched to find answers to these questions. Based on the results of such project one could assess whether competitive bidding can be applied in the context of the Finnish agri-environment scheme and what are the tasks where it would be the most efficient.

## 6. RURAL AND REGIONAL POLICY

The core objective of regional policy is to ensure a balanced regional development. Rural policy, in turn, aims to improve the conditions for living and well-being in the countryside in particular. The Finnish countryside and regions are developed under various programmes implemented on different administrative levels by means of co-funding from the EU or national funding. National rural policy has evolved with the special aim of highlighting the rural perspective in all choices and decisions in the society which have either direct or indirect impacts on the countryside. National rural policy started to take shape during the 1980s in a situation where the positive impacts of sectoral policies on the countryside were diminishing. There was an obvious threat that the rural perspective was becoming overshadowed by other issues. The main instrument of the national rural policy is the Rural Policy Programme, which compiles and targets the actions of the public and private sectors and the NGOs to promote rural development.

### 6.1. Rural Policy Programme and its role in Finnish rural policy

The most important strategic instrument for rural development in Finland is the Rural Policy Programme. The drafting of the most recent programme, the fifth in a row, dominated the rural policy agenda in 2008. The Rural Policy Programme for 2009–2013 is entitled *Countryside for Vigorous Finland*. It is primarily the action programme of the Rural Policy Committee, which is mainly responsible for its preparation. The programme comprises a broad spectrum of strategies and actions concerning the different administrative sectors and other actors outside the public sector. The objective of the Rural Policy

Programme is to ensure that the countryside stays a good place to work and live in, while ensuring that the resources and opportunities of the countryside support the well-being and competitiveness of the whole country even better than before.

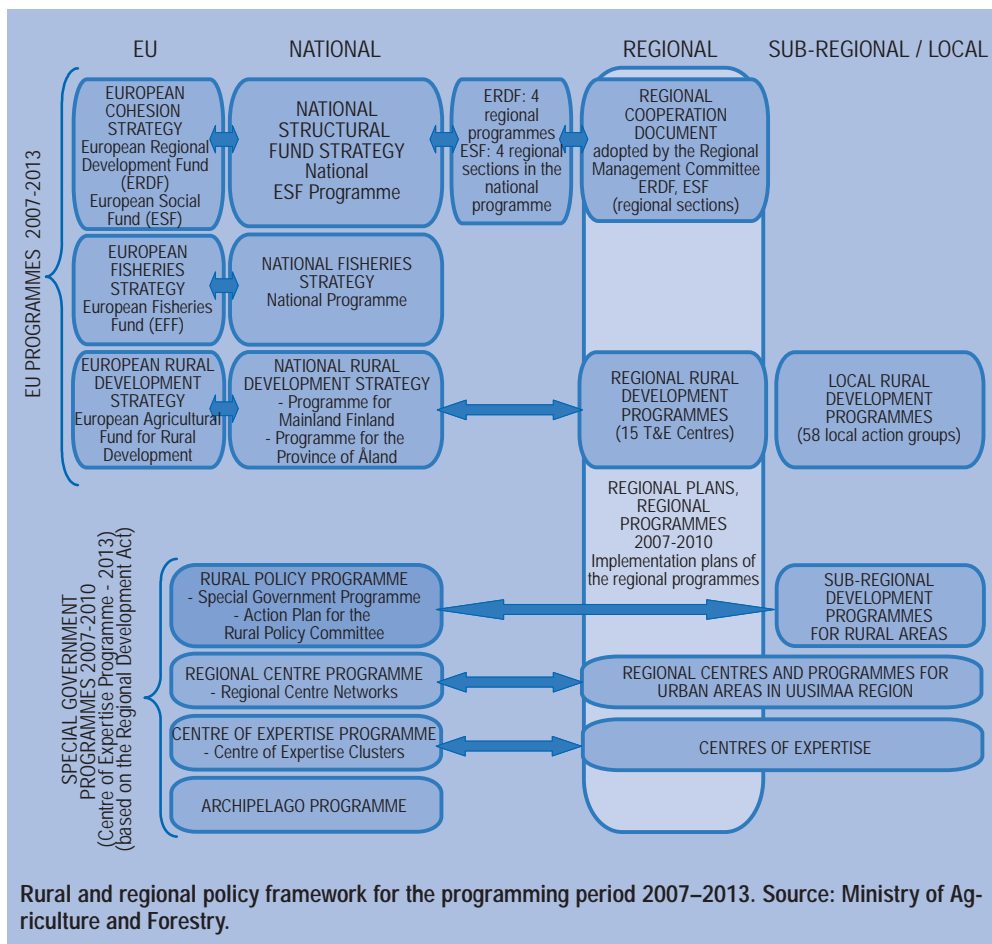
The Rural Policy Committee is a co-operative body appointed by the Finnish Government, comprised of representatives of seven ministries and almost 20 other organisations. At the moment the Committee is chaired by the Permanent Secretary of the Ministry of Agriculture and Forestry, and the leadership of the operations also takes place at the same ministry. The task of the Committee is to coordinate rural development actions and promote the efficient utilisation of resources directed to the rural areas. Cooperative arrangements are applied to support national, regional and local rural development work and to promote the opportunities to take advantage of the EU co-funded programmes and other rural development tools. The term of the present Committee is from 17 July 2008 until 16 July 2013. It continues the work of the previous Rural Policy Committees, which were appointed by the Ministry of the Interior and the Ministry of Agriculture and Forestry.

The preparation of the Rural Policy Programme coincided with the drafting of the Government Report on Rural Policy for the Finnish Parliament. Both documents share the same strategic outlines, but the programme is more concrete as well as more comprehensive than the Government report. The concrete aspects of the programme include the shorter time span (for the report 2009–2020) and a large number of proposals for measures. The more comprehensive nature is due to the better coverage of all actors involved. Whilst the report is mainly concerned with the central government actors, the programme is also concerned with other

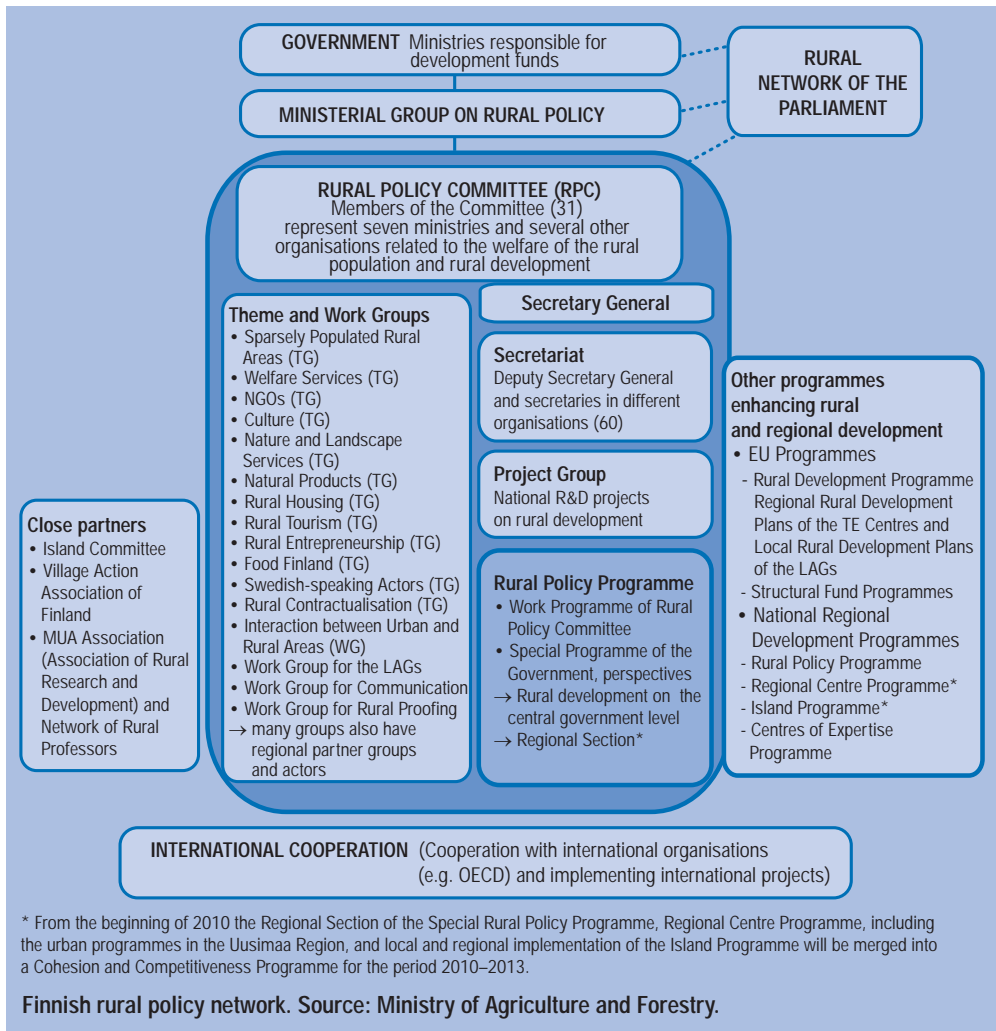
levels of public administration as well as with the private and third sector. The Special Rural Policy Programme is one of the four special programmes of the Government under the Regional Development Act. The special programme defines the Government's rural policy outlines and decisions on development measures for a period of four years (the current period is 2007–2010). Through the Special Rural Policy Programme the Government aims to respond to the main rural development policy challenges in the near future. A responsible ministry or State authority has been assigned for each measure, which also provides the framework for the follow-up and evaluation of the programme.

The roles of the Rural Policy Pro-

gramme and Rural Policy Committee in the field of Finnish rural policy are easy to understand through the concepts of narrow and broad rural policy. Broad rural policy comprises the political outlines, decisions and allocation of resources by different administrative sectors which may have any kinds of impacts on the preconditions for rural development. Narrow rural policy, in turn, refers to actions whose specific and defined purposes are to promote rural development measures, such as the Rural Development Programme for Mainland Finland and the Structural Fund Programmes do. The Rural Policy Programme brings together actors involved in the broad and narrow rural policy and provides a comprehensive picture of the rural development



Rural and regional policy framework for the programming period 2007–2013. Source: Ministry of Agriculture and Forestry.



needs and the available means.

The Rural Policy Programme represents the so-called new rural policy paradigm. According to this, a core principle of the rural policy is that it is area-based: the policy is targeted at the countryside and the whole broad spectrum of different actors. The aim is to improve the viability and functioning of the rural areas starting from their own needs, resources and perspectives. The new paradigm is characterised by administration on several levels, where the top-down steering by the central Government has been replaced by interaction among different administrative

levels, NGOs and the private sector. The main difference compared to the “old” rural policy thinking is that agriculture is no longer considered to have a central role in securing the well-being of the countryside, or this role is at least questioned.

## 6.2. Content of the Rural Policy Programme

The content of the rural policy programme is highly diversified, starting with a comprehensive description of the state of the Finnish countryside and development chal-

lenges. The content of the programme is best understood through the strategic outlines and related proposals for development measures. The programme consists of 15 strategic outlines divided by themes, with more than 140 proposals for measures. The strategic outlines are in line with those of the Government Report on Rural Policy.

Compared to the earlier Rural Policy Programmes, the new programme contains some new elements and more weight has been assigned to certain issues. More emphasis is placed on the challenges

sparsely populated rural areas are facing, on reinforcing the preconditions for civic action as well as on the relationship between municipalities and villages. Labour, nature and landscape services, mining industry, climate change, bioenergy, increase in international activities and reinforcing governance are other important elements.

The programme aims to improve the living conditions in the *sparsely populated rural areas*. To achieve balanced regional development and equality among the citizens, a larger share of the development measures need to be directed to the sparsely popu-

### Strategic outlines of the Rural Policy Programme 2009–2013

#### *Countryside as an operating and residential environment*

1. **Sparsely populated rural areas:** Preconditions for living are improved.
2. **Countryside as residential environment:** Countryside is developed as a diversified area of residence where everyday life runs smoothly.
3. **Rural services:** Flexible ways of service provision are developed, taking account of the special conditions in the countryside.
4. **Accessibility and telecommunications:** Accessibility of the countryside and functioning and equal telecommunications are ensured.
5. **Rural nature and environment:** Countryside is developed in an ecologically sustainable manner, taking account of the nature and environment.

#### *Rural employment and livelihoods*

6. **Human capital and innovation systems:** Know-how in the countryside is utilised and enhanced and innovation systems are developed.
7. **Development of working life:** Labour policy is developed to respond to the shortage of labour and special needs of the countryside. Work-related immigration is promoted.
8. **Livelihoods and enterprise:** Diversification and development of rural livelihoods and enterprises continues.
9. **Farms and ensuring food supply:** Farms are developed as specialising or expanding units, or as units engaged in diversified business and other operations. Emergency supply of food is ensured through agricultural and industrial policy measures.
10. **Forests and wood:** Forests and wood are utilised more than before as sources of employment and livelihood.
11. **Energy production and ensuring energy supply:** Distributed energy production founded on local and renewable energy sources is utilised in the rural areas, thus contributing to ensuring the energy supply in the whole country.

#### *Developing the rural policy system*

12. **Finnish rural policy system and its development:** Development of the national rural policy system continues and the governance dimension of rural policy is reinforced at all levels and administrative sectors which have impacts on the countryside.
13. **Civic action and NGOs:** The preconditions for civic action and role of NGOs in the society are reinforced at all levels.
14. **Local development:** Tools for local development are significantly reinforced.

#### *Rural policy in the international context*

15. **European rural policy:** Finland is active in constructing the European rural policy.



lated rural areas. Highlighting the sparsely populated areas as a special concern and target for development is very natural.

The programme stresses the strengths and opportunities of the sparsely populated areas, such as strong social capital, strong culture in secondary residence, active development communities, positive atmosphere for enterprise and innovation, opportunities for new service enterprises focussing on the need of the ageing population and increased part-time residence, as well as intangible commodities relating to nature and living environment and renewable and unrenewable natural resources. Primarily the programme is concerned with is proper recognition of the special conditions of the sparsely populated rural areas. In line with the new rural policy paradigm, the sparsely populated areas call for a development policy that is founded on their special characteristics.

According to the strategic outline concerning *civic action and NGOs*, the preconditions and role of civic action in the society are reinforced at all levels of governance by developing new forms of cooperation and distribution of labour between the public authorities and active citizens. This is founded on the growing emphasis on the tasks and role of the third sector due to the structural changes in the society.

Structural change in municipalities, in turn, highlights the *relationship between the municipality and villages*. As a result of the mergers of municipalities, the rural areas of large and medium-sized towns will also be growing. This means that in the future, urban-rural interaction will to a greater extent mean interaction within a single municipality. Because the municipalities are essential actors in rural development and local development plays a central role in the rural areas, the contribution of municipalities to preserving the viability of villages is vital.

*Labour* is one of the cornerstones of the survival and viability of regions. In

the Rural Policy Programme rural labour is considered, on the one hand, from the perspective of expertise and innovation systems and, on the other, in terms of developing the working life and supply of labour. A contribution from the labour policy is also needed to see to the special needs of the rural areas. Work to this end is being done by promoting work-related immigration and adaptation of immigrants to the local communities in the countryside. Work-related immigration occupies a central position in the programme, which can be considered justified in view of the ageing population and growing numbers of pensioners and the consequent shortage of labour. The possibilities to create employment in the rural areas through teleworking are also examined, even if so far the hopes directed to this have not been fully realised.

The programme points out that, as regards the mitigation of the impacts of *climate change*, the rural areas should be seen as part of the solution, not as the problem. The opportunities and means of the countryside in our joint climate effort include local energy production (wood, biomass, air and ground heat, waste) and nutrition as well as solutions to produce these locally. In the rural areas attention also needs to be directed to improving the access to services through innovative and environmental friendly means, such as internet services, videophones and combined services.

*Bioenergy* is related to mitigating climate change, securing energy supply and opportunities of the countryside in energy production. The Rural Policy Programme shows that in the future bioenergy production should develop into a significant industry for the rural areas. The utilisation of renewable energy sources aims to create an even more sustainable, secure and competitive energy supply.

*Nature and landscape services and nature and landscape management works* refer to services related to the management

and use of nature and cultural landscapes. These are important in terms of the sites designated for biodiversity and landscape management, care for cultural sites, recreational use of nature and nature tourism. Nature and landscape management services can be divided into nature management services, landscape management services and other services related to the use of nature. Nature and landscape services are a new and rapidly developing field of business in the countryside. There are many reasons for this. People appreciate a well-managed environment. There are also national and international objectives relating to biodiversity, landscape management and water protection that obligate to carry out nature and landscape management works. Besides improving the state of nature and the environment, these enhance the opportunities for recreational ac-

tivities of permanent and holiday residents and the rural amenities in general. The Rural Policy Programme aims to increase the demand for and supply of nature and landscape services through new kinds of public steering and training and allocation of environmental payments.

One particular topic raised in the programme is *mining industry*. This is no surprise as the significance of mining has increased considerably in the past few years. Due to the economic recession, however, very recently investments in mining have also started to decrease. In Finland there are mineral-rich areas especially in Lapland, North Karelia and Kainuu, where the socioeconomic challenges are greater than elsewhere. Mining is important especially for the regional and local development and in terms of employment. Most of the mining activities are located in rural heartland

#### Main rural policy actors in the three sectors of the society at different levels.

Levels	Enterprises	Administration	NGOs
village/ municipality	enterprises, farms, entrepreneur and producer organisations	municipalities	village associations and committees
sub- regional unit	micro-clusters, district business service points	municipal cooperation organisations / business corporations	action groups
region	regional entrepreneur organisations, unions of agricultural producers, Chambers of Commerce, ProAgria/Rural Women's Advisory Organisation	TE Centre, Environment Centre, Regional Council, Rural Section of the Regional Management Committee, public authorities	regional organisation of local developers / regional village associations / some regional organisations
nation	Central Union of Agricultural Producers and Forest Owners MTK, ProAgria, Federation of Finnish Enterprises, Central Chamber of Commerce, Confederation of Finnish Industries EK, trade organisations	Rural Policy Committee YTR, ministries, Government, Parliament, Agency for Rural Affairs	Village Action Association of Finland SYTY, New Rural Policy Society, Rural Women's Advisory Organisation, 4H Association
European Union	Committee of Professional Agricultural Organisations COPA, European entrepreneur organisations	EU institutions	European Rural Alliance ERA

Source: Rural Policy Programme 2009–2013. Draft of 21 January 2009.

areas and sparsely populated rural areas, which means that they are highly significant for reducing regional disparities. It is important to reinforce the knowledge base related to mining on all levels. The infrastructure and logistics of mining should be designed and constructed so that they also serve the areas after the mining operations have stopped. The acceptance of the projects, both locally and in the society as a whole, is vital to ensure sustainable development in terms of both rural and regional policy

*International activity and interaction* have grown in importance in rural policy as well. The EU programmes and Community initiatives, in particular, have highlighted the international aspects. According to the Rural Policy Programme, the best route to internationalisation is that the local actors together with regional and national developers learn from the best practices applied in other countries and test their adaptability to the local conditions in Finland. On the other hand, Finnish rural policy has a lot to give to the other countries, and there is already a wide interest in our ways of doing things. It is to be expected that Finnish rural development continues to attract wide international attention, which is why work is also needed to promote the internationalisation of our rural research.

In the new Rural Policy Programme, *governance* is dealt with more thoroughly than before. In this context, difference is made between the three sectors of the society – enterprises, administration and NGOs – on the one hand, and between areas of different scales from villages all the way to the EU, on the other. All this means that we can well talk about multi-level governance. One strategic outline of the Rural Policy Programme is to continue the development of the national rural policy system and reinforce the governance dimension of the rural policy.

### **6.3. Rural Policy Programme and the current state and future of the rural areas**

The success of the Rural Policy Programme depends a great deal on how well the problems in the current operating environment have been recognised and how accurately the main factors of change in the future have been foreseen. The countryside is by no means independent of the rest of the society, which means that rural development is also influenced by the global trends and agents of change.

Obviously, population trends are decisive for preserving the viability of the countryside. In light of the current information the situation is the best in urban-adjacent rural areas, where the population is growing even more than in towns and cities. In contrast, the rural heartland areas and especially the sparsely populated rural areas continue to lose population. What is particularly alarming is that most of those who move out are young and better educated. In the sparsely populated and rural heartland areas the demographic dependency ratio, i.e. number of persons aged under 15 and over 64 per one hundred 15 to 64-year-olds (in principle the working-age population) is much weaker than in urban areas and urban-adjacent rural areas. The distorted gender structure is another problem: in sparsely populated areas and rural heartland areas there are more men than women, which means that the imbalance will be getting worse.

There are also differences in the economic development of the different types of rural areas. In the sparsely populated rural areas the income level is only about 75% of the average in the whole country. In the rural heartland areas it is only a little higher, 85% of the national average. The lower economic welfare of the sparsely populated and rural heartland areas is an outcome of several factors, primarily linked to demographic and labour policy trends.

This is clearly reflected in social transfers, which in the sparsely populated rural areas constitute about 30% of the total income (22% in urban and 21% in urban-adjacent rural areas). The main recipients of social transfers in the sparsely populated rural areas are the unemployed (the rate of unemployment has traditionally been the highest) and pensioners.

The weak economic development of the sparsely populated rural areas is partly due to the slower change in the structure of industries. The increase in the number of jobs in services and manufacturing industry has not been enough to substitute for the jobs lost in primary production. This has been a problem especially in municipalities of the sparsely populated and rural heartland areas, where agriculture and forestry have traditionally been significant employers. The economic development of sparsely populated areas is further weakened by the fact that even if in, for example, 2001–2006 the total number of enterprises increased by 7%, the number of people employed by the enterprises fell by 2%. This is because in the sparsely populated areas the number of jobs has decreased the most in enterprises that employ more than 50 people.

The investigation of the current state of the operating environment especially in the sparsely populated rural areas does not give much hope as regards their future development prospects. Instead, the analysis of the future factors of change in the operating environment opens up significant opportunities also for the rural areas and their actors. It should be born in mind, however, that most of the change factors contain both a threat and an opportunity – it is up to the policy to ensure that the opportunities are realised and the threats are avoided. The analysis of the future factors of change in the operating environment reveals the challenges which should also be addressed in the strategic outlines of the Rural Policy Programme and to which the proposed measures should respond.

From the policy and governance perspective the main factors of change are the deepening globalisation and localisation, lowering of frontiers, even stronger bottom-up approach and improved efficiency in the administrative and service structures. As regards the rural areas, all these contain various kinds of positive elements: increased internationalisation (growing interest in the Finnish countryside, not only among the Finns), more services linked to products (services founded on the utilisation of information networks can be located in the countryside) and civic action gains in importance (rural people are more strongly than before involved in making decisions on the development of their home district).

From the economic perspective the main factors of change include the growth and internationalisation of services (which creates new business opportunities in the countryside), growing interest in the intangible aspects of life (shift from physical products to search for experiences favours rural tourism), changes in types of work (because of short-term and part-time employment, teleworking, mobile work, information work and other varied forms of employment the countryside becomes a feasible place to live and work for growing numbers of people) and increase in work-related immigration (supply of labour especially for primary production).

The most significant social factors of change are ageing (countryside offers a pleasant living environment for the elderly, provided that access to services is ensured), growing sense of insecurity (in the countryside one may continue to feel safe), increased fragmentation of the society (rural areas allow individualistic lifestyle choices), urbanisation and migration to urban-adjacent rural areas (reinforces the part of the countryside that is already doing quite well), and changes in the relationship with nature (may lead to alienation from the rural life, but may also create nostalgic

feelings towards the countryside).

Technological factors of change are the shift of services to networks (transfer of services to information networks improves the access to these and makes living in the countryside more attractive in this respect, information networks contribute to the creation of new kinds of community spirit also in the countryside), development of diversified technologies (technologies allow to carry out more and more tasks needed by the people independent of place and time, which reduces the cost and inconvenience due to living in the countryside) as well as development of eco-efficient energy production (distributed renewable energy production succeeds the best in the countryside where there is enough room for this kind energy production).

Ecological factors of change include the growing shortage of resources (more abundant supply of many resources in the rural areas), growing significance of sustainable development (the countryside is by means a synonym for sustainable development, but living in the rural areas can be organised so that the ecological burden caused by human activity does not exceed the carrying capacity of the ecosystem), as well as progress of climate change (rural areas are part of the solution in the efforts to mitigate the impacts of climate change: production of various kinds of renewable energy and use of wood in building).

The factors of change identified in the analysis of the future operating environment are clearly reflected in the strategic outlines of the Rural Policy Programme or in the description of their content. The programme has succeeded very well in capturing the main challenges of the countryside in the near future (climate change, energy questions, changes in the structure of livelihoods) and targeted measures to address these. How successful the content

of the programme is can be considered from the perspective of the effectiveness and feasibility of the measures. As regards effectiveness it is important to assess how broadly the strategic outlines and related proposals for measures cover the whole field of rural development. This is why it is very important that there is now more depth in the description of the different types of rural areas than before, despite the fact that in most of the strategic outlines and measures the special focus is on sparsely populated rural areas.

In terms of feasibility it is important to assess whether the proposed measures are close enough to practice and are thus easy to implement. The number of measures under the strategic outlines is considerable, but this is also one reason why the measures are very concrete. The strategic outlines group the proposed measures into logical and clearly understandable entities so that the programme is much more than a list of individual development proposals which may seem quite isolated.

All this means that the Rural Policy Programme, strongly founded on a certain perception of rural development, sets down the relevant strategic outlines and proposes measures related to these. The funds governed and allocated by the Rural Policy Committee itself are quite small. The Rural Policy Programme is primarily a tool for information guidance and reallocation of the existing funds. The commitment of actors to programme implementation is very important. The implementation of the programme by various actors is monitored annually.

To sum up, we can say that the Rural Policy Programme aims to provide a common understanding for both narrow and broad rural policy actors and the kinds of objectives and actions to which the rural development funds should be allocated.

## Green Care: Well-being to people, opportunities to rural enterprises

*Katriina Soini, Anja Yli-Viikari, Taina Lilja and Leena Rantamäki-Lahtinen*

Green Care refers to the utilisation of the rural environment and especially the abundant resources of farms, including the animals, plants, gardens, landscapes, social environment and everyday routines, for producing various kinds of social, health and education services. The activities may vary from intensive riding or horticultural therapy to working on the farm or simply enjoying the rural environment.

The core idea of Green Care is not new, because the therapeutic properties of nature have been known for a long time. People have used to turn closer to the nature when they have wished to detach themselves from work and the urban environment or when they have needed rehabilitation after social or health problems. Farms have offered work and shelter for people suffering from different types of exclusion. Many institutes in the social sector, such as prisons and homes for the elderly or children, have been connected to farms and farm work has been part of the everyday life of their residents. What is new in Green Care is that the positive impact of the farm and rural environment on well-being of the humans is better acknowledged and it is seen as a resource in providing social and health services the demand of which is increasing.

Green Care can be considered as a social innovation, since it offers a new perspective to arranging social and health services. In many cases, the activities have emerged from 'bottom-up', from the initiatives of entrepreneurs and customers. The phenomenon is growing simultaneously in several European countries, where agriculture is faced with rapid structural changes and new solutions are searched for in the social and health sectors. For farms Green Care gives an opportunity to take advantage of the farm environment and know-how in a completely new way. For rural residents Green Care means social and health services, as well as new employment opportunities in the neighbourhood region. The impacts on the viability of the rural areas will be multiplied as the social and health care enterprises use the local and regional services. From the perspective of the society Green Care increases the range of services available in the social and health sectors and the opportunities to select the best type of care for each specific case.

### Green Care in Finland

The first Finnish study on Green Care farms was conducted in cooperation between the MTT and Finland Futures Research Centre.<sup>1</sup> The study focused on the opportunities and bottlenecks of Green Care from the perspective of the entrepreneurs. The number of enterprises depends on how the Green Care services are defined, but it has been estimated that there are currently about 300 Green Care farms in Finland. Most of the services relate to supporting the physical, mental and social growth of children in holiday homes, foster homes, professional family homes or child protection institutions. There are also day-care centres as well as camp and nature school activities, while various kinds of housing services and assisted housing similar to institutional care are offered for the elderly. Housing services are offered for the mentally disabled and people recovering from mental health problems or those with substance abuse problems. Some of the horse husbandry enterprises specialise in riding therapy and sociopedagogical equine activities. Green Care entrepreneurship is usually quite small in scale. On aver-

age the labour force employed in them corresponds to 1.7 man-years and in only every fourth enterprises the annual turnover of the care services was more than 50,000 euros. However, the small-scale and home-like environment can also be considered one of the competitive advantages in this highly institutionalised sector.

Green Care services may be organised in a number of ways. The enterprise may operate as a secondary occupation to farming or as an independent business on the farm. The care business may be full-time activity, which means that agriculture is practiced only for the needs of the clients. Care services may also be provided in cooperation between an agricultural entrepreneur and social and health service, where the farm provides the physical setting for the activity, meals and housing services, while an expert or entrepreneur in the social sector is responsible for the social and health-related activities. Green Care enterprises need not be located on farms but, for example, old village schools may be suitable for this purpose. What is important is to recognise the opportunities offered by the rural environment and, for example, local farms in organising care and rehabilitation activities.

### **Challenges in the Green Care business**

Although the leading idea of Green Care activities is basically good, its evolution as a form of care enterprise involves various kinds of challenges. Besides genuine interest in working with people and strong commitment to working even round the clocked, Green Care requires a variety of business management skills and good knowledge of the social and health service systems. Legislation and rules concerning the buildings are a major issue, which need to be understood thoroughly by the entrepreneurs.

The study showed that the entrepreneurs do not always appreciate the value added that the rural environment brings to the business activity as much as they could, or know how to utilise it. So far there is very little cooperation between the rural enterprises providing care services. It has been difficult to invest in business development and marketing because the expectations and wishes of the clients are not known. One of the obstacles to the growth in the demand is that the clients lack the vision of what they can wish for and expect as regards Green Care services.

### **Future of Green Care**

In the organisation of the social and health care services in Finland there are certain gaps which the rural Green Care services may help to fill in. The greatest potential seems to lie in various kinds of social rehabilitation and preventive activities, for which daily activities on farms may be a good solution, as the examples from the Netherlands show.

The demand for private social and health services is growing rapidly in Finland and in recent years it has attracted numerous new entrepreneurs. The development of Green Care as part of the rural care entrepreneurship requires networking of the services, creating smoother and more flexible practices, and removing the institutional obstacles between the enterprises, social and health authorities and municipal decision-makers. In support of the decision-making more knowledge is needed on the effects of the rural nature, animals and plants and the everyday routines of farms on people's physical, mental and social well-being as well as on the cost-efficiency of Green Care services.

<sup>1</sup> Yli-Viikari, A., Lijja, T., Heikkilä, K., Kirveennummi, A., Kivinen, T., Partanen, U., Rantamäki-Lahtinen, L., Soini, K. 2009. *Green Care – terveyttä ja hyvinvointia maaseutuympäristöstä (Green Care – health and well-being from rural environment)*. Agrifood Research Reports 141. MTT, Jokioinen.

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**Producer price index and index of purchase prices of means of agricultural production (2000=100).<sup>1</sup>**

	Producer price index of agriculture <sup>2</sup>	The index of purchase prices of means agricultural production			
		Total index	Goods and services	Investments	Buildings
2008	122.1 <sup>e</sup>	139.5	141.8	134.3	136.6
2007	109.3	122.1	119.1	129.0	132.1
2006	103.2	116.1	113.7	121.6	120.5
2005	98.9	110.8	108.2	116.8	114.0
2004	101.5	107.1	105.1	111.8	109.5
2003	99.0	104.2	102.5	108.1	106.3
2002	103.7	102.8	101.5	105.5	104.6
2001	105.2	102.2	101.8	103.1	102.4
2000	100.0	100.0	100.0	100.0	100.0
1999	96.6	95.0	94.2	97.2	96.4
1998	101.3	96.2	96.4	95.1	95.1
1997	102.5	97.5	98.4	94.0	93.7
1996	108.1	95.6	96.4	92.5	89.7
1995	103.6	94.2	94.6	92.3	90.5

<sup>1</sup> Indices are based on EU classifications.

<sup>2</sup> Incl. fur production.

Source: Statistics Finland.

**Structural change in agriculture.**

	Number <sup>1</sup> of farms 1,000	Average <sup>1</sup> size of farms, hectares	Number of milk suppliers 1,000	Employed in agriculture	
				1,000 persons	% of employed
2008	66	35.0	12	90	3.6
2007	67	34.4	13	89	3.6
2006	69	33.3	15	91	3.7
2005	70	33.0	16	93	3.9
2004	72	31.5	17	93	3.9
2003	74	30.6	18	99	4.2
2002	75	30.0	19	106	4.5
2001	77	29.1	21	112	4.7
2000	80	28.0	22	118	5.1
1999	..	..	24	121	5.3
1998	88	25.0	26	120	5.4
1997	90	24.0	28	130	6.0
1996	94	22.9	30	133	6.3
1995	100	21.7	32	141	6.7
1994	115	19.2	34	153	7.4
1993	116	18.8	35	154	7.4

<sup>1</sup> A farm refers to a unit with more than 1 ha of arable land that practises agriculture or other entrepreneurial activity.

Sources: Information Centre of the Ministry of Agriculture and Forestry, Statistics Finland.

### Number of animals in June and the average yield per cow.

	Dairy cows 1,000	Yield per cow litres	Pigs 1,000	Hens 1,000
2008 <sup>1</sup>	289	7,767	1,483	3,190
2007 <sup>1</sup>	296	7,796	1,448	3,134
2006 <sup>1</sup>	309	7,646	1,436	3,103
2005 <sup>1</sup>	319	7,505	1,401	3,128
2004 <sup>1</sup>	324	7,404	1,365	3,069
2003 <sup>1</sup>	334	7,251	1,375	3,016
2002 <sup>1</sup>	348	7,117	1,315	3,212
2001 <sup>1</sup>	355	6,932	1,261	3,202
2000 <sup>1</sup>	364	6,786	1,296	3,110
1999 <sup>1</sup>	372	6,443	1,351	3,361
1998 <sup>1</sup>	383	6,225	1,401	3,802
1997 <sup>1</sup>	391	6,183	1,467	4,152
1996 <sup>1</sup>	392	5,993	1,395	4,184
1995 <sup>1</sup>	399	5,982	1,400	4,179
1994	417	5,869	1,298	4,090
1993	426	5,648	1,273	4,025
1992	428	5,613	1,298	3,969
1991	446	5,619	1,344	4,138
1990	490	5,547	1,394	4,845

<sup>1</sup>1.5.

Source: Information Centre of the Ministry of Agriculture and Forestry.

### Sales of fertilizers, kg/ha and hectare yield, f.u./ha.

	Nitrogen kg/ha	Phosphorus kg/ha	Potassium kg/ha	F.u.yield (incl. straw) f.u./ha
2007–08	78.5	7.8	24.3	..
2006–07	73.5	7.9	24.6	..
2005–06	73.9	8.6	25.3	4,673
2004–05	75.0	9.2	25.9	4,826
2003–04	76.5	9.3	26.4	4,630
2002–03	80.0	9.8	27.8	4,478
2001–02	80.5	10.1	28.3	4,692
2000–01	83.2	10.8	31.1	4,531
1999–00	84.2	10.4	30.5	4,900
1998–99	81.0	11.0	31.1	3,146
1997–98	85.0	11.4	32.6	2,980
1996–97	86.0	11.8	32.5	3,816
1995–96	92.3	16.1	34.3	3,736
1994–95	101.6	20.0	38.5	3,655
1993–94	94.1	19.0	40.0	3,810
1992–93	94.3	19.4	39.8	3,912
1991–92	92.8	19.9	39.7	3,269

Source: Information Centre of the Ministry of Agriculture and Forestry.

**Total calculation of agriculture (excl. horticulture) at current prices, million euros.**

	2002	2003	2004	2005	2006	2007	2008 <sup>e</sup>
<b>CROP PRODUCTION</b>							
Rye	7.1	6.1	5.1	3.4	3.2	10.7	10.5
Wheat	48.9	55.2	54.6	53.3	50.9	88.6	95.9
Barley	80.4	69.3	67.1	64.3	73.9	135.0	137.0
Oats	56.3	45.5	36.9	33.5	31.9	66.5	71.9
Potatoes	50.3	38.5	51.2	47.0	33.1	59.8	64.3
Potatoes for processing	22.7	18.2	19.2	19.6	17.2	19.1	21.5
Sugar beet	47.8	56.8	60.9	51.4	42.8	22.8	18.0
Oil plants	22.2	19.8	13.2	18.7	26.7	33.5	31.4
Other crop production	6.1	10.5	10.8	8.1	9.1	11.0	10.9
<b>Total</b>	<b>342.0</b>	<b>319.9</b>	<b>319.0</b>	<b>299.3</b>	<b>288.7</b>	<b>447.0</b>	<b>461.3</b>
<b>ANIMAL PRODUCTION</b>							
Milk	888.9	871.1	844.0	814.2	811.7	869.8	1,029.6
Beef (excl. veal)	168.7	185.5	185.0	177.7	184.6	195.3	197.4
Pork	255.9	229.7	246.1	261.6	262.0	280.6	313.5
Mutton	1.2	1.1	1.3	1.3	1.4	1.6	1.6
Poultry meat	104.2	110.2	111.1	104.5	100.9	112.0	134.2
Eggs	45.4	42.4	41.8	34.9	35.4	43.7	55.2
Other animal production	0.3	0.2	0.2	0.2	0.2	0.2	0.2
<b>Total</b>	<b>1,464.6</b>	<b>1,440.2</b>	<b>1,429.6</b>	<b>1,394.4</b>	<b>1,396.1</b>	<b>1,503.2</b>	<b>1,731.8</b>
<b>Gross return at market prices</b>	<b>1,806.6</b>	<b>1,760.1</b>	<b>1,748.6</b>	<b>1,693.7</b>	<b>1,684.9</b>	<b>1,950.2</b>	<b>2,193.1</b>
<b>COMPENSATIONS FOR CROP DAMAGES</b>	<b>4.0</b>	<b>2.7</b>	<b>2.7</b>	<b>19.6</b>	<b>1.0</b>	<b>5.2</b>	<b>1.6</b>
<b>INCOME FROM RENTS</b>							
Means of production	36.0	36.4	36.5	36.8	37.4	19.2	20.0
Buildings and land	29.3	29.6	29.7	30.2	31.7	74.8	76.4
<b>Total</b>	<b>65.3</b>	<b>66.0</b>	<b>66.2</b>	<b>67.0</b>	<b>69.1</b>	<b>94.0</b>	<b>96.4</b>
<b>Other returns and compensations (energy tax refund)</b>							<b>29.8</b>
<b>SUPPORT PAYMENTS</b>							
Single farm payment scheme					489.6	485.5	488.2
CAP subsidy for fields crops	341.1	353.2	366.4	381.5	5.8	5.5	5.0
CAP subsidy for livestock	87.7	93.8	88.1	142.3	51.1	32.6	32.6
Other CAP payments					29.7	15.8	33.2
LFA	422.1	419.4	420.2	418.3	417.1	417.3	417.9
Environmental subsidies	277.4	283.8	290.3	284.1	289.9	303.2	317.3
Subsidy for animal units (nordic subsidy)	102.0	105.3	114.1	99.7	99.3	101.0	101.0
Other national subsidies for animals	79.6	80.0	78.9	65.1	59.5	56.8	50.6
Other national subsidies for field areas	132.9	147.4	148.1	221.7	230.3	225.7	190.3
Production subsidies							
- milk	230.4	211.5	228.0	185.5	162.9	166.8	170.1
Subsidy paid by the common measures of the EU	1,128.4	1,150.1	1,165.0	1,226.2	1,283.2	1,259.8	1,294.2
National subsidies	544.9	544.2	569.1	572.0	551.9	550.3	512.0
<b>Total subsidies</b>	<b>1,673.3</b>	<b>1,691.6</b>	<b>1,734.1</b>	<b>1,798.2</b>	<b>1,835.1</b>	<b>1,810.1</b>	<b>1,806.2</b>
<b>GROSS RETURN TOTAL</b>	<b>3,549.2</b>	<b>3,520.5</b>	<b>3,551.6</b>	<b>3,578.4</b>	<b>3,590.1</b>	<b>3,859.6</b>	<b>4,127.1</b>

**Total calculation of agriculture (excl. horticulture) at current prices, million euros.**

	2002	2003	2004	2005	2006	2007	2008 <sup>e</sup>
<b>COSTS</b>							
Fertilizers	180.0	176.9	166.5	169.9	175.2	176.6	291.9
Lime	32.5	22.8	20.0	21.2	26.9	20.2	25.8
Feed concentrates	383.9	346.0	350.5	341.0	335.8	380.8	436.9
Feed conserving chemicals	21.0	20.8	21.6	22.2	23.2	24.1	25.4
Plant protection products	49.8	59.2	60.2	64.1	61.0	60.1	67.4
Purchased seeds	41.0	46.9	57.5	60.4	57.4	56.7	68.9
Fuel and lubricants	145.2	135.6	157.5	199.6	219.8	234.0	315.5
Electricity	66.4	79.0	80.0	78.9	83.9	93.2	107.1
Overhead costs	288.8	286.3	294.1	304.5	318.1	326.1	344.0
Hired labor costs							
- wages	81.0	90.0	92.1	97.6	100.0	99.3	104.4
- social expenses	54.6	60.8	63.2	66.8	68.6	68.0	69.9
Machinery and equipment expenses							
- depreciations	354.8	366.1	381.3	402.2	417.4	432.6	461.9
- maintenance	146.4	149.8	155.0	160.0	168.5	174.2	182.2
Equipment	44.0	43.9	45.8	48.3	50.1	52.0	55.5
Building expenses							
- depreciations	232.0	235.9	243.1	251.0	264.4	289.9	299.8
- maintenance	41.6	42.6	43.5	44.9	46.6	50.0	51.0
Ditches, bridges, etc.							
- depreciations	67.0	68.1	70.2	73.1	77.0	84.5	87.3
- maintenance	21.1	21.6	22.1	23.0	23.9	25.6	26.1
Interest payment	137.3	126.8	128.4	122.1	122.7	130.6	150.2
Rent expenses							
- means of production	41.0	41.5	41.5	42.2	43.0	22.0	22.9
- buildings and land	81.0	81.9	82.1	84.2	88.3	144.1	148.7
Farmers' share of cost from							
- accident insurance payment	9.4	11.8	11.7	11.6	11.8	12.1	10.2
- outside help	13.0	15.2	15.6	16.2	16.0	15.8	15.5
- day-off scheme	3.8	4.4	5.2	5.5	6.5	6.5	6.7
<b>TOTAL COSTS</b>	<b>2,536.4</b>	<b>2,533.9</b>	<b>2,608.8</b>	<b>2,710.8</b>	<b>2,806.2</b>	<b>2,978.9</b>	<b>3,375.0</b>
<b>FARM INCOME EXCL. HORTICULTURE</b>	<b>1,012.8</b>	<b>986.6</b>	<b>942.8</b>	<b>867.6</b>	<b>783.9</b>	<b>880.7</b>	<b>752.1</b>

Gross return of horticulture at current prices, million euros.							
	2002	2003	2004	2005	2006	2007	2008 <sup>e</sup>
<b>FIELD PRODUCTION</b>							
Vegetables	80.0	83.3	80.0	76.2	82.1	99.7	95.4
Berries and fruits	37.0	39.2	37.2	35.6	37.0	46.7	56.4
Others	20.2	20.2	21.2	21.2	21.2	22.3	23.4
<b>Total</b>	<b>137.2</b>	<b>142.7</b>	<b>138.4</b>	<b>133.0</b>	<b>140.3</b>	<b>168.6</b>	<b>175.2</b>
<b>GREENHOUSE PRODUCTION</b>							
Ornamental plants	110.1	99.6	104.8	96.6	93.8	98.7	96.7
Vegetables	112.9	115.2	119.0	124.3	140.8	135.9	140.4
<b>Total</b>	<b>223.1</b>	<b>214.8</b>	<b>223.8</b>	<b>220.8</b>	<b>234.6</b>	<b>234.6</b>	<b>237.1</b>
<b>Gross return at market prices</b>	<b>360.3</b>	<b>357.5</b>	<b>362.2</b>	<b>353.8</b>	<b>375.0</b>	<b>403.2</b>	<b>412.3</b>
<b>SUBSIDIES</b>							
Subsidies for greenhouses	40.5	40.3	40.1	40.1	39.1	38.2	37.3
Subsidies for field production	2.0	1.9	2.0	2.0	2.0	1.9	1.8
Other subsidies	7.9	11.4	11.8	11.9	14.6	19.1	18.9
<b>Total</b>	<b>50.4</b>	<b>53.6</b>	<b>53.9</b>	<b>54.0</b>	<b>55.8</b>	<b>59.2</b>	<b>58.0</b>
<b>GROSS RETURN TOTAL</b>	<b>410.7</b>	<b>411.1</b>	<b>416.1</b>	<b>407.8</b>	<b>430.7</b>	<b>462.4</b>	<b>470.3</b>
<b>COSTS</b>							
Fertilizers and lime	7.7	7.6	7.8	8.2	8.5	8.9	15.4
Plant protection products	5.0	5.6	5.6	5.5	5.3	5.2	5.6
Seeds, seedlings, plants	14.1	13.6	13.4	13.9	13.6	14.5	17.0
Other material	34.8	34.8	35.7	36.7	38.6	40.4	48.1
Hired labor costs	69.7	65.2	74.7	75.9	79.7	80.2	79.9
Fuel and lubricants	14.6	15.7	17.8	23.4	24.1	23.8	31.0
Electricity	17.8	21.5	21.8	21.5	23.2	24.2	27.0
Interests paid	15.2	15.2	14.5	13.5	13.5	14.1	14.1
Depreciation of machinery	21.9	22.3	23.3	24.7	25.4	26.4	28.2
Depreciation of buildings	20.7	21.0	21.7	22.5	23.8	26.1	27.0
Depreciation of ditches, etc.	1.7	1.7	1.8	1.9	1.9	2.1	2.2
Other costs	52.0	52.7	50.5	52.1	53.7	55.9	58.2
<b>TOTAL COSTS</b>	<b>275.2</b>	<b>276.9</b>	<b>288.6</b>	<b>299.8</b>	<b>311.3</b>	<b>321.7</b>	<b>353.8</b>
<b>HORTICULTURAL INCOME</b>	<b>135.4</b>	<b>134.2</b>	<b>127.6</b>	<b>108.0</b>	<b>119.4</b>	<b>140.7</b>	<b>116.5</b>

Total calculation of agriculture (incl. horticulture) at current prices, million euros.							
	2002	2003	2004	2005	2006	2007	2008 <sup>e</sup>
<b>RETURN ON AGRICULTURE</b>	<b>3,549.3</b>	<b>3,520.5</b>	<b>3,551.6</b>	<b>3,578.4</b>	<b>3,590.1</b>	<b>3,859.6</b>	<b>4,127.1</b>
<b>RETURN ON HORTICULTURE</b>	<b>410.7</b>	<b>411.1</b>	<b>416.1</b>	<b>407.8</b>	<b>430.7</b>	<b>462.4</b>	<b>470.3</b>
<b>RETURN, TOTAL</b>	<b>3,960.0</b>	<b>3,931.6</b>	<b>3,967.7</b>	<b>3,986.3</b>	<b>4,020.8</b>	<b>4,322.0</b>	<b>4,597.4</b>
<b>COSTS OF AGRICULTURE</b>	<b>2,536.4</b>	<b>2,533.9</b>	<b>2,608.8</b>	<b>2,710.8</b>	<b>2,806.2</b>	<b>2,978.9</b>	<b>3,375.0</b>
<b>COSTS OF HORTICULTURE</b>	<b>275.2</b>	<b>276.9</b>	<b>288.6</b>	<b>299.8</b>	<b>311.3</b>	<b>321.7</b>	<b>353.8</b>
<b>COSTS, TOTAL</b>	<b>2,811.6</b>	<b>2,810.8</b>	<b>2,897.3</b>	<b>3,010.6</b>	<b>3,117.5</b>	<b>3,300.6</b>	<b>3,728.8</b>
<b>AGRICULTURAL INCOME</b>	<b>1,148.3</b>	<b>1,120.7</b>	<b>1,070.4</b>	<b>975.6</b>	<b>903.3</b>	<b>1,021.4</b>	<b>868.6</b>

## Agricultural support<sup>1</sup>.

### SUPPORT FINANCED COMPLETELY OR PARTLY BY THE EU IN 2009, €/ha or €/unit

Aid area	A	B	C1	C2	C2north	C3	C4
<b>DECOUPLED CAP PAYMENTS, €/ha</b>							
Single payment (regional flat-rate payment), €/ha,	246.6	195.8	195.8	152.7	152.7	152.7	152.7
Farm-specific top-ups:							
Farm specific top up for beef, €/livestock unit	63	63	63	63	63	63	63
Farm specific top up for steer, €/livestock unit	45	45	45	45	45	45	45
Farm specific top up for starch potato, €/tonne	17.69	17.69	17.69	17.69	17.69	17.69	17.69
Additional payment for milk, €/tonne of the reference quantity	24.49	24.49	24.49	24.49	24.49	24.49	24.49
Farm specific top up for sugar beet, €/tonne	101.65	101.65	101.65	101.65	101.65	101.65	101.65
<b>PRODUCTION PREMIUM FOR ARABLE CROPS<sup>2</sup></b>	50.0	50.0	50.0	50.0	50.0	50.0	50.0
<b>COUPLED CAP PAYMENTS, €/LU</b>							
Special beef premium	157.5	157.5	157.5	157.5	157.5	157.5	157.5
Special steer premium	112.5	112.5	112.5	112.5	112.5	112.5	112.5
Special beef premium	200	200	200	200	200	200	200
Ewe premium <sup>3</sup>	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Slaughtered heifer and bull premium	80	80	80	80	80	80	80
<b>LFA SUPPORT, €/ha<sup>4</sup></b>							
LFA support	150	200	200	210	210	210	210
LFA supplement <sup>5</sup>							
- basic payment	20	20	20	25	25	25	25
- additional payment for livestock farms	80	80	80	80	80	80	80
<b>ANIMAL WELFARE PAYMENT, €/LU</b>							
		Basic conditions		Additional conditions			
Bovines			17.50	3.58–21.29			
Pigs			5.00	1.53–13.29			
<b>ENVIRONMENTAL SUPPORT, €/ha</b>							
		Crop producing farm		Livestock farm			
Cereal, oilseed crops, protein crops, grasses		93		107			
Group 1 horticultural crops (outdoor vegetables etc.)		450		450			
Group 2 horticultural crops (berries and fruits)		438		438			
Nature management fields (perennial grasses)		170		170			
Nature management fields (biodiversity)		300		300			
Certain seed spice plants		181		181			

**Additional agri-environment measures: support areas A, B and C:** reduced fertilisation 10 €/ha, more accurate nitrogen fertilisation of arable crops 23 €/ha, manure spreading during growing season 27 €/ha, plant cover in winter and reduced tillage 11 €/ha, nutrient balances 18 €/ha.

**Additional measures only for areas A and B:** plant cover in winter 30 €/ha, intensified plant cover in winter 45 €/ha, crop diversification 24 €/ha, extensive grassland production 55 €/ha and cultivation of catch plants 13 €/ha.

**Additional measures for horticulture (support areas A, B and C):** more accurate nitrogen fertilisation of horticultural crops 90 €/ha, use of cover for perennial horticultural crops 256 €/ha and use of pest monitoring methods 144 €/ha.

**Contracts concerning special agri-environment measures:** support level 13.46–500 €/unit of payment.

<sup>1</sup> Includes payments for main products, which means that the table does not cover all support payments.

<sup>2</sup> Maximum support level. Eligible crops are winter rye, winter wheat, ryewheat, spelt wheat sown in the autumn, winter oilseed rape, winter turnip rape, spring oilseed rape, spring turnip rape, sunflower, soybean, field bean, sweet lupin, oilseed flax, fibre flax, fibre hemp, field pea (food and feed pea) and mixed plantations of cereal and protein crops.

<sup>3</sup> Milk production animals 8.4 €/animal. In addition, supplement to less-favoured farming areas 3.5 €/ewe.

<sup>4</sup> In LFA scheme livestock farm is a farm with minimum stocking density of 0.4 LU/ha or the farm has at least 10 LU and the minimum stocking density is 0.2 LU/ha for the whole commitment period.

<sup>5</sup> Top-ups to LFA payments are cut due to payment ceilings. In 2008 the payments were 97.3% of the maximum per hectare.

	2004	2005	2006	2007	2008	2009	
Unit	€/unit	€/unit	€/unit	€/unit	€/unit	€/unit	
<b>NATIONAL SUPPORT FOR AGRICULTURE AND HORTICULTURE</b>							
<b>NATIONAL AID FOR SOUTHERN FINLAND, NORTHERN AID AND AID FOR CROP PRODUCTION</b>							
<b>Aid per livestock unit</b>							
Aid for animal husbandry, suckler cows							
A and B	€/LU	146	86	80	77	73	83
C1	€/LU	309	299	296	295	295	300
C2	€/LU	309	299	296	295	295	300
C2north. and archipelago	€/LU	385	375	372	371	371	376
C3	€/LU	460	450	447	446	446	451
C4	€/LU	645	635	632	631	631	636
Aid for animal husbandry, male bovines >6 months							
A and B	€/LU	336	219	208	199	187	187
C1	€/LU	477	415	417	414	414	414
C2	€/LU	485	423	425	422	422	422
C2north. and archipelago	€/LU	561	499	501	498	498	498
C3	€/LU	637	575	577	574	574	574
C4	€/LU	822	760	762	759	759	759
Aid for animal husbandry, ewes and goats							
A and B	€/LU	333	212	197	194	184	184
C1	€/LU	467	404	399	390	390	390
C2	€/LU	475	412	407	398	398	398
C2north. and archipelago	€/LU	551	488	483	474	474	474
C3P1–P2	€/LU	879	816	758	664	664	664
C3P3–P4	€/LU	980	917	839	745	745	745
C4P4	€/LU	1,165	1,102	1,049	956	956	956
C4P5	€/LU	1,165	1,102	1,049	956	956	956
Aid for animal husbandry, pigs							
A and B	€/LU	259	215	206	199	174	*)
C1	€/LU	222	226	220	210	210	**)
C2	€/LU	222	226	221	213	213	**)
C2north. and archipelago	€/LU	359	307	302	293	293	**)
C3	€/LU	359	307	302	293	293	**)
C4	€/LU	359	307	302	293	293	**)
Aid for animal husbandry, hens							
A and B	€/LU	256	207	203	201	172	*)
C1	€/LU	205	199	206	201	204	**)
C2	€/LU	207	202	206	204	207	**)
C2north. and archipelago	€/LU	345	288	292	290	293	**)
C3	€/LU	412	355	359	357	360	**)
C4	€/LU	412	355	359	357	360	**)
Aid for broilers and fattening poultry hens							
A and B	€/LU	240	196	191	187	157	*)
C1	€/LU	187	187	196	185	171	**)
C2	€/LU	191	191	201	190	177	**)
C2north. and archipelago	€/LU	326	277	288	277	263	**)
C3	€/LU	326	277	288	277	263	**)
C4	€/LU	326	277	288	277	263	**)

- Support levels for 2004–2007 are final. Support levels for 2008–2009 may change due to payment ceilings.

\*) As from 2009 support paid as decoupled payment according to the farm-specific reference quantity of 2007. From 2008 to 2009 the amount of support decreases by about 6.5% when aid per hectare for livestock farms is taken into account.

\*\*) As from 2009 support paid as decoupled payment according to the farm-specific reference quantity of 2007. The same amount as in 2008 is paid up to 200 LU. In support areas C1 and C2 this corresponds to 286 sows or 867 fattening pig places (with an assumed three production batches a year), 16,000 hen places and 42,000–43,000 broiler places. For LUs exceeding 200 the payment is the same as in support areas A and B.



	2004	2005	2006	2007	2008	2009	
Unit	€/unit	€/unit	€/unit	€/unit	€/unit	€/unit	
<b>Northern aid paid for slaughtered animals</b>							
Male bovines C3–C4							
P1–P2	€/animal	131	131	131	131	131	
P3–P4	€/animal	182	182	182	182	182	
P5	€/animal	333	333	333	333	333	
Heifers							
A and B	€/animal	150	147	121	135	144	114
C1	€/animal	210	210	270	269	269	269
C2	€/animal	210	210	270	269	269	269
C2north. and archipelago	€/animal	259	259	319	318	318	318
C3	€/animal	301	301	361	360	360	360
C4	€/animal	387	387	447	446	446	446
<b>Production aid for milk</b>							
A and B	cents/l	5.6	3.3	3.3	3.5	3.5	2.8
C1	cents/l	10.0	7.6	7.6	8.4	7.8	7.6
C2	cents/l	10.6	8.2	8.2	9.0	8.5	8.3
C2north.	cents/l	11.9	9.5	9.5	10.1	9.5	9.3
C3P1	cents/l	14.9	12.5	12.5	13.1	12.5	12.3
C3P2	cents/l	16.6	14.2	14.2	14.8	14.2	14.0
C3P3–P4	cents/l	19.2	16.8	16.8	17.4	16.8	16.6
C4P4	cents/l	23.9	21.5	21.5	22.1	21.5	21.3
C4P5	cents/l	33.1	30.7	30.7	31.1	30.7	30.5
<b>Aid for crop production</b>							
A and B areas <sup>1</sup>							
Wheat	€/ha	79–104	86–105	81–105	88–105	88–105	88–105
Rye	€/ha	88–129	96–127	90–119	98–129	98–129	98–129
Malting barley	€/ha	65–84	71–84	67–84	73–84	73–84	73–84
Feed grains	€/ha	3–5	4–6	4–5	4–6	4–6	4–6
Grass	€/ha	88–129	96–127	90–119	98–129	98–129	98–129
Oil seed plants	€/ha	88–128	96–127	90–119	98–129	98–129	98–129
Starch potatoes	€/ha	88–128	96–127	90–119	98–129	98–129	98–129
Vegetables grown in the open C1 area <sup>1</sup>	€/ha	299–383	326–384	306–361	333–392	333–392	333–392
Wheat	€/ha	57	56	60	57	47	47
Rye	€/ha	112	112	112	112	112	112
Malting barley	€/ha	70	70	70	70	70	70
Oil seed plants	€/ha	100	100	100	100	100	100
Starch potatoes	€/ha	143	133	133	133	133	133
Vegetables grown in the open	€/ha	377	348	348	348	348	348
Other arable crops excl. cereals	€/ha	100	100	100	100	100	100
C2 and C2north. areas <sup>1</sup>							
Wheat	€/ha	57	56	60	57	47	47
Rye	€/ha	112	112	112	112	112	112
Malting barley	€/ha	70	70	70	70	70	70
Oil seed plants	€/ha	27	27	27	27	27	27
Starch potatoes	€/ha	143	133	133	133	133	133
Vegetable grown in the open	€/ha	377	348	348	348	348	348
Arable crops excl. cereals	€/ha	27	27	27	27	27	27
C3 and C4 areas							
Vegetable grown in the open	€/ha	377	348	348	348	348	348

- Support levels for 2004–2007 are final. Support levels for 2008–2009 may change due to payment ceilings.

<sup>1</sup> A and B area national aid for crop production, C area northern aid.

	Unit	2004 €/unit	2005 €/unit	2006 €/unit	2007 €/unit	2008 €/unit	2009 €/unit
<b>Aid for special crops in southern Finland</b>							
A and B areas							
Starch potatoes	€/ha					105	100
Vegetable grown in the open	€/ha					105	100
<b>Aid per hectare of livestock farms</b>							
A and B areas	€/ha					33	30
<b>National aid for sugar beet</b>	€/ha			60	367	350	350
<b>General area payment C2–C4</b>							
Cereals and other arable crops							
C2, C2north and archipelago	€/ha	27	30	30	30	30	30
C3	€/ha	43	46	46	46	46	46
C4	€/ha	94	97	97	97	97	97
Other crops							
C2, C2north. and archipelago	€/ha	34	35	35	35	35	35
C3	€/ha	50	51	51	51	51	51
C4	€/ha	101	102	102	102	102	102
<b>General area payment for young farmers C1–C4</b>	€/ha	30	32	32	36	36	36
<b>Aid for greenhouse products A and B</b>							
over 7 months	€/m <sup>2</sup>	11.4	11.4	11.4	11.3	11.0	10.9
2–7 months	€/m <sup>2</sup>	5.7	5.1	4.3	4.1	4.0	4.0
<b>Aid for greenhouse products C1 and C2</b>							
over 7 months	€/m <sup>2</sup>	12.0	12.8	12.8	12.7	11.3	11.2
2–7 months	€/m <sup>2</sup>	6.0	5.9	5.3	4.8	4.3	4.3
<b>Aid for greenhouse products C2north</b>							
over 7 months	€/m <sup>2</sup>	11.4	11.4	11.4	11.3	11.3	13.2
2–7 months	€/m <sup>2</sup>	5.7	5.3	4.8	4.3	4.3	5.0
<b>Aid for greenhouse products C3–C4</b>							
over 7 months	€/m <sup>2</sup>	11.4	11.4	11.4	11.3	11.3	11.2
2–7 months	€/m <sup>2</sup>	5.7	5.3	4.8	4.3	4.3	4.3
<b>Northern storage aid for horticulture products</b>							
A and B							
Storages with thermo-control system	€/m <sup>3</sup>	12.5	10.7	12.0	11.0	13.6	14.2
Storages without thermo-control system	€/m <sup>3</sup>	8.6	7.4	8.3	6.8	8.4	8.8
C areas							
Storages with thermo-control system	€/m <sup>3</sup>	14.2	14.2	14.2	14.2	14.2	14.2
Storages without thermo-control system	€/m <sup>3</sup>	9.8	9.8	9.8	8.8	8.8	8.8

- Support levels for 2004–2007 are final. Support levels for 2008–2009 may change due to payment ceilings

#### Conversion coefficient of livestock units in national aid

Livestock unit	Livestock unit	Livestock unit
Suckler cows	1 She-goats	0.48 Farmed mother mallards and pheasants
Suckler cow heifers, over 2 years	1 Sows, boars	0.7 Horses
Suckler cow heifers, 8 months–2 years	0.6 Chickens, incl. mother hens	0.013 - breeding mares (horses and ponies)
Bulls and steers, over 2 years	1 Broilers	0.0053 - Finnhorses, at least 1 year
Bulls and steers, 6 months–2 years	0.6 Broiler mothers	0.025 - other horses 1-3 years
Ewes	0.15 Mother geese, ducks and turkeys	0.026

#### Establishment of livestock units for fattening pigs, young breeding sows, young breeding boars, turkeys, geese, ducks and farmed mallards and pheasants

13 slaughtered fattening pigs	1 LU	585 slaughtered ducks	1 LU
13 young sows or boars sold for breeding	1 LU	1,375 slaughtered farmed mallards	1 LU
223 slaughtered turkeys	1 LU	1,375 slaughtered farmed pheasants	1 LU
325 slaughtered geese	1 LU		

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