



# Finnish Agriculture and Rural Industries 2008



## Report drawn up by:

Aakkula, Jyrki	(chapter 6)
Ahlstedt, Jaana	(layout, editor)
Heikkilä, Jaakko	(chapter 5)
Helin, Janne	(chapter 5)
Jansik, Csaba	(chapter 2.5)
Karhula, Timo	(chapter 2.3, 4.1)
Knuuttila, Marja	(chapter 1.1)
Koikkalainen, Kauko	(chapter 5)
Koivisto, Anu	(chapter 2.4)
Latukka, Arto	(chapter 4.3)
Miettinen, Antti	(chapter 5)
Myyrä, Sami	(chapter 4.2)
Niemi, Jarkko	(chapter 2.3)
Niemi, Jyrki	(chapter 2.1, 2.5, 3, summary, editor)
Rantamäki-Lahtinen, Leena	(chapter 1.2)
Sipiläinen, Timo	(chapter 4.2)
Tauriainen, Jukka	(chapter 4.3)
Tuomisto, Jussi	(chapter 2.2)
Turunen, Harri	(chapter 4.1)
Vanninen, Leena	(chapter 4.4)
Vihinen, Hilikka	(chapter 6)
Voutilainen, Olli	(chapter 6)
Väre, Minna	(chapter 1.3)

## English translation by:

Kola, Jaana

Cover design: Ben Rydman

Cover picture: Eero Järnefelt, *Cows in Turf Smoke* (1891), private collection, oil (57.5 x 89cm), the picture has been cropped

Photo: Central Art Archives/Hannu Karjalainen

Artist and Professor *Eero Järnefelt* (1863–1937) was one of the masters of the Golden Era of Finnish art. His paintings combine balanced colours and lighting which is rich in atmosphere. Most of his paintings are idyllic and praise the beauty of nature. Often his attention was drawn to water, clouds and the sky – in particular, Järnefelt was a great master in expressing cloudy and grey melancholy. In summer 1891 he painted this idyllic picture *Cows in Turf Smoke* (*Lehmisavu*), where handsome cows rest by a smoking fire intended to keep off mosquitoes and other insects in the dim light of the Finnish summer night.



Taloustutkimus

JULKAISUJA 108a

# Finnish Agriculture and Rural Industries 2008

Edited by  
Jyrki Niemi and Jaana Ahlstedt

Maa- ja elintarviketalouden tutkimuskeskus  
Agrifood Research Finland  
Economic Research  
PUBLICATIONS 108a

ISBN 978-951-687-148-9  
ISSN 1458-2996

Copyright

MTT Economic Research, Agrifood Research Finland

Publisher

MTT Economic Research, Agrifood Research Finland,  
Luutnantintie 13, 00410 Helsinki, Finland  
[https://portal.mtt.fi/portal/page/portal/www\\_en/Research/Economics](https://portal.mtt.fi/portal/page/portal/www_en/Research/Economics)

Sales and distribution

MTT Economic Research, Agrifood Research Finland,  
Luutnantintie 13, 00410 Helsinki, Finland  
Tel. +358 9 560 80, fax +358 9 563 1164  
e-mail: [julkaisut@mtt.fi](mailto:julkaisut@mtt.fi)

Printing

Vammalan Kirjapaino Oy 2008

## Preface

The year 2007 was exceptional on the agricultural product and food market. All of a sudden the decreasing trend in agricultural product prices turned into a rapid increase. The growing global demand for food, driven up by economic growth, has given justified reasons to expect a turn on the world market for some time, because it was evident that decreasing inventories will put an end to the dumping of surpluses and the prices start to rise. These expectations were reinforced by the fact that the global productivity growth in food production has stagnated in recent years to the extent that the productivity growth has clearly fallen behind both the population growth and rise in the purchasing power due to the economic growth. The extreme weather risks brought in by the climate change and the resulting large yield variations have also been at our knowledge. In spite of all these information and signals, the market took us by surprise. The crop failures due to drought or excessive rains in different parts of the world depleted the food stocks to a record low level, which led to increased market volatility and a very rapid rise in the prices.

This year gave us some foretaste of how very unpredictable the agricultural commodity markets, characterised by highly inelastic demand, inelastic supply and large supply shocks, may be. Hopefully it also reminded us who have not experienced hunger and food shortages that food production takes place on the terms and at the mercy of the nature. Even high inputs and efforts may not produce a good yield unless the weather conditions allow the plants to grow and the harvesting of a good crop. The nature shows no pity when it wishes to demonstrate its strength.

The Finnish producers and consumers, however, were very lucky as the cereal crop harvested here was record high, 4.3 billion kg. Despite the rapid increase in cereal prices in the world, due to the good crop the cereal prices in Finland were lower than anywhere else in Europe. Also the rise in the consumer prices remained more moderate than in the other countries.

For how fundamentally the recent food shortages market turmoils changed the characteristics of food market remains to be seen. It is to be expected that large price volatility has come to stay and agricultural commodity prices are going to vary much more in the future than they have varied in the past. The past year clearly gave a very serious signal and a lesson to companies engaged in food production, processing and trade that the risk is always a cost, and we should prepare for the risks much better than we have done so far. Perspectives relating to risk management and food security have an increasingly prominent role in the forward looking food sector.

The Agrifood Research Finland wishes to thank Professor Jyrki Niemi and Research Secretary Jaana Ahlstedt for compiling and editing this publication, as well as all the researchers who took part in the writing process.

Helsinki 30 April 2008

Kyösti Pietola  
Director of Economic Research  
Agrifood Research Finland MTT

## Contents

Summary.....	5
1. Operating environment of agriculture.....	8
1.1. Agriculture and food sector in the national economy.....	8
1.2. Rural enterprises.....	12
1.3. Finnish farm.....	16
2. Agricultural and food market.....	22
2.1. Trends on the world market.....	22
2.2. Arable crops.....	24
2.3. Livestock production.....	29
2.4. Horticultural production.....	34
2.5. Food market.....	38
3. Agricultural policy.....	49
3.1. Common agricultural policy of the EU.....	49
3.2. National aid.....	52
4. Economic situation of agriculture.....	54
4.1. Agricultural income.....	54
4.2. Productivity development in agriculture.....	55
4.3. Development of the economic result and profitability of agriculture and horticulture enterprises.....	58
4.4. Production costs of agriculture.....	64
5. Agriculture and the environment.....	66
5.1. Environmental impacts of agriculture.....	66
5.2. Agri-environmental regulation.....	69
5.3. Agri-environmental payments in 2007–2013.....	70
5.4. Water protection.....	71
5.5. Main topics in 2007 and future perspectives.....	72
6. Rural and regional policy.....	76
6.1. Various dimensions of the rural policy.....	76
6.2. Different types of rural areas and role of agriculture in the countryside... ..	78
6.3. Pillar II of the CAP central in the financing of rural policy.....	82
6.4. Revision of the natural handicap payments.....	83
Appendices.....	88

## Special topics

Half a million arable land owners have diverse objectives.....	20
Food prices are not getting beyond the reach of the consumers.....	40
Finland on the Russian food market.....	46
Soaring feed prices – A cost crisis on livestock farms.....	62
Costs and benefits of a bluer Baltic Sea.....	74
How the rural residents perceive the diversity of agricultural environments? .....	85



## SUMMARY

The year 2007 was very eventful on the international agricultural product and food market. At their highest the cereal prices were more than double those in the past years. The world prices for dairy products were also much higher than in the past few years.

The main reason for the dramatic price increase was the poor yields due to bad weather conditions in many important farming regions. The world cereal stocks were record low: there is enough cereal to meet the world consumption of less than two months. The small stocks upset the market partners as the stocks no longer functioned as buffers on the market.

### New trends on the world market of agricultural products

The global demand for cereals and livestock products is growing due to the changes in consumer habits especially in the emerging economies of the populous Asian countries. As the population becomes more affluent, the consumption shifts to a growing extent from plant products to livestock products, which means that cereal-based feed for livestock is needed more than before. In addition, the cereal prices and price expectations are rising due to the growing demand for cereal as raw material for biofuels.

The higher demand relative to the supply is expected to keep the prices of cereals and other agricultural products on a higher level than in the past years also in the long term. According to the mid-term forecast published by the Organization for Economic Development and Cooperation OECD and UN Food and Agriculture Organization FAO in 2007, in the next decade the prices for cereals and oilseed crops will be 20–30% higher than in the

past few years. The prices for processed milk products are expected to stay 30–40% higher than the average in the first half of this decade (2001–2005).

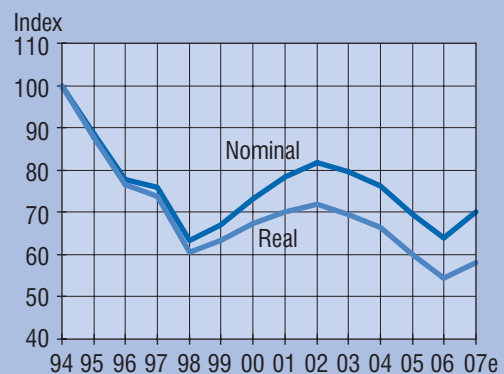
### Agricultural income rose by almost 10 per cent

Price fluctuations on the world market were reflected in Finland as well. Usually the cereal trade runs quite smoothly, but the situation became exceptionally hectic in autumn 2007. From the previous year the opening prices for cereals rose by as much as 50–75%.

However, the cereal prices paid in Finland have still been much lower than elsewhere in Europe or in the United States. The lower price level has been explained by the high transportation costs due to the remote location and long distances, as well as the small volumes.

The producer prices for livestock products also increased in Finland during 2007. The average prices paid for pigmeat were 5%, those for beef 4%, poultry 2% and milk 8% higher than the year before.

Because of the increase in the producer prices, the income of the agricultural and horticultural sector rose for the first



Development of agricultural income in Finland in 1994–2007.

time since 2002. In 2007 the agricultural income was almost 10% higher than the year before, but at real prices it was still almost a fifth lower than in 2002.

In 2007 the agricultural income rose especially on crop farms. Instead, on pig and poultry farms the agricultural income decreased as the rise in the producer price did not compensate for the higher feed costs.

In 2007 the number of farms in Finland was 66,800, which was 1,900 farms or almost 3% smaller than in 2006. The average size of farms grew to 33.5 hectares.

### Increase in food prices

The year 2007 was a record year for Finnish food exports. The value of food exports from Finland totalled € 1.3 billion, which is as much as 18.5% more than the year before. The value of food imports to Finland totalled € 3.1 billion, which is 11% higher than in 2006. Thus, in spite of the record high export volumes the deficit in the food trade increased further by a little over € 100 million.

During 2007 the food prices in Finland rose by 2.1%. The change in the consumer price index was 2.5%, which means that the rise in food prices has been slightly slower than the general rate of inflation.

The discussion on food prices gained

momentum in the early part of 2008, when the new agreements of the food industry and trade entered into force. These led to considerable increases in the prices of some food products. Pressures on the prices were due to both the higher prices for raw materials such as cereal, meat and milk and the growing labour and logistics costs in the industry and trade. In 2008 the average rise in food prices is expected to be in the order of 6 to 8%.

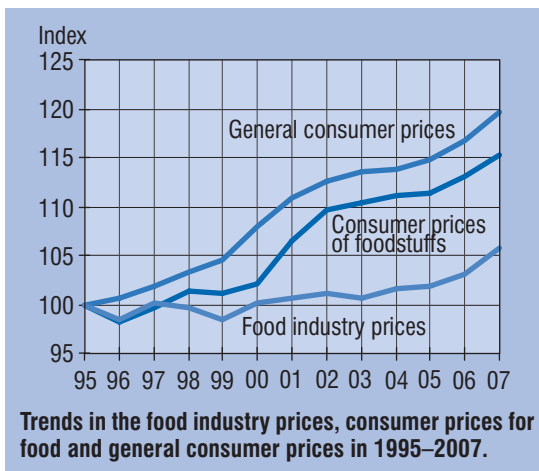
### “Health Check” of the CAP

During 2008 we can expect to see a lively discussion on the future of the common agricultural policy of the European Union. The European Commission published its own proposal for revising the CAP already in November 2007.

This so-called “Health Check” of the CAP follows the approach adopted in the reform of 2003, according to which agricultural production could be increasingly market oriented, provided that its development were not determined by the various kinds of support payments and restrictions. The Commission wants to turn the CAP, which now consumes € 44 billion each year, into a more efficient and simple instrument.

According to the Commission, the decoupling of the support from agricultural production must continue. However, to maintain the domestic supply it may be necessary to allow certain coupled payments to continue in Finland, where coupled EU support is paid for cattle and sheep farms and starch potato and seed producers.

The Commission also wishes to continue the cuts in the payments on farms that receive more than € 5,000 a year as support payments. The current cut is 5%, but according to the proposal it will rise to 13% by 2013. The funds accumulated from the cuts will be used for the development of other economic activities in the rural areas.





## Abolition of milk quotas

By far the most significant issue for Finland in the proposal is the amending of the EU Regulation concerning the milk quotas. Milk production is the most important agricultural production sector in Finland, and through the quotas it has been possible to ensure the production also in the less-favoured areas where the alternatives employment opportunities are scarce (e.g. in eastern and northern Finland).

The quota system has been highly important for the Finnish milk sector, and the continuation of the milk quota scheme would definitely serve the interests of the domestic production. In the communication on the Health Checks, however, the Commission states quite explicitly that the continuation of the scheme after 2015 cannot be considered feasible. The Commission considers that the quota scheme restricts the growth in the competitiveness of the sector and thus makes it more difficult to take advantage of the growing world markets.

This means that the Finnish milk sector must prepare for the abolition of the quota scheme and be capable of finding an alternative way to ensure the continuation of the domestic milk production. What is important is to maintain the incentives to continue and develop milk production on the most efficient Finnish farms. It is more difficult in Finland to achieve the same level of productivity compared to other EU countries, because the natural handicap prevents the Finnish dairy farms from exploiting large benefits from increasing the farm size.

The reform of the common agricultural policy continues during spring 2008 by an extensive round of negotiations and consultation, based on which the Commission will prepare the final legislative proposal. This should be ready in May 2008. After that it needs to be approved by the Ministers of Agriculture of the EU Member States. The objective is that an agreement on the reform could be reached by the end of 2008.

**Number of active farms and agricultural income in 1994–2007.**

	Number of farms	Change from previous year %	Change from 1994 %	Agricultural income at 2007 prices, € million	Index 1992–94 average: 100
2007	66,800	-2.9	-35	988	63
2006	68,766	-0.5	-33	924	59
2005	69,088	-2.8	-33	1,017	65
2004	71,100	-1.3	-31	1,126	72
2003	72,000	-1.9	-30	1,181	76
2002	73,386	-2.7	-29	1,221	78
2001	75,384	-3.2	-27	1,190	76
2000	77,896	-5.2	-24	1,142	73
1999	82,142	-4.1	-20	1,077	69
1998	85,690	-3.0	-17	1,031	66
1997	88,370	-3.2	-14	1,253	81
1996	91,281	-4.5	-11	1,300	84
1995	95,562	-7.2	-7	1,488	96
1994	103,000 <sup>1</sup>			1,699	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 € 17.9 billion. Food and non-alcoholic beverages consumed at home (€ 10.2 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 € 21.5 billion, when food exports and agricultural support payments are taken into account, in addition to the total 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 € 5.6 billion, when support is taken into account in the return. The value of inputs purchased from outside the farms is

about half of this, € 3.0 billion. The share of imported inputs is a little under € 0.3 billion.

In 2006 the value added produced by agriculture and horticulture to the Finnish GDP totalled a little over € 2.6 billion, which is 1.8% 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. In agriculture the unfavourable production conditions restrict the growth.

### Food processing

In 2006 the gross value of the production of food industry was € 9 billion and value added was € 2.3 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 € 1 billion.

Measured by the value added of the production, food industry is the fifth largest sector in Finland after the electronics, forest, metal and machine industries. 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 in the total food consumption is about 20%.

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

	2005	2006	Change %
Total	17,112	17,933	5
Foodstuffs	8,859	9,262	5
Non-alcoholic beverages	859	933	9
Alcoholic beverages	2,667	2,771	4
Restaurants and catering services	4,727	4,967	5

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. The share of wholesale and retail trade in the food expenditure of consumers totals about € 2.7 billion. In addition to that there is the trade in agricultural and other inputs as, besides selling food to the consumers, the trade supplies inputs and raw materials to the other parties to the food chain.

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

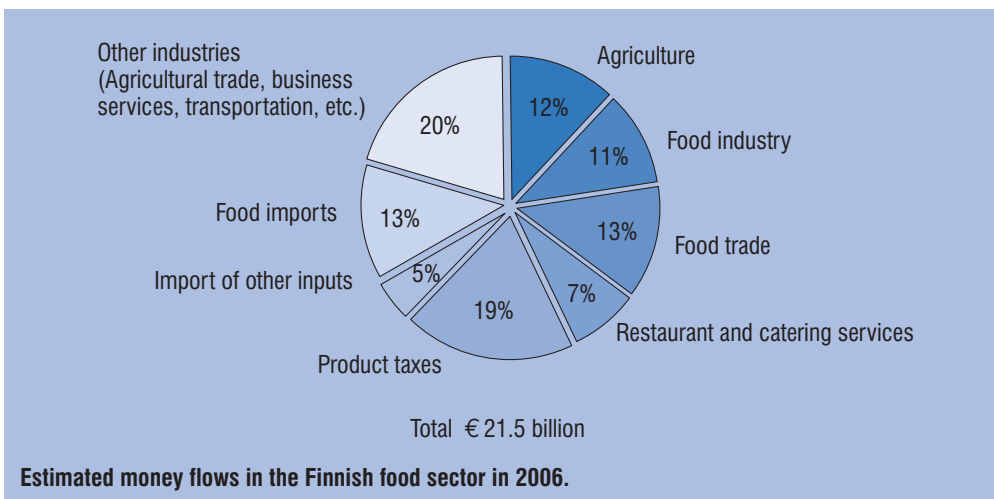
## Foreign trade in foodstuffs

In 2007 the value of food imports was about € 3.1 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 2007. The foreign trade balance of the food sector is further weakened by the import of other production inputs, such as fuels 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 2006 the taxes collected



on foodstuffs totalled € 4.1 billion. The annual revenue from the value added tax (VAT) on food is about € 1.6 billion and that on alcoholic beverages is € 0.5 billion. The annual revenue from the 22% value added tax on restaurant services is € 1 billion and that from the tax on alcohol is about € 1 billion. Taxes are also collected on soft drinks. The growth in the consumption of food and beverages increases the value added tax revenue. Changes in taxation to control alcohol consumption are reflected in the value-added tax 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%. This finds a great deal of support, but there are also doubts whether the reduction will be transferred in full 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, € 2.1 billion. Support is funded by the EU or nationally, or co-funded by the EU and the State.

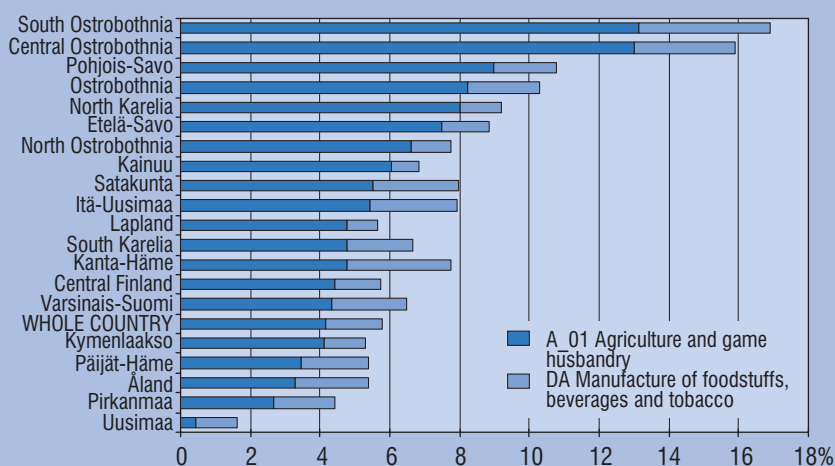
## Impacts of the food sector on regional economies

In terms of volumes agricultural production is concentrated to the best production regions in western and south-western Finland. However, other production sectors are also concentrated to southern Finland, which is why the relative role of agriculture may not be that great. Instead, in more remote areas and especially in eastern and northern parts of the country the economic impacts of agriculture are far more significant.

In Ostrobothnia in north-west Finland and Savo region in the south-east agriculture yields 4 to 9% of the value added, taking account of support payments to agriculture, which increase the revenue of regional economies.

The demand for inputs induced by agriculture is significant for regional economies. Through the purchased inputs of agriculture the value added created totals about € 1 billion a year. Most of the purchases benefit the regional economies directly, especially agricultural trade, feed-mills and transportation.

Like agriculture, most of the food in-



Employed of agriculture and food industry (%) in different regions. Source: Tuotannon ja työllisyyden aluetilit (Regional accounts of production and employment) 2005, Statistics Finland.

dustry is located in southern and western Finland. Food industry is the most significant in South Ostrobothnia, where it represents 7% of the value added in the region. The role of food industry is also particularly significant in certain other regions, e.g. in Häme and Uusimaa in southern Finland.

### Direct and indirect employment effects of the food chain

In 2007 the number of people employed in agriculture was almost 89,000 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 60,800 and food trade more than 50,000 persons. When the employment effect of restaurants, catering services and food trade in other 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 Sectors total € million	010, 014 Agriculture and related services <sup>1</sup> € million	DA Manufacture of foodstuffs, beverages and tobacco € million	010, 014 Agriculture and related services %	DA Manufacture of foodstuffs, beverages and tobacco %
2006	144,957	2,645	2,324	1.8	1.6
2005	136,595	2,818	2,333	2.0	1.7
2004	132,621	2,715	2,295	2.0	1.7
2003	126,585	2,753	2,369	2.2	1.9
2002	125,699	2,908	2,362	2.3	1.9
2001	122,489	2,850	2,207	2.3	1.8
2000	115,167	2,755	1,818	2.4	1.6
1999	106,217	2,467	2,097	2.3	2.0
1998	101,365	2,249	2,097	2.2	2.1

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

Source: National Accounts 1998–2006 (preliminary), Statistics Finland.

## 1.2. Rural enterprises

Small rural enterprises can be divided into three groups: farms engaged in basic agricultural production, diversified farms and other small rural enterprises. In basic agricultural production, farms are engaged in agriculture and farm forestry. Diversified farms practise both agriculture and forestry and non-agricultural entrepreneurial activity. The third category comprises small rural enterprises with no connection to farms.

In 2005 there were over 131,500 small rural enterprises, of which 34% were engaged in basic agriculture, 18% were diversified farms and 47% were other small enterprises. Since Finland joined the EU in 1995 the total number of small rural enterprises has fallen as the number of basic farms has decreased very strongly. The number and relative share of diversified farms and other small rural enterprises has increased slightly. In Finland the diversification of the economic activities of farms is much more common than in many other European countries.

### Diversified farms in Finland and Europe

In 2005 the number of farms practising another industry besides agriculture was 24,300, which is 35% of Finnish farms. The number of diversified farms grew by 11% from 2000 and 3% from 2003. 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 business 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.

However, there is a great deal of variation within the group of diversified farms. Of the diversified farms in 2005 about 60% had engaged in other business activity besides agriculture for at least five years and about 15% of them had started this after 2003. It can be estimated that each year about 1,800 active farms start up and about 1,300 farms quit business activities in other fields.

In 2005 the number of diversified farms was the greatest in Varsinais-Suomi and South Ostrobothnia, but in proportion to the total number of farms the number of diversified farms was the highest in Lapland, Uusimaa (southernmost Finland) and the Åland Islands. The farms engage in various kinds of activities. The most common ones are machine contracting (41% of diversified farms), tourism and various other services. In recent years 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 business 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 business activity, using the same resources as agriculture. Most of these activities (65% of farms) were also taxed together with agriculture under the Agricultural Tax Act. About a third of the other business activities practised on diversified farms are included in the Register of Enterprises and Establishments of the Statistics Finland.

Other business activities on farms are usually quite small in scale. In 2005 on 39% of the farms their turnover was less than € 10,000. However, on about 7% of these farms the turnover of other busi-



ness activity was more than € 200,000. In 2005 these other activities employed about 22,300 AWU and about 46,950 persons were involved in these. Most of the work was done by the farm families, but the role of hired labour has been growing. In 2000 the other business activities on farms employed a total of 11,300 persons outside the farm families (3,100 AWU), while five years later their number had risen to almost 15,000 and labour input to 7,600 AWU.

In recent years the relative share of diversified farms has grown in all parts of the European Union, but on average only 12% of farms in the EU are diversified. Relative to the total number of farms the share of diversified farms is the highest in Finland. Diversification is also common in e.g. France and Great Britain, while especially in Eastern and Southern Europe it is quite rare.

#### Number of diversified farms in 2000, 2003 and 2005.

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

\*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.

**Share of farms that have other gainful activities (%) of all farms in different EU countries<sup>1</sup>.**

Country	2000	2003	2005
EU 27	:	6	12
Norway	30	25	32
Finland	21	25	29
France	:	25	25
Great Britain	19	16	24
Germany	:	19	23
Netherlands	3	30	23
Rumania	:	4	22
Austria	17	19	21
Denmark	12	14	18
Luxembourg	8	11	15
Sweden	7	13	13
Czech Rep.	:	8	11
Portugal	8	10	9
Latvia	10	3	9
Estonia	:	8	7
Italy	9	5	6
Cyprus	:	6	6
Poland	:	3	5
Hungary	5	11	5
Ireland	4	5	4
Malta	:	4	4
Belgium	3	4	4
Slovenia	5	4	4
Spain	:	2	3
Slovakia	3	4	2
Bulgaria	:	4	2
Greece	1	1	2
Lithuania	:	2	1

<sup>1</sup> Includes farms where joint resources are used in agriculture and other gainful activities.

: Not available. Source: Eurostat

**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. 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 companies 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. Because the share of new enterprises is greater in rural heartland areas and urban-adjacent rural areas, their average size is somewhat smaller than the average size of enterprises in sparsely populated rural areas.

In 2004 there were about 2,000 enterprises in the rural areas whose number of staff exceeded the limit for a “small” enterprise (20 employees) or which had more than one place of business. These employed about 55,800 persons and their total turnover was € 9.2 billion. About 42% of these were engaged in manufacturing industry, 27% in trade and 27% in services.

The total year-round accommodation capacity of rural tourism enterprises is estimated at 30,000 bed places. In the rural areas there are about 3,600 enterprises offering tourism, accommodation and recreation services which are not linked to a

farm and about 1,900 diversified farms engaged in tourism.

### **Equine industry**

Equine industry comprises the raising of horses, care services for horses, training, riding schools and related tourism. Equine industry is one of the most rapidly growing businesses in the rural areas. The total number of stables in Finland is over 15,000, of which about a quarter are companies. In 2007 the number of horses was about 70,000.

The annual money flows of equine industry are estimated to be more than € 700 million. In the past five years altogether about € 80 million were invested in stables, riding managers and other operating environment of horse husbandry and in the next five years the investments in the sector are estimated to rise to more than € 115 million.

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. About 800,000 people follow the races at trotting tracks, while the number of spectators at the off-track betting outlets rises to more than 900,000.

The number of riding schools and stables offering horse activities approved by the Equestrian Federation of Finland is more than 200. The total number of riding stables is about 1,000, of which about half are companies (riding schools or the like). Riding is a hobby for about 135,000 persons, about 77,000 of them adults.

### **Energy production and bioenergy**

In 2006 the energy consumption of the Finns totalled 1,492 petajoules (PJ), which corresponds to 414 terawatt hours (TWh). The main sources of energy are oil, nuclear power, coal and natural gas, but the re-

sources available in the rural areas have an increasingly significant role especially in the production of bioenergy and other renewable energy. Today the share of peat in Finnish energy production is about 6% and the small-scale use of wood represents about 3%. About 600 small rural enterprises operate in peat production, with a total annual turnover of more than € 80 million. More than a third of the rural peat enterprises are diversified farms. Most of the bioenergy produced and used on farms is derived from chips or fuelwood from forests. The most important energy crop in agriculture is reed canary grass. The crop is mainly used as fuel in large power plants. Some farms produce biodiesel and biogas, mainly for their own needs.

### **Fur farming**

In 2007 there were about 1,400 fur farms in Finland. According to the Finnish Fur Breeders' Association, fur production employs directly about 5,000–6,000, and indirectly 10,000 persons. 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.

### **Reindeer herding**

Reindeer herding is a highly significant rural business in northern Finland, also in terms of other activities such as tourism. In the reindeer herding year 2004/2005 the number of reindeer owners was 5,100. The number of reindeer has stayed about the same during the past decade. In 2004/2005 the number of reindeer totalled about 207,200, of which 116,700 were slaughtered. In 2003/2004 the production of reindeer meat totalled about 2.55 million kg.

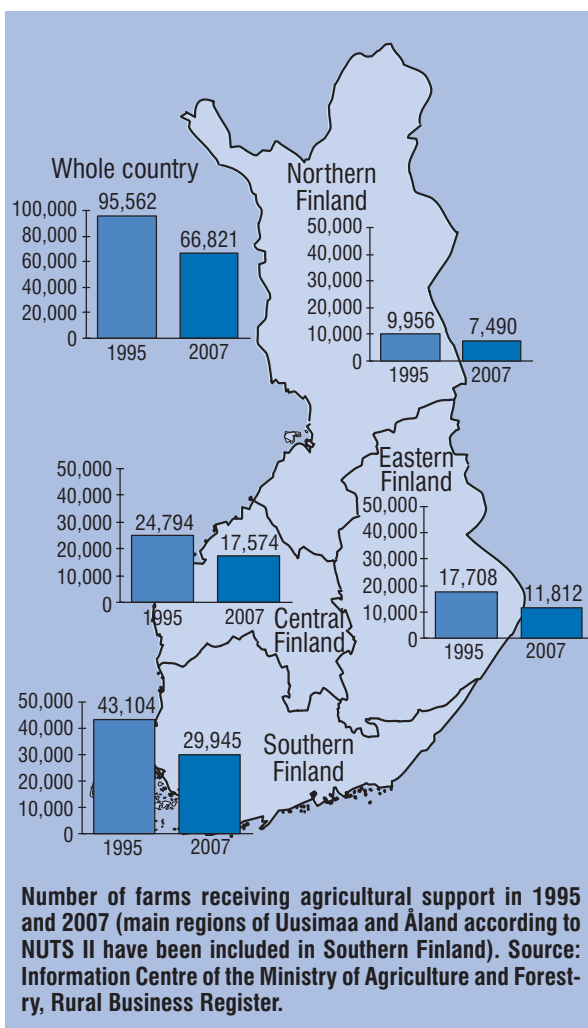
## 1.3. Finnish farm

### Number and size distribution of farms

In 2007 the total number of farms (over 1 ha) which had applied for agricultural support was about 66,800. During the twelve years of the EU membership (1995–2007) the number of Finnish farms has fallen by 30% from 95,562 by about 28,700 farms. On average the number of farms has decreased at a rate of almost 3% a year. Proportionally the decrease has been the greatest in eastern Finland (33%) and the smallest in northern Finland (25%). In both central (29%) and southern Finland (31%) the number of farms has fallen less than in eastern Finland.

From 2006 until 2007 the number of farms which applied for support fell by about 1,900 (2.8%). 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 is on the increase.



In 1995–2007 the average size of farms receiving agricultural support grew by 47% from 22.8 ha of arable land to 33.5 ha. The annual growth in the average farm size has

#### Number of farms receiving agricultural support in 1997–2007.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Whole country	88,370	85,690	82,142	77,896	75,384	73,386	72,000	71,100	69,088	68,766	66,821
Southern Finland <sup>1</sup>	39,998	38,623	37,037	35,319	34,192	33,375	32,771	32,245	31,272	30,967	29,945
Eastern Finland	16,067	15,446	14,658	13,675	13,219	12,935	12,630	12,498	12,121	12,173	11,812
Central Finland	22,914	22,072	21,108	20,019	19,443	19,023	18,656	18,458	17,986	17,947	17,574
Northern Finland	9,391	9,549	9,339	8,883	8,530	8,053	7,943	7,899	7,709	7,679	7,490

<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 2007<sup>1</sup>.

Arable land	Southern Finland <sup>2</sup>		Eastern Finland		Central Finland		Northern Finland		Whole country	
	Number of farms	%	Number of farms	%	Number of farms	%	Number of farms	%	Number of farms	%
<10 ha	5,439	18	2,766	24	3,589	21	1,644	22	22,850	24
10–20 ha	6,208	21	2,920	25	4,231	24	1,434	19	30,698	32
20–30 ha	5,805	16	2,023	17	3,031	17	1,142	15	19,669	21
30–50 ha	5,968	20	2,220	19	3,475	20	1,479	20	15,414	16
50–100 ha	5,486	18	1,507	13	2,528	15	1,348	18	5,706	6
>100 ha	1,890	6	279	2	566	3	380	5	784	1
<b>Number of farms</b>	<b>29,796</b>		<b>11,715</b>		<b>17,420</b>		<b>7,427</b>		<b>95,121</b>	
<b>Average arable area, ha/farm</b>	<b>36.76</b>		<b>28.19</b>		<b>31.55</b>		<b>31.23</b>		<b>22.77</b>	

<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.

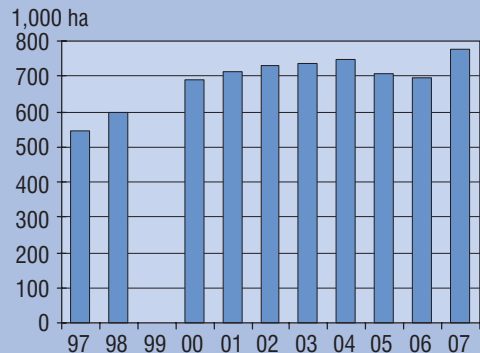
varied from 0.5 ha to 1.5 ha. The growth is due to both the decrease in the number of small farms and increase in the number of large farms.

The structural change is reflected in the proportional share of the different size categories: in the past twelve 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 tripled from 7% to 21%. 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 about 5% of the Finnish farms.

About two-thirds of the growth in the farm size in 1995–2007 has occurred through leasing. In 2007 the total cultivated arable area of farms receiving agricultural support was 2.278 million ha, and about 775,000 ha (34%) of this was leased. In 1995 the share of leased area was 22%. In 2005 and 2006 the leased arable area from the previous years but in 2007 it grew by more than 79,000 ha. The leased arable area was almost 29,000 ha larger in 2007 than in 2004. There is considerable regional variation in the leased area: in the territory of the

Lapland and Åland Employment 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 leased area is less than 32%.

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 due to the short optimal periods for cultivation measures and harvesting and small size of



**Area of leased arable land (ha) in 1997–2007. Source: Information Centre of the Ministry of Agriculture and Forestry, Rural Business Register.**

the parcels, which does not allow farmers to take full advantage of efficient machines. In 2007 the average size of base parcels was 2.41 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 2007 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 own 0.8% of the farms and 0.1% are owned by the State, municipalities, schools and parishes.

The average age of farmers on farms receiving agricultural support is 53 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 2007 32% of the farms which applied for support were livestock farms and 62% 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 77% in 2007.

In 2007 about 14,000 farms practised dairy husbandry as their main activity. This is almost 21% of the farms that received agricultural support. In 1995–2007 the number of dairy farms fell steadily by about 18,000, at a rate of about 6.8% 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 (44% in 2007). Proportionally the share of dairy farms is the greatest in eastern and northern Finland (34%).

In 2007 the number of farms specialising in pig husbandry was about 2,720, which is about 4.1% of the farms that applied for support. In 1995–2007 the number of pig farms fell steadily by 56.3%, i.e. 6.7% per year. Of the pig farms 965 specialised in piglet production, 859 farms specialised in pigmeat and 898 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, and in terms of the value of the production it is the second most important agricultural product after milk.

In 2007 about 4,120 farms (6.2% of all farms) specialised in beef production, and the share of beef in the value of agricultural production was about 10%. In 1995–2007 the number of these farms fell by about 4,900, at a rate of about 6.4% per year. The number of beef farms fell much more rapidly during the first years in the EU than in 2001–2007.

The number of poultry farms was 879, 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 about 7.3 % per year. In 2007 about 58% of poultry farms specialised in egg production, 29% in poultry meat production and 13% were breeding units. The regional distribution is similar to that of pig husbandry, i.e. most of poultry farms are located in southern and western Finland

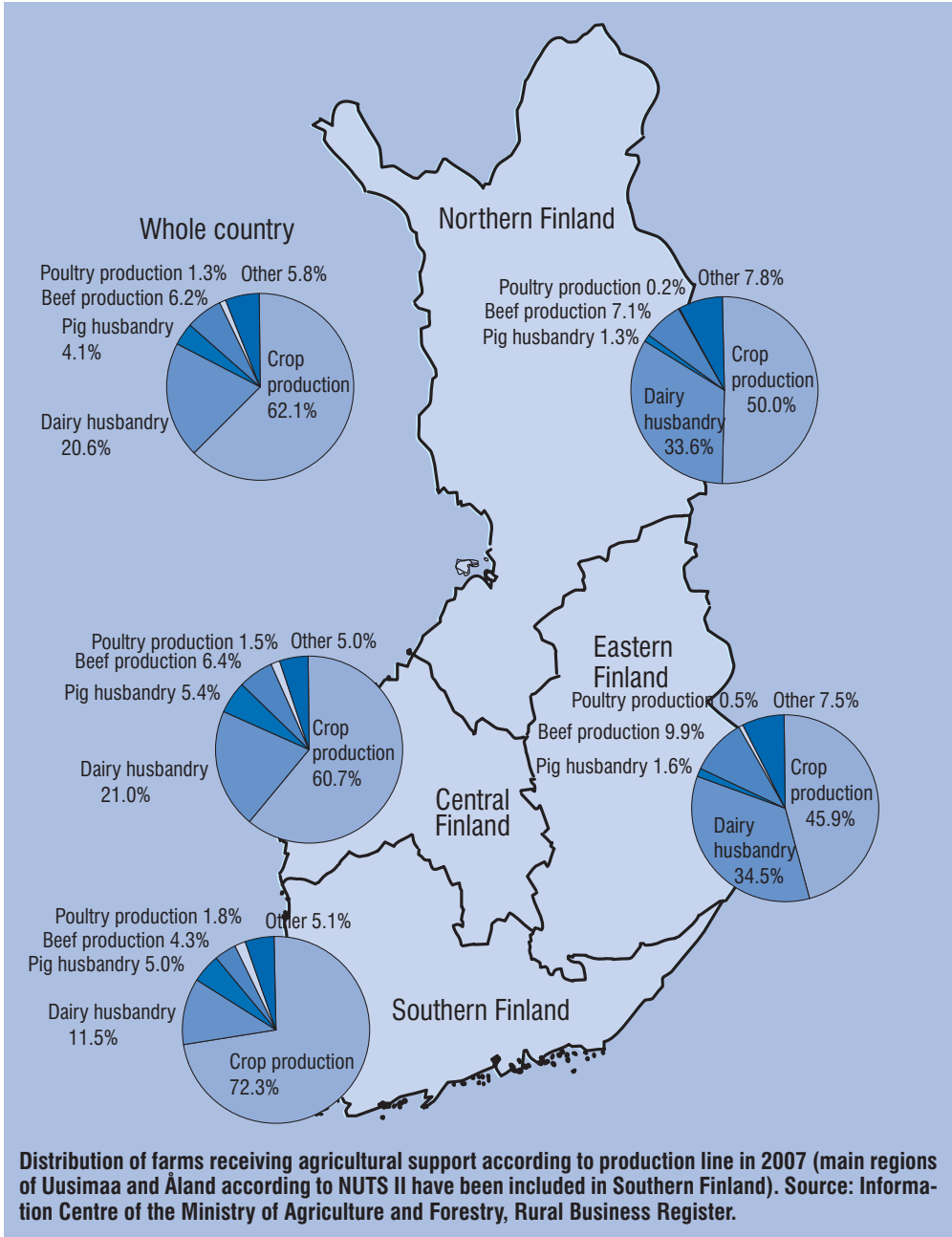
Well over a half of the farms that receive agricultural support specialise in crop production (62%). This is the only main agricultural sector where the number of farms and share of all farms have been growing in recent years. In 2007 there were about 4,200 crop farms more than in 1995. More than half of the crop farms are located in



southern Finland and about a quarter are in central Finland. In 2007 the share of crop production in the return on agricultural production at market price was over 23%.

Forest is an integral part of Finnish farms. In 2007 the average forest area of farms receiving agricultural support was 48

ha. Regional variation is great: in the Province of 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.



## Half a million arable land owners have diverse objectives

*Sami Myyrä and Eija Pouta*

As estimated at the current market prices, passive landowners who have leased out their arable lands maintain a capital investment worth € 3.9 billion in agriculture. Relative to the figures of the total calculation of agriculture this investment is very high indeed; in fact, the amount is about the same as the total annual return on agriculture and about five times the amount of agricultural income.

Owning arable land continues to tie about every tenth Finn to agriculture and agricultural policy. Even if the number of active farms has fallen to less than 70,000, there are still almost half a million arable land owners. However, this property is highly concentrated: about a fifth of the landowners own more than 60% of the arable area.

### Land ownership and cultivation have become differentiated

In traditional family farming the farmers owned the arable lands they cultivated, but this is no longer the case. As a result of the structural development of agriculture the whole picture of land ownership has become increasingly confused. The objectives of landowners who give up farming are highly important for those who wish to continue: whether those who give up want to continue to own the lands and whether they want that the lands stay cultivated, even if they no longer did this themselves? Arable land is not fully comparable to the other agricultural production inputs because land ownership often involves strong values and benefits other than the productive benefits reflected in the market-oriented prices.

The relative position of arable land owners and lessees has given rise to a lot of discussion in recent years. The allocation of support payments is one of the institutional arrangements relating to the ownership and possession of arable land, which is why it is also central in the formulation of the common agricultural policy. A disturbance probably caused by the uncertainty involved in payment entitlements has been observed on the lease market, causing part of the leased lands to be withdrawn from the market. In 2005 and 2006 the leasing of arable land fell from the previous years, but in 2007 the leased area grew by more than 79,000 hectares.

### Background of arable land owners

So far landowners have largely been neglected in the formulation of rural and agricultural policy. One appropriate reference group could be forest owners: knowing them and following the structural changes in the group have been considered important background factors in the preparation of forest policy. The unwillingness of arable land owners to give up their lands by selling as well as the short-term lease contracts are considered obstacles to productivity development of active farms and efficient implementation of environmental programmes. Of the growth in the arable area of active farms two-thirds is based on land leasing and only a third is bought. At present already one third of the cultivated area in Finland is leased. Taking care of the state and productivity of leased area is uncertain, which especially in the long term constitutes a risk for the development of agriculture and productivity growth.

The ageing of the large generations is the clearest factor which influences the structure of land ownership. The number of elderly landowners is large and growing, but the holdings they own are smaller than the average. Wage earners and pensioners both represent about a third of the owners. Geographically the arable land owners are closely connected to their farm in that almost three fourths of them live in the same location as where the holding is. The majority of landowners derive no income from selling agricultural products, and about a quarter of the arable area produces no income whatsoever to the owner.

### **Aims relating to nature and heritage are important**

Arable land owners can be divided into five groups according to the objectives for the lands they own. Almost a fifth (18%) of the arable land owners considered objectives relating to earnings as the most important, but emotional and heritage objectives as well as recreation and nature objectives were also significant. The objectives of leisure farmers (21%) focused on farming as a hobby and for household use as well as investment, economic security and earning an income. For those who stressed economic security (21%) the main objectives concerned finances and investment, but emotional and heritage objectives were also important. Those who appreciate immaterial values (23%) highlight the emotional and heritage objectives as well as recreation and nature objectives. Some landowners (18%) can be considered indifferent as regards the arable lands they own and there are no objectives involved in the ownership.

### **Use of the lands founded on the objectives**

In the group which stressed income from agriculture the arable lands were usually cultivated by the owner: in this group the owner cultivated four fifths of the arable area. Leasing arable land was the most common among those who highlight economic security or appreciate immaterial values. Owners who belong to these two groups had leased away about half of the arable area they own.

In general the attitudes of land owners to leasing were quite positive, but leasing is not expected to increase from the present. The estimate based on the owners' intentions of the share of arable area to be offered for sale was 4%. The share of arable area cultivated by the owners was estimated to fall from 58 to 40%. 11% of the arable area should be transferred to the next generation and thus perhaps continue to be cultivated by the owner.

The results of the study can be used as background information in the assessment and planning of policy measures that regulate land leasing and promote the trade in arable land, and they offer new perspectives to the discussion on these matters. The results show, however, that it is very difficult to increase the owners' willingness to sell, because the emotional values relating to arable land are also important to the owners. Of the owner groups, those who highlighted economic security and the indifferent ones were the most willing to sell their lands. Based on the results it seems very strongly that the detachment of arable land ownership from agricultural production has come to stay. This means that it is even more important to find agricultural policy means which appeal to an increasingly diverse group of arable land owners.

## 2. AGRICULTURAL AND FOOD MARKET

### 2.1. Trends on the world market

During 2007 the prices of agricultural products and foodstuffs rose quite dramatically on the international market. At their highest the cereal prices were more than double the prices in the previous year. The world market prices for milk products were also much higher than the year before.

The changes in world market prices were also reflected in the Finnish prices. Cereal trade has usually been running quite smoothly, but in autumn 2007 the situation became unusually hectic. From the year before the opening prices for cereals in Finland rose by as much as 50 to 75%.

Various kinds of explanations have been offered for the rapid rise in the world prices of agricultural products, ranging from changes in eating habits in Asia to growing interest in biofuels. The principal explanation for the recent price turmoil, however, can be found in very traditional factors. The weather conditions during the growing season were unfavourable, which depleted the cereal stocks.

The long drought in the southern hemisphere reduced the yields in two important producer countries, Argentina and Austral-

ia. The cereal crops harvested in many regions of the EU were also below normal. Especially in France and Germany cereal crop suffered from abundant rainfall, which both reduced the yield and caused quality damages. Poor weather conditions reduced the cereal yields also in Ukraine and Russia. In these countries exports were restricted to secure the domestic price level.

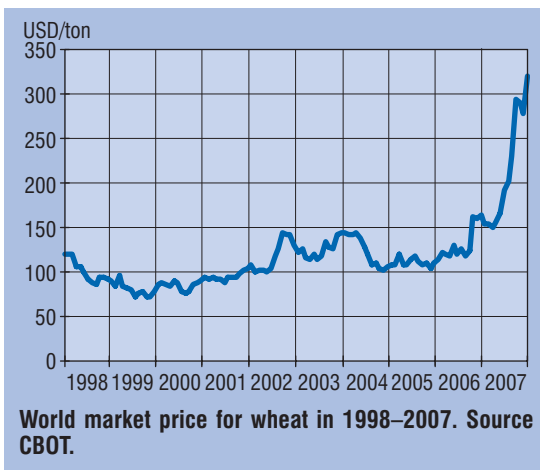
Even if the exceptional market situation has been triggered by the conditions prevailing at the moment, there are also indications of more permanent changes. The oversupply and dumping which have burdened the market for years have now been offset by rising prices as well as greater price fluctuations.

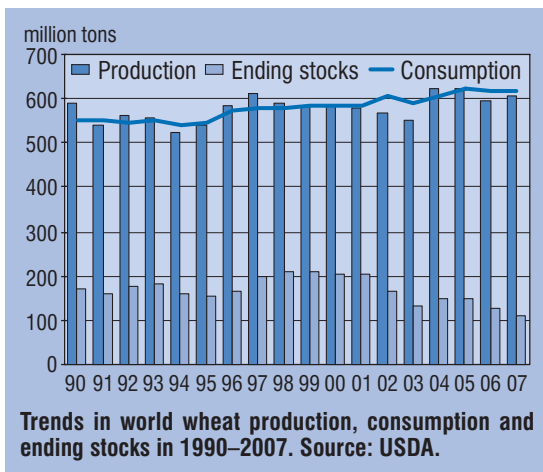
For several years in a row the consumption of cereals has exceeded the production. In the present decade the year 2004 has been the only one when cereal has been left for storage. This is why the world cereal stocks are now record low – in fact, they are so low that they would meet the world's consumption for less than two months.

Milk product stocks are almost empty. Small product stocks are causing anxiety on the market, because the stocks no longer function as buffers. Forecasts on the weather and changes in the production influence the agricultural product prices more strongly than before.

According to the mid-term forecast published by the Organisation for Economic Co-operation and Development OECD and the UN Food and Agriculture Organization FAO, during the next decade the prices of cereals and oilseed crops will be 20 to 30% higher than in recent years. The prices of processed milk products are estimated to stay 30–40% higher than the average prices in the beginning of this decade (2001–2005).

In the future there will be further pressures on the world prices of agri-





cultural products due to the rapidly growing and increasingly wealthy population. The emerging price levels will also be influenced by the numerous bioenergy programmes.

World population is growing at a rate of 60 to 70 million persons a year, i.e. by about the current population of Turkey or Vietnam. The race towards a higher standard of living in the populous Asian countries means that more and more people will be consuming large quantities of meat. Especially in the Asian giants, China and India, economic growth increases the purchasing power, while the demand is very strongly directed to milk and meat products.

In their report the OECD and FAO forecast that by 2016 people living in the developing countries will be consuming 30% more beef, 50% more pigmeat and 25% more poultry meat than at present.

Raising these production animals consumes large quantities of cereals, which means that large arable areas will be transferred from the production of human nutrition to feed production. This will lead to an increase in both cereal and meat prices.

In addition, the growing production of biofuels takes a considerable share of the arable area that used to be cultivated for food or feed production. At present the share of biofuels of the consumption of transportation fuels is only about 1%, but it has been estimated that by 2050 their share could be

raised to more than 10%.

Especially in the United States reducing the dependence on oil has become an important political objective. The aim is to replace as much as 15% of the imported oil by biofuels over the next decade. Even now almost a third of the maize used in the United States is processed into fuel ethanol for cars. Traditionally the United States has been one of the greatest world exporters of fodder maize, but now the export volumes have decreased despite the higher maize yield in the current year than the years before, thanks to

the increase in the cultivated area.

In Europe the cultivation of raw material for biofuels has not influenced the cereal prices. In the EU biofuel production represents only a little over 1% of the total cereal consumption.

At the moment the world prices of cereals are exceptionally high. In the short terms there is no rapid fall in view, because the supply is scarce. Based on the futures prices for cereals, no decrease is to be expected during the whole year 2008.

The rocketing prices are expected to cause some reduction in the global cereal consumption. As far as possible, efforts will be made to substitute other, cheaper raw materials for cereals. Higher prices are also likely to increase the cultivation area and supply of cereals in the next crop season, which should balance the situation. In the United States the cultivation area of wheat is expected to increase by more than 5% in 2008, and in the EU the areas of especially wheat and malting barley are expected to grow. The abolition of the set-aside obligation increases the cereal yield in the EU by a little over 1%.

However, the world cereal stocks are going to stay low, even if quite a normal yield would be harvested in 2008. This means that cereal prices should continue to be quite high – but they are expected to come down from the present record-high quotations.

## 2.2. Arable crops

In the cereal sector the crop year 2007 was good. The total cereal yield was 4.137 billion kg, which was the second highest ever in Finland and 9.2% higher than in 2006. The total grass yield was above the average and about a third higher than in 2006, thanks to the good silage yield.

### Weather conditions

The year 2007 was exceptionally warm. There were very few winter days, i.e. days when the average daily temperature is below zero, and in March the average temperature was record high. The average daily temperature varied from about 6 degrees Celsius in southern Finland to 0–3 degrees in the north. In the whole country the average temperature of the year was 1.0–1.6 degrees above the average of the years 1971–2000. In 2007 the lowest temperature, –39.9 degrees, was measured on 6 February in Salla in Lapland and the highest temperature, +30.7, was reached on 14 August in Parikkala in eastern Finland.

In southern Finland the thermal growing season started already in early April (11–13 April). This was the earliest start during the period 1971–2007. Instead, in central Finland the cold spells delayed the beginning of the growing season until early May. In other parts of the country the start of the growing season was close to the long-term average.

The growing season of 2007 was a little longer than normally. In the south it started about one week ahead of the normal (11 April), but it also ended about a week earlier (9 October). In the south the growing season was 180 days long. In central Finland it was also a little longer than usually, 165 days, while in the north it was 139 days, which is two weeks longer than normally.

Besides being longer than the average, the growing period was also very intensive. The temperature sum rose especially due

to very warm conditions in August, when the temperatures were well above the average. In Helsinki the temperature sum was 1,558 degrees (long-term average 1,364), in Jyväskylä 1,236 degrees (1,142) and in Sodankylä 847 degrees (786).

In the whole country the rainfall in 2007 was a little higher than during the period 1971–2000. In the inland the rainiest month was July, while on the south and south-west coast it rained the most in September. In southern and central Finland and in the Province of Oulu the precipitation totalled 550–800mm and in the Province of Lapland it was 450–600mm.

The rainfall during the summer was very unevenly distributed between different parts of the country. In some regions it rained more than 300mm, while in the inland the average precipitation was only 180–230mm.

### 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%.

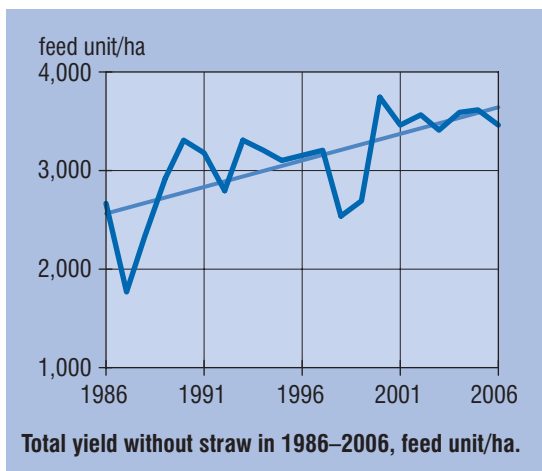
The total cultivated area (incl. set-aside area) is 2,255,000 ha. Since 2000 the cultivated area has grown steadily by altogether 66,800 ha.

Compared to 2006 the cereal area grew by 1.4% and grass area 4.7%. In the past three years the cereal area has decreased slightly, while the grass area has grown. The trends in the cultivation area of different cereals were quite similar to those in 2006: the area under barley continued to decrease by 3%, while the oats area increased by 2%. Of the bred cereals the area of winter wheat grew by 77%, spring wheat area fell by 2% and area under rye grew by 46%. Silage area grew by 14% and pasture area by 2%, while the area under dry hay production fell by 18%.



In 2007 cereal production in Finland totalled 4,137 million kg, which is about 347 million kg (9%) more than the year before. The cereal crop harvested in Finland was the second highest ever. The average yields of all cereals were clearly above the average yields in the past ten years. The conditions during the growing season were favourable, but in some parts of the country the harvesting season was very difficult. In spite of this the quality of the crop was good and there was enough domestic cereal to meet the demand of the domestic industry and farms. Significant amounts of the high-quality cereal were also exported

The harvested area of fodder cereals was 895,900 ha and the total yield was 3,253 million kg, which was 6% higher than in 2006. The area under fodder ce-



reals was smaller than the year before but the hectare yield rose by 11%. The hectare yield of barley was 3,720 kg/ha and that of oats was 3,520 kg/ha. The total amount of oats harvested was 1.2 billion kg, which is about 193 million kg (19%)

#### Harvested areas and yields of main crops in 2006 and 2007.

	2006			2007		
	Area 1,000 ha	Yield 100 kg/ha	Total million kg	Area 1,000 ha	Yield 100 kg/ha	Total million kg
Winter wheat	20.2	31.0	63	36.0	42.9	154
Spring wheat	172.1	36.1	621	166.6	38.6	642
Rye	21.8	23.3	51	31.7	27.4	87
Barley	563.5	35.0	1,972	533.3	37.2	1,984
Oats	345.4	31.1	1,073	347.4	35.2	1,222
Mixed cereals	18.8	27.3	51	15.2	28.8	44
Peas	4.2	21.2	9	4.4	24.5	11
Potatoes	28.0	205.3	576	27.3	257.3	702
Sugar beets	23.8	399.4	952	16.0	421.8	673
Dry hay	125.4	33.3	417	102.4	37.4	383
Green fodder	15.0	90.7	136	11.9	92.6	110
Silage	385.5	132.7	5,102	438.0	189.9	8,319
Turnip rape	99.6	13.8	137	78.5	12.1	95
Rape	7.3	15.4	11	11.0	16.7	18
Camelina	5.3	12.8	7	1.9	9.3	2
Pasture	87.9			89.8		
Other crops	43.5			64.6		
<b>Total</b>	<b>1,966.2</b>	<b>3,459<sup>1</sup></b>	<b>6,373<sup>2</sup></b>	<b>1,976.0</b>	<b>..</b>	<b>..</b>
Set aside and managed uncultivated arable land	253.4			231.6		

<sup>1</sup> feed unit/ha without straw, <sup>2</sup> million feed unit without straw.

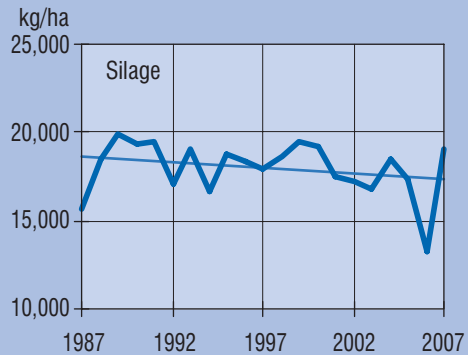
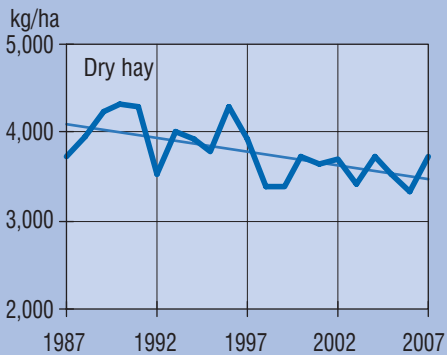
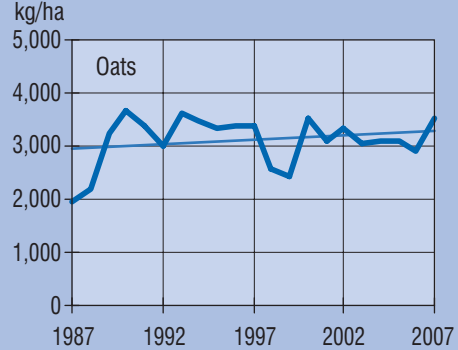
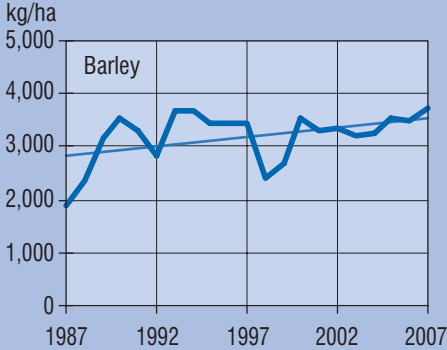
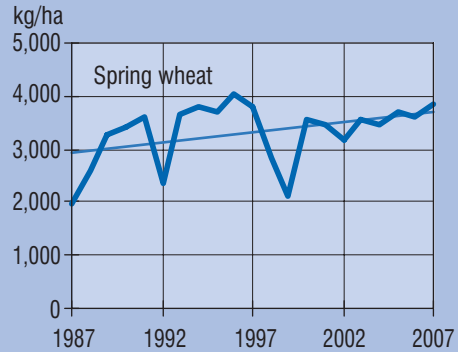
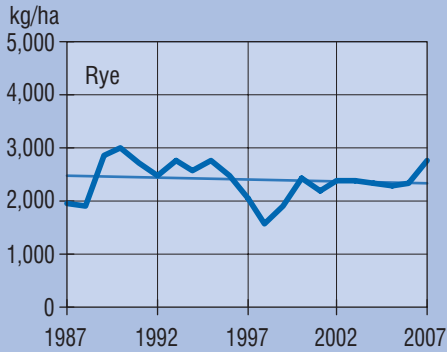
Source: Information Centre of the Ministry of Agriculture and Forestry.

more than in 2006. The total barley crop of 2.0 billion kg was only a little (12 million kg) higher than the year. The share of barley is almost a half of the total cereal crop in Finland.

The amount of barley that was fit for malting totalled 216 million kg. Only 42% of the barley samples fulfilled the quality requirements for malting barley, i.e. protein content less than 11.5% and more than 85% of the kernels over 2.5mm in

size. The main reason for rejecting malting barley was again the too high protein content. The average protein content of malting barley samples was 11.7%, which is a little lower than in 2006.

In 2007 the total yield of bread cereals was almost 884 million kg, which is about 20% higher than the year before. The hectareage yields of all bread cereals grew. The total yield of spring wheat was 642 million kg, which is 3% higher than in 2006. The



**Yields of main crops in Finland from 1987 to 2007. Source: Information Centre of the Ministry of Agriculture and Forestry.**

average yield of spring wheat was 3,860 kg/ha, which was 7% higher than the year before. The average yield of winter wheat was 4,290 kg/ha, which is 38% higher than in 2006. The average yield of rye was 18% higher than the year before, 2,740 kg/ha.

The area under wheat has been growing over the past seven years, but variation from one year to another has been considerable. The growth in the wheat area has been founded on more high-yielding varieties, changes in payments for the crop sector, trends in market prices and changes in the production structure of farms. The total yield of wheat harvested in 2007 was 797 million kg. The yield was 16% higher than the year before.

The share of cereal that can be used as bread cereal was the highest in six years. Of the total wheat crop 56% met the quality requirements of mills, even this was the case for only 28% of the winter wheat, mainly due to too low protein content.

The total yield of rye was 87 million kg, which was 70% higher than the year before. In spite of this rye is still the only cereal in which Finland is not self-sufficient, as the annual use of rye is about 100 million kg. Based on the final results of the quality monitoring, the quality of the domestic rye was good and 81% of the crop met the quality requirements of mills. The Hagberg falling number of spring rye was quite low, but otherwise the autumn rains did not affect the quality of bread cereals.

In recent years many small and medium-sized bakeries have started to use only domestic rye, because there is a great demand for bread made for Finnish rye. The production volume is still too low, however, and in the past decades the 100% self-sufficiency in rye has been reached only a couple of times. Last autumn 24,100 ha were sown with rye, while about 40,000 ha would be needed to reach self-sufficiency. It is still possible to fill some of the shortage with spring rye, which is just as desirable raw material for mills as winter rye.

The total silage yield was 8,319 million kg, which was 63% higher than the year before and 27% above the ten-year average. The total yield of dry hay was 382.6 million kg, which is 8% lower than the year before. The area of dry hay decreased by 8% while the area under silage grew by 22%. Pasture area increased as well. Instead, the fresh fodder area decreased by more than a fifth from the previous year.

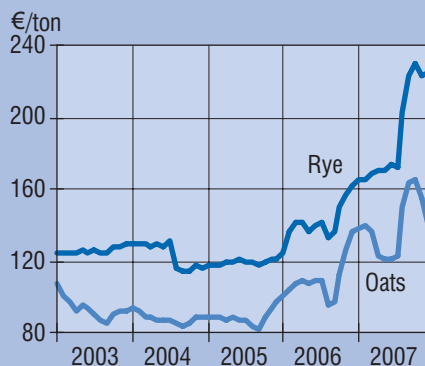
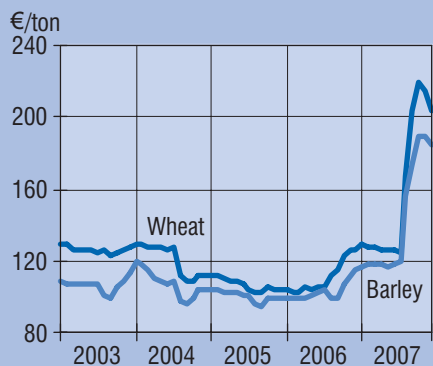
The total potato yield was 701.6 million kg, which was 22% higher than the year before. The average hectare yield was 25,730 kg, which is the second highest ever and 25% higher than the year before. Since the 1990s the cultivation area of potatoes has been falling steadily at a rate of about 2% a year.

The yield of sugar beets totalled 673.1 million kg, which was 29% lower than in 2006. The cultivated area fell by 33% from the year before to a total of 16,000 ha. The hectare yield harvested from this area was 42,180 kg/ha, which was higher than ever and 6% higher than in 2006.

In 2006 the cultivation area of oilseed crops was 90,200 ha, which was 16% smaller than in 2006. The yield of turnip rape and oilseed rape totalled 113 million kg. This was 23% smaller than the year before.

### **Market prices for arable crops**

On average the prices paid for all cereals in 2007 were 41% higher than the year before. The average price for fodder barley, 146 €/tonne, was 43% higher than in 2006. The price started to rise very strongly in August and in October it was as high as 189 €/tonne, which was 76% higher than the year before. The price for malting barley has risen the most because it is in great shortage all over Europe. In 2006 the price paid for malting barley was 134 €/tonne, but last year it was € 260 higher in Finland and even € 60–70 higher than this in Central Europe. Towards the end of the year there was some fall in the price.



**Market prices of cereals in Finland from 2003 to 2007. Source: Information Centre of the Ministry of Agriculture and Forestry.**

The prices paid for oats varied a great deal in 2007. At the lowest in June the price was 121 €/tonne, but by September it had risen to 164 €/tonne. Towards the end of the year the price began to fall again. The average price quoted for oats in 2007 was 150 €/tonne, which was 43% higher than the year before. Oats are not included in the intervention system, which is why it is more sensitive to price fluctuations than the other cereals.

The average prices for bread cereals in 2007 were also higher than the year before. The average price for wheat, 160 €/tonne, was 45% and that for rye, 192 €/tonne, 37% higher than in 2006. Wheat prices started to rise rapidly in August and in October the price level was 219 €/tonne, which was 79% higher than the year be-

fore. Towards the end of the year the wheat prices started to fall slightly.

In 2007 the average price for turnip rape and oilseed rape was 13% higher than in 2006. The price is determined according to the world market prices quoted in MATIF in Paris.

The average price for food potato was 213 €/tonne, which was 32% higher than in 2006. The price rose steadily until August, but due to the higher yield than the year before it started to fall towards the end of 2007. Changes in the supply influence the potato prices a great deal.

**Market prices of cereals in 2007, €/100 kg<sup>1, 2</sup>.**

	Rye	Wheat	Barley	Oats
Finland	17.47	13.10	12.57	13.84
Sweden	16.50	15.22	15.40	14.50
Denmark	12.29	13.62	15.90	15.81
Germany	13.43	15.17	14.57	12.76
France	14.26	15.09	14.40	14.12
England	-	15.98	14.21	13.91
Spain	16.43	18.65	17.04	16.40

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

**Market prices of cereals in Finland from 1997 to 2007, €/1,000 kg.**

	Rye	Wheat	Barley	Oats
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
1997	149.69	148.01	124.46	117.73

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

## 2.3. Livestock production

### Milk

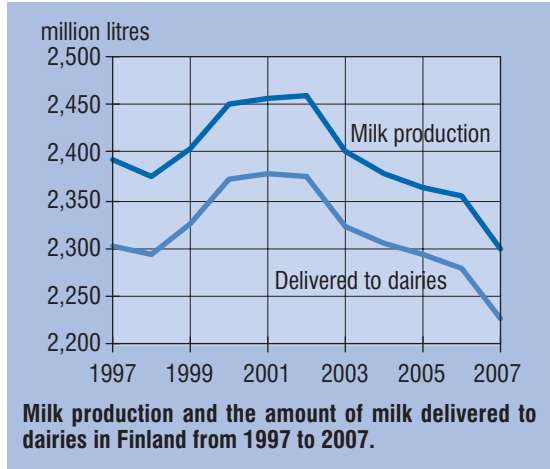
The amount of milk delivered to dairies in 2007 totalled about 2,226 million litres, which was 2% (53 million litres) less than the year before. Most of the reduction took place in the latter part of the year: milk production for August-December fell about 4% below production in the previous year. The decrease was mainly due to changes in feeding, because the grass yield was high and cereal prices were soaring in autumn 2007.

Milk production in Finland fell 68 million litres (2.9%) short of the national quota for the period that ended in 2007. According to the forecast of the Gallup Food and Farm Facts, in the quota period 2007/2008 milk production in Finland will remain more than 150 million litres (6.4%) below the national quota. The number of cows inseminated in autumn 2007 was about the same as in the previous years, which means that in 2008 the production volume should be about the same as in 2007.

In December 2007 the dairies received milk from 12,774 farms. Of the milk 1.2% came from the 121 organic dairy farms in Finland. The number of farms delivering milk to dairies fell by 1,124 (8%) during 2007. In December 2007 the number of dairy cows was 287,528, which was 10,949 (3.7%) less than the year before.

Since the year 2000 the average yield of dairy cows has been rising by about 2% a year. The average yield in 2007, 7,586 litres, was 2% (148 litres) higher than in 2006. The average herd size of dairy farms grew by about one cow. In December 2007 it was 22.5 cows.

The consumption of liquid milk totalled 704 million litres, which was the same as in 2006. The consumption of yoghurt increased by 8% and that of cream by almost 4%. Yoghurt imports grew from 16 million litres to almost 23 million litres.



Imports of fresh milk products to Finland increased by more than a quarter and their exports by almost a fifth from 2006.

The production of butter decreased by 2% but the consumption was about the same as in 2006. Butter exports fell by 3% to 34 million kg. The production and consumption of butter-vegetable oil mixes both increased by 2%.

Cheese production was about 100 million kg. The production of creamy semi-firm cheeses and ripened cheeses grew, whereas the production of Edam and Emmental decreased. Cheese consumption increased by 5% and exports by 7%. Cheese imports fell (-0.3%) for the first time in many years. No cheap Edam, for example, was offered to Finland as much as the year before. The import of cheeses usually considered expensive increased in the first bi-annual of the year.

### Beef

In 2007 a total of 86.7 million kg of beef was produced in Finland, which was 2% more than the year before. Beef consumption totalled 97.1 million kg (+2%). The number of bulls kept on farms decreased by 5.2%. According to a forecast of the Gallup Food and Farm Facts, in 2008 beef production will fall to 82 million kg, while consumption stays around 96 million kg.

The average slaughter weight of

bovines rose to almost 270 kg (+5 kg), that of bulls to 333 kg (+8 kg) and heifers 237 kg (+4 kg). Since 1998 the average slaughter weight of bulls has risen by 65 kg. Altogether 154,927 bulls were slaughtered, which was 2% more than in 2006. The number of cows slaughtered, 96,175, was 7% smaller than the year before.

The number of cattle farms not specialised in dairy production fell by 2% from 2006, whereas the number of suckler cow farms grew by 5%. In December 2007 there were altogether 44,568 suckler cows in Finland (+11%). Suckler cow production is expected to grow also in 2008.

Beef exports doubled to 4.9 million kg, while imports fell by 4% to 13.9 million kg. Most of the beef exports went to Sweden and the imports came from Sweden and Brazil, and some from Ireland and Germany. Imports represent 14% of the consumption.

## Pigmeat

In 2007 pigmeat production hit a record level of 213 million kg (+3%) and consumption grew to 185 million kg (+2%). The number of pigs slaughtered was 2.4 million (+2%). The average slaughter weight of fattening pigs rose to 85.1 kg (+0.6%). Since 1996 the slaughter weights have increased by 5 kg. The slaughtering of sows increased in autumn 2007.

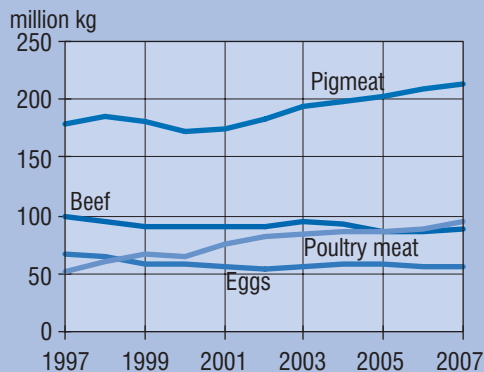
According to a forecast by the Gallup Food and Farm Facts, in 2008 pigmeat production will fall to 209 million kg (-2%) while the consumption will rise to 186 million kg (+1%).

Pigmeat exports decreased by 4% to a little over 46 million kg. Most of the exports go to the neighbouring countries and Japan and South Korea, which altogether represent over 80% of the carcass meat exports. Exports to Estonia and Russia decreased and those to Sweden and Norway increased in 2007. Russia is still the

most important destination for exports. Most of the pigmeat imports and exports of Finland are carcass meat. Growth in exports in the past few years is due to increased pigmeat production in Finland as well as efficiency gains when companies in certain region or country specialise. Statistics show that meat exports and imports have increased in most industrialised countries over the past 10 years, and that they have increased simultaneously.

Pigmeat imports to Finland (a total of 22 million kg) increased by 19%. Imports from Denmark decreased and Germany became the largest importer of pigmeat. In recent years these two countries have accounted for 70–80% of pigmeat imports to Finland. Due to transit import, however, the country of origin is not necessarily the same as the importing country. Import of processed meat, especially from Sweden and Germany, grew as well. Pigmeat imports represented 12% of the consumption.

Rapid structural change continued in pig husbandry. The number of farms rearing sows fell by 11% and in December 2007 the number of sows was 4% smaller than the year before. Instead, the number of piglets sold increased by 3%. In recent years the number of weaned piglets per sow has increased by about 0.3 piglets/sow/year. In December the Postweaning Multi-



Production of beef, pigmeat, poultry meat and eggs in Finland from 1997 to 2007.



systemic Wasting Syndrome (PMWS) was found in Finland for the first time.

In November 2007 Finland and the European Commission agreed that the aid for pig and poultry sectors under Article 141 of the Accession Treaty will be cut to less than half of the present and decoupled from the production. Agrifood Research Finland estimated that these changes will reduce pigmeat production by as much as a fifth and shift production to support area C, if the aid in area C remains coupled to the production.

### Poultry meat

In 2007 poultry meat production in Finland totalled 95.3 million kg (+8%). Poultry meat consumption grew by 12% to 93.2 million kg. Poultry meat exports decreased by 11% and imports increased by 27%. About 70% of the exports went to Russia and the Baltic countries.

Broiler production totalled 82.4 million kg (+11%) and about 80.7 million kg of broiler meat was consumed (+15%). About 9 million kg of broiler meat was exported (-12%) and the imports totalled about 6.2 million kg (+22%). The import of both carcass meat and processed meat products grew. Major import sources

were Brazil, Denmark, France, Germany and Thailand.

Turkey meat production fell by 7% to 11.4 million kg and consumption by 1% to 11.9 million kg. Turkey meat exports totalled 1.8 million kg (-3%) and imports 2.2 million kg (+39%). Import of processed products grew considerably, even if most of the poultry meat consumed in Finland and exported from the country is unprocessed. Major import sources of the carcass meat were Germany, Poland and Brazil and of processed meat Brazil and Germany. The share of imports in the consumption rose to 17%.

The Gallup Food and Farm Facts estimates that in 2008 broiler meat consumption will total 87 million kg and production 90 million kg. The production and consumption of turkey meat should be around 10 million kg.

### Eggs

In 2007 egg production totalled 55 million kg, which is 2% less than the year before. Egg consumption was 49 million kg (+1%). The consumption of both shell eggs and egg products grew. A total of 10 million kg of eggs were exported, which was about 2% more than in 2006. Export

**Livestock production in Finland from 1997 to 2007.**

	Dairy milk million litres	Beef million kg	Pigmeat million kg	Eggs million kg	Poultry meat million kg
2007	2,226	87	213	55	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
1997	2,301	99	180	67	53

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

of shell eggs decreased by 5% while that of egg products increased by 24%. Most of the exports went to Sweden, Germany and Norway.

Hatching of chicks increased by almost 9%. In Finland 80% of egg production still takes place in traditional battery cages, even if these are prohibited after the year 2012. The average size of production units is about 5,000 hens.

The Gallup Food and Farm Facts estimates that in the early part of 2008 egg production increases by about 3% and consumption by 1% from the year before.

### Producer prices

The market prices of livestock products in the EU Member States 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. Based on market integration studies made by Agrifood Research Finland, price changes observed on

**The producer prices of the most important livestock products in Finland from 1997 to 2007 including production support (€/100 kg, milk €/100 l). The figures include estimated retroactive payments<sup>1</sup>.**

	Milk	Beef	Pigmeat	Poultry meat	Eggs
2007	38.26	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
1997	34.87	209	140	114	61

<sup>1</sup> Producer price for milk with standard protein and fat content, does not include quota levies. The price for 2007 includes estimated retroactive payment of 3.90 cents/l. Source: Information Centre of the Ministry of Agriculture and Forestry.

the European meat markets are quite slowly transmitted in the Finnish prices.

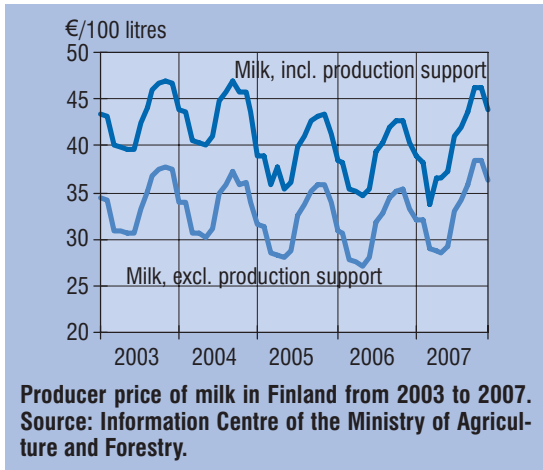
In 2007 the average producer price for milk containing 4.3% fat and 3.3% protein without retroactive payments was 34.36 €/100 l (-6%). In addition to this, the average of 7.31 €/100 l was paid as production aid. The quality premium for milk decreased slightly to 2.24 €/l. The final price for milk will only be known when the dairies complete their financial statements and the retroactive payments based on the result are decided. In 2006 the average retroactive payment was 3.46 €/100 l.

In November 2007 the seasonal price paid to the producers for milk with 4.3% fat and 3.3% protein content was 9.89 €/100 l higher than in May 2007. In December the difference between the highest and lowest price paid for standard milk by different dairies was 3.74 €/100 l. Within the EU milk prices rose due to the strong demand on the world market and increase in the production costs. In some countries the prices rose towards the end of the year by

### Market prices for livestock products in certain EU countries in 2007<sup>1</sup>, €/100 kg.

	Milk	Pigmeat	Beef (bull)	Poultry meat <sup>2</sup>	Eggs <sup>3</sup>
Finland	37.29	138.11	274.21	194.85	110.57
Sweden	30.81	144.12	272.21	178.61	163.32
Denmark	30.89	118.05	287.40	168.72	141.91
Estonia	36.35	141.37	200.83	181.19	93.39
Germany	31.88	139.18	287.40	216.79	101.35
France	30.70	127.33	303.77	202.96	101.27

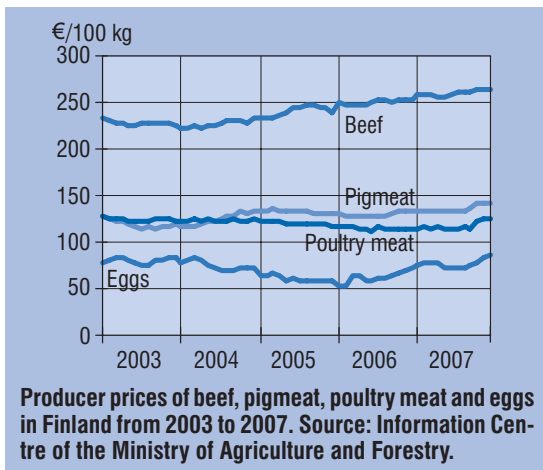
<sup>1</sup> For milk the average of January–November, <sup>2</sup> Sale price of slaughterhouses, <sup>3</sup> Sale price of packaging plants. Source: European Commission.



as much as 10 cents/l. In Finland the producer price rose by about 4 cents/l at the end of 2007 and the further increases were realised in the beginning of 2008.

The average price for beef was 2.21 €/kg and that for bull meat was 2.59 €/kg. On average the beef prices rose by 4% from the year before but remained below the EU average. According to a forecast by the OECD, meat consumption is going to increase in the near future, which may raise the world market prices for beef, pork and poultry meat.

The average price paid for calves was € 232, which is about the same as the year before. The price for male colostrum calf fell by 6% to about € 144 and the price for female colostrum calf rose by 12% to the average of € 64.



The average producer price for meat of fattening pigs was 1.36 €/kg and for all pigmeat 1.32 €/kg. From the previous year the prices rose by 5%, mainly in the autumn, when the feed prices started to rise steeply. The price of piglets (20 kg) stayed around € 50. Towards the end of 2007 a lot of piglets were offered for sale and for a short time the price fell to € 45. The rise in feed prices affected specialised piglet production particularly badly. In fattening pig units the rise in the price for meat partly compensated for the growth in the production costs.

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

The producer price for poultry meat rose by 2% from 2006. The average price was 1.17 €/kg. In January-September 2007 the price for broiler meat varied between € 1.11 and 1.12, but during the autumn it rose to more than € 1.20. The average price for broiler meat was 4% higher than in 2006.

The average producer price for eggs in 2007 was 0.77 €/kg (+26%). The increase was due to the very low prices in the previous year and rise in the production costs in the autumn. In December 2007 the price paid to the producers was 86 cents/kg, which was 13 cents/kg higher than the year before. The producer prices for organic eggs and eggs produced in free-range systems were higher than that for eggs coming from battery cage systems. The difference between the prices for organic and free-range production decreased in 2007. Until August the sale price of packaging plants in Finland was 5–16% higher than in the EU on average, but in September-December it was 8–19% lower than the EU average.

## 2.4. Horticultural production

In Finland horticultural production comprises vegetable production in the open, cultivated berries and apples, nursery production and greenhouse production. In some context the production of mushrooms and cultivation of potatoes under cover are also included in horticulture.

### Horticulture area and number of enterprises

In 2007 the total horticulture area was about 15,400 ha, which was a little over 100 ha smaller than the year before. The largest sector within horticulture is vegetable production in the open (8,400 ha). The area grew by a little under 80 ha from 2006.

The second largest horticulture sector is berry production, with 6,300 ha. The area under berry production has decreased all through the 2000s. The strawberry area has decreased the most, by 26%. The decrease has not led to any significant reduction in the total yield, which stayed about the same as before thanks to more efficient production methods. In general, however, berry production is characterised by considerable annual variations in the yield, which depends a great deal on the weather conditions. The production area of fruits has stayed around 670 ha for the past three years.

During the whole decade the greenhouse area has been about 400 ha. Of this area 240 ha was used for vegetable production and about 160 ha for the production of ornamental plants.

Since the end of the 1980s the number of horticulture enterprises has decreased from more than 10,000 to 5,700, while the average horticulture area of enterprises has grown from 1.3 ha to 2.9 ha. In 2006 4,487 enterprises practised vegetable production in the open and 2,093 greenhouse production. Some of the enterprises engaged in both greenhouse production and production in the open.

The most significant horticultural production regions in Finland are Varsinais-Suomi in south-western Finland, with 19% of cultivation in the open and 20% of greenhouse enterprises, Ostrobothnia with 24% of greenhouse enterprises and North Savo in east-central Finland, where 16% of berry production enterprises are located.

### Weather conditions

Thanks to the record warm spring, the growing season started earlier than ever before. In southern Finland berry plants started to grow already in the beginning of April. Early spring was also reflected in the timing of the growing season. Berry and fruit crops ripened a week or two ahead of the normal. First strawberries, grown

Areas under horticultural production in 2001–2007, ha.

	2001	2002	2003	2004	2005	2006	2007
Production in the open, total	16,515	16,466	16,469	16,025	15,417	15,468	15,357
Vegetables grown in the open	8,797	8,918	8,983	8,837	8,254	8,327	8,405
Berries	7,200	7,004	6,886	6,552	6,495	6,470	6,283
Fruits	519	544	600	636	667	671	669
Greenhouse production, total	400	400	398	399	405	404	399
Vegetable production	236	237	236	239	245	243	242
Ornamental plants	164	164	163	161	160	161	157

Source: Ministry of Agriculture and Forestry, Support Register.

under gauze, entered the market before Midsummer and the main crop was ready in early July.

The growing season of 2007 was rainy and quite warm. Abundant rains reduced the need for irrigation, but the warm and wet conditions caused damage especially for strawberries and raspberries as grey mould ruined some of the crop. Pest populations thrived as well, causing damage and yield losses in vegetable production in the open. The harvesting of some crops suffered from rains and in some places the harvesting of e.g. onions had to be postponed due to too wet conditions.

### Production in the open

Based on the cultivation area, the most common vegetable grown in Finland in 2006 was garden pea (2,400 ha) and the second was carrot (1,600). The cultivation area of carrots has decreased by almost 70% from the mid-1990s, but due to the rapid growth in the hectare yield the production volume has fallen by only 10%. The share of garden pea and carrot in the total area of vegetables grown in the open was 47%.

The production areas of almost all outdoor vegetables fell from 2005 to 2006. Only the areas under garden pea and various kinds of lettuces grew. Contract with the processing industry covered about 24% of the area of vegetables grown in the open and the most significant crops were garden pea, carrot, beetroot and gherkin.

In the berry sector strawberry is the most significant product with 3,000 ha under berry plantations that yield a crop, which is 52% of the total berry production

### Areas under the most important horticultural products grown in the open and yields in 2006.

	Area ha	Yield kg/ha	Total 1,000 kg
<i>Vegetables grown in the open</i>			
Garden pea	2,388	2,168	5,177
Carrot	1,580	35,674	56,365
Onion	877	19,971	17,515
White cabbage	507	35,280	17,887
Cauliflower	365	9,874	3,604
Beetroot	396	32,682	12,942
Swede	336	30,271	10,171
Gherkin	324	39,145	12,683
Chinese cabbage	273	20,934	5,715
Other plants	1,324		
<b>Total</b>	<b>8,370</b>	<b>18,649</b>	<b>156,096</b>
– share of contract production	1,980	22,656	44,858
<i>Berries and apples<sup>1</sup></i>			
Strawberry	2,990	3,471	10,377
Black and green currant	1,668	957	1,596
Raspberries	423	1,239	524
Other berries	622		
<b>Total</b>	<b>5,703</b>	<b>2,341</b>	<b>13,349</b>
– share of contract production	883	1,937	1,710
<b>Apple</b>	<b>541</b>	<b>6,028</b>	<b>3,261</b>

<sup>1</sup> Crop yielding area

Source: Information Centre of the Ministry of Agriculture and Forestry, Register of Horticulture Enterprises 2006.

area. The second most important berries in Finland are black and green currants with a share of 29% of the area of crop-yielding plantations. The cultivation of these two traditional crops decreased in 2005–2006. The areas under new berry plants, such as buckthorn and highbush blueberries, have grown the most. Contracts with the processing industry covered about 15% of the berry production area, and the most significant berries were black, green and red currants and strawberries.

The cultivation area of apples grew from 2005 to 2006. In 2006 the apple yield totalled 3.3 million kg.

## Greenhouse production

In 2006 the total greenhouse area was 463 ha, of which 59% was used for vegetable production and 36% for the production of ornamental plants. About 1% of the area was used for producing berries and 6% for growing seedlings and cuttings. Tomato is still by far the most important greenhouse vegetable, with a share of 116 ha. In 2006 the tomato crop was the highest ever, 38.7 million kg. The second most important crop is cucumber, which is cultivated on 73 ha. In 2006 supplementary lighting was used on 25% of the cucumber and 19% of the tomato area.

The production area of potted vegetables continues to grow, and in 2006 it was 202 ha. Various kinds of lettuces were grown on 81% of this area.

Cut flowers were grown on about 35 ha in 2006. By far the most significant cut flower is rose with a 73% share of the area, but its production area has been falling steadily since 1990. Other important cut flowers are gerbera (1.6 ha) and gypsophila (1.4 ha). The main bulb flowers grown in greenhouses are tulip, narcissus and hyacinth.

In 2006 a total of 11.1 million flowering potted plants, and about 45.5 million bedding plants were produced in Finnish greenhouses.

### Areas under greenhouse vegetables (m<sup>2</sup>) and yields (kg/m<sup>2</sup>) in 2006.

	Area 1,000 m <sup>2</sup>	Yield kg/m <sup>2</sup>	Total 1,000 kg
Total <sup>1</sup>	2,561	28	71,832
Tomato	1,165	33	38,743
Cucumber	730	40	29,351
Other vegetables	666		

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

Source: Information Centre of the Ministry of Agriculture and Forestry, Register of Horticulture Enterprises 2006.

## Horticultural product market

Strong seasonal and annual variations are characteristic to the producer prices of horticultural products. Usually the producer price is low during the main crop season, when the domestic supply is high. The supply decreases during the storage period, which usually raises the prices.

It should be kept in mind that the annual prices for stored vegetables include output from two different years: the crop of 2006 was still being sold from the stocks in the early part of 2007 and the growing season of 2007 did not influence the prices until the summer. Even if the cultivation areas do not vary that much, the weather conditions cause strong variations as regards both the quantity and quality of the

### Producer prices for the most important horticultural products in 2001–2007, €/kg.

	2001	2002	2003	2004	2005	2006	2007
<i>Greenhouse production</i>							
Rose (€/unit)	0.32	0.32	0.36	0.40	0.41	0.41	0.45
Tomato	1.18	1.12	1.15	1.16	1.15	1.17	1.32
Cucumber	0.98	1.05	1.16	1.08	0.99	1.04	1.34
<i>Production in the open</i>							
White cabbage	0.21	0.32	0.38	0.33	0.27	0.37	0.58
Onion	0.41	0.52	0.50	0.47	0.33	0.44	0.60
Carrot	0.48	0.39	0.47	0.45	0.37	0.40	0.47
Strawberry	1.66	2.33	3.52	3.05	2.68	2.25	3.58

Sources: Kasvistiето Ltd., Glasshouse Growers Association.



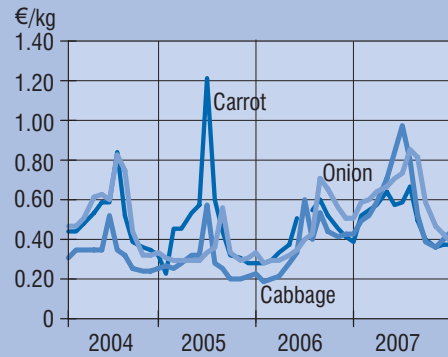
majority of horticulture crops grown in the open.

Most vegetables of the crop of 2006 kept well in storage and, for example, there were good-quality carrots available until March-April. The first early vegetables of the next season came to the market at the end of May. In June there was some shortage of early vegetables as the weather turned colder and diseases and pests reduced the yield. The total yield of vegetables grown in the open in 2007 was close to the average.

The yields of berries and apples were also around the average. This time the strawberry market did not become too congested when the main crop was ready, because the crops did not ripen at the same time in the south and north. Due to the rains grey mould ruined some of the strawberry crop, but the losses were partly compensated for by the higher price. The demand for apples was good all through the crop season, because the crop of household gardens remained poor. The demand was also reflected as higher prices: the prices for domestic apples paid in late autumn 2007 were 30% higher than the year before.

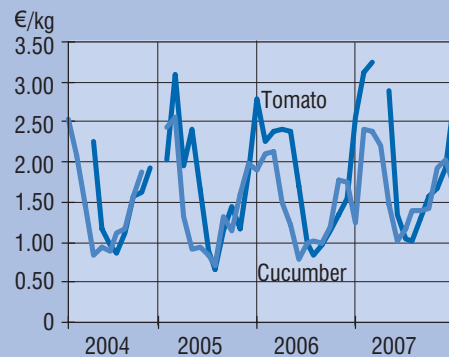
Seasonal variation in the price is also typical for greenhouse vegetables. The weather conditions have some impact, but the main reason is the variation in the supply due to various kinds of cultivation techniques. The majority of greenhouses yield a crop only during the normal growing period. Only few greenhouses operate round the year so that a very small share of the greenhouse area is being used during winter and the supply is also much smaller. Besides this, the more demanding production technology in winter increases the production costs and thus the prices are higher than in the summer.

In the early winter the price for greenhouse cucumber was lower than



Producer prices for certain vegetables grown in the open from 2004 to 2007, €/kg. Source: Kasvistieto Ltd.

the year before. The market became congested at the end of February when the natural light increased and the crop ripened faster, while the demand fell due to the skiing holidays. Towards the summer the supply decreased and there was even some shortage on the market. In the summer the cloudy and rainy weather reduced the yield, and many producers changed their stands at about the same time, causing a collapse in the supply for a short time. The shortage was reflected in cucumber prices during the summer season, which were much higher than the year before. Tomato markets stayed better in balance and there were no major congestions or shortages. The prices were slightly higher than in 2006 all through the year.



Producer prices for greenhouse cucumbers and tomatoes from 2004 to 2007, €/kg. Source: Kasvistieto Ltd.

## 2.5. Food market

### Consumer prices

In 2007 the food prices in Finland rose by 2.1%. The annual change in the consumer price index was 2.5%, which means that the trend in food prices was slightly slower than the general rate of inflation.

In 2008 the food prices are expected to rise by 6 to 8% as a result of the rapid increase in the prices of cereals and other raw materials of food industry on the world market in 2007. In Finland pressures on food prices are even greater because the food industry has not been able to raise the prices for a long time despite the increase in energy prices and labour costs.

Food prices started to rise clearly already in January 2008, when the new agreements between food industry and 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 almost 14% more (€ 0.82) in January 2008 than the year before. The price for kilo of wheat flour had risen by more than 40% to € 0.59. The prices of

**Development of average consumer price index and the consumer price index of foodstuffs in Finland in 1995–2007, 1995=100.**

	Consumer price index	Price index of foodstuffs
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.

dairy butter, margarine and tomatoes had also risen by more than 10%.

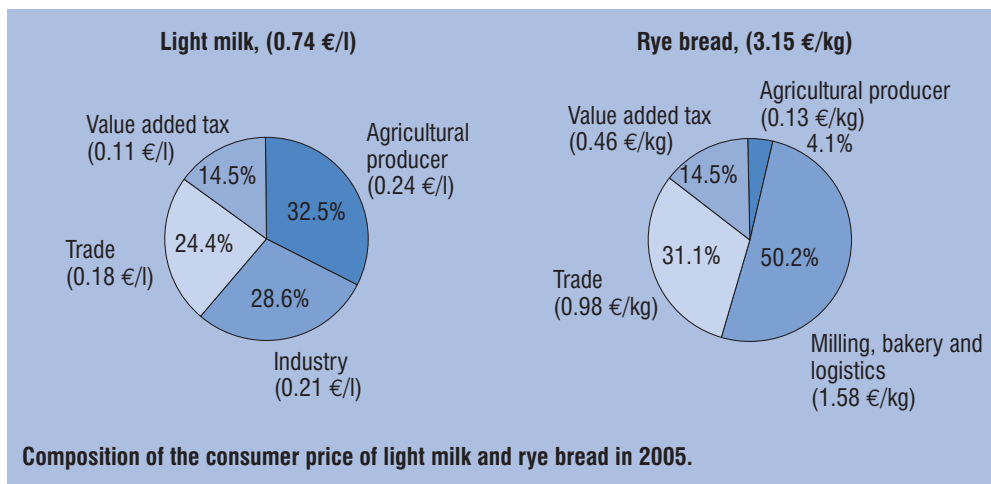
The increase in food prices also raises the general consumer price index. However, the total impact will not be that significant, because the share of food in the consumer expenditure in Finland is only 12%. The impact of the rise in food prices on the expenditure of household is further reduced by the fact that the general level of earnings rises more rapidly than food prices

Besides the trends in food prices it is interesting to observe the distribution of the retail price paid by the consumer within the food chain. In recent years especially the share of the retail sector in food prices has increased and its negotiation power has improved. In certain products the share of retail sector has grown by several percentage units relative to the sales prices of food industry. The position of 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 retail sector

**Average consumer prices of some foodstuffs in January 2007 and 2008, €/kg.**

	January 2007	January 2008	Change % 2007/08
Wheat flour	0.41	0.59	42.7
Rye bread	3.15	3.36	6.7
Beef roast	10.10	10.43	3.3
Pork fillet	11.22	12.23	9.0
Chicken breast fillet	10.56	11.19	6.0
Light milk, €/litre	0.72	0.82	13.7
Emmenthal cheese	10.83	11.58	6.9
Eggs	2.73	2.94	7.7
Butter	4.84	5.36	10.7
Margarine	2.42	2.82	16.5
Tomato	4.43	5.07	14.4
Potato	0.68	0.70	2.9

Source: Statistics Finland, consumer price statistics.



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

The significance of the retail sector for the domestic food production is going to grow in the next few years. There are several, strong trends of change in retailing 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 retail sector over the whole supply of the food chain.

The concentration of food retailing will continue in the near future. At the same time the product ranges are growing, value added rises and the customer groups are more and more fragmented. The growth in product ranges has been breath-taking in recent years: in the 1980s there were about 5,000 product names in the largest hypermarkets, but now their number is about 20,000. The products are also being replaced by new ones more rapidly than ever before.

**Average consumer prices of some foodstuffs in 2003–2007, €/kg.**

	2003	2004	2005	2006	2007	Change % 2006–2007
Light milk, €/litre	0.72	0.73	0.74	0.73	0.72	-1.3
Butter	4.87	4.92	4.96	4.87	4.79	-1.7
Margarine	2.37	2.36	2.35	2.35	2.53	7.4
Emmenthal cheese	10.35	10.65	10.59	10.86	10.82	-0.3
Beef joint <sup>1</sup>	8.26	8.28	9.08	9.92	10.04	1.2
Pork chops	7.64	7.69	7.87	..	..	-
Chicken breast fillet	11.03	10.89	10.84	10.46	10.67	2.0
Eggs	2.24	2.36	2.33	2.44	2.74	12.4
Wheat flour	0.62	0.61	0.59	0.41	0.41	0.7
Rye bread	2.97	3.09	3.15	3.18	3.15	-1.0
Tomato	3.04	2.94	2.99	3.21	3.51	9.4
Potato	0.58	0.72	0.65	0.60	0.74	23.2

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

Source: Statistics Finland, consumer price statistics.

# Food prices are not getting beyond the reach of the consumers

*Jyrki Niemi*

In the past two years the prices of agricultural products and foodstuffs have risen quite dramatically on the international market. Finland is also facing serious pressures to increase food prices, and some predict that the prices might rise very high indeed.

The rise is due to the production problems caused by drought in the southern hemisphere, growing consumption in emerging superpowers such as China and India, and the replacement of vegetarian diets with meat and dairy products. These trends reveal the global interdependencies – when schoolchildren in China begin to get their daily rations of milk, Finnish dairies start considering price increases.

However, higher prices of agricultural products alone cannot explain any dramatic price increases because, on average, the share of agricultural raw material in the total prices of foodstuffs is less than a fifth. Finnish consumers buy their food in a more and more highly processed form. The more highly processed the product is, the greater share of the retail price goes to the processing and trade sectors.

Rather than raw material prices, the costs of food production are increasing due to the higher wage and energy costs, which burden both the processing industry and retail trade. As a whole we are dealing with a very significant sector, which employs almost 300,000 people in Finland.

## **12% of the consumer expenditure of households spent on food**

Finns spend the average of 22% of their euros on food and drink. Only housing costs take a larger slice of our income. Is this too much?

At first, a share of more than one fifth of one's income spent on food may seem high, but it should be noted that this also contains food consumed outside the home as well as alcoholic beverages. The share of staple foodstuffs consumed at home in the consumer expenditure of households is only about 12%.

When considering the trend in food prices in the long term we can say that the rise in the prices has been quite moderate. Accession to the EU in 1995 led to a reduction in food prices in Finland by about 10% despite the rise in the VAT on food. From 1995 until 2007 the food prices in nominal terms had risen by about 15%. During the same period the general consumer price index rose by almost 20%, which means that the real prices of foodstuffs have stayed lower than in 1995.

## **More food with less work**

In relative terms, for an average wage earner food has become even cheaper during Finland's EU membership. In the past 13 years the wages have risen by more than 50%. In 1995 the Finns had to work for more than four hours to fill a certain food basket, but in 2007 this took only about three hours. The amount of work needed to fill the food basket had decreased by about an hour in a little more than a decade.

The views of Finns regarding the price of food have changed radically in less than 15 years. In 1994 only about a fifth of the Finns considered food as reasonably priced, while now more than half of the consumers perceive the food prices as quite fair.

### Consumption of milk products, margarine, meat and eggs per capita in 1996–2006, kg.

	Liquid milk <sup>1</sup>	Butter	Margarine	Cheese	Ice-cream (litres)	Beef <sup>2</sup>	Pigmeat <sup>2</sup>	Poultry meat	Eggs <sup>3</sup>
2006 <sup>e</sup>	181.0	2.7	..	19.1	13.6	18.5	34.3	15.8	9.4
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
1999	195.8	3.9	8.1	16.6	13.9	18.8	34.3	12.6	10.0
1998	198.5	4.3	8.4	15.9	13.2	19.2	34.1	11.9	10.3
1997	199.4	4.5	8.5	14.8	13.8	19.3	32.2	10.7	10.4
1996	203.8	4.9	8.6	14.8	13.4	19.1	32.9	9.9	11.0

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

<sup>2</sup> Hot weight reduction of 2% has been made in slaughter weights from July 1995.

<sup>3</sup> Method of statistical compilation changed from January 2001.

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

### Structural changes in retail trade

The sales of groceries and daily consumer goods have grown steadily in recent years. In 2007 they totalled € 13,046 million, which is 5.2% higher than the year before. Between 1995 and 2007 the sales of groceries and daily consumer goods at nominal prices have risen by more than 52%.

In 2007 the sales prices increased for the second time, after several years of decrease. Because of the harsh price competition the domestic companies in the trade

sector have been forced into various kinds of structural rearrangements to maintain their profitability. Better efficiency and cost savings have been achieved through more disciplined chain businesses.

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.

In 1995 the number of small retail stores was still almost 2,300, but only 1,037 of these survived until 2007 and their share in the sales had decreased from 11% to 6%. During the same period the share of hypermarkets in the sales grew from 15% to 24% and the share of large supermarkets from 20% to as high as 33%. In the beginning of 2008 the total number of retail outlets selling groceries and daily goods was 3,922 and 58% of the sales took place in the 673 largest stores.



### Market shares of retail companies in 2000–2007.

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

Source: AC Nielsen.

In recent years significant reorganisations have taken place among the largest chains and now the competition for the market is even more clearly a case between two main players. The market share of the S Group has increased rapidly and by the merger of HOK-Elanto it reached the K Group in 2004 and overtook it in 2005. In 2007 the market share of the S Group rose to 41%

The share of the K Group has been diminishing in the past few years, but this trend stopped in 2007 and there was some growth in the market share. The share of the third largest chain Tradeka was about the same as in 2006, almost 12%. The retail operations of Tradeka and Wihuri Group's Ruokamarkkinat were merged in 2005.

The share of the Spar chain has been included retroactively in the category of other companies. The S Group bought most of the Spar outlets in 2005 and the remaining independent Spar shops set up an M chain of their own. The largest chain in the category of other companies is the German discount giant Lidl, which has spread rapidly on the Finnish market. In 2007 the share of Lidl was estimated at 4.7%, which is

slightly higher than the year before, when it was 4.1%. In 2005 its share was estimated at 3.7%, while in 2003 its share was as low as 1.8%.

### 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 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.

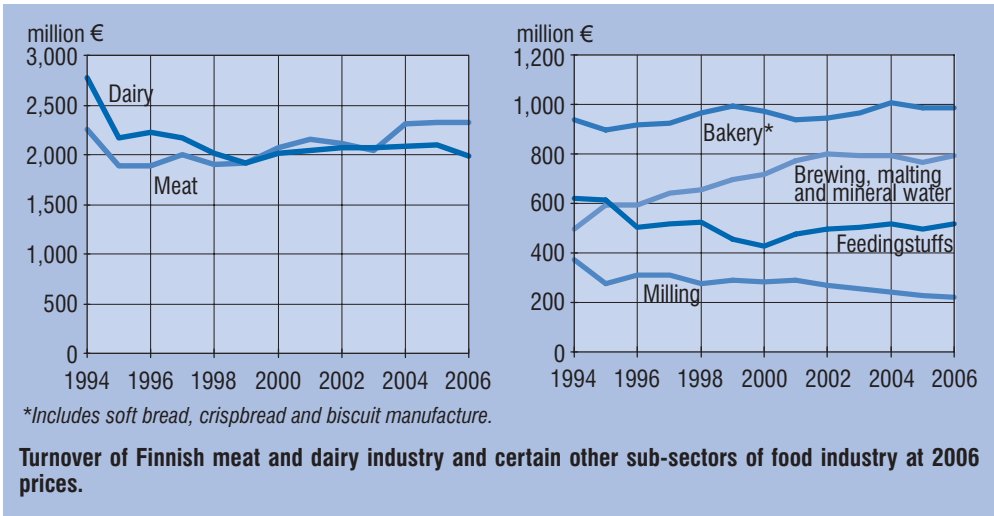
The progress of both private labels and the discount chain concept are pushing down the food prices. Competitive tendering to produce private label products, threat of imports, and the low price level and narrow product range of the discount stores tighten the competition between the domestic suppliers and reduce the margins of food processors. The processors have responded to the challenges by improving

### Key figures on the Finnish food industry in 1996–2006.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Turnover (at current price, billion €)	7.8	8.0	7.8	7.5	7.9	8.3	8.4	8.5	8.9	8.9	9.2
Turnover (at 2006 price, billion €)	8.8	9.0	8.6	8.2	8.4	8.5	8.5	8.5	8.9	8.8	9.2
Personnel (thousands)	44.6	44.2	42.8	40.7	39.9	38.6	38.0	38.2	37.5	36.7	35.9
Real turnover per person (thousand €)	175	182	183	184	198	214	220	222	237	242	257

Source: Statistics Finland, business database, Finnish Enterprises 1996–2006.





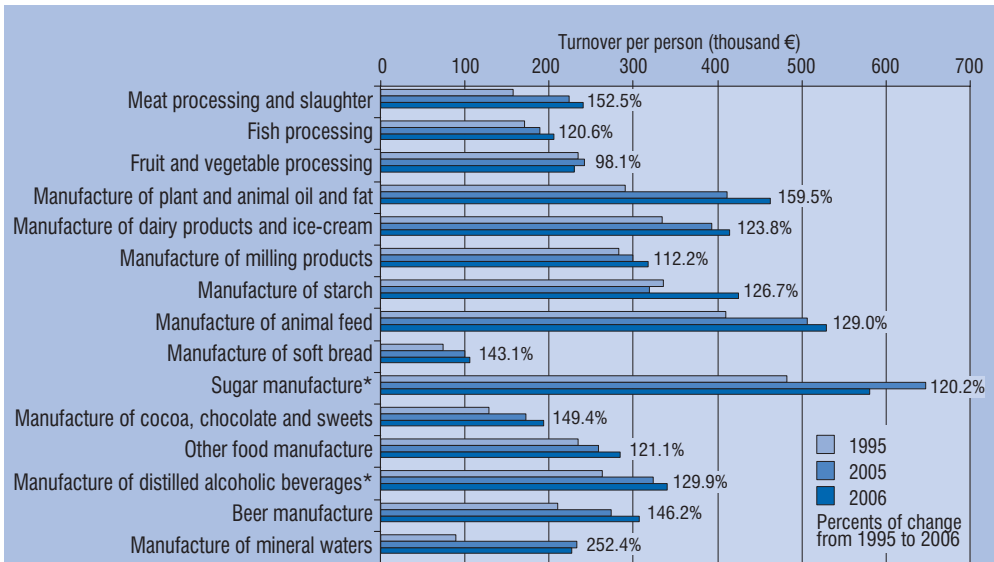
the efficiency, outsourcing certain production stages and through specialisation.

In 2006 the turnover of the food industry rose by almost € 370 million to € 9.2 billion. At fixed prices the turnover of the sector increased by 2.6% from the previous year.

Of this increase € 134 million was due to the growth in exports and the rest came

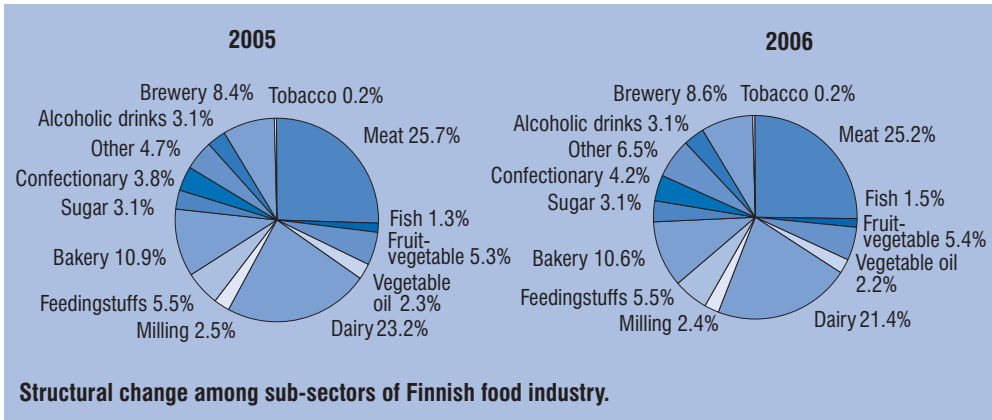
from the domestic market. The share of exports in the turnover was almost 12% in 2006, which is 1 percentage point higher than the year before. The export share still remains a little behind the record reached in 1997, when almost 13% of the turnover came from the export market.

Employment in the food industry continued its downward trend. In 2006 the



\*1997 instead of 1995.

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



staff decreased by 750 employees, i.e. 2%. As a result of this and the considerable increase in turnover, the turnover per person rose by more than 6% to € 257,000 in 2006.

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 except in the processing and preservation of fruit and vegetables.

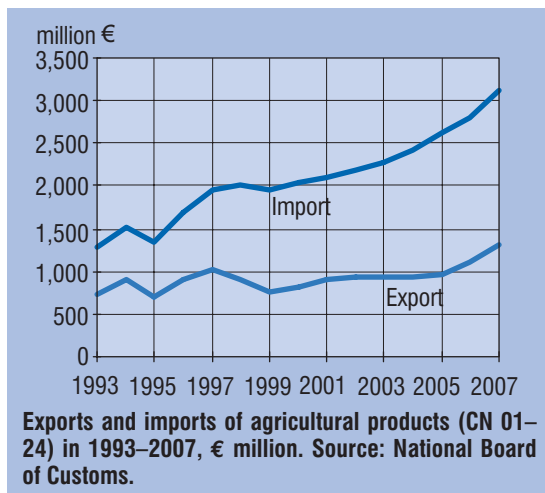
Considering the two largest sectors of food industry, the turnover of meat industry in real terms rose by 0.4%, while that of dairy industry fell by 5.3%. In bakery and vegetable oil industries the turnover in real terms was about the same as the year before, and in the processing of fruit and vegetables and in feed and brewery industries it rose by 3–4%. The turnover in real terms increased the most in fish processing (17%), confectionary industry (15%), and the heterogeneous group of other foodstuffs, where it rose by as much as 43%.

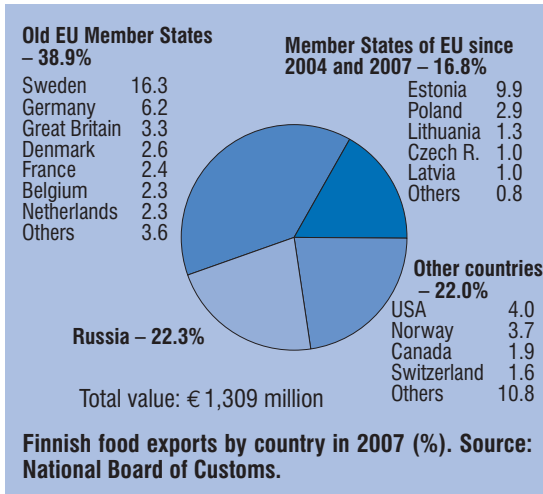
Because of the above structural changes, the relative position of the sectors was about the same as in 2005. The most notable trend was the increase in the share of other food production at the cost of the two largest sectors.

## Foreign trade

Finnish food export has shown considerable fluctuations since the early 1990s. The record year was 1997, geared by the rapid growth in exports to Russia, but the devaluation of the Russian rouble put an end to this in 1998. Between 2001 and 2005 the value of Finnish food exports was quite stable, a little under € 1 billion. The rapid growth in exports which started in 2006 accelerated further in 2007, which means that the Finnish food sector reinforced its position on the export markets for the second year in a row.

In 2007 the value of Finnish food exports totalled € 1,309 million, which is as much as 18.5% higher than the year be-





fore. The value of food imports to Finland was € 3,124 million, which was 11% more than in 2006.

This means that, despite the record-high exports, the deficit in the food trade balance grew by over € 109 million from € 1,706 million to € 1,815 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.

Most of the food imports to Finland, 67%, came from the old EU Member States, mainly from Germany, Sweden and the Netherlands. The share of non-EU countries increased from 24.7% in 2006 to 25.7%.

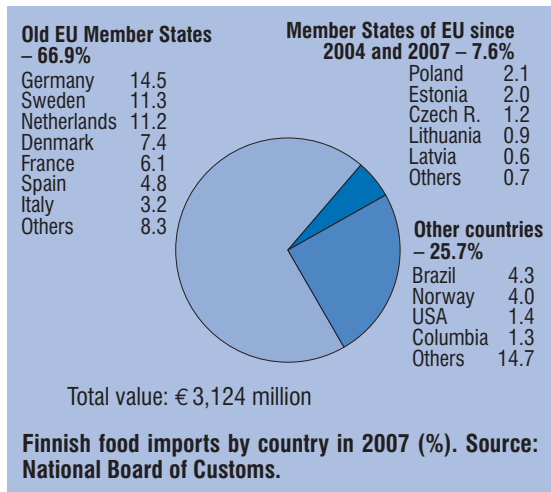
Import from the new Member States which entered the Union in 2004 and 2007 has been growing steadily. The statistics show that the value of imports from these countries nearly quadrupled from € 66 million in 2003 to € 237 million in 2007. This has not caused any dramatic changes in the structure of imports. In 2007 the share of the new Member States in total food imports was 7.6%, while in 2003 the share of the same group of countries was 2.9%. The share of Poland grew the

most, from 0.9% to 2.1%, and the share of Estonia almost tripled from 0.7% to 2%.

EU enlargement has also opened new export markets for Finnish food companies. In 2003–2007 the value of exports to the new Member States grew from € 105 million to € 220 million and their share in total Finnish food exports from 11.2% to 16.8%. Exports to Estonia and Poland grew the most.

Russia is still the main target for the Finnish food exports with a share of 22%, Sweden comes second (16%) and the third is Estonia (10%). More than half 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 28% (€ 367 million) of the total value of exports. The value of cheese exports was almost € 145 million and they represented 11% of the total value of exports. From 2006 cheese exports grew by 5%. Other important export articles are cereals and cereal products (€ 193 million), beverages (€ 126 million), meat (€ 122 million), and butter, various kinds of processed foods and sugar industry products.



# Finland on the Russian food market

Csaba Jansik

Finland has long traditions in trading with the east. Foodstuffs have also occupied a significant role in this. Already during the Soviet era large volumes of food were exported to Russia, and exports have continued after the changes in the economic system. Because of the proximity as well as common history Finland is often perceived as an expert with special knowledge on the Russian market. But is this really the case? Does Finland really have such a strong position on the Russian food market as the common and automatic conception suggests?

## Finland's position on the Russian food market has weakened

Figures obtained in international comparisons show that the position of Finnish food exports on the Russian market has weakened considerably over the recent years. Competing countries – such as Denmark, Spain and Italy – which 10 to 12 years ago were equally great or even much smaller players in Russia now occupy a far greater share of the rapidly growing food markets.

Significant competitors can also be found among the new EU countries. In recent years especially the Baltic States and Poland have expanded their exports quite rapidly. These countries possess very much the same preconditions that are considered the strengths of Finland: geographic proximity, cultural and historical ties and long traditions in food trade with the east. In addition, they compete largely in the same product groups in which the Finnish food export has also specialised. Lithuania, whose relations with Russia do not suffer from the minority disputes experienced in the other Baltic States, has in the past decade succeeded in increasing its Russian exports tenfold to over half a billion euros. Latvia and Estonia have not reached an equally high level, but their exports have also increased manifold. Even Poland, whose meat exports have suffered from bans, has doubled its food exports to Russia over the past ten years.

### Food exports of EU countries to Russian (€ million).

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007e
<b>EU Total</b>	<b>3,606</b>	<b>4,208</b>	<b>5,597</b>	<b>4,029</b>	<b>3,369</b>	<b>3,240</b>	<b>3,896</b>	<b>4,175</b>	<b>4,154</b>	<b>4,647</b>	<b>5,214</b>	<b>6,663</b>	<b>7,625</b>
Netherlands	651	672	951	679	458	507	574	699	679	771	819	1,086	1,305
Germany	951	1,151	1,555	1,118	738	624	967	884	797	913	941	1,218	1,298
France	318	417	592	439	435	351	320	349	351	384	405	511	614
Lithuania	..	..	..	..	43	64	70	81	109	109	166	358	515
Denmark	286	349	493	328	160	208	276	249	207	250	298	510	511
Belgium	307	353	496	386	252	248	237	236	247	299	376	421	486
Poland	..	..	..	..	260	257	247	298	318	409	508	435	456
Spain	131	159	253	182	138	181	218	216	225	251	258	372	431
Italy	230	255	296	194	92	97	147	183	222	219	291	343	398
<b>Finland</b>	<b>211</b>	<b>295</b>	<b>358</b>	<b>266</b>	<b>154</b>	<b>167</b>	<b>190</b>	<b>207</b>	<b>199</b>	<b>179</b>	<b>188</b>	<b>237</b>	<b>282</b>
United Kingdom	140	135	237	193	109	96	87	128	184	195	150	180	192
Estonia	..	..	..	..	15	9	16	12	12	34	71	123	189
Hungary	..	..	..	..	138	177	175	176	178	175	209	212	186
Austria	68	67	69	45	52	40	57	62	67	79	102	151	177
Latvia	..	..	..	..	25	20	49	51	46	52	76	103	152
Other EU countries	313	355	299	198	303	194	269	343	313	327	356	403	433

Source: Eurostat, Foreign Trade database. Note: Table contains figures for the current EU-27 retroactively, data for new Member States is available as from 1999. The latest EU enlargements took place in 2004 and 2007.

Most of the competition, however, comes from outside the EU. In the best year of the 1990s, in 1997, the EU represented more than three-fourths of the total Russian food imports, but by 2005 the combined share of the EU-25 had decreased to 42%. Thus the EU has to compete more and more severely with third countries. In 2005 the greatest food exporters to the Russian market were Brazil (13% of total Russian food imports), Ukraine (9%), Belarus (8%), the USA (5%) and China (4%).

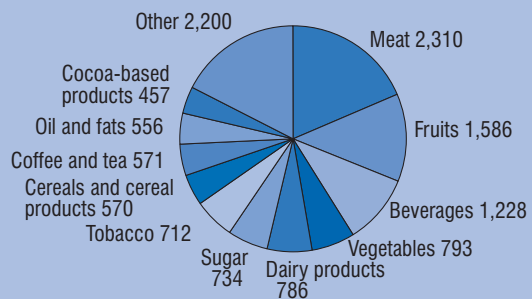
The competition over the rapidly expanding markets is strong. The value of imports varied considerably in the 1990s, following the economic fluctuations. In the first years of the decade the imports were still quite small, but they increased rapidly and reached a record high level in 1997. The devaluation of the rouble in 1998 led to a strong reduction in the purchasing power of Russia and a fall in food imports. However, they recovered in the 2000s and due to the positive economic development and rising incomes the value of total food imports has grown from € 4.5 billion in 1999 to € 12.5 billion in 2005.

### Potential for growth in exports

The structure of Russian food imports have changed considerably in the past 12 years. Practically no fruit or vegetables were imported in 1995, while ten years later these were the second and fourth most important product groups. The growth has taken place at the cost of e.g. confectionary products, beverages and tobacco, whose domestic production increased during that period.

Because of the climate conditions Finland obviously does not compete on the export markets of fruit, vegetables or sugar. The relevant export articles for the Finnish food industry are meat, dairy and cereal products as well as beverages and confectionary products. Of the EU countries Finland was the second largest exporter of dairy and cereals products to Russia after Germany (worth € 120 and 58 million). Instead, in the exports of meat products to Russia Finland is only in the eighth position and in confectionary and beverages exports one of the last EU countries on the list. Thus there should be a lot of growth potential in these products as well as in certain special products groups, which are also the main priorities in Finland's export promotion programmes.

In the markets of the largest product group in Russian food imports, i.e. meat and meat products, Finnish companies cannot afford to enter into price competition with the efficient mass producers such as Brazil, the USA or Poland, but there is potential for growth in the export of processed pigmeat products. SMEs offer a great variety of special products with good market potential. So far their export has been restricted by problems in the logistics, certification and bureaucracy, or lack of marketing and language skills or experience in international trading. When these obstacles have been overcome, significant growth can be expected in the value of Finnish food exports including the special products of the SME sector.



**Structure of Russian food imports in 2005. Source: FAOSTAT.**

On the Russian market Finnish foods are perceived as high quality products, but their prices are also quite high. Export of premium products can be established on the basis of the emerging and rapidly growing middle class. The volumes may be smaller than in mass production, but the unit value is much higher. In this respect it is highly important to be a few steps ahead of the competitors. For example, the markets for functional and organic foods are only starting to open in Russia. If Finland is actively involved in supplying these products from the very beginning, the Finnish origin may continue to be strongly associated with these products also in the future. Thus the market position may be secured when the market segment grows. The objective of increasing exports calls for marketing competence and skills and, especially among the SMEs, mutual collaboration.

### **Choice between export and constructing production capacity**

Besides the general economic situation and income level of the consumers, Russian food imports are influenced by two significant factors, which both restrict the growth in imports: (1) agricultural and sectoral policy and (2) foreign investments.

(1) Reaching self-sufficiency in several important food categories has emerged as a very strong policy objective in Russia during the 2000s. Russia aims to continue to reinforce the domestic food production through agricultural support and sometimes quite protectionist trade policy. Arguments concerning deficiencies in the quality, hygiene or animal welfare have been used to restrict, for example, meat imports from the EU, USA and Brazil, and import duties have been imposed on several products.

(2) Foreign investments may also reduce foreign trade volumes, because they offer the foreign companies an alternative way of gaining access to the market. Production in the target country may substitute for earlier exports. For example, confectionary and tobacco imports decreased considerably towards the end of the 1990s, when foreign confectionary and tobacco companies had taken up their position in Russia. Today the subsidiaries of foreign enterprises account for more than 70% of the production in both sectors. The most recent example is the malting plant built in North-West Russia by means of French capital, which is going to replace most of the malt imports. This is a severe strike to the Finnish malting industry. The presence of foreign investors is also getting stronger in the dairy and brewery industries. On the Russian scale these sectors are quite concentrated, while the meat and bakery industries are structurally more fragmented and they have attracted only a few isolated investors.

The confidence of foreign investors has clearly strengthened in the Russian food industry. In the past four years the annual investments in the sector have been over one billion dollars. At the end of 2006 the total foreign direct investment stocks rose to 5.3 billion dollars.

Finland needs to assess the Russian food market in a comprehensive way. Each company must make its own decisions concerning the choice between exports and building up production capacity. Direct investments in Russian food industry are likely to be a better choice for the largest companies with strong brands, while exports may be a more natural and realistic option for the volumes of the SMEs.

Economic growth in Finland's eastern neighbour country continues to increase food consumption and the demand for highly processed foods. Gaining access and establishing positions on the market is important, regardless whether it takes place through exports or direct investments. Russia represents great opportunities for the Finnish food sector in terms of expanding production volumes and internationalisation.



### 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 year 2007 did not bring along a similar overhaul of the payments as the introduction of the SPS the year before. However, the content of the agri-environmental support was revised and some changes were made in the national aid as well. In 2008 the range of agricultural support measures is 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. 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.

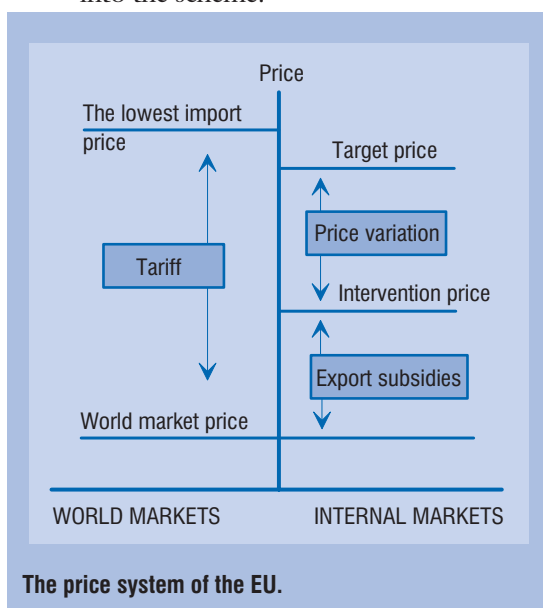
As a result of the policy reforms of 1992, 1999 and 2003 the intervention prices of cereals, beef and milk in the EU were lowered closer to the world market prices. The price reductions

have been compensated for by means of direct payments, which is why support based on the area or number of animals (headage and area related payments) have gained a central position in the product-specific price and market organisations.

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.

#### Single Payment Scheme of the EU

As a result of the reform of the common agricultural policy agreed in June 2003, most of the payments for arable crops and livestock have been decoupled from the production and a new single payment scheme (SPS) has been set up in the Member States. Most of the payments financed by the EU alone are now included in the SPS, and new conditions relating to the environment, maintaining the productivity of the land, food safety, animal welfare and occupational safety have been incorporated into the scheme.



The reform includes so-called modulation, in which a gradually increasing share of the CAP support is transferred to rural development measures through the EU budget. Modulation does not apply to the first € 5,000 of each farm. From 2007 onwards the cut for the share exceeding this is 5%.

### Agricultural support in Finland

In 2008 the support under the common agricultural policy to the Finnish agriculture will total about € 1,334 million. This consists of the CAP support for arable crops and livestock (€ 557 million), natural handicap payments for less-favoured farming areas (€ 423 million) and environmental support (€ 354 million). The supports 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 2008 the national aid for Finnish agriculture and horticulture will total about € 560 million. The national aid scheme comprises the northern aid (€ 330 million), national aid for southern Finland (€ 94 million), national top-ups to natural handicap payments (€ 120 million), and certain other national aids (€ 17 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.

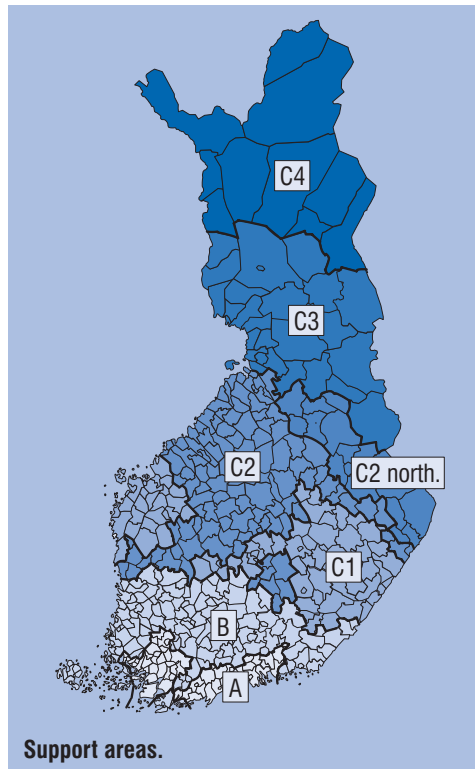
Northern aid is paid only in support area C. This has been divided into five areas for the differentiation of the aid. National aid for southern Finland (so-called aid for serious difficulties) is paid in areas A and B.

### CAP support

The application of the single payment scheme introduced in the context of the CAP reform of 2003 started in Finland in 2006. Now most of the so-called CAP support financed in full by the EU is paid through this scheme. 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 has been decoupled from the production as of 2006. The CAP support for arable crops was decoupled almost completely. However, under the SPS coupled support will be paid in 2008 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 farm-



Support areas.

ing condition and minimum requirements for animal welfare and state of the environment must be met. Finland has also decided that if a farmer sets aside more than the mandatory area, this managed, uncultivated land must be under grass to be eligible for the payment.

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.

### 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.

In 2007 the LFA support paid to Finnish farmers totalled € 422 million and the amount budgeted for 2008 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.

In 2007 the EU launched a major re-assessment of the LFA regions. The objective of the reform to be introduced in 2010 is to create a harmonised LFA scheme for all Member States which also takes 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. Biodiversity of farming environments and cultural landscapes must be preserved and conditions must be created for continuing

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

	2003	2004	2005	2006 <sup>prelim.</sup>	2007 <sup>prelim.</sup>	2008 <sup>e</sup>
<b>Total</b>	1,167	1,223	1,229	1,255	1,278	1,334
CAP income support	456	502	515	541	542	557
Support for arable crops	345	362	351			
Other area-based support	10	10	10			
CAP support for animals	101	130	154			
Compensatory allowances	422	424	421	420	422	423
EU contribution	132	133	132	131	118	118
National financing	290	291	289	289	304	305
Environmental support*	289	297	293	294	314	354
EU contribution	162	158	144	102	88	94
National financing	127	139	149	192	226	260
EU financing, total	750	793	791	774	748	769
National financing, total	417	430	438	481	530	565

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

the production in the long term. The objectives also include reducing erosion in arable lands and increasing the amount of humus in the soil.

In 2007 environmental support paid to Finnish farmers totalled € 314 million and the amount budgeted for 2008 is € 354 million. The environmental support scheme is presented in more detail in Chapter 5.3.

### 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 national aid for agriculture and horticulture paid for the production of 2007 totalled € 571 million and about € 560 million have been allocated for this purpose for 2008. Aid is paid on the basis of the area and number of animals and as additional price for milk. The aid for horticulture is paid as storage aid, area payments

for horticultural production in the open and aid for greenhouse production.

#### 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.

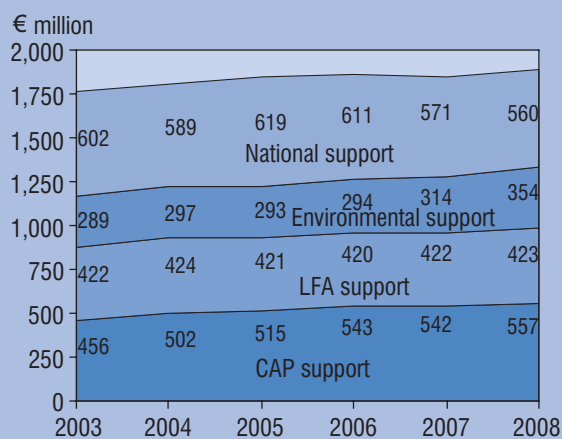
Northern aid consists of milk production aid and aids based on the number of animals and cultivated area. The northern scheme also includes the aid for greenhouse production, storage aid for horticultural products and wild berries and mushrooms and headage-related payments for reindeer.

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 will discuss the future and development needs of the northern aid during 2008.

Northern aid paid for the production of 2007 totalled about € 329 million, of which € 167 million was paid as northern aid for milk production and € 101 million as northern aid based on livestock units.

#### 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



Agricultural support in 2003–2008, € million.

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. The Commission authorisation for the payment of aid under Article 141 ended in 2007 and during the year a solution had to be negotiated to ensure that the payments for southern Finland would not decrease dramatically as from 2008.

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 2008 the aid under Article 141 to southern Finland will total € 93.9 million, which is almost the same as the € 93.7 million paid in 2007.

After that the aid will be decreasing at the average rate of 2.7% 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.

Based on the new decision there will be some changes in the structure of the aid under Article 141. From 2008 onwards part

of the aid for the livestock sector are paid as hectare payments to animal farms. 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 decision on 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 2007 the payments totalled 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).

	2003	2004	2005	2006 prelim.	2007 prelim.	2008 estimate
Total	601.8	588.6	619.0	611.4	571.3	560.3
Northern aid	357.6	387.1	330.2	327.3	328.8	329.7
National aid for Southern Finland	130.8	127.3	99.0	96.5	93.7	93.9
National aid for crop production	98.7					
National supplement to environmental support		60.0	55.0	55.0	0.6	0.4
National supplement to the LFA support			120.1	119.9	119.6	119.6
Other national aid	14.7	14.2	14.7	12.7	28.6	16.7

## 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 2007 the total return on agriculture and horticulture rose to a little under € 4.3 billion. The costs were almost € 3.3 billion and the agricultural income, i.e. the difference between the two, totalled € 988 million.

After four years of decrease, in 2007 agricultural income rose by 9.6%, a little under € 90 million, from the year before. The returns on both crop and livestock production grew. At real prices, however, the agricultural income of 2007 was still almost 25% lower than in 2002.

According to the total calculation, the return on agriculture and horticulture grew by 6.1% and costs by 5.1% in 2007. The sales return at market price totalled € 2.3 billion. Most of the return, € 1.5 billion, came from livestock production. The sales return on crop production was a little under € 0.5 billion and that on horticulture a little over € 0.4 billion. Support payments to agriculture and horticulture totalled about € 1.9 billion.

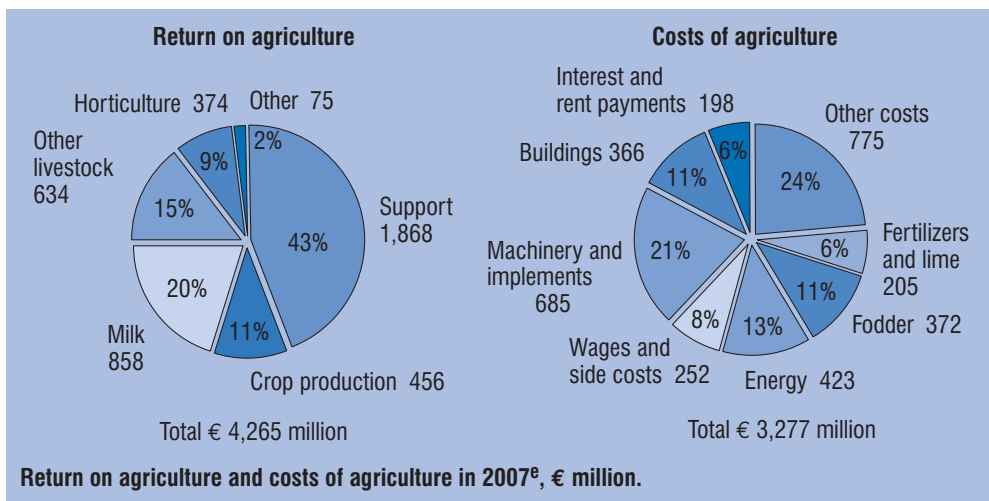
Return on livestock production rose by about 7% from the year before. Rises in the producer price for milk compensated for the decrease in volumes and the return increased by a little under 6%. Pigmeat production continued its growth by about 2% and together with the rise in the average price this increased the return by 7%. Return on poultry meat production rose by 11% due to growth in volumes. The rise in the producer price for eggs increased the return by almost 24%.

The return on crop production rose by more than € 166 million, i.e. by as much as 58% from the year before. Increase in

**Agricultural income at nominal and 2007 prices in 1994–2007<sup>e</sup>, € million.**

Year	Total return at nominal prices	Total cost at nominal prices	Agricultural income at nominal prices	Agricultural income at 2007 prices	Annual change at 2007 prices, %
2007 <sup>e</sup>	4,265	3,277	988	988	6.9
2006	4,021	3,119	901	924	-9.2
2005	3,986	3,011	976	1,017	-9.7
2004	3,968	2,897	1,070	1,126	-4.7
2003	3,932	2,811	1,121	1,181	-3.3
2002	3,960	2,812	1,148	1,221	2.6
2001	3,900	2,798	1,102	1,190	4.2
2000	3,753	2,722	1,031	1,142	6.0
1999	3,520	2,579	941	1,077	4.4
1998	3,484	2,594	890	1,031	-17.7
1997	3,609	2,542	1,067	1,253	-3.6
1996	3,650	2,556	1,093	1,300	-12.7
1995	3,759	2,515	1,245	1,488	-12.4
1994	4,270	2,864	1,407	1,699	26.4





the return on cereals was due to both the large quantities of cereals on the market thanks to the good crop and the rise in the average price by more than 50%. The sales revenue on horticulture was about the same as in 2006

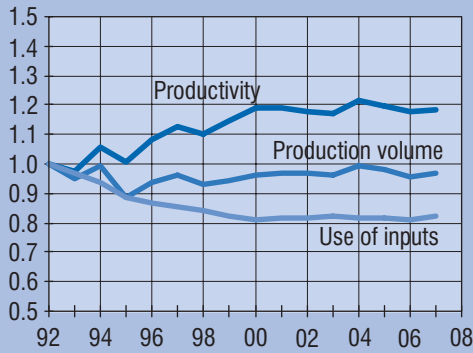
The main reason for the higher costs was the rise in the prices of feedingstuffs due to the rise in the cereal and raw material prices. The rise in the cost of industrial feed accounted for about a quarter of the total increase in the costs of agriculture. Rise in the interest-rate level and growth in 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.

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." The consumers often measure agricultural production through food prices. Reasonable prices are regarded as an indication of technically and economically efficient production and vice versa. However, the signal for agricultural production that the consumers get through the prices is quite weak, because it has been filtered through the processing, wholesale and retail stages of the chain. Some consumers assess agricultural production through the welfare of animals or the nature. In this case the ambition for efficiency and productivity has been considered excessive relative to consumer expectations, as the discussions on animal protection or spreading of manure has shown. However, neither of these perceptions gives an accurate picture of the real productivity development, i.e. trend of the input-output ratio over time. In this



**Productivity, production volumes and use of inputs in 1992–2007 based on the total calculation of agriculture (the year 1992 indicated by 1).**

## Productivity trends in Finnish agriculture

As defined on the basis of the total calculation, in 2007 the same use of inputs in Finnish agriculture yielded an about 18.5% higher output than in 1992. The total production volume was 97% and use of inputs 82% of the levels in 1992. The average productivity growth in agriculture was 1.1% per year.

Based on the profitability bookkeeping data the productivity development of livestock farms has on average been positive since 1995, but the productivity of crop farms has improved very little. In 2007 the same use of inputs yielded, on average, 39% more than in 1987 on dairy farms, while on pig farms the productivity grew by as much as 63%. On livestock farms the relative prices of products and inputs continue to provide incentives to develop the production. The productivity of livestock farms improved rapidly especially in the very last years of the 1990s. This was probably connected to investment aids which encouraged developing the production technology.

In total the productivity development of cereal farms was also quite rapid between 1987 and 2006. On cereal farms the same use of inputs yielded, on average, 49% more in 2006 than in 1987. However, the main reason for this is that in 1987 cereal farms suffered quite serious crop damages. If the productivity development of cereal farms is based on the year 1990, the amount of production obtained using the same amount of inputs is only 11% higher in 2006. The figure shows that on cereal farms we cannot observe a similar period of rapid productivity development towards the end of the 1990s as on livestock farms. Even the poor crop years 1998 and 1999 do not interfere with this observation, because the time series is long enough to assess the level of productivity before and during the EU membership. The productivity

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 base year plays an important role when productivity development is measured. The allocation of the costs and the returns between the years were shaken at the time of accession to the EU due to the quite significant changes in the farm stocks. Therefore the analysis and productivity development during the EU membership, i.e. since 1995, cannot be directly estimated using either year 1994 or 1995 as the base year. Because the total calculation cannot be corrected into an accrual-based one, the year 1992 is used as the base year. In 1992 the membership negotiations had already been started but they did not yet have any major impacts on agriculture. The data on the bookkeeping farms does not involve a similar problem as the cash-based bookkeeping. However, when estimating productivity development on the basis of accrual-based bookkeeping, the selection of the base year is also very important. In the profitability bookkeeping data the changes in the weather conditions appear exactly as they have influenced the output volumes.

development of cereal farms may accelerate considerably if the incentives coming from the market are strong enough.

Studies based on long time series show how difficult it is to assess changes in productivity development using a short time series. The figures presented here are based on long time series picked out from the profitability bookkeeping data. As regards the calculation method the data are comparable all through the period concerned. The productivity development presented here is restricted to products and inputs which can be traded on the market. The calculations do not include the externalities of agriculture, such as changes in nutrient loading.

### International comparison

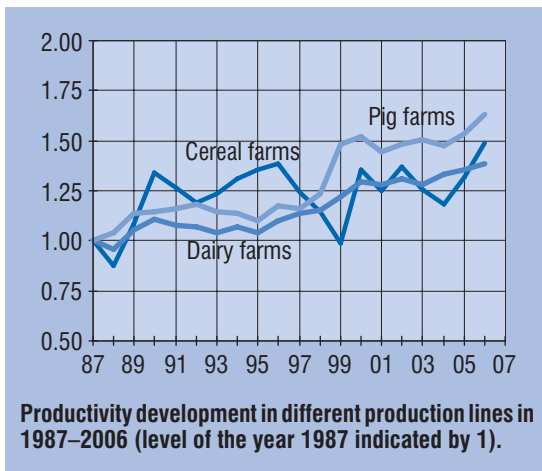
Even if the trend has been quite positive, the productivity of Finnish dairy farms is still low compared to the Danish and Swedish farms. Measured by the number of cows Danish farms are almost four times and Swedish farms about twice the size of Finnish dairy farms. Larger farms size allows much higher productivity, especially in term of labour input. The production conditions such as climate, soil and location and structure of lands also influence the input-output ratio which can be attained. Differences in productivity and

trends in these on Finnish, Swedish and Danish dairy farms in 1997–2003 have been examined by means of bookkeeping data on dairy farms (FADN of the EU).

On Danish farms the level of productivity was 20–30% higher than on farms of the same size in Finland, which means that on Finnish farms the same use of inputs yields only 70–80% of the output obtained on Danish farms. The difference to Swedish farms is 10–20%. Productivity is the lowest on farms located in northern Sweden and northern Finland, where the difference to Danish farms was as high as 30–40%. There are no significant differences in productivity between dairy farms located in southern and central Finland.

Changes in productivity differences over time are a significant factor as regards the trend in the competitiveness of the production. According to the results, the growth in productivity due to technical progress in 1997–2003 was more rapid on Finnish dairy farms than in Denmark, even if the Danish farms had also grown considerably. Rapid growth of farms involves adjustments costs, which slow down the growth in productivity. In the long term the productivity of Danish farms has been growing more rapidly than that of Finnish farms, which means that the diminishing difference in productivity during this period may be only temporary.

Economies of scale encourage to increase the farm size to improve productivity, if the relative growth in the output exceeds the increase in the use of inputs. On Finnish farms the elasticity of the output relative to the growth in input use, the so-called returns to scale, has on average been smaller than on Danish and Swedish farms. This means that in Finland increasing the farms size is not going to yield the same benefits as in the neighbouring countries. Thus, as the farm size increases, the differences in productivity between the countries tend to grow.



### 4.3. Development of the economic result and profitability of agriculture and horticulture enterprises

The MTT Economic Research calculates the profitability development of Finnish agriculture and horticulture annually on the basis of the records 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 43,000 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 have been allocated as returns and costs to the year of production in accordance with the accrual principle. The possible transfer of sales or support payments to the following year does not influence the results of the year. Instead, annual variations in the yields and returns and changes in prices and subsidies are directly reflected in the annual profitability figures.

#### Development of returns

The average gross return of agriculture and horticulture enterprises grew by about 6% to € 104,000 in 2006. Both sales proceeds and support payments rose by about 6% from the year before. On average, 59% of the gross return of the bookkeeping farms came from the market and 41% was received as support payments. Support includes also investment aids divided over the economic lifetime of investments.

#### Development of costs

The average costs increased by almost 6% to € 83,700. After the costs had been deducted, the average entrepreneurial income left as compensation for entrepreneur's labour and equity was € 20,300, which is 7% higher than the year before.

When the entrepreneur's wage claim calculated on the basis of the recorded working hours of 2,530 and hourly wages of agricultural employees of € 12.4 as well as the interest claim for equity, 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 about minus € 21,900.

#### Profitability

When entrepreneurial income is divided by the sum of wage and interest claims we arrive at the profitability coefficient. The profitability coefficient rose to 0.48, which means that entrepreneurs achieved, on average, 48 percent of the objective set for wages and interest. The fact that the profitability coefficient is less than one, shows that the entrepreneurial income did not cover the wage and interest claims, which can also be seen in the negative entrepreneurial profit.

The profitability coefficient was on dairy farms 0.49, on other cattle farms 0.37, on pig farms 0.62, in horticulture 0.55, on cereal farms 0.46 and on other crop farms 0.47. Regional differences in profitability decreased especially due to the increase in the profitability of cereal production. The profitability coefficient of cereal farms rose from 0.25 to 0.46. In all production sectors large enterprises are more profitable than small ones.

In about half of the enterprises the profitability coefficient was between 0.16 and 0.76 (lower and upper quartiles). In the best 14% of the enterprises the profitability coefficient was higher than 1, which means that compensations for an hour of farm family labour and equity were over € 12.4 and 5%, respectively. On about 17% of farms the profitability coefficient was negative, which means that there was no compensation for own labour and equity.

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

Profitability coefficient can be used for comparisons within agriculture, but the return on equity and total assets are more appropriate indicators for comparisons with other enterprises. When wage claim is deducted from entrepreneurial income, we obtain the net profit left as return on equity. In 2006 this was € -11,000. When the net profit is divided by the amount of equity, we arrive at the return on equity, -5%.

By adding interest charges to the net profit, we arrive at the compensation for total assets, which was negative, € -8,430. When this is divided by the total capital of the accounting period of € 290,200, we arrive at the return on total assets. This was, on average, -2.9% in 2006. In the main production sectors the return on total assets varied between -5.7% on dairy farms and -0.1% on pig farms.

## **Solvency and liquidity**

Low profitability in agriculture and horticulture means that additional capital needs to be invested to continue the production activity in the current extent.

This additional capital may be external, but often it consists of entrepreneurial income left as compensation for own labour and equity. Funding from other operations with the same conditions as capital invested (forest income, wages, investment subsidies, etc.) is often used to finance investments and to ensure liquidity. This is one reason why the average share of equity to total capital is still very high, 74%. Because of the growth in both the farm size and capital intensity the average equity grew by almost 10% to € 221,600 and the average debt was € 76,000. However, on very large farms the equity ratio is as low as 50%.

The equity ratio is improved by the fact that all property items acquired by means of investment subsidies are included in the balance and equity with the acqui-

sition cost. Depreciations are calculated from the value of fixed assets and investment subsidies are recorded as return at the same pace as the value of assets covered by them are being depreciated. This gives the correct view of the equity needed for agricultural production, profitability, as well as the equity ratio of enterprises.

## **Earnings of farmers**

When the interest claim of 5% is deducted from entrepreneurial income, the annual earnings in 2006 were € 9,470. By dividing this by the 2,530 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 2006 the average hourly earnings in agriculture were € 3.7. In about 10% of the enterprises the hourly earnings were more than € 12.4.

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

The figures for the year 2007 have been calculated based on bookkeeping data for 2006 using the model for forecasting the trend in the results and profitability developed at the MTT Economic Research. The forecasts for individual enterprises take account of the changes of input and producer prices by products and cost items in 2007, changes in payments of subsidies and regional changes in average yields for crops. The forecasts for individual enterprises are weighted to indicate the average results of the 43,000 largest agriculture and horticulture enterprises.

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. The model does not include any impacts of the development in the farm size and productivity on the economic result.



## Forecasts for 2007

According to the forecast, the sum of the sales return and support payments of agriculture and horticulture enterprises grew by 6% to € 110,500 in 2007. The growth was mainly due to the rise in sales return by almost 11%, while the support payments were about the same as in the year before and the share of support of the total return fell to 38%. However, the costs and depreciations increased by 5% to € 87,500. The average entrepreneurial income left as compensation for own labour and equity was almost € 23,000, which is 13% higher than in 2006.

The cost of farm family's labour and equity totalled € 42,700. When this is deducted from the entrepreneurial income, we obtain entrepreneurial profit, which was € -19,800. The growth in support payments and sales return was not sufficient to cover the rise in the costs.

If only the 5% interest claim to the equity, about € 10,800, is deducted from the entrepreneurial income of € 23,000, the annual earnings left to the farm family labour are about € 12,200. When this is divided by the average hours of farm family labour input, about 2,530 hours, we arrive at hourly earnings of € 4.8.

The average profitability coefficient rose from 0.48 to 0.54. This means that the entrepreneur reached 54% of the hourly wage claim of € 12.6 and interest claim of 5%. The coefficient was 0.47 on dairy farms, 0.24 on other cattle farms, 0.56 on pig farms, 0.62 on horticulture farms, 0.72 on cereal farms and 0.76 on other crop farms. The profitability improved on crop farms and, except for dairy farms, weakened in the livestock production sectors. Of the support areas the profitability coefficient was the highest in support area A and especially in area B in southern Finland, thanks to the improved profitability of cereal and other crop production. However, the profitability of cereal farms has been poor for years, and the improved profitability in one

year is not enough to compensate for all of the losses of the past years.

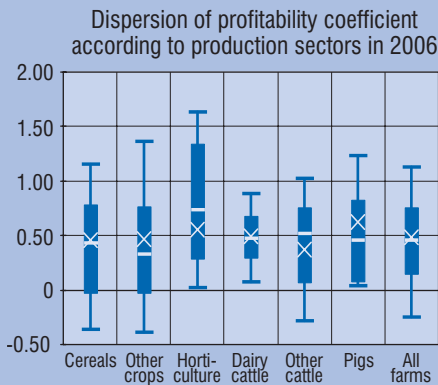
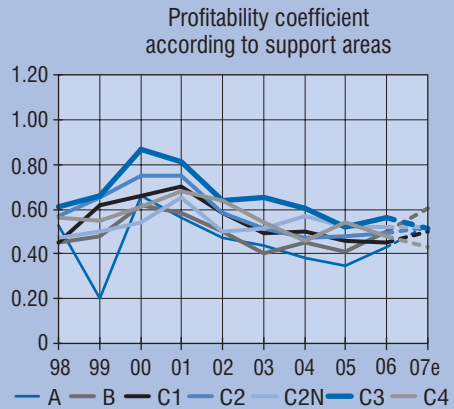
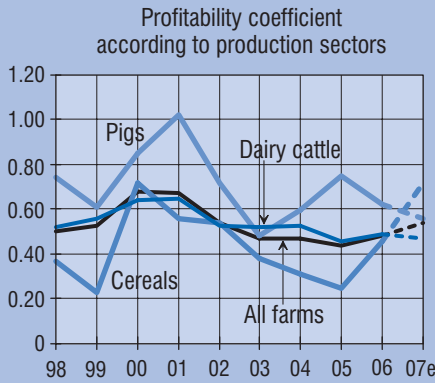
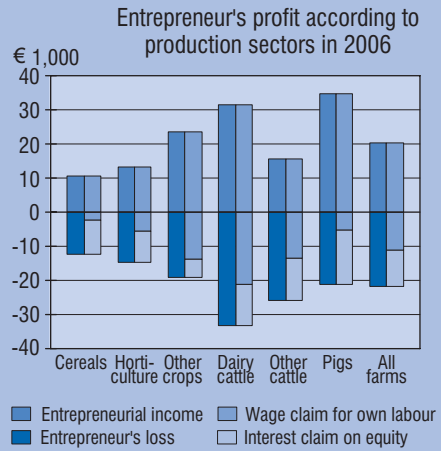
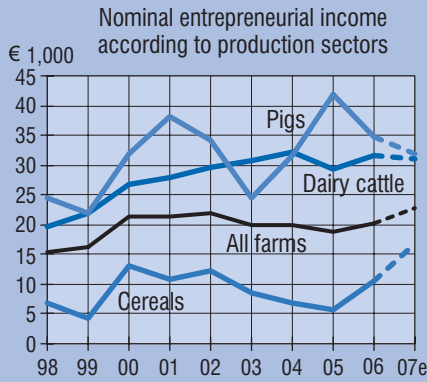
## Profitability and forecast results for agriculture from Taloustohtori

Financial statements and result and profitability figures for Finland and the other EU Member States by region and production sector are available in the online service of the MTT Economic Research at [www.mtt.fi/taloustohtori](http://www.mtt.fi/taloustohtori).

The service provides the average financial statements of enterprises representing all production sectors and size classes from the accounting year 1998 onwards. The user can freely choose the regional classifications. The average results given in Taloustohtori are calculated from the records of the bookkeeping farms weighted according to the classification by production sector, size class or region selected by the user so that the results can be generalised to show the average results of that specific region. The average results for the whole country represent the results of the 43,000 largest agriculture and horticulture enterprises in Finland.

The result, balance and profitability calculations are available as basic tables for each accounting year for 1998–2006 and 2007 (forecast), classified according to the size class, production sector and support area. By pressing "omat valinnat/own selection" in the service the user has access to various kinds of reports on different sectors and size classes according to different regional classifications. The number of alternative reports is 9 and there are 8 selection criteria, of which the user may select the maximum of 4 for each printout. All the result tables of the system are created in real time from farm-specific data, and for generalisation the results are weighted by the data for the 43,000 largest Finnish agriculture and horticulture enterprises to indicate the average results according to the production sector, size class and regional classification selected by the user.





Development in the results and profitability of agriculture and horticulture enterprises in 1998–2007e.

## Soaring feed prices – A cost crisis on livestock farms

*Jarkko Niemi*

The world market prices for cereals rose rapidly in 2007. The prices paid for e.g. feed barley in Autumn 2007 were 60–80% higher than the year before. The prices for protein-rich feed ingredients such as soy bean meal also rose by several tens of percentage points.

Cereals are an important feed ingredient and energy source for Finnish livestock. The Agrifood Research Finland MTT has calculated that a rise in the price of barley by 60–80 €/tonne increases the production cost of pigmeat by 23–30 cents/kg meat and causes additional costs of € 47–63 million for the whole pig sector.

A similar rise in feed prices increases the production cost of eggs by 16–20 cents/kg eggs and broiler meat by 21–25 cents/kg meat, and the additional costs for the whole poultry sector amount to € 28–33 million a year.

The options of livestock producers to substitute other feed ingredients for cereals, or otherwise adapt to the price changes are limited. Keeping the costs below the producer price is thus a great challenge. The producers may prepare for price increases through sales contracts, removing animals with a poor feed conversion ratio from the stock and delaying the removal of animals with a good feed conversion ratio, and more efficient use of nutrients in feed (i.e. precision feeding).

### Poor feed efficiency eats up the return

The price of feed is important for the competitiveness of livestock production. Feed generally is the greatest individual production cost item. In, for instance, pig meat production feed accounts for about a quarter of the production costs. Pig production consumes about four feed units and beef production about six feed units of feed per kilogram of meat. On pig and poultry farms, cereals represent a major share of feed quantity. However, the consumption of feed varies considerably between farms and animals.

Especially on farms where the feed conversion ratio is weak, animals eating expensive feed eat up also the profit margin. On milk and poultry farms the rise in input prices quickly reduces the profitability as the milk, meat and eggs produced by means of the more costly inputs enter the markets rapidly (in a few days or weeks after using the inputs). In contrast to this, the production process of pigmeat and beef is time-consuming, the adjustment takes more time, and the rise in input prices influences the costs of meat sold on the market gradually. In January 2008 the situation was particularly challenging for piglet production as piglet prices were still around prices paid in summer 2007.

### Additional cost due to cereal up to 20–30%

According to the Gallup Food and Farm Facts, the prices for industrial feedstuffs rose by 8% between January–April and July–October 2007. The prices for complete compound feeds for dairy cows rose by 7%, those for bull calves 1%, sows 5%, fattening pigs 12%, hens 8% and broilers 13%. By October 2007, the increase in the prices of feed raw materials had not been transferred in full to the prices of feeds.

The impact of feed prices on the production costs varies according to the production sectors. At the prices of 2006, a 10% increase in feed prices (excl. grass feed) increases the unit production cost of milk by about 0.5 cents/l, that of beef by about 10 cents/kg, pigmeat 8 cents/kg and eggs 4–5 cents/kg. Prices of cereals and protein-rich crops are expected to stay above the prices paid in the past few years. Higher cereal prices provide producers with incentives to look for feedstuffs where less cereal is used, as well as to consider the culling of low-productivity animals.

One option for reducing the costs is genetically modified soya, which is a little cheaper than conventional soya, and which the largest pigmeat processing companies started to import in 2007. Saving, for example, 3.1 cents/kg (10%) in the price of soy meal decreases the production costs of pigmeat by almost 2 cents/kg. The annual savings for the pig sector due to the use of GM soy meal could rise up to € 2–4 million. On individual farms, the interest in food quality may also create opportunities for specialisation on non-GM fed pigmeat.

### **Finnish and other EU prices weakly integrated**

The rise in the costs in 2007 can decrease livestock production in the EU and increase the producer prices. For the Finnish livestock sector it is important that the markets are flexible enough and that increases in production costs are transferred to the output prices. Flexible markets, however, may put more emphasis on price competitiveness.

Prices of agricultural products in Finland depend on their prices elsewhere in Europe. The producer price for pigmeat, for example, follows the trends in Danish and German producer prices. According to a study of the Agrifood Research Finland MTT, price shocks in Europe transmit to Finland quite slowly.

The stable producer prices in Finland reduce the market risks in business activities. On the other hand, the producers may not get the full benefit from the higher prices. Due to the stable prices the reduction in the production during times of depression may remain modest. The stable producer price level is due to numerous factors, such as the long-term supply contracts and negotiating power of trade and food industry. In Central Europe, the larger import and export volumes of both animals and agricultural products may also increase the price volatility.

### **Preparing for price risks**

Even if competition ensures reasonably priced feed, it does not guarantee a stable price. In Finland, more attention should be directed to the price risks in agriculture. One challenge are the biological restrictions, due to which the number of slaughter animals is almost predetermined in the short term. In, for example, pig fattening it is useful to know meat and feed prices at least for the current batch.

In the future the markets may be more and more susceptible to shocks caused by exceptional circumstances and the variation in feed prices may increase. One way to prepare for volatile feed prices is to agree on the prices and delivery dates of the next winter in the autumn, when the cereal prices are usually low. The contract price is the compensation for the feed to be supplied and the terms of the contract. To ensure that the contract is competitive, the duration of the contract, how binding it is and the prices paid must be considered carefully. If priced correctly, the contract reduces the cost of the market risk, even if in retrospect the spot price can make such contracts seem unfavourable at an individual moment of time.

## 4.4. Production costs of agriculture

High production costs per unit produced have always been one of the main problems in Finnish agriculture. Success on the common European market, where the competition is tightening and producer prices are on the decrease, calls for more attention to the unit costs of farm products and possibilities to reduce them. During the EU membership the farms have increased in size, with the aim of lowering the unit costs and improving their profitability. The production costs of milk and cereals from 1995–2006 presented below are based on the profitability bookkeeping data of the MTT Economic Research. The costs have been deflated to the price level of 2006 by means of the cost-of-living index.

### Milk

In 2006 the average production cost of milk was 57.0 cents/kg. The producer price without support was 33.7 cents/kg and the average production support in the whole country was 7.8 cents/kg. In 2006 the unit cost of milk was about a fifth lower than in the beginning of the EU membership, mainly as a result of the increase in the farm size and milk yield of dairy cows.

The average arable area of dairy farms included in the calculation was 57 ha and the average number of cows was 31. The average annual milk yield per cow was 8,350 kg. The size of farms has grown strongly during the EU membership: in 2006 the arable area was almost 27 ha larger than in 1995 and the number of cows had increased by 14. In the past 11 years the annual milk yield per cow has risen by almost 1,500 kg.

The unit cost of milk decreases as the farm size grows. The labour cost of the farm family, which is one of the fixed costs, is the most important factor explaining the differences in the costs in different farm size classes. On farms with over 50 cows it represented 19% of the unit costs and, on average, it was 57% lower on these farms than on farms with 10–20 cows. Relative to the production volumes more human labour is used on small farms than on large farms, where capital is substituted for labour.

### Cereals

In 2006 the average production cost of cereals on the bookkeeping farms was 43.1 cents/kg. The average market price for all cereals was 11.5 cents/kg.

**Milk production costs in 2006, cents/kg.**

	Number of cows/farm					Average
	under 10	10–20	20–30	30–50	over 50	
Variable costs	27.9	24.3	23.9	22.8	24.2	23.9
– purchased feed	5.6	5.6	5.9	6.0	6.9	6.0
– other livestock expenses	2.4	2.5	2.4	2.3	2.4	2.4
– energy	3.1	2.5	2.3	2.0	2.1	2.3
– maintenance	4.2	3.0	3.2	2.8	3.0	3.0
– other	12.6	10.7	10.1	9.7	9.8	10.2
Fixed costs	60.0	39.0	33.0	27.7	25.9	33.1
– cost of farm family labour	49.1	22.2	20.1	13.3	9.6	19.4
– depreciations	5.0	7.3	7.8	8.9	11.0	8.3
– interest on capital	5.9	5.5	5.1	5.5	5.3	5.4
<b>Production costs, total</b>	<b>87.9</b>	<b>63.3</b>	<b>56.9</b>	<b>50.5</b>	<b>50.1</b>	<b>57.0</b>

### Production costs of cereals in 2006, cents/kg.

	Arable area, ha/farm				Average
	under 30	30–50	50–100	over 100	
Variable costs	21.1	19.2	15.0	17.1	17.9
– purchased fertilisers	3.0	3.0	2.7	2.8	2.9
– other expenses of crop production	2.2	2.0	1.9	2.0	2.0
– energy	4.3	3.7	2.6	2.2	3.2
– maintenance	5.0	2.6	2.1	2.6	3.0
– other	6.6	7.9	5.7	7.5	6.8
Fixed costs	34.4	26.1	20.5	19.6	25.2
– cost of farm family labour	12.2	9.4	6.8	5.3	8.5
– depreciations	11.3	8.3	7.1	7.8	8.6
– interest on capital	10.9	8.4	6.6	6.5	8.1
Production costs, total	55.5	45.3	35.5	36.7	43.1

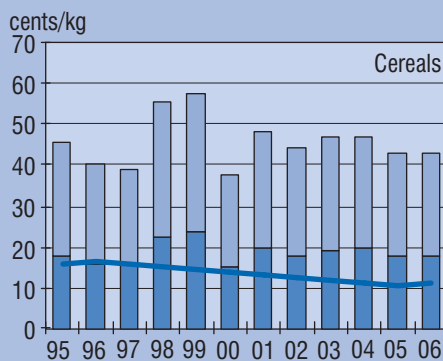
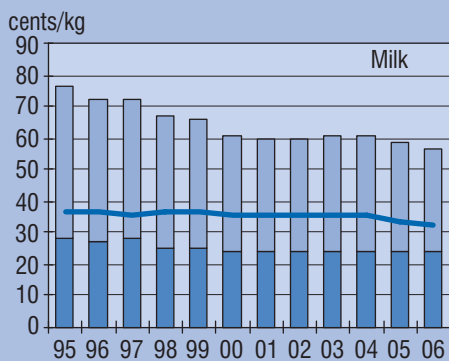
The unit cost of cereals was about the same in 2006 as in 1995 when Finland joined the EU. In 1998 and 1999 the crop was poor and the unit costs were high. The year 2000 was again a good year and the unit costs were the lowest during Finland's EU membership.

In 2006 the average arable area of farms included in the calculation was 67 ha, of which the average cereal area was 45 ha. The average cereal crop was 3,400 kg/ha. The profitability bookkeeping data do not allow the calculation of the pro-

duction costs for the different cereals, because the costs cannot be divided between these in a reliable way, and thus the costs indicate the combined average cost of bread and fodder cereals.

The unit cost of cereals decreases as the farm size grows. On cereals farms, too, the differ-

ences between farm size classes were the greatest in the labour cost of the farm family. On large cereals farms with over 100 ha the labour cost per kg of cereals on was 43% of the costs on farms with 30–50 ha in 2006. In farm size classes with under 50 ha both the fixed and variable costs per unit produced were higher than in the other size classes. In cereal production the share of depreciations and interest on capital in the unit cost is quite high, while on dairy farms the share of the labour cost is more significant.



Unit costs of milk and cereals and prices in 1995–2006 (at 2006 prices).

## 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, managed and open farming landscapes, biological diversity and rural viability. The environmental policy of agriculture is closely linked to other trends in the society, which places a great deal of emphasis on the active role of the State in agricultural production. Since 1995, when Finland joined the EU, until the present, the significance of environmental commodities and produce of multifunctional agriculture has been growing, while the producer prices of staple foodstuffs have been on the decrease. The rapid increase in the prices of plant products in 2007 weakens the relative competitive position of the public goods produced by agriculture and places new challenges to the agri-environmental policy.

During 2007, the discussion on agri-environmental policy was dominated by the Rural Development Programme for Mainland Finland 2007–2013. This includes the agri-environmental 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-environmental support is the largest item in the state expenditure on environmental protection. An estimated one billion euros a year is used for environmental protection, of which the agri-environment payments represent about a third.

The majority of the agri-environment support contracts under the conditions in force in the programming period 2000–2006 ended in 2006 and from the begin-

ning of 2007 contracts have been made under the support scheme of the new programming period. The programme implementation did not start without complications, because in the spring when first applications were submitted the processing of the programme still continued at the Commission and revisions had to be made that weakened the conditions for the support from the farmers' perspective.

According to the Commission Communication concerning the Thematic Strategy on Soil Protection issued in 2006, the main themes for agriculture are erosion, reduction in soil organic matter, soil compaction and acidification. The strategy has been circulated for comment and now the Commission should draw up a Framework Directive on the general principles for the protection and sustainable use of soil in the whole EU.

Water management plans under the Water Framework Directive are being prepared and these should be ready by 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 should also have a significant role as a producer of renewable energy. In addition to positive effects, agriculture has also negative impacts on the environment, i.e. the soil, waters and the 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 type, cultivation properties and crop rotations of the soil influence the environmental loading from arable land. Soil with good cultivation properties produces a good yield by reasonable use of inputs. 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 amount of soil organisms, activity of symbiotic microbes and binding and release of nutrients in soil organic matter.

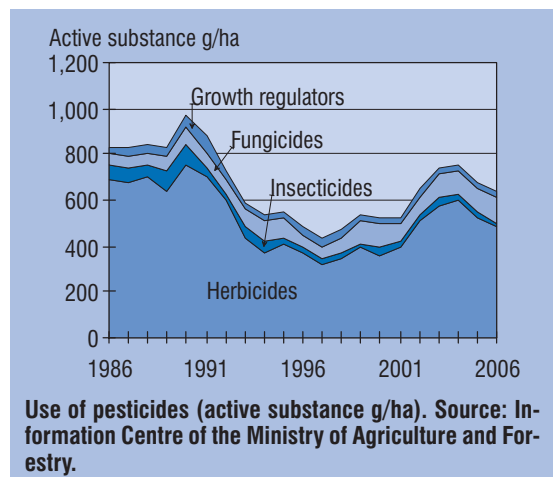
The phosphorus level in arable land is an indicator of both its productive capacity and environmental loading. Phosphorus is one of the three indispensable macronutrients for plants, but at the same time it is one of the main causes of the eutrophication of inland waters. Most of the phosphorus loading 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 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.

## 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.

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. In Finland, for example, heritage landscapes and biotopes could be such valuable areas, but this calls for further study. A research project has been launched to define such areas.



Based on the results of the follow-up studies on the impacts of the Finnish Agri-Environmental Programme (MYTVAS 1 and 2), the agri-environmental measures have contributed to the preservation of biodiversity and open farming landscapes. In spite of this, the current measures have not been sufficient to stop the impoverishment of the farming environments, which has continued for a long time.

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.

### **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, 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 shift 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 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 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. The measures to adapt to climate change are likely to change 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, however, 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, 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-environmental regulation**

Besides the direct factors causing emissions and environmental load, the structural change in agriculture and growth in the farm size increase the environmental risks of farming. Administrative measures have been taken to mitigate the negative impacts, including statutory restrictions and support for environmentally sound production practices. The possibility to use taxation as a regulatory means has been raised e.g. in the Government Programme. A report on taxation as a regulatory instrument by the Agrifood Research Finland MTT and Finnish Environment Institute SYKE states that fertiliser tax alone cannot substitute for the current agri-environment scheme, and this would also not be the purpose of a potential tax instrument. In the current scheme, the fertiliser tax would primarily be a means for intensifying the regulation through information, and it could make some contribution to water protection in agriculture.

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 the Organisation of Water 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.

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. In contrast, only about 2–3% of the support is used for measures which are primarily targeted at enhancing biodiversity. In spite of this, the impact of support on biodiversity is larger, because many of the water protection measures, such as filter strips, headlands and riparian zones, increase the diversity of plant and butterfly species as well.

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

In view of the implementation of the CAP reform and the new programming period 2007–2013, the concept of multifunctional agriculture is again topical. 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.

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

The European Commission approved the Rural Development Programme for Mainland Finland 2007–2013 in August 2007. The Finnish programme was one of the first programmes for the new period to be processed and approved. 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 € 6,626 million, of which 31% comes from the EU. The programme has four axes, of which axis 2 includes the agri-environment and natural handicap payments, non-production investments and promoting the welfare of production animals. The preliminary funding for axis 2 totals € 2,322 million.

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 contracts made in the programming period 2000–2006 remained in force and support may continue to be paid under these. The Ministry 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 December 2007, the working group presented three new contracts concerning special measures to be included in the agri-environment scheme. These are the 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. The proposals were approved at the Monitoring Committee for the programme and, if the Commission approves the proposals, the application of the measures could start in 2008.

#### Experiences on the programme from the first growing season

The measures of the third agri-environment scheme, whose application started in 2007, 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 were more accurate nitrogen fertilisation of arable crops, the different forms of plant cover on arable land in winter and calculation of nutrient 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, besides their positive impacts on waters, partly compensated for the negative trends in farming landscapes and biodiversity. In terms of biodiversity, it is important that under the new programme a headland covered by grass may also be left on the other sides of the parcels than those bordering

on main ditches or water bodies.

Experts regard the special measure concerning heritage biotopes as the most significant single measure in terms of biodiversity. During the current programming period the Leader action groups may also apply for support for non-production investments for the initial clearing of heritage biotopes and conclude contracts concerning this special measure for their management. This opportunity is expected to make a significant contribution to the management of many new valuable heritage biotopes on a regular basis. During the programming period 2007–2013, it is also possible to conclude contracts for certain new special measures aimed to enhance biological diversity.

## 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 of water protection in agriculture needs to be improved further now that the Water Framework Directive sets even more detailed quality objectives 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 objectives are met in each water area. In Finland, the implementation of the Directive has been started and the Act on the Organisation of Water Management entered into force at the beginning of 2005. Finland is divided into eight water management ar-

reas and detailed water management plans will be prepared for each of these. The classifications of groundwater by the Regional Environment Centres were completed in March 2008. Hearings on the water management plans also prepared by the Environment Centres will be organised in the autumn of 2008.

### What do the objectives mean for agriculture?

Nutrient loading from agriculture is non-point source loading which consist of 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.

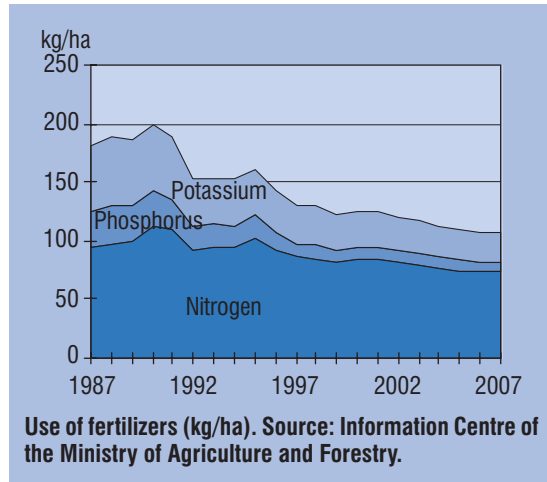
As fertilisation is one of the principal factors in nutrient loading, it is also used as an indicator of the loading potential. In 1995–2007, the fertiliser sales per hectare of cultivated land decreased from 92.3 kg to 73.5 kg for nitrogen and from 16.1 kg to 7.9 kg for phosphorus. This did not lead to a corresponding reduction in the yields per hectare. 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 that 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 trend 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 all water bodies 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.

Work to meet these challenges is being done through the regional water management plans as well as inputs in the research and development concerning environmental regulation in general. Economic studies become increasingly important when the available instruments need to be ranked and the reasoning is explained in the EU and other contexts on the basis of



the costs and benefits involved. According to Article 9 of the Water Framework Directive, the Member States must apply the polluter pays principle and ensure that different sectors, including agriculture, bear their share of the costs of water management and services.

## 5.5. Main topics in 2007 and future perspectives

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

The blooming of blue-green algae made again headlines last summer. Based on the most recent research results, the most efficient way of improving the state of the Gulf of Finland and the Archipelago Sea 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, cuts in the load to the Gulf of Finland locally 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 emis-



sions 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.

### **Manure**

Now that the Commission has assumed a negative position on the continuation of the current type of manure spreading contracts, solutions to the manure problem have even been sought from the possibility to apply a similar mechanism as in carbon dioxide emissions trading for the treatment of manure. In manure trading quotas would be established for operators who produce and use manure (arable farming and other use 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. Other solutions for using manure are being searched for from biogas production or in plaster, separation, burning, etc., because on many farms manure has started to restrict the growth in the unit size as the environmental regulations have been tightened.

### **Biodiversity in farmland**

Based on the results of projects under the Biodiversity and Monitoring Programme (MOSSE), the biodiversity of arable fields can be promoted by including green fallow of different ages and special crops in the one-sided crop rotations. The best special crops in terms of biodiversity are the blooming dicotyledonous and perennial plants with abundant root systems. Additionally in the MOSSE projects, indicators based on ecological groups were created for farmland birds, weeds and butterflies. These indicators can also be applied for monitoring the effectiveness of the agri-environment scheme.

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

Natural values trading has been suggested as an alternative to the present agri-environment scheme. 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.

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

Some measures of the agri-environment scheme have proven inefficient 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 on the farm scale. 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.

## Costs and benefits of a bluer Baltic Sea

*Janne Vesterinen*

For Finns swimming in natural waters is the second most popular nature hobby after walking, with fishing and boating following in the wake. The all too familiar masses of algae along the Baltic Sea coast in the summer are causing nuisance to ordinary citizens, researchers as well as organisms living in the sea. Eutrophic areas have increased and a growing number of sea areas which used to be graded as good have now declined to the satisfactory level. The coastal areas of the Archipelago Sea and Gulf of Finland are particularly susceptible to algal growth.

Even after intensified treatment, the wastewaters from St. Petersburg continue to transport large quantities of nutrients to the Gulf of Finland, while the cycling of nutrients from the sea bottom sediments for the use of algae has strengthened. It should be noted, however, that Finnish agriculture also produces a significant share of the nutrient loading along the coast. The Finnish Environment Institute estimates that about 50% of nutrient loading and 60% of phosphorus loading originates from agriculture.

The fragmented structure of the inner archipelago of the Archipelago Sea reinforces the impact of the nutrient loading. The smaller loading and better status of the Gulf of Bothnia is due to the shape of the sea bottom, high phosphorus binding capacity and fewer soil types susceptible to erosion in the catchment area.

Even though Finland has limited possibilities influence the state of the whole Baltic Sea, the status of our coastal regions is largely in our own hands. The Government Resolution on water protection guidelines sets as an objective to reduce the nutrient loading from agriculture by at least a third from the average level of 2001–2005 by 2015 (for phosphorus by about 3,000 t/year and for nitrogen about 30,000 t/year). The earlier, more radical target to halve the loading between 1993 and 2005 was not reached. The surplus in the nitrogen and phosphorus balances diminished, but a deficit needed to reduce the amount of phosphorus stored in the soil was not created.

Agricultural nutrient loading is likely to decrease slowly with current farming methods, as fertilisation practices are changing in areas dominated by plant production (such as Uusimaa in southern Finland), especially if the water protection measures are targeted to arable parcels with largest run-offs. One serious threat is the increased concentration of large livestock production units, which is going to increase the amount of nutrients transported to the Baltic Sea unless manure treatment is improved.

Would it be possible to influence the state of our coastal regions by reducing loading from agriculture and at what cost? Who benefits from the reduction in eutrophication and can we give a monetary value to the benefits? These questions are important when making decisions on the best ways of improving the state of the Baltic Sea along the Finnish coast.

### **Costs**

Cost-efficient reduction in the nutrient loading calls for intensified measures from all stakeholders. Studies have shown that as the first step the purification of wastewaters from St. Petersburg is the best way of reducing the load to the Gulf of Finland. On the other hand, the status of the other coastal areas is largely dependent on the loading from our own agriculture. We should also keep in mind that the costs go hand in hand with time, and one solution does not exclude others. Rapid solutions require

large inputs, and in some cases they may be impossible to realise. Reducing phosphorus loading from agriculture in the short term is very costly because, due to the earlier excessive fertilisation, there is a lot of phosphorus stored in the soil, which is released quite slowly. In the long term, converting the soil phosphorus balance into a negative one may be considered justified especially in phosphorus-rich soil. The impact on eutrophication materialises quite slowly, but in the course of time it will be significant. However, the maximum phosphorus fertilisation quantities allowed in the conditions of the present agri-environment scheme are still too high as regards the loading of waters and, in some regions, even economic profitability, which means that reducing phosphorus loading may initially not be as costly as has been assumed.

## **Benefits**

Of the Finnish holiday homes a fifth, about 100,000, are on the Baltic coast. Especially the recreational users of these areas would benefit from a purer coast. Most of the benefits are immaterial, such as new opportunities for recreation of a higher quality. Thus assessing the economic significance of reducing eutrophication for a cost-benefit analysis is not easy. The magnitude of the benefits can, however, be assessed using different kinds of valuation methods, which can roughly be divided into two categories: stated and revealed preference methods.

In the stated preference methods the respondents are asked directly to give a monetary value for the environmental commodity concerned. For example, the benefit from reducing eutrophication can be studied by asking the citizens' willingness to pay for better quality of the coastal waters. Based on the characteristics of the respondents it is possible to generalise an average willingness to pay for the better quality. The advantage of the stated preference methods is that they can take account of other values besides the use value. For some Finns the better water quality along the coast may be an intrinsic value for which they are willing to pay even if they do not participate in the recreational use of the area.

Revealed preference methods are founded on actual behaviour in situations where environmental quality influences economic decisions. By studying, for example, the factors influencing the recreational use of waters we can assess the distances which people travel to go swimming and the number of participants. The monetary value of reduced eutrophication is then derived from the travel costs of the increased visits for recreation. The assessment of the benefits produced by means of the revealed preference methods indicates only the minimum benefit experienced by people who are actively involved. The assessments of the benefits obtained by means of different valuation methods often differ from each other due to the different approaches, which is why the assessments should not be taken as absolute truths but as indicative of the magnitude of the benefits.

In the mid-1990s a 30% reduction in loading that causes eutrophication, indicating a one-meter improvement in water clarity, measured in sight depth, was estimated to produce benefits worth € 90–290 million for recreational users in the Stockholm archipelago. In Finland improved sight depth has also been observed to increase the number of participants in water-related recreation and visits to the area. The monetary value of improving the quality of the whole Finnish coast should be at least the same as that in the Stockholm archipelago. The potential benefits from improving the quality of coastal waters are substantial, especially as the reduction of loading in the catchments areas also improve the quality of inland waters.

## 6. RURAL AND REGIONAL POLICY

The new programming period of the European Union for the rural policy (2007–2013) got started in 2007, including the implementation of the Rural Development Programmes for Mainland Finland and the Åland Islands. The main issue in 2008 will be the preparation of the Government report to the Parliament on Rural Policy and the new Rural Policy Programme. The rural development programme part-financed by the EU belongs to the so-called narrow rural policy, while the national policy programmes implement the broad rural policy. This section gives some background information on Finnish rural policy and its relationship, in particular, to agricultural policy and agriculture.

### 6.1. Various dimensions of the rural policy

Compared to agricultural policy, rural policy is a relatively new policy sector, with very different perspectives in different countries and supranational institutions. Besides the national priorities, the selection of the approaches depend on what are considered as the most significant forces in terms of the development, competitiveness or economic growth in each context. The approach to rural policy can be divided broadly into perceiving the countryside either as a space or as a region. A new approach to rural policy is being generated by the perception of the countryside as a dimension for the organisation of the society which may simultaneously have different kinds of contents and meanings, depending on the view. What is essential is that not everybody has an equal opportunity to be heard in the policy formation process.

When the policy is based on *the countryside as a space*, the rural area is considered

to be characterised by extensive land use and scarce and scattered human and economic activity. Similarly, activities that are efficiently concentrated to a small area are perceived as characteristically urban. The differences are considered to derive from operational specialisation and division of labour. In advanced division of labour the countryside represents traditional industries and communities that are distancing from the centres but are highly dependent on these. When rural area is primarily associated with agriculture in terms of land use, the policy guidance and the related exercise of power also takes place through agriculture. Supporting agriculture as economic activity is in conflict with the efforts to liberalise world trade. Perceiving agriculture as space has provided a logical starting point for continuing the support for agriculture in the name of supporting rural areas. The agriculture-oriented rural development of the EU represents primarily this kind of rural policy thinking.

However, when the approach to the rural policy is not space but *region*, instead of the agricultural and centre-periphery juxtaposition the focus is on the economic specialisation of regional entities. In the policy thinking the focus is on local economies and their special characteristics independent of whether there is one major centre with little open space or several smaller centres and a lot of open space. The policy is directed to regional units (e.g. the NUTS areas) with regional or local economies composed of primary production and manufacturing industries as well as services. The rural character is one possible dimension for analysing these regional units.

The difference to the countryside as space is that in this approach the areas are not considered as subordinate to each other, but as local or regional economies

which compete with each other in the global market economy. In practice, however, the policy is often founded on the view that economic growth is driven by the centres and there is a certain mechanism through which some of this gets spilled over to the surrounding countryside. From the perspective of power, in the region-oriented policy thinking the countryside is easily seen as the underdog, a weak actor and recipient of impacts of the global operating environment on its economy rather than actively shaping these impacts. In the structural fund policies of the EU the actions directed at the rural areas are largely designed from these perspectives.

When the policy is constructed on the view that the rural area is one relevant *dimension in organising the society*, we are dealing simultaneously with several potential “countrysides”. Different meanings and perceptions of the countryside are put forward by the more permanent or accidental visitors to the rural space, entrepreneurs in different fields, rural residents representing various professions, tourists seeking recreation in the countryside, nature conservationists or urban landowners, as well as actors in many other social and policy sectors. In terms of human activity the countryside consists of the mutual relationships between these actors and rural policy should recognise all these numerous actors. What is important is that we have several, perhaps mutually contradictory but well justified conceptions of the countryside.

The difference between this approach and the perspectives founded on space or region is that *the countryside itself has been taken up as the policy issue instead of being viewed through agriculture or as part of the regional economy*. As a policy question it is more open to any actor in the society, but at the same time all the policy significance contained in it is fully recognised. The politicisation of rural issues as an independent sector confuses the tradi-

tional power settings of both agricultural and regional policy. This is the foundation on which Finnish agricultural policy has been constructed for a long time.

The dominant trends in the rural thinking of the EU countries can be analysed as follows. In countries with strong *traditions in agriculture* the countryside is where there is agriculture. In these countries family holding is an essential aspect of the self image and a force which keeps the nation together, and agriculture issues have always received a great deal of emphasis in the national policy. Such thinking prevails in France, and it is also quite strong in Denmark, Ireland, the Netherlands, Belgium and Germany.

In the *naturalistic* relationship to the countryside the rural area is primarily the venue for consuming the landscape and nature. This conception of rural areas is strongly urban-oriented, and it highlights the romantic view of the countryside, the superiority and purity of an imagined traditional rural lifestyle compared to life in urban areas. This involves strong demands concerning the protection and conservation of the countryside, and various kinds of associations and societies are set up to stand for this cause. This thinking is particularly strong in Great Britain, which industrialised and urbanised at a very early stage, but it also finds a great deal of support in the Netherlands, Germany, Belgium and France as well.

In the Mediterranean region agriculture has very little cultural or ideological value which would give it weight in the national policy. The regional thinking of these countries is dominated by large historical cities, ports and smaller towns in narrow strips suitable for human settlement between the vast, almost inhabitable mountain regions. The countryside and structures related to it are associated with extensive and backward farming practised by very big as well as extremely small farms. Thus agriculture and the country-



side associated with it represent the past which people want to get rid of. *The rural areas are perceived as an obstacle to constructing a modern national economy.* This kind of thinking can be found especially in Spain, Portugal, Italy and Greece.

*In the tradition focused on the remote areas* the countryside is associated with a structurally unfavourable natural environment, whose wild or mountainous character is appreciated even if it constitutes a major obstacle to human activity. What is essential is that these areas are inhabited and traditionally efforts have been made to combine different kinds of activities in them. For policies this implies efforts to combine environmental protection with farming, forestry and fishing practices. Examples of this tradition can be found in Austria and Sweden, and outside the EU in Norway and Switzerland. Finland is also often perceived to represent this kind of thinking.

In the rural thinking of the European Commission there have been various stages. On the policy programme level the space thinking dominated by agriculture and regional thinking based on regional economies have coexisted side by side. Most of the concrete policy actions directed to the countryside have originated from the reformulation of the agricultural policy, which means that the farming aspects are still strong. The words rural regions or countryside are being used more and more frequently in EU contexts but the criteria, political foundations and money flows continue to be intertwined primarily with agriculture.

## **6.2. Different types of rural areas and role of agriculture in the countryside**

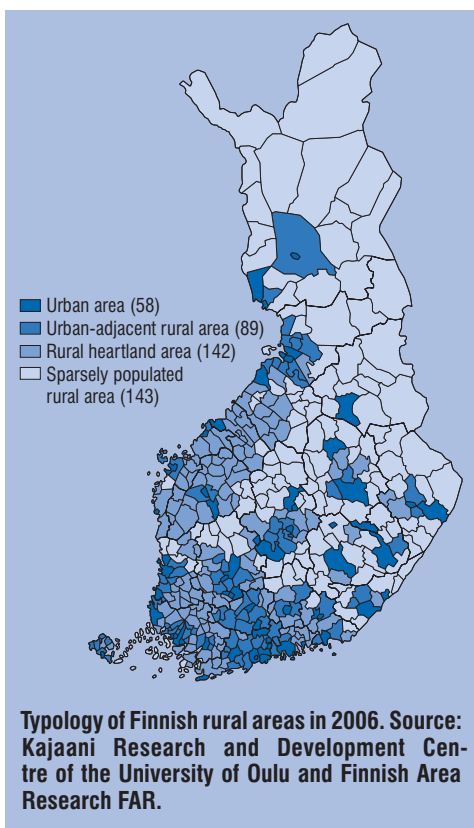
Finnish rural policy and policy thinking were dominated by agriculture for a long time. The reason for this derives largely

from the history. Compared to Central, Southern and Western Europe, the significant role of agriculture in maintaining the basic settlement in the rural areas and as the most significant economic activity continued much longer. Partly this was a question of policy choices, partly one of natural geography and demography. The settlement of immigrants and war veterans on small holdings after the Second World War to improve social stability increased the number of people who earned at least part of their living from farming at the same time when in the other countries the trend was already the opposite. In addition, the sparse population, long distances and the lack of (urban) centres indirectly linked to these have slowed down the appearance of other livelihoods alongside with agriculture.

Thus Finland can still be characterised as a very rural country where agriculture has various kinds of meanings depending on the type of rural area. In 2005 as many as 41% of the Finns lived in one of the three types of rural areas in Finland, but the distribution of the population between the types of areas is changing. This is reflected in the policy challenges to which the rural development work should be capable of responding. According to the typology of Finnish municipalities by a multi-stage method into urban areas, urban-adjacent rural areas, rural heartland areas and sparsely populated rural areas, there were 58 urban municipalities, 89 urban-adjacent rural municipalities, 142 rural heartland municipalities and 143 sparsely populated rural municipalities.

Most of the sparsely populated rural municipalities are in eastern and northern Finland, as well as in some parts of central Finland and the south-west coast, where there are a lot of small archipelago municipalities. The majority of rural heartland municipalities are in southern and western Finland, while urban-adjacent rural area is the most common in southern Finland.





indicators the differences between the different types of rural areas are greater than those between the rural and urban areas.

The predominantly rural character obviously means that the whole of Finland is a very sparsely populated. In 2005 the municipalities classified as rural in the typology accounted for 91% of the total surface area of Finland, and the share of sparsely populated rural areas was 59%. According to the division into rural vs. densely populated areas, in 2005 over four-fifths of the Finns lived in population centres with at least 500 residents (dense population) and less than a fifth lived in population centres with less than 500 residents and in sparsely populated (rural) areas. Based on this division the rural areas covered more than 98% and densely populated areas less than 2% of the total surface area. The sparse population in the rural areas places great challenges for regional development, because the regional economies are weak and the demand for both products and services is low. Developing diversified economic activities and ensuring even the basic services is a difficult task.

Because of the socio-economic situation and development, the challenges for regional development are the greatest in the sparsely populated rural areas, while in the urban-adjacent rural areas the situation and development prospects are far more positive. Based on several socio-economic factors they are more similar to the urban municipalities than the other types of rural areas. In the light of the principal social

As regards agriculture, in southern and western Finland, where most of the urban-adjacent municipalities are located, the natural preconditions for farming are the best and most diverse. The local markets also function better than in the other types of rural areas and the opportunities to work outside the farms are more abundant, thanks to the shorter distances. The rural heartland areas are either strong farming

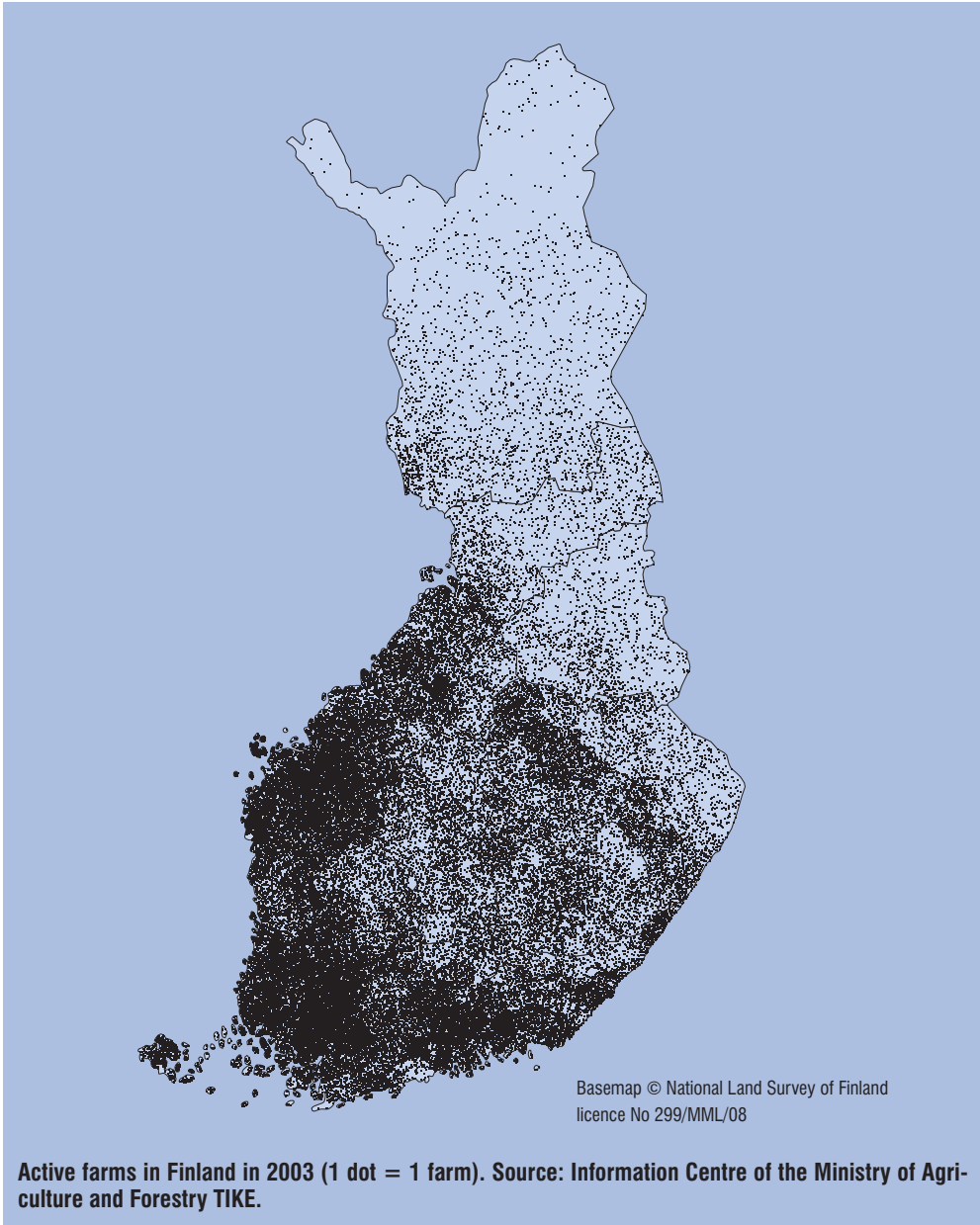
**Role of agriculture as employer and in the total income of farms in 2004.**

	Urban-adjacent rural area	Rural heartland area	Sparsely populated rural area
Share of agriculture in the jobs in the region in 2004	5.6%	14.6%	15.5%
Share of farm income in the total income of farms in 2004	33.1%	42.1%	48.3%

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

regions or countryside with diversified economic activities. Most of the rural heartland municipalities are also in the southern or western parts of the country. In rural heartland areas major centres are further away but the distances to medium-sized centres are not that long, which means that situation in terms of the demand for products and services and working outside the

farm is also reasonable. Most of the eastern and northern Finland is sparsely populated rural area. There the natural conditions restrict agriculture and other economic opportunities the most. Long distances are a major obstacle to both working outside the farm and local marketing of products and services.



Even if the role of agriculture is important, there are other activities in the countryside as well. According to the employment statistics of Statistics Finland, in 2004 jobs in agriculture represented 3.5% of all jobs in Finland and the share of the rural areas defined by the typology was 11.6%. However, the role of agriculture as an employer varies a great deal according to the type of rural area so that in urban-adjacent rural areas agriculture employed much fewer people than in the other types of rural areas. The significance of agriculture as an employer continues to diminish. In 2004 the share of agriculture in the jobs in the rural areas was 11.6%, but in 1995 it was still as high as 17.4% (figures for the whole of Finland 3.5% in 2004 and 7% in 1995). In the sparsely populated rural areas the relative role of agriculture as an employer is greater than in rural heartland areas, but in the rural heartland areas the number of farms relative to the population is much higher. This is partly explained by the fact that in sparsely populated rural areas the rate of unemployment is higher, which means that the farms employ more people relative to the total number of jobs in the area. In sparsely populated rural areas the relative number of people who are actively seeking employment is also smaller.

The role of agriculture has diminished not only in terms of total employment but also as a source of income for farm households. In 2004 the average share of farm income of the total income of farms was 41%, while in 1997 it was still 48%. The share of farm income in the total income of farms is the highest in sparsely populated rural areas (48% in 2004) and lowest in urban-adjacent rural areas (33%). In rural heartland areas the share of farm income in the total income was 42%. It should be noted that in the agricultural income and tax statistics the business activities connected to agriculture under the Act on the Taxation of Farm Income, i.e. other

business activities of diversified farms, are also included in the farm income. About two-thirds of the other business activities of diversified farms take place under the Act on the Taxation of Farm Income and one third under the Act on the Taxation of Business Income. Business activities under the Act on the Taxation of Business Income are not shown in the farm income.

The concentration of farms to fewer and fewer regions continues. The number of farms is decreasing the most rapidly in sparsely populated rural areas, i.e. mainly in eastern and northern Finland, where the natural preconditions for primary production are not as good as in rural heartland areas and urban-adjacent rural areas. There are more and more sparsely populated rural areas in eastern and northern Finland, which are faced with the greatest development challenges. In 2005 52% of the farms were in rural heartland municipalities, 22% in sparsely populated rural municipalities, 17% in urban-adjacent rural municipalities and 9% in urban municipalities. Thus eastern and northern Finland are seriously affected by structural change, because in these areas agriculture is still a significant source of employment and the consequences of the change are particularly severe.

The continuous decrease in the number of farms and jobs in primary production due to structural change in agriculture has made other rural industries particularly important for employment. Urban-adjacent rural areas have been capable of responding the best to the structural changes in the society, and in recent years jobs in the processing and especially services have substituted for jobs lost in the agriculture sector better than in the other types of rural areas. Now that the structural change continues in agriculture, the survival of farms depends on growth in the farm size and/or diversification, i.e. seeking earnings from activities other than agriculture.

### **6.3. Pillar II of the CAP central in the financing of rural policy**

As a result of the reforms of the policy content, both the common agricultural policy of the EU (CAP) and national agricultural policy have become more and more strongly integrated to the broad rural development, i.e. today the objectives extend beyond individual sectors (agriculture and forestry) and they are more strongly region-oriented. In spite of all this, so far the regional aspects have not been sufficiently taken into account in the implementation of the CAP, even if agricultural support does have clearly regionalised dimensions (e.g. natural handicap payments). In Finland agricultural support is regionally differentiated, which inevitably has certain regional and rural policy impacts, some of these intentional and some unintended.

Agricultural support payments under the CAP are divided into Pillar I and II. On the EU level most of the public funding, mainly market support and single farm payments, is directed to Pillar I. A much smaller share of the support is directed to Pillar II, i.e. Rural Development Programmes (RDP). Pillar II contains agri-environment and natural handicap payments, structural and investment support for agriculture and forestry, as well as rural development and business projects other than those relating to agriculture. Pillar II should contain, already by definition, more actions in support of regional and local structural measures than Pillar I. Through modulation (transfer of funds from Pillar I to Pillar II) efforts are being made to reinforce the role of Pillar II, which is likely to lead to a stronger emphasis of regional perspectives in the CAP. Unlike in the EU on average, in Finland the share of payments to agriculture under Pillar II, in practice that of agri-environment and natural handicap payments, is much larger than that of Pillar I. Instead,

in Finland the funding for the “broad” rural development measures, i.e. support for business and development projects other than those relating to agriculture, represents only a very small share of the total payments under Pillar II.

As noted above, Pillar II also contains measures which are not directed to farming activities, i.e. rural development measures that are primarily aimed at keeping the rural areas populated and diversification of economic activities. In practice business activities other than basic agriculture of businesses connected to agriculture, i.e. diversified farms, can only be supported under Pillar II and national support measures supplementing this. This also applies to rural community development projects aimed to reinforce the activity of village communities, improve the rural landscapes and natural and cultural environments and to ensure the necessary basic services. In most cases the target groups are private persons, local action groups, village associations and cooperatives.

Thus we can say that the rural development measures under Pillar II and the national measures supplementing these are among the most important instruments of the narrow rural policy, with direct impacts specifically on rural development. In the EU context work on rural development is also being done, apart from the CAP, through measures under the structural funds – European Regional Development Fund (ERDF) and European Social Fund (ESF), but these are not directly or primarily intended to serve as rural development instruments.

Less than a quarter of Finnish farms are located in sparsely populated rural municipalities. Relative to the population of the area this is much less than in the rural heartland municipalities. What this means is that most of the support payments channelled through farms end up in rural areas other than the most remote ones. On the whole it can be said that sup-

port channelled according to farms is the greatest challenge for socio-economic development aimed to improve the balance between the regions, because the resources for broad rural development are very limited relative to the payments channelled through agriculture/farms. Obviously the payments to agriculture have a major role in ensuring the continuation of agriculture and thus in maintaining the basic population in the rural areas, but in the current situation, where the role of agriculture in the regional economies is diminishing, the socio-economic problems of the regions cannot be solved by means of development perspectives that focus on supporting agriculture.

In Finland, in the past programming period 2000–2006 as well as in the current period 2007–2013 the payments from Pillar II (which thus should take regional perspectives better into account) have received a great deal of weight in policy measures under the CAP, but this is not enough to attain a development trend which improves the balance between the regions. This is because the payments from Pillar II with the greatest financial impact (environmental and natural handicap payments) are paid on the basis of arable area, i.e. almost solely to farms.

In addition to the mutual priorities of measures under the CAP, in terms of comprehensive rural development it is important to consider how the other EU policies and national measures supplement these rural development measures and how clear and appropriate the division of labour is from the perspective of the broad and comprehensive rural development. Regionally oriented, programme-based and cross-sectoral rural development has generally been considered the best way of developing the rural areas in a comprehensive way. What is important is to find the correct policy means to ensure various types of living and diversified activities in the rural areas.

## **6.4. Revision of the natural handicap payments**

Natural handicap payments (compensatory allowances) have traditionally occupied a special role on the interface between the rural and agricultural policy. Even if the eligibility has been bound to the practising of agriculture, within the EU the natural handicap payments have always involved strong rural and regional policy aspects. At this point these payments are on the foreground as they should be revised during the current programming period so that the new payment scheme could be introduced in the beginning of 2010.

So far the revision of the natural handicap payment scheme has proceeded quite slowly. The proposal of the European Commission of spring 2005 concerning the revision and harmonisation of the criteria for the payments encountered a strong opposition among the majority of the Member States, because the new criteria would have led to significant changes in the allocation of the payments both between and within the Member States. However, the Commission has perseveringly continued the preparation and the new criteria for the payments should be ready to be presented to the Member States during 2008.

The natural handicap payment scheme has been criticised especially due to the great variation in the criteria for defining the eligible areas between the Member States. The criteria are not considered transparent and they are founded on outdated statistical data on the socio-economic development of the regions. This is why the Commission is seeking to establish criteria for determining the natural handicap payments that would be uniform in all Member States and based on proof of natural handicap, as well as could be derived from fully updated databases.

During its over 30 years of existence the objective of the natural handicap payments has been to ensure the practising of

agriculture in the remote and less-favoured regions. In practice, this has implied efforts to preserve the viability of rural communities, which is why in several Member States socio-economic factors have received a great deal of weight in the criteria for the payments.

In its own positions Finland has tried to highlight the central role of the natural handicap payments in balancing the disparities in the CAP support payments among the Member States and regions. Natural handicap payments contribute to a more equal competitive position of farmers in less-favoured regions on the single market, and in fact they constitute a significant share of the basic livelihood of farms in natural handicap areas. In Finland the natural handicap payments accounted for 12% of the total return on agriculture and 23% of the total amount of support payments in 2006.

In the revision of the criteria for natural handicap payments Finland agrees in principle with the European Commission. Accordingly, Finland considers that the criteria should be established on the basis of handicaps that are due to the natural conditions. This means that the criteria should not be founded on factors which may change as a result of farmers' actions or technological development.

However, very likely the European Commission will not be able to push through a revision of the criteria that would be founded solely on the impact of natural conditions on the practicing of agriculture. The new criteria are likely to take into account of the natural conditions as well as environmental values and socio-economic factors so that a measure of flexibility will be retained both nationally and regionally.

A greater focus on environmental values in setting the new criteria for the natural handicap payments is likely because this has been proposed in various policy con-

texts dealing with the so-called high nature value farmland (HNV). Most of the HNV farmland within the EU is located in the remote areas with unfavourable production conditions, which would often not be viable without special support measures. Maintaining the HNV farmland area by supporting agriculture has been seen as an opportunity to simultaneously preserve natural values, economic activities and basic population. Through this the HNV farmland areas have gained a special position in rural development and especially in the development of the natural handicap payment scheme.

The socio-economic perspectives will also likely to continue to be reflected in the revised criteria for the natural handicap payments in one way or another. In many Member States the payments are regarded as such an important instrument for the development of regional socio-economic welfare that restricting the criteria only to those founded on the production conditions is not going to find enough support.

Independent of what the revised criteria for the natural handicap payments will be like, the share of these in the funding for rural development is going to grow. The modulation agreed on so far will alone significantly increase the potential funding available for the natural handicap payments towards the end of the programming period.

This all means that the natural handicap payments will become an even more important tool for rural development. The exact position of the payments relative to rural development will in turn depend on the revised criteria. If the payments were based on natural conditions alone, the payments would become pure agricultural support even more clearly than before, while reinforcing the rural character would call for greater emphasis on the environmental and socio-economic dimensions in the criteria.



# How the rural residents perceive the diversity of agricultural environments?

*Katriina Soini*

Finland, together with most other countries, committed to enhancing biological diversity in the Conference on Environment and Development in Rio Janeiro in 1992. Agriculture has an important role to play in ensuring biological diversity. Of our wild species about a quarter, and as many as 70% of the butterfly species, depend on agricultural environments. Every fifth of the species classified as threatened live in the heritage environments of agriculture.

Increase in the efficiency of agriculture has led to a decline in the diversity of species; some species have become endangered while some have already disappeared. The changes are also reflected in agricultural landscapes, which have become much less diverse over the past hundred years as a result of subsurface drainage and reduction in the grazing of livestock, which have also destroyed many habitats important for wild flora and fauna. The genotypes of the production plants and animals have also declined due to breeding. The preservation of local landrace breeds and plants that are vital for genetic diversity has largely depended on various kinds of conservation programmes, gene banks, museums, and dedicated people.

## **Maintaining biodiversity on the interface of agricultural and rural policy**

When looking at the policy programmes the biodiversity issues would seem to be well accounted for, as preserving and enhancing biodiversity has been written down as an objective in the agri-environment scheme, Rural Policy Programmes and National Gene Resource Programme. Under the agri-environment scheme biodiversity is enhanced through the filter strips and riparian zones, plant cover in winter and heritage biotopes and wetlands, among other things. The inventory of biodiversity sites was included in the programme for 2007–2013 as a new basic measure. Besides individual farmers, now the local actions groups may also apply for special agri-environment payments for the establishment and management of valuable biodiversity sites, such as heritage biotopes and multifunctional wetlands.

In rural policy the biodiversity of agricultural environments has been seen as a resource for improving the viability of the countryside and a factor which attracts people to live in the rural areas. Biodiversity can be productised in the form of landscape management services, tourism landscapes and experiences, rearing or care services or products relating to local breeds. Many of the practical measures have been highly successful, but the decline in biodiversity is not yet under control as was hoped for. Now we should ask how well the policy objectives meet the views of the rural residents on what the biodiversity of rural environments is and how it should be promoted.

## **Various interpretations of biodiversity**

The aim of the study<sup>1</sup> in the municipality of Lammi in south-central Finland was to find out the views of farmers, other permanent rural residents and free-time residents

<sup>1</sup> Soini, K. 2007. *Beyond the ecological hot spots: Understanding local residents' perceptions of biodiversity of agricultural landscapes*. Turun yliopiston julkaisu. Sarja II, osa 206. University of Turku.

on the biodiversity of agricultural environments. According to the study, the residents considered the production of open, well-managed farming landscapes as the most important function of agriculture, and this is why the continuation of the sector should be secured. Often the more specific biodiversity objectives, such as filter strips and headlands and the protection of wild plant and animal species in arable environments, remained secondary relative to open landscapes. Instead, the residents considered the too one-sided crop rotation, which is closely related to the biodiversity of arable farming, surprisingly important.

The residents saw that the increase in the farm size and more efficient production practices conflict with the biodiversity objectives, but going back to agriculture that would be smaller in scale and more beneficial to biodiversity was not considered possible.

Usually the trends in biodiversity are followed through changes in the flora and fauna. Rural residents observe, in particular, changes in bird species, while the changes in flora are in most cases restricted to the assessment of how well managed the landscape is. The disappearance of heritage environments, old pastures, dry meadows and hay barns were often mentioned when talking about the diversity of agricultural environments. Rural residents associate the decrease in grazing with the decline in many bird and plant species and considered the decrease in the aesthetically pleasing heritage environments as most unfortunate. However, maintaining open heritage landscapes without grazing livestock was considered artificial and to require too much work. From the farmers' perspective the establishment and maintenance of pastures was also a complex question. In general biological diversity was associated with forests and areas adjacent to waters rather than farming environments.

### **Biodiversity as source of social and cultural interaction**

Rural residents constitute a very heterogeneous group of people. The living environment, interest in the immediate surroundings and nature awareness vary a great deal. Those who engage in hunting have the most diverse view of the biodiversity of agricultural environments and interest in actions to promote this. It might be considered whether biodiversity issues could be brought closer to the rural people through their natural interests, such as hunting. In this sense expanding the scope of agri-environment payments towards the local action groups seems highly appropriate.

The study showed that on the local level the views relating to biodiversity are still quite heterogeneous. Biodiversity associated with agricultural environments continues to search for its position between ideal landscape and advanced agriculture. Even if among the rural residents the biodiversity of agricultural environments would seem to be quite marginal and a personal rather than communal experience, the matter as such is regarded as positive. On the local level enhancing biodiversity has not become a political issue in the same way as water protection.

Biodiversity of agricultural environments is an important resource in the countryside. Each rural area must find its own particular strengths and challenges according to which the actions relating to biodiversity should be targeted. Land ownership and agricultural production set certain framework conditions to the management of biodiversity in farming environments, but at its best this may bring together the local residents and promote urban-rural interaction. There are many promising examples of this already.

## Sources

- AC Nielsen. Press releases.
- Berkum, S. van, Roza, P. & Belt, J. 2007. Long-term perspectives for the Russian agri-food sector and market opportunities for the Dutch agribusiness. LEI, The Hague. 73 p.
- C.A.P. Monitor. A continuously up-dated information service on the CAP of the EU. Agra Europe.
- Compendium of Laws and Statues.
- Confederation of Finnish Industries, EK. Available at: <http://www.ek.fi>.
- Equine Information Centre.
- Eurostat. Luxembourg.
- Eurostat Trade database. Available at: <http://fd.comext.eurostat.cec.eu.int/xtweb/>
- FAOSTAT Trade database. Available at: <http://faostat.fao.org/site/535/default.aspx>
- Finfood. Available at: <http://www.finfood.fi>.
- Finnish Food and Drinks Industries' Federation. Annual report 2005 and 2006. Available at: <http://www.etl.fi>
- Finnish Forest Research Institute. Finnish Statistical Yearbook of Forestry.
- Finnish Riders' Association. Statistics.
- Finnish Trotting and Breeding Association. Statistics.
- Gallup Food and Farm Facts. Statistics, market surveys, consumption and production forecasts.
- Information Centre of the Ministry of Agriculture and Forestry. Farm Register, Yearbook of Farm Statistics, Monthly Review of Agricultural Statistics, Grain bulletin, Hanke 2000 -register.
- Maaseudun tulevaisuus -newspaper.
- Maaseutupoliittinen erityisohjelma 2007-2010, Maaseutupoliittikan yhteisryhmä YTR. Available at: <http://www.maaseutupoliittikka.fi>.
- Ministry of Agriculture and Forestry. Available at: <http://www.mmm.fi>
- Ministry of Finance. Economic Survey: January 2008.
- Ministry of the Interior. Available at: <http://www.intermin.fi>.
- Ministry of Labour. Manner-Suomen ESR-ohjelma-asiakirjaesitys 2007-2013. Available at: <http://www.mol.fi>.
- Ministry of Trade and Industry. Toimialaraportit, Toimiala-Infomedia. Available at: <http://www.toimialaraportit.fi>
- Myyrä, S., Pouta, E., & Hänninen, H. 2008. Suomalainen pellonomistaja. Abstract: Finnish farmland owner. Maa- ja elintarviketalous (Agrifood Research Reports) 115. 182 p.
- National Board of Customs. Foreign trade statistics.
- National Consumer Research Centre. Available at: <http://www.kuluttajatutkimuskeskus.fi/>
- National Land Survey of Finland. The market price register of real estates.
- OECD Agricultural Outlook
- Reindeer Herders' Association. Statistics.
- Russian Federal State Statistics Service. Available at: <http://www.gks.ru/wps/portal/english>
- Soini, K. 2007. Beyond the ecological hot spots: Understanding local residents' perceptions of biodiversity of agricultural landscapes. Turun yliopiston julkaisua. Sarja II, osa 206. Turun yliopisto, Turku.
- State budget 2008.
- Statistics Finland. National Accounts, Consumer price statistics, Income and Tax Statistics of Agriculture and Forestry, Income Distribution Statistics, Statistical Yearbook of Finland, Register of Enterprises and Establishments.
- Statistics of the Finnish Fur Farmers Association. Helsinki.
- Statistics of the Finnish Game and Fisheries Research Institute. Helsinki.
- Statistics of the Finnish Meteorological Institute. Helsinki.
- Statistics of the Glasshouse Growers' Association. Helsinki.
- Statistics of Kasvistieto Ltd. Helsinki.
- Statistics of Kemira Agro Ltd. Helsinki.
- Statistics of the EVIRA, Finnish Food Safety Authority. Helsinki.
- Statistics of the Theme group for rural holidays. Helsinki.
- Tiainen, J., Kuussaari, M., Laurila, I. & Toivonen, T. (eds.) 2004. Elämää pellossa. Suomen maatalousympäristön monimuotoisuus. Edita, Helsinki.
- Village Action Association of Finland. Suomen Kylätoiminta ry. Available at: <http://www.maaseutuplus.fi>.
- Viirolainen, M. 2006. Russian Agricultural and Food Sector in Transition, TRADEAG Research Project. Pellervo Economic Research Institute, Helsinki. 56.
- Ylä-Kojola, A. 2006. Assessment of Russian Food Processing Industry – Finnish Perspective, Lappeenranta University of Technology, Northern Dimension Research Centre, Lappeenranta. 137 p.

### 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
2007	108.8 <sup>e</sup>	122.1	119.1	129.0	132.5
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
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
1992	121	18.1	36	166	7.5
1991	126	17.7	40	177	7.5

<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, Ministry of Labour.

**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
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
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.**

	2001	2002	2003	2004	2005	2006	2007 <sup>e</sup>
<b>CROP PRODUCTION</b>							
Rye	7.7	7.1	6.1	5.1	3.4	3.2	10.8
Wheat	52.3	48.9	55.2	54.6	53.3	50.9	89.2
Barley	99.2	80.4	69.3	67.1	64.3	73.9	142.1
Oats	72.1	56.3	45.5	36.9	33.5	31.9	66.6
Potatoes	43.1	50.3	38.5	51.2	47.0	33.1	61.1
Potatoes for processing	19.5	22.7	18.2	19.2	19.6	17.2	19.1
Sugar beet	61.6	47.8	56.8	60.9	51.4	42.8	22.8
Oil plants	21.7	22.2	19.8	13.2	18.7	26.7	33.6
Other crop production	5.8	6.1	10.5	10.8	8.1	9.1	10.2
<b>Total</b>	<b>383.0</b>	<b>342.0</b>	<b>319.9</b>	<b>319.0</b>	<b>299.3</b>	<b>288.7</b>	<b>455.5</b>
<b>ANIMAL PRODUCTION</b>							
Milk	867.5	888.9	871.1	844.0	814.2	811.7	858.1
Beef (excl. veal)	185.4	168.7	185.5	185.0	177.7	184.6	195.5
Pork	261.1	255.9	229.7	246.1	261.6	262.0	280.9
Mutton	1.0	1.2	1.1	1.3	1.3	1.4	1.6
Poultry meat	92.0	104.2	110.2	111.1	104.5	100.9	112.0
Eggs	40.5	45.4	42.4	41.8	34.9	35.4	43.9
Other animal production	0.4	0.3	0.2	0.2	0.2	0.2	0.2
<b>Total</b>	<b>1,447.9</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>1,492.3</b>
<b>Gross return at market prices</b>	<b>1,830.9</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>1,947.9</b>
COMPENSATIONS FOR CROP DAMAGES	1.2	4.0	2.7	2.7	19.6	1.0	5.2
<b>INCOME FROM RENTS</b>							
Means of production	36.0	36.0	36.4	36.5	36.8	37.4	38.4
Buildings and land	29.3	29.3	29.6	29.7	30.2	31.7	31.8
<b>Total</b>	<b>65.3</b>	<b>65.3</b>	<b>66.0</b>	<b>66.2</b>	<b>67.0</b>	<b>69.1</b>	<b>70.2</b>
<b>SUPPORT PAYMENTS</b>							
Single farm payment scheme						489.6	485.5
CAP subsidy for fields crops	343.6	341.1	353.2	366.4	381.5	5.8	5.5
CAP subsidy for livestock	78.5	87.7	93.8	88.1	142.3	51.1	32.6
Other CAP payments						29.7	15.8
LFA	418.4	422.1	419.4	420.2	418.3	417.1	418.2
Environmental subsidies	274.6	277.4	283.8	290.3	284.1	289.9	303.2
Subsidy for animal units (nordic subsidy)	100.5	102.0	105.3	114.1	99.7	99.3	101.0
Other national subsidies for animals	78.8	79.6	80.0	78.9	65.1	59.5	56.8
Other national subsidies for field areas	126.7	132.9	147.4	148.1	221.7	230.3	223.1
Production subsidies							
- milk	215.7	230.4	211.5	228.0	185.5	162.9	166.8
Subsidy paid by the common measures of the EU	1,115.1	1,128.4	1,150.1	1,165.0	1,226.2	1,283.2	1,260.7
National subsidies	521.7	544.9	544.2	569.1	572.0	551.9	547.6
<b>Total subsidies</b>	<b>1,636.8</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>1,808.3</b>
<b>GROSS RETURN TOTAL</b>	<b>3,534.2</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>3,831.6</b>



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

	2001	2002	2003	2004	2005	2006	2007 <sup>e</sup>
<b>COSTS</b>							
Fertilizers	177.0	180.0	176.9	166.5	169.9	175.2	176.1
Lime	29.4	32.5	22.8	20.0	21.2	26.9	20.2
Feed concentrates	384.5	383.9	346.0	350.5	341.0	335.8	372.5
Feed conserving chemicals	21.0	21.0	20.8	21.6	22.2	23.2	24.1
Plant protection products	51.8	49.8	59.2	60.2	64.1	61.0	66.3
Purchased seeds	42.0	41.0	46.9	57.5	60.4	57.4	58.3
Fuel and lubricants	145.2	145.2	135.6	157.5	199.6	219.8	228.9
Electricity	65.4	66.4	79.0	80.0	78.9	83.9	89.7
Agricultural firewood and timber	11.2	11.2	7.5	7.5	7.6	7.7	7.9
Import and delivery of animals	9.2	5.6	5.7	5.9	6.9	7.3	7.3
Overhead costs	271.5	272.0	273.1	280.8	290.0	303.1	314.3
Hired labor costs							
- wages	81.0	81.0	90.0	92.1	97.6	100.0	102.2
- social expenses	56.1	54.6	60.8	63.2	66.8	68.6	70.0
Machinery and equipment expenses							
- depreciations	344.8	354.8	366.1	381.3	402.2	417.4	432.6
- maintenance	139.4	146.4	149.8	155.0	160.0	168.5	174.2
Equipment	43.9	44.0	43.9	45.8	48.3	50.1	52.0
Building expenses							
- depreciations	231.9	232.0	235.9	243.1	251.0	264.4	289.9
- maintenance	40.8	41.6	42.6	43.5	44.9	46.6	50.0
Ditches, bridges, etc.							
- depreciations	66.3	67.0	68.1	70.2	73.1	77.0	84.5
- maintenance	21.1	21.1	21.6	22.1	23.0	23.9	25.6
Interest payment	138.6	137.3	126.8	128.4	122.1	122.7	140.4
Rent expenses							
- means of production	40.7	41.0	41.5	41.5	42.2	43.0	44.0
- buildings and land	80.4	81.0	81.9	82.1	84.2	88.3	88.7
Farmers' share of cost from							
- accident insurance payment	9.4	9.4	11.8	11.7	11.6	11.8	12.1
- outside help	12.1	13.0	15.2	15.6	16.2	16.0	16.4
- day-off scheme	3.5	3.8	4.4	5.2	5.5	6.5	5.7
<b>TOTAL COSTS</b>	<b>2,518.1</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>2,953.6</b>
<b>FARM INCOME EXCL. HORTICULTURE</b>	<b>1,016.1</b>	<b>1,012.8</b>	<b>986.6</b>	<b>942.8</b>	<b>867.6</b>	<b>783.9</b>	<b>878.0</b>

### Gross return of horticulture at current prices, million euros.

	2001	2002	2003	2004	2005	2006	2007 <sup>e</sup>
<b>FIELD PRODUCTION</b>							
Vegetables	73.4	80.0	83.3	80.0	76.2	82.1	84.1
Berries and fruits	28.5	37.0	39.2	37.2	35.6	37.0	43.4
Others	18.5	20.2	20.2	21.2	21.2	21.2	22.3
<b>Total</b>	<b>120.4</b>	<b>137.2</b>	<b>142.7</b>	<b>138.4</b>	<b>133.0</b>	<b>140.3</b>	<b>149.7</b>
<b>GREENHOUSE PRODUCTION</b>							
Ornamental plants	89.7	110.1	99.6	104.8	96.6	93.8	95.3
Vegetables	101.6	112.9	115.2	119.0	124.3	140.8	129.3
<b>Total</b>	<b>191.3</b>	<b>223.1</b>	<b>214.8</b>	<b>223.8</b>	<b>220.8</b>	<b>234.6</b>	<b>224.6</b>
<b>Gross return at market prices</b>	<b>311.8</b>	<b>360.3</b>	<b>357.5</b>	<b>362.2</b>	<b>353.8</b>	<b>375.0</b>	<b>374.3</b>
<b>SUBSIDIES</b>							
Subsidies for greenhouses	40.9	40.5	40.3	40.1	40.1	39.1	38.2
Subsidies for field production	2.5	2.0	1.9	2.0	2.0	2.0	1.9
Other subsidies	10.5	7.9	11.4	11.8	11.9	14.6	19.1
<b>Total</b>	<b>53.9</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>GROSS RETURN TOTAL</b>	<b>365.7</b>	<b>410.7</b>	<b>411.1</b>	<b>416.1</b>	<b>407.8</b>	<b>430.7</b>	<b>433.5</b>
<b>COSTS</b>							
Fertilizers and lime	7.9	7.7	7.6	7.8	8.2	8.5	8.9
Plant protection products	5.1	5.0	5.6	5.6	5.5	5.3	5.2
Seeds, seedlings, plants	14.5	14.1	13.6	13.4	13.9	13.6	14.5
Other material	34.7	34.8	34.8	35.7	36.7	38.6	40.4
Hired labor costs	74.5	69.7	65.2	74.7	75.9	79.7	80.2
Fuel and lubricants	15.4	14.6	15.7	17.8	23.4	25.8	25.6
Electricity	17.1	17.8	21.5	21.8	21.5	23.2	24.2
Interests paid	16.4	15.2	15.2	14.5	13.5	13.5	14.1
Depreciation of machinery	20.9	21.9	22.3	23.3	24.7	25.4	26.4
Depreciation of buildings	20.3	20.7	21.0	21.7	22.5	23.8	26.1
Depreciation of ditches, etc.	1.6	1.7	1.7	1.8	1.9	1.9	2.1
Other costs	51.3	52.0	52.7	50.5	52.1	53.7	55.9
<b>TOTAL COSTS</b>	<b>279.7</b>	<b>275.2</b>	<b>276.9</b>	<b>288.6</b>	<b>299.8</b>	<b>313.1</b>	<b>323.5</b>
<b>HORTICULTURAL INCOME</b>	<b>86.0</b>	<b>135.4</b>	<b>134.2</b>	<b>127.6</b>	<b>108.0</b>	<b>117.6</b>	<b>110.0</b>

### Total calculation of agriculture (incl. horticulture) at current prices, million euros.

	2001	2002	2003	2004	2005	2006	2007 <sup>e</sup>
RETURN ON AGRICULTURE	3,534.2	3,549.3	3,520.5	3,551.6	3,578.4	3,590.1	3,831.6
RETURN ON HORTICULTURE	365.7	410.7	411.1	416.1	407.8	430.7	433.5
<b>RETURN, TOTAL</b>	<b>3,899.9</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>4,265.1</b>
COSTS OF AGRICULTURE	2,518.1	2,536.4	2,533.9	2,608.8	2,710.8	2,806.2	2,953.6
COSTS OF HORTICULTURE	279.7	275.2	276.9	288.6	299.8	313.1	323.5
<b>COSTS, TOTAL</b>	<b>2,797.8</b>	<b>2,811.6</b>	<b>2,810.8</b>	<b>2,897.3</b>	<b>3,010.6</b>	<b>3,119.4</b>	<b>3,277.1</b>
<b>AGRICULTURAL INCOME</b>	<b>1,102.1</b>	<b>1,148.3</b>	<b>1,120.7</b>	<b>1,070.4</b>	<b>975.6</b>	<b>901.4</b>	<b>988.0</b>

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

### SUPPORT FINANCED COMPLETELY OR PARTLY BY THE EU IN 2008, €/ha or €/unit

Aid area	A	B	C1	C2	C2north	C3	C4
<b>DECOUPLED CAP PAYMENTS, €/ha</b>							
Single farm payment scheme, €/ha,	246.6	195.8	195.8	152.7	152.7	152.7	152.7
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
Farm specific top up for milk, €/tonne	24.49	24.49	24.49	24.49	24.49	24.49	24.49
Farm specific top up for sugar beet, €/tonne	65.54	65.54	65.54	65.54	65.54	65.54	65.54
<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 bull premium	80	80	80	80	80	80	80
Slaughtered heifer 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>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)	484		484				
Set-aside with plant cover (aid only for mandatory set-aside)	39		39				
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 54–500 €/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 2007 the payments were 96.1% of the maximum per hectare.

	2003	2004	2005	2006	2007	2008	
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	63	133	86	83	79	73
C1	€/LU	269	309	299	296	295	295
C2	€/LU	269	309	299	296	295	295
C2north. and archipelago	€/LU	345	385	375	372	371	371
C3	€/LU	420	460	450	447	446	446
C4	€/LU	605	645	635	632	631	631
Aid for animal husbandry, male bovines >6 months							
A and B	€/LU	336	336	219	211	205	187
C1	€/LU	412	477	415	417	414	414
C2	€/LU	420	485	423	425	422	422
C2north. and archipelago	€/LU	496	561	499	501	498	498
C3	€/LU	572	637	575	577	574	574
C4	€/LU	757	822	760	762	759	759
Aid for animal husbandry, ewes and goats							
A and B	€/LU	333	333	212	207	188	184
C1	€/LU	412	482	404	399	390	390
C2	€/LU	420	490	412	407	398	398
C2north. and archipelago	€/LU	496	566	488	483	474	474
C3P1–P2	€/LU	824	894	816	811	935	935
C3P3–P4	€/LU	925	995	917	912	1,049	1,049
C4P4	€/LU	1,110	1,180	1,102	1,097	1,225	1,225
C4P5	€/LU	1,110	1,180	1,102	1,097	1,225	1,225
Aid for animal husbandry, pigs							
A and B	€/LU	285	266	215	206	198	176
C1	€/LU	297	278	296	284	284	288
C2	€/LU	297	278	268	258	246	250
C2north. and archipelago	€/LU	378	359	308	300	290	293
C3	€/LU	378	359	308	300	290	293
C4	€/LU	378	359	308	300	290	293
Aid for animal husbandry, hens							
A and B	€/LU	275	257	207	203	201	166
C1	€/LU	275	257	259	264	276	276
C2	€/LU	278	260	238	242	240	240
C2north. and archipelago	€/LU	364	348	288	292	290	290
C3	€/LU	431	413	355	359	357	357
C4	€/LU	431	413	355	359	357	357
Aid for animal husbandry, other poultry							
A and B	€/LU	252	234	196	186	183	154
C1	€/LU	252	234	243	242	251	253
C2	€/LU	257	239	225	225	222	224
C2north. and archipelago	€/LU	344	326	277	278	275	277
C3	€/LU	344	326	277	278	275	277
C4	€/LU	344	326	277	278	275	277
<b>Northern aid paid for slaughtered animals</b>							
Male bovines C3–C4							
P1–P2	€/animal	131	131	131	131	131	131
P3–P4	€/animal	182	182	182	182	182	182
P5	€/animal	333	333	333	333	333	333

- In 2008 livestock premiums for pig husbandry, chickens and other poultry will be paid for 73% of the production in area C1 and 85% of the production in area C2.

- In 2008 livestock premiums for ewes and she-goats will be paid for 71% of the production in area C3 and 78% in area C4.

		2003	2004	2005	2006	2007	2008
	Unit	€/unit	€/unit	€/unit	€/unit	€/unit	€/unit
<b>Heifers</b>							
A and B	€/animal	108	150	119	121	120	144
C1	€/animal	210	210	210	270	269	269
C2	€/animal	210	210	210	270	269	269
C2north. and archipelago	€/animal	259	259	259	319	318	318
C3	€/animal	301	301	301	361	360	360
C4	€/animal	387	387	387	447	446	446
<b>Production aid for milk</b>							
A and B	cents/l	5.8	5.6	3.0	3.1	3.0	2.8
C1	cents/l	8.8	10.0	7.4	7.5	7.9	7.8
C2	cents/l	9.4	10.6	8.0	8.1	8.6	8.5
C2north.	cents/l	10.7	11.9	9.3	9.4	9.6	9.5
C3P1	cents/l	13.7	14.9	12.3	12.4	12.6	12.5
C3P2	cents/l	15.4	16.6	14.0	14.1	14.3	14.2
C3P3-P4	cents/l	18.0	19.2	16.6	16.7	16.9	16.8
C4P4	cents/l	22.7	23.9	21.3	21.4	21.6	21.5
C4P5	cents/l	31.9	33.1	30.5	30.6	30.8	30.7
<b>Aid for crop production<sup>1</sup></b>							
<b>A area<sup>1</sup></b>							
Wheat	€/ha	105	88–115 <sup>3</sup>	88–115 <sup>3</sup>	88–105 <sup>3</sup>	88–105 <sup>3</sup>	
Rye	€/ha	160	110–145 <sup>3</sup>	99–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Malting barley	€/ha	84	73–96 <sup>3</sup>	73–96 <sup>3</sup>	73–84 <sup>3</sup>	73–84 <sup>3</sup>	
Feed grains	€/ha	9	4–6 <sup>3</sup>	4–6 <sup>3</sup>	4–6 <sup>3</sup>	4–6 <sup>3</sup>	
Grass <sup>2</sup>	€/ha	202	125–164 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Oil seed plants	€/ha	143	108–142 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Sugar beet	€/ha	202	125–164 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Starch potatoes	€/ha	143	108–142 <sup>3</sup>	98–130 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Vegetables grown in the open	€/ha	446	346–425 <sup>3</sup>	333–392 <sup>3</sup>	320–392 <sup>3</sup>	320–392 <sup>3</sup>	
<b>B area<sup>1</sup></b>							
Wheat	€/ha	105	88–115 <sup>3</sup>	88–115 <sup>3</sup>	88–105 <sup>3</sup>	88–105 <sup>3</sup>	
Rye	€/ha	143	110–145 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Malting barley	€/ha	84	73–96 <sup>3</sup>	73–96 <sup>3</sup>	73–84 <sup>3</sup>	73–84 <sup>3</sup>	
Feed grains	€/ha	9	4–6 <sup>3</sup>	4–6 <sup>3</sup>	4–6 <sup>3</sup>	4–6 <sup>3</sup>	
Grass <sup>2</sup>	€/ha	202	125–164 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Oil seed plants	€/ha	143	108–142 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Sugar beet	€/ha	202	125–164 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Starch potatoes	€/ha	143	108–142 <sup>3</sup>	98–130 <sup>3</sup>	98–129 <sup>3</sup>	98–129 <sup>3</sup>	
Vegetables grown in the open	€/ha	395	346–425 <sup>3</sup>	333–392 <sup>3</sup>	320–392 <sup>3</sup>	320–392 <sup>3</sup>	
<b>C1 area<sup>1</sup></b>							
Wheat	€/ha	105	88	56	60	60	57
Rye	€/ha	135	112	112	112	112	112
Malting barley	€/ha	84	78	70	70	70	70
Feed grains	€/ha	9	0	0	0	0	0
Grass <sup>2</sup>	€/ha	95	0	0	0	0	0
Oil seed plants	€/ha	140	115	100	100	100	100
Sugar beet	€/ha	250	197	185	185	80	350
Starch potatoes	€/ha	168	143	133	133	133	133
Vegetables grown in the open	€/ha	416	397	348	348	348	348
Other arable crops excl. cereals	€/ha	140	100	100	100	100	100

<sup>1</sup> Since 2004 the aid for crop production has been paid as national top-ups to the agri-environment payments. In 2007 top-ups were paid only to farms which had an agri-environment contract from the period 2000–2006 still in force.

<sup>2</sup> Aid for forage grass is paid for farms with cattle, sheep, goats and horses.

<sup>3</sup> A and B area national aid for crop production, C area northern aid.

- Support levels may be cut due to the ceilings set for the payments.

	Unit	2003 €/unit	2004 €/unit	2005 €/unit	2006 €/unit	2007 €/unit	2008 €/unit
<b>C2 and C2north. areas<sup>1</sup></b>							
Wheat	€/ha	105	88	56	60	60	57
Rye	€/ha	135	112	112	112	112	112
Malting barley	€/ha	84	78	70	70	70	70
Feed grains	€/ha	9	0	0	0	0	0
Grass <sup>2</sup>	€/ha	95	0	0	0	0	0
Oil seed plants (2008 only C2)	€/ha	67	42	27	27	0	27
Sugar beet	€/ha	250	197	185	185	80	350
Starch potatoes	€/ha	168	143	133	133	133	133
Vegetable grown in the open	€/ha	416	397	348	348	348	348
Arable crops excl. cereals (only C2)	€/ha	101	54	57	27	27	27
<b>C3 area</b>							
Feed grains	€/ha	9	0	0	0	0	0
Grass <sup>2</sup>	€/ha	95	0	0	0	0	0
Vegetable grown in the open	€/ha	416	397	348	348	348	348
<b>C4 area</b>							
Feed grains	€/ha	9	0	0	0	0	0
Grass <sup>2</sup>	€/ha	95	0	0	0	0	0
Vegetable grown in the open	€/ha	416	397	348	348	348	348
<b>General area payment C2–C4<sup>3</sup></b>							
Cereals and other arable crops							
C2, C2north and archipelago	€/ha	34	34	30	30	30	30
C3	€/ha	50	50	46	46	46	46
C4	€/ha	101	101	97	97	97	97
Other crops							
C2, C2north. and archipelago	€/ha	34	34	35	35	35	35
C3	€/ha	50	50	51	51	51	51
C4	€/ha	101	101	102	102	102	102
<b>General area payment for young farmers C1–C4</b>							
Aid for greenhouse products A and B	€/m <sup>2</sup>	27	30	32	32	36	36
over 7 months							
2–7 months	€/m <sup>2</sup>	11.4	11.4	11.4	11.4	11.3	10.7
<b>Aid for greenhouse products C1 and C2<sup>4</sup></b>							
over 7 months							
2–7 months	€/m <sup>2</sup>	5.7	5.7	5.3	4.8	4.3	3.9
<b>Aid for greenhouse products C2north</b>							
over 7 months							
2–7 months	€/m <sup>2</sup>	12.0	12.0	12.8	12.8	12.7	12.7
<b>Aid for greenhouse products C3–C4</b>							
over 7 months							
2–7 months	€/m <sup>2</sup>	6.0	6.0	5.9	5.3	4.8	4.8
<b>Northern storage aid for horticulture products (max.)</b>							
<b>A and B</b>							
Storages with thermo-control system	€/m <sup>3</sup>	14.5	14.2	14.2	14.2	14.2	14.2
Storages without thermo-control system	€/m <sup>3</sup>	10.1	9.8	9.8	9.8	8.8	8.8
<b>C areas</b>							
Storages with thermo-control system	€/m <sup>3</sup>	14.5	14.2	14.2	14.2	14.2	14.2
Storages without thermo-control system	€/m <sup>3</sup>	12.6	9.8	9.8	9.8	8.8	8.8

<sup>1</sup> A and B area national aid for crop production, C area northern aid. <sup>2</sup> Aid for forage grass is paid for farms with cattle, sheeps, goats and horses. <sup>3</sup> The general aid per hectare is raised by separate decisions by 9 €/ha. <sup>4</sup> In 2008 the support coefficient was 0.89 in areas C1–C2, 0.85 in area C2north and 1.00 in areas C3–C4.

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

Livestock unit	Livestock unit	Livestock unit
Suckler cows	1 She-goats	0.48
Suckler cow heifers, over 2 years	1 Sows, boars	0.7
Suckler cow heifers, 8 months–2 years	0.6 Chickens, incl. mother hens	0.013
Bulls and steers, over 2 years	1 Broilers	0.0053
Bulls and steers, 6 months–2 years	0.6 Broiler mothers	0.025
Ewes	0.15 Mother geese, ducks and turkeys	0.026
		Livestock unit
		Farmed mother mallards and pheasants
		0.013
		Horses
		- breeding mares (horses and ponies)
		1
		- Finnhorses, at least 1 year
		0.85
		- other horses 1-3 years
		0.6

**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		



## Publications of the Agrifood Research Finland, Economic Research

- No 98 Lehtonen, H. 2001. Principles, structure and application of dynamic regional sector model of Finnish agriculture. 265 p.
- No 99 Vihinen, H. 2001. Recognising Choice. A Study of the Changing Politics of the Common Agricultural Policy through an Analysis of the MacSharry Reform Debate in Ireland and the Netherlands. 247 p.
- No 100 Peltola, J. 2002. Three Approaches to Mathematical Models for Finnish Natural Resource Management. 97 p.
- No 101 Niemi, J. & Ahlstedt, J. (toim.). 2002. Suomen maatalous ja maaseutuelinkeinot 2002. 94 s.
- No 101a Niemi, J. & Ahlstedt, J. (eds.). 2002. Finnish Agriculture and Rural Industries 2002. 94 p.
- No 102 Jansik, C. 2002. Determinants and Influence of Foreign Direct Investments in the Hungarian Food Industry in Central and Eastern European Context. An Application of the FDI-Concentration Map Method. 312 p.
- No 103 Niemi, J. & Ahlstedt, J. (toim.). 2003. Suomen maatalous ja maaseutuelinkeinot 2003. 94 s.
- No 103a Niemi, J. & Ahlstedt, J. (eds.). 2003. Finnish Agriculture and Rural Industries 2003. 94 p.
- No 104 Niemi, J. & Ahlstedt, J. (toim.). 2004. Suomen maatalous ja maaseutuelinkeinot 2004. 94 s.
- No 104a Niemi, J. & Ahlstedt, J. (eds.). 2004. Finnish Agriculture and Rural Industries 2004. 94 p.
- No 105 Niemi, J. & Ahlstedt, J. (toim.). 2005. Suomen maatalous ja maaseutuelinkeinot 2005 - Kymmenen vuotta Euroopan unionissa. 94 s.
- No 105a Niemi, J. & Ahlstedt, J. (eds.). 2005. Finnish Agriculture and Rural Industries 2005 - Ten Years in the European Union. 94 p.
- No 105b Niemi, J. & Ahlstedt, J. (red.). 2005. Finlands lantbruk och landsbygdsnäringar 2005 - Tio år i Europeiska unionen. 94 s.
- No 106 Niemi, J. & Ahlstedt, J. (toim.). 2006. Suomen maatalous ja maaseutuelinkeinot 2006. 96 s.
- No 106a Niemi, J. & Ahlstedt, J. (eds.). 2006. Finnish Agriculture and Rural Industries 2006. 96 p.
- No 107 Niemi, J. & Ahlstedt, J. (toim.). 2007. Suomen maatalous ja maaseutuelinkeinot 2007. 96 s.
- No 107a Niemi, J. & Ahlstedt, J. (eds.). 2007. Finnish Agriculture and Rural Industries 2007. 96 p.



MTT

Agrifood Research Finland

TALOUS-  
TUTKIMUS

ECONOMIC  
RESEARCH

EKONOMISK  
FORSKNING



ISBN 978-951-687-148-9  
ISSN 1458-2996

Vammalan Kirjapaino Oy  
2008