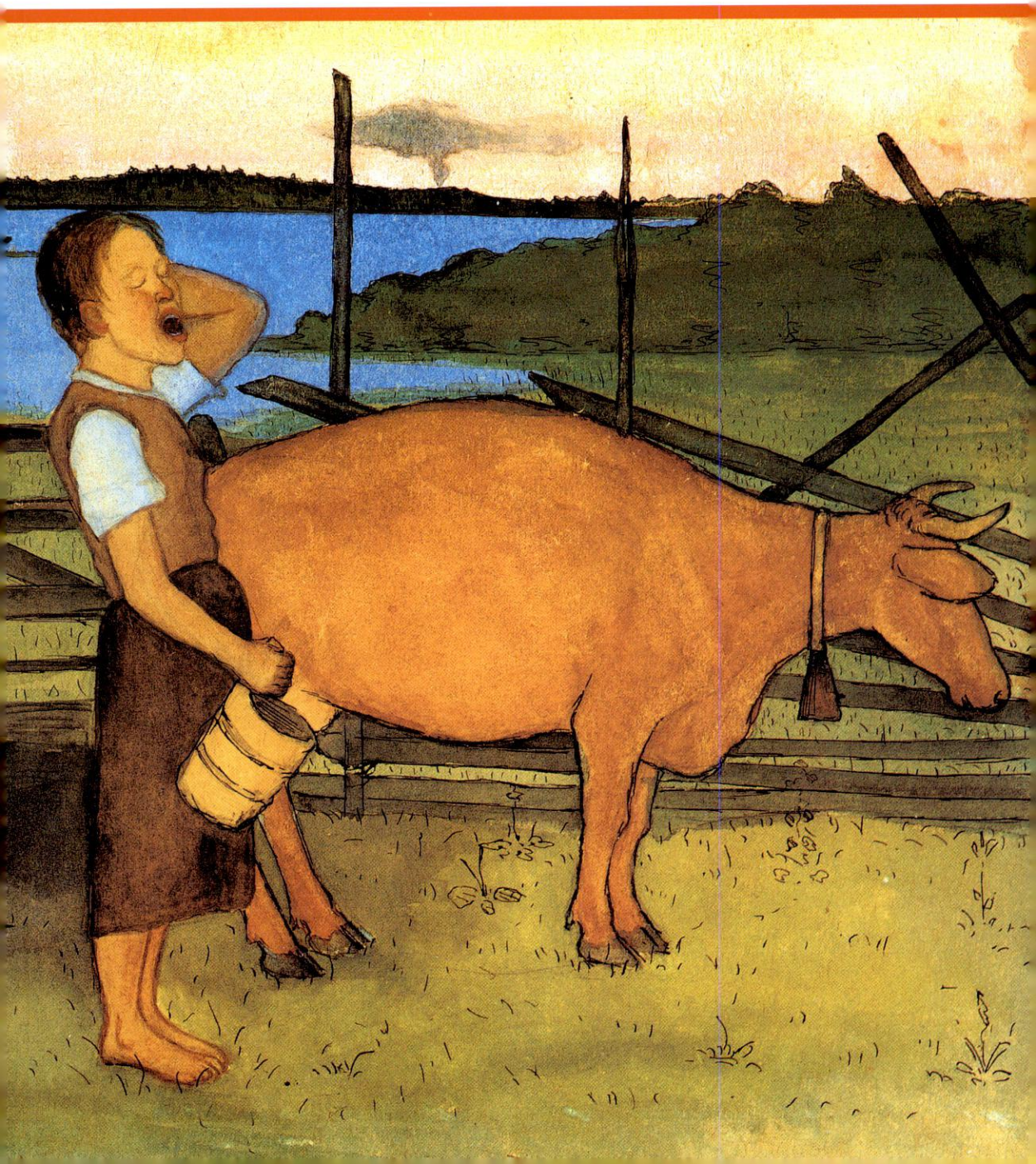
MAATALOUDEN
TALOUDELLINEN
TUTKIMUSLAITOS

Finnish Agriculture

and Rural Industries 1998



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Cover design by Ben Rydman

Cover picture: Hugo Simberg, Morning milking (mirror image)
The painting belongs to the Museum of Finnish Art Ateneum,
photo by J. Tuominen.

Hugo Simberg (1873-1917) is one of the painters of the golden age in the Finnish art. In his paintings he used intense, pure colour surfaces typical of symbolists. The models for the numerous common people in Simberg's paintings can be found in the rural environments of his childhood summers. The watercolour painting *'Morning milking'*, where a farm maid is yawning holding a pail in her hand beside a cow, with a blue strait and red sky on the background, was painted in Niemenlautta near Vyborg in 1895.

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Preface

Since 1986 the Agricultural Economics Research Institute has published an annual report of the state of the Finnish agriculture, its position in the national economy, and the most important actions and measures of agricultural policy. This publication titled "Finnish Agriculture", together with its extensive statistics section, has been widely used as a source of data on Finnish agriculture both in Finland and abroad.

The report for 1999 comes out in a revised form. Due to the changes in the operating environment of agriculture it has been considered necessary to deal with rural activities other than basic agriculture more in depth, because the role of these in maintaining the viability of the rural areas is increasing continuously. However, the main emphasis is still on agriculture proper. The publication method has also been changed. Now the report is drawn up by the researchers of the Institute, each in their own special field of research. The publication also includes special topics for which there are research data available that were particularly important for the agricultural industry in the year in question. In the report concerning the year 1998 these special topics are e.g. crop damages, the future outlook of Finnish agriculture in the EU as well as marketing problems of the small rural enterprises. The revised publication contains an extensive statistics section, as before.

The layout of the publication has also been revised. It is now titled "Finnish agriculture and rural industries," and this title will be used in the coming years, too. The Research Institute wishes that the publication continues to fulfil its task as a source of the most recent data on pluriactive agriculture and other industries practised in the rural areas.

The publication comes out in Finnish and English.

Helsinki, February 1999

Jouko Sirén
Director General

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Special topics

EXECUTIVE SUMMARY

Agenda 2000 and crop failure dominated the discussion on agriculture

The planning of the agricultural policy to be practised from the beginning of 2000 is subject to various kinds of restrictions. As a result of the agreements concerning the world trade in agricultural products, preparations for the new trade negotiations, constraints of the EU budget as well as the enlargement, the price level of agricultural products on the single market will have to be lowered. Also, production needs to be restricted and support cannot be allowed to grow, at least for any longer period of time. Drawing up the agricultural budget of the EU is difficult, because in the applicant member states there is potential to increase agricultural production if the economic preconditions for this exist. This would mean, for example, that the relatively affluent Finland would become substantial net payer, and the future preconditions for agricultural production are largely dependent on the special arrangements for Finland approved by the other EU countries.

The proposal of the EU Commission published in 1997 concerning the EU budget, agricultural and structural reform as well as plans for the eastern enlargement was followed by more detailed proposals concerning specific regulations in March 1998. During the eight months of preparation the proposal had become less favourable for Finland, mainly because of the raise in the cut in the milk prices from 10% to 15%, the restoration of the aid for silage maize, and changes in the payment criteria for livestock premiums. A schedule for reaching an agreement on Agenda 2000 was established in the summit held in June, and according to this the decisions are made in a summit held in March 1999. Reaching an agreement became even more difficult when the Commission presented an account of the functioning of the system for the use of own funds. The account is concerned with the payment balance between the member states and the net payer problem, and different options for the arrangement of the funding are put forward. Thus the demands of the net financiers of the EU concerning the reduction of their payments were linked to the agricultural reform.

In February 1999 the Agenda 2000 reform was discussed under the German presidency, and the objective is to reach the final decisions in the Berlin summit in late March. The year 1999 is also decisive for Finland because an agreement has to be reached on the future of the national aid measures.

Agriculture in Finland faced the worst crop failure for a decade. It is estimated that 442,000 hectares suffered from crop damages. Continuous rains caused yellowing of the cereals and the kernel size remained small. The crops were also damaged by diseases and mold. The quantity and quality losses in the production of arable crops lowered the sales income, and caused difficulties in the feeding of animals. The losses were the greatest in the production of cereals, oil-seed plants, potatoes and dry hay. In livestock production the losses are reflected mainly as increased production costs. Purchased fodder is needed because there is no own fodder available, and the costs of the efforts to grow fodder cereals were in many cases wasted.

The economic losses due to the crop failure are estimated at about FIM 1.7[1)] billion, and about FIM 320 million of these are compensated in the early part of 1999 on the basis of the Act on Crop Damages.

1) Exchange rates: FIM 1 = EUR 0.168 = USD 0.195 (Jan. 99 average) = SEK 1.53 (Jan. 99 average).

Farm income in 1992-1998, index 1992-1994:100.

	1992-94 average	1995	1996	1997	1998 (projected)	Change 1998/97, %
Aggregate farm income	100	96	84	81	69	–14
Farm income by production line						
Dairy farms	100	96	98	96	88	–9
Pig farms	100	94	103	103	67	–35
Cereals farms	100	72	99	81	47	–42

Sources: Agricultural total calculations and FADN, Agricultural Economics Research Institute.

In addition to this, the quota for interest-rate subsidy loans was increased by FIM 200 million and about FIM 60 million of the additional prices for wheat were converted into aid based on the area.

In 1998 the agricultural income indicating the compensation for farmers' own labour and capital was FIM 5.3 billion, which is FIM 0.9 billion, i.e. 14%, less than in 1997. The costs were at about the same level as in the previous year, but gross return fell by 4%. Due to the crop failure the return on crop production fell by 17% mainly as a result of the decrease in the amount of cereals sold and fall in the prices. The decrease in the return on livestock production by 2% was mainly due to the 10% fall in the pigmeat prices, which was partly compensated for by the growth in the production quantities. The return on poultry meat production grew by almost 20% due to the increase in both the production quantities and prices. Egg prices rose by 6% from 1997 but the production fell and thus the return stayed at the earlier level. Return on horticultural production fell by 3% mainly because of the decrease in the amounts of aid. Compared to the average of 1992-1994 agricultural income has fallen by 31%.

According to projection, in dairy farms farm income decreased by 9% in 1998. In pig farms and cereals farms, the decrease was much bigger. In 1998, farm income in dairy, pig and cereals farms was estimated to be 12%, 33% and 53% lower than before the EU membership, respectively.

Rural industries employ almost 10% of the labour force

Depending on the definition of rural regions, 23% (1.2 million) –32% (1.6 million) Finns live in the countryside. The long-term trend in the number of entrepreneurs receiving their main livelihood from agriculture is decreasing. At the same time the income structure of farm families is becoming increasingly diversified, because more of the members of farm households work outside the farm or have income from other sources outside basic agriculture. According to the income and tax statistics of agriculture and forestry, about half of the total income of farmers and spouses comes from agriculture.

Based on the data of 1996 and 1997, there are about 142,000 enterprises in the rural areas. Agriculture is by far the most important rural industry. The number of farms practising agriculture and forestry only is estimated at about 65,000, and in addition to this there are about 23,000 pluriactive farms. The number of rural enterprises not connected to farms is estimated at about 53,000. In 1997 rural industries employed a little under 10% of the employed labour force (211,000 people). About 6% (130,000 people) were

employed in agriculture, and a little under 4% (81,000 people) in other rural business activities.

In 1997 the share of agriculture in the GDP was 1.3%, and in 1998 it fell close to 1%. However, in 1997 the share of agriculture in the investments of the whole national economy was 3.3%, which shows how capital intensive agriculture is. The significance of the food chain in the national economy is, however, much greater than the share of agriculture in the GDP. Most of the input, transportation and processing industries related to agriculture are closely linked to the extent and operations in the domestic agriculture. For example, the gross value of the production of the food industry was about FIM 49 billion in 1997. The value added, FIM 11.2 billion, was much larger than agriculture. In the consumption the emphasis is shifting to more highly processed foods, and thus the share of the raw material in the price of food is decreasing.

In 1998 the value of the Finnish food exports was about FIM 5 billion, which is 15% smaller than in the previous year. The reduction was mainly due to the economic crises in Asia and Russia as well as the oversupply on the pigmeat market. The exports to Russia fell the most, from FIM 2 billion in 1997 to only FIM 1.2 billion in 1998. Food imports continued to grow.

The number of active farms fell by 3.9%

In 1998 the area under cultivation was 2.17 million ha, including 0.17 million ha set-aside. The arable area in Finland is 1.7% of the total arable area in the EU. The share of the bread cereals, i.e. wheat and rye, was 9% of the area under arable crops, the share of oats and barley was 48%, oil-seed plants 3%, potatoes 2%, sugar beet 2% and grass fodder 34%. The number of farms receiving support was 85,000, which is 3.9% less than in the previous year. Since 1995 the number of farms has fallen 11%. Even if the average arable area of farms grows as small farms quit their production, the number of large farms has not increased in any significant way. 1.2% of the farms in the EU are located in Finland. In 1998 the median price for additional arable land was FIM 17,500/ha. The price varied from FIM 25,200 in Southern and Western Finland to FIM 3,700 in Kainuu and Lapland.

Agricultural production is based on family farms. In 1996 87% of farms were owned by private persons and 12% by heirs and family companies. The average age of farmers was 46 years. 32% of active farms practised dairy husbandry as their main production line, 9% were beef or other cattle farms, 6% pig farms and 2% poultry farms. On 30% of the farms the main production line was cereal production and 15% practised other crop production.

In economic terms milk production is the most important production line. The production is becoming concentrated to fewer and fewer farms: from 1991 the number of farms delivering milk to dairies had fallen from 40,000 to 27,220 in the beginning of 1998 and further to 25,430 at the end of the year. However, the amount of milk delivered to dairies was about the same as earlier, about 2.3 billion litres per year. Compared to the most important competing countries in the EU, the average unit size of the Finnish dairy farms is still quite small. In 1997 dairy farms had the average of 13.5 cows, cattle farms 10.2 beef animals or 12.5 suckler cows, and fattening pig and piglet farms 151 fattening pigs or 46 sows, and poultry farms 2,600 hens or 21,000 broilers.

In Central Finland the average price for a milk quota was FIM 1.43/l

Various kinds of quite detailed demands by the member states concerning the functioning of the market system were ap-

proved in the price package of the EU for the market year 1998/1999. Finland had required that the mixed plant stand of fodder peas and cereals should also be eligible for the aid for protein crops if the fodder pea is dominating. The overall compromise made in connection with the price package also included the permission granted to Finland to report the set-aside area after filing the aid application due to the failure to complete the sowing caused by the exceptionally bad weather conditions. In market year 1998/1999 the prices of agricultural products produced in Finland were the same as in the previous year. The compulsory set-aside was 5%.

In the quota year 1997/1998 the milk quota of Finland was 2,398 million kg (2.0% of the total EU quota), as quotas of producers who had temporarily interrupted their production were restored to the quota. In Finland the trade in milk quotas is regulated by a so-called mixed system, consisting of three different ways of purchasing quotas. 10 million litres of quotas changed owners in transactions between producers. In Southern Finland the average price for a milk quota was FIM 1.01/l and in Northern Finland FIM 1.06/l. The price was the highest in Southern Finland, where the average price was FIM 1.43/l. Quotas were also transferred in connection with transactions concerning whole farms.

Hectarage yields of cereals clearly below the normal

The total cereal yield was 2,780 million kg, which is 1,030 million kg (27%) smaller than in the previous year. The average hectarage yield was almost 1,000 kg below the normal yield and the quality was poor. Due to the heavy rains about 48,000 ha was left unharvested. Because of the losses in terms of both the quantity and quality, in the crop year 1998/99 the domestic production covers only 40% of the demand for bread wheat and 15% of the demand for rye. The yield of fodder cereals fell by almost 30% from the previous year. The average yield of silage was normal. Instead, the yield of dry hay was much weaker than usually. The total potato yield was 22% smaller than in the previous year.

During most of the year 1998 the market price for barley was 2-3% below the intervention price. The market prices for rye and wheat stayed above the intervention price. The price for rye stayed at the same level as in 1997, but the price of wheat fell, on average, by 3%. Oats are not an intervention product, and the market price was clearly below the intervention price. The price for oats fell the most in 1997-1998, by about 5%. In 1997 the prices for wheat and rye were slightly above the EU average. Instead, the prices of fodder cereals were below the EU average.

The national milk quota was fulfilled

In 1998 milk production was at about the same level as in the previous year, and the production totalled 2,300 million litres. In 1997/98 milk production was only 0.1% short of the national quota regulating the production. The quality of the fodder harvested in 1997 was good, which was one of the reasons for the increase in the average milk yields. The average yield was 6,300 litres/cow, which was 100 litres (1.6%) more than in 1997.

Beef production totalled 93 million kg, which is 6% less than in 1997. The consumption was 99 million kg. About 90% of the beef is produced in connection with milk production. Specialised beef production has not increased very much due to the poor profitability. Pigmeat production grew by almost 5% from the previous year due to the increase in the investments, and in 1998 the production totalled about 186 million kg. The production is very close to the domestic consumption. The difficul-

ties on the pigmeat market of the EU caused problems in the Finnish pigmeat production, too. At the end of the year, Danish ham was sold at extremely low prices, even as low as FIM 7.90/kg. Poultry meat production amounted to 61 million kg, which is 16% more than in 1997. Egg production fell by about 7% from 1997. The production totalled 63 million kg, while the consumption was 53 million kg.

The producer price of milk is slightly above the EU average, FIM 1.96/l, including retroactive payments from the dairies. The price fell by 2.5% from 1997. The producer price of beef followed the average price level in the EU. The average price was FIM 14/kg, which is 4% higher than in 1997, but the price started to decrease towards the end of the year. The crisis on the pigmeat market of the EU did not affect the Finnish market very strongly, and the producer price for pigmeat was above the EU average. In 1998 the average producer price of pigmeat in Finland was FIM 8/kg, but at the end of the year the producer price was already below FIM 7/kg. The average producer price of poultry meat was FIM 6.70/kg. This was 2-3% higher than in 1997 due to the growth in the demand and the balanced contract production model. The producer price of mutton rose slightly from the previous year, but it is still clearly below the EU average. The average producer price was FIM 10/kg. During most of 1998 the producer price of eggs was about FIM 4/kg, but it fell to about FIM 3.50/kg towards the end of the year.

Food prices unchanged on average

The consumer prices of milk and meat fell in 1998. The reduction in the price of milk by 3% was mainly due to the tightening competition between dairies. The fall in the price of meat was in turn mainly caused by the disequilibrium in the production and consumption of pigmeat and the difficulties in the exports outside the EU. The prices of fish and fish products rose by 9%, those of bread, fats and oils 3% and fruit, vegetables and berries 4%. Due to the exceptionally poor potato crop the price rose as much as 45%. The consumer price of eggs stayed at the earlier level.

In 1998 the consumer price of food products decreased by 0.5% on average. Compared to the period before the EU membership, September 1994, food prices have decreased by 8%. When inflation is taken into account, in December 1998 the real price of food was 12% lower than in September 1994. The average price of drinks didn't change in 1998. Also, compared to September 1994 the real price of drinks has remained the same.

Meat consumption grew by 5% in 1998, mainly as a result of the increase in the consumption of pigmeat and poultry meat. The average meat consumption per capita was 66 kg, which is almost 10 kg more than before the EU membership. The consumption of liquid milk products fell by about 2%, and the trend has been the same throughout the 1990s. Within the product groups the consumption continued to shift towards the low-fat products. The decrease in the consumption of edible fats and the increase in cheese consumption continued. The dramatic drop in egg prices in 1995 raised the consumption from 10 kg to almost 12 kg per capita, but in 1998 the per capita consumption was again a little over 10 kg.

Investments grew

In 1998 the investment aid part-financed by the EU was directed to the building and extension of cowhouses in support area C, building or extension of large dairy production buildings by single farms or combinations of farms in support areas A and B, investments in sheep production buildings in area C as well as additional aid to

young farmers in connection with these investments. Besides investment aid, young farmers were eligible for start-up aid for the purchase of their first farm or the movables of a leased farm. The national investment aid in 1998 consisted of the transitional aid, so-called aid for serious difficulties based of article 141 of the accession treaty, as well as other investment aid.

The subsidies and interest-rate subsidies granted in 1998 totalled about FIM 1,900 million, which is 8% more than in the previous year. Subsidies granted for 14,400 investments amounted to FIM 670 million and interest-rate subsidies totalling FIM 1,220 million were granted for altogether 7,600 investments. The total number of supported investments was 18,000, which is 3,000 more than in 1997.

Food safety receives increasing emphasis

In 1998 environmental issues were high on the agenda in the agricultural and food sectors. In March the Council of State made a decision on the new objectives in the water protection of agriculture, according to which the phosphorus and nitrogen leaching from agriculture should be cut to half by the year 2005. The nitrate directive, which sets maximum limits for the use of nutrients and restricts the spreading of animal manure in the autumn, is central in achieving the goals in water protection. However, in practice the directive is not that significant because the stipulations laid down in the agri-environmental programme for 1995-1999 impose more severe restrictions on the use of fertilisers than the nitrate directive.

The health of the domestic animals as well as the production conditions received a great deal of emphasis, partly due to the actions of the animal rights activists. The discussion on the food and production safety also increased. In Finland the resistance to antibiotics among the pathogenic agents causing animal diseases is not a problem to the same extent as in other parts of Europe or the USA. The discussion has already led to stricter controls in the use of antibiotics in the EU. The BSE, i.e. the so-called mad cow disease, received less attention than in 1997, even if more sick animals were found in Central and Southern Europe. EHEC bacterium caused a temporary epidemic in Finland, but in terms of salmonella the situation is still quite good. The development of gene technology has aroused concerns about the uncontrollable side-effects of genetic modification.

The agri-environmental programme, consisting of the General Agricultural Environment Protection Scheme and the Supplementary Protection Scheme as well as aid for training and experimental projects, is the most extensive agri-environmental measure ever implemented in Finland. The financing of the programme is divided equally between the EU and Finland. In 1998 FIM 1.76 billion were used for the implementation of the programme, which is 7% more than in the previous year. Almost 90% of the active farms and more than 90% of the cultivated area are covered by the GAEPS.

The first agri-environmental programme, which comes to an end in 1999, will be followed by another programme with similar objectives and coverage for the years 2000-2006. One important means of the environmental policy of agriculture will be the regulation concerning the development of rural areas, including sustainable forestry, maintenance and development of low-input farming systems, enhancing significant natural values as well as preservation of sustainable agriculture operating according to the environmental requirements.

1. OPERATING ENVIRONMENT OF AGRICULTURE

1.1. Rural enterprises

Finland is the most rural country in the EU. Serious efforts are being made to maintain the population of the rural areas in spite of the rapid decrease in the number of farms and fewer employment opportunities in agriculture and forestry. Consequently, in addition to the improvement of the operating conditions of these sectors, the rural policy aims at promoting the establishment of other industrial activities, such as small enterprises, in the rural areas. This will also diversify the income structure of farm families. According to the Income and Tax Statistics of Agriculture and Forestry, only less than half of the total taxable income of farmers and spouses comes from agriculture and forestry.

Rural areas can be defined in a number of ways, depending on the perspective. According to the so-called narrow definition, 23% of the population of Finland live in the countryside. In this case countryside comprises the sparsely populated areas and population centres with less than 500 inhabitants. In the following account concerning the rural industries countryside has been defined regionally by means of postal codes. The region is considered rural if the population density is less than 50 persons/km^2. Thus there may be regions classified as rural and as population centres within a single municipality. In rural areas established by the second definition there are 1.6 million inhabitants, which is 32% of the population of Finland.

Enterprises practising rural industries can be divided into three groups: basic agricultural production, rural enterprises and pluriactive farms. In the case of basic agricultural production farms are engaged in the traditional forms of agriculture, forestry and, possibly small-scale special agriculture. Special agriculture may be e.g. horticulture, fur farming and aquaculture as well as small-scale processing of the primary products. Small enterprises located in rural areas are called rural enterprises. Pluriactive farms practise both tra-

Distribution of rural industries into basic production, rural enterprises and pluriactive farms[1)].

	Basic agriculture	Rural enterprises	Pluriactive farms		Total
			Small enterprise subject to Act Business Tax	Estimate of all pluriactive farms	
Whole country	81,100	53,400	7,700		142,200
Åland	700	600	80		1,400
Southern Finland	36,300	21,300	3,100		60,700
Central Finland	17,600	12,900	1,700		32,200
Ostrobothnia	16,400	8,900	2,000		27,300
Northern Finland	10,200	9,700	800		20,700
Whole country, estimate	65,100	53,400		23,000	142,200

1) Based on the Enterprise and Place of Business Register in 1996 and the number of farms that applied for support in 1997. Sources: Information Centre of the Ministry of Agriculture and Forestry, Statistics Finland, Agricultural Economics Research Institute.

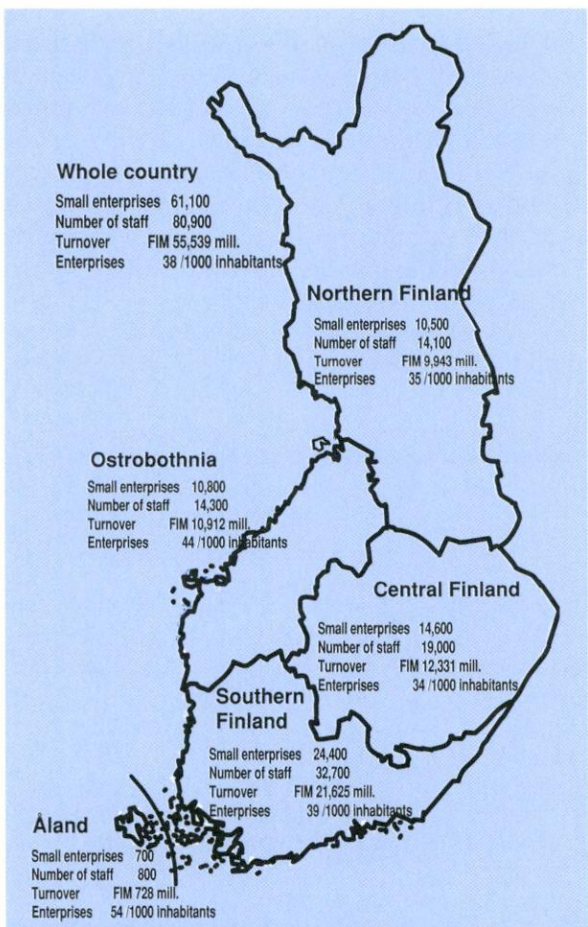
ditional agriculture and forestry and small-scale entrepreneurial activity.

Small enterprises refer to companies that are small in terms of their sales volume, number of staff or investments. In this connection a small enterprise is an enterprise with the turnover of at least FIM 49,000 but no more than 20 employees. According to this classification small-scale entrepreneurial activity of farms includes both the processing of the products of the farm and entrepreneurial activity that is not linked to the agricultural production.

Agriculture and forestry is by far the most important rural industry. In 1990-1997 the number of active farms, i.e. farms practising agriculture and forestry with at least 1 ha arable land under cultivation, fell from about 129,100 farms to 90,200 farms, i.e. 30%. In 1998 the number of farms that applied for support was 85,000, which is 11% less than three years before. In 1980 the share of agriculture in the employed labour force was 11%, i.e. 251,000 persons. In 1998 the number of those employed in agriculture was 120,000, and the share of agriculture in the employed labour force was 5%.

In 1996 about 31%, i.e. 61,000, of small enterprises included in the Enterprise and Place of Business Register of the Central Statistical Office were located in the countryside. The total turnover of these was FIM 55.5 billion and the number of staff (entrepreneurs + employees) totalled about 81,000. Enterprises located in rural areas are relatively small, and the average number of staff is 1.4. Enterprises of about the same size operating in population centres employ on average 1.9 persons.

On average, every tenth of the farms that applied for support in 1997 included a small enterprise. The total number of such pluriactive farms was 7,700. The turnover of small enterprises operating on farms totalled FIM 3.4 billion and they employed 5,100 persons. Small enterprises operating on farms are in general smaller than other small rural enterprises. 13% of all farms located in rural areas operated on farms, but the turnover and number of staff of these were only 6% of the total turnover and number of staff in small rural enterprises. On average, a small enterprise operating on a farm employed 0.7 persons.



Regional distribution of small rural enterprises in 1996. Sources: Statistics Finland and Agricultural Economics Research Institute.

The most usual specific sectors where the small rural enterprises operate were road transportation (e.g. taxis and trucks) and building, and the share of each was 15% of all enterprises. Road transportation as well as trade also employ the largest number of people. The third largest sector was retail trade, which accounts for about 11% of the enterprises. About 20% of the total turnover of all enterprises comes from retail trade businesses. The share of enterprises connected to agriculture, forestry and fishing industry was 9%. Enterprises processing the products of farms are classified as a group of their own. The share of these was about 7%, and they are engaged in the manufacturing of food products, clothes and fur products, timber and wood products as well as furniture. 8% of enterprises practise the manufacturing of products other than those referred to above. The share of enterprises providing services to businesses, like accounting offices and translation services, was 6%, and that of enterprises offering accommodation and restaurant services was 5%.

In 24% of the enterprises operating on farms the line of activity is connected to agriculture, forestry and fishing industry. About 18% of the enterprises are engaged in building and 14% in road transportation. 8% of the enterprises practise the processing of the farm produce and 2% offer accommodation and restaurant services.

There is a lot of entrepreneurial activity subject to the Act on the Income Tax of Agriculture on farms, which is thus not included in the figures on small enterprises presented above. In 1998 about 25% of the bookkeeping farms (FADN) reported that they practised small-scale entrepreneurial activities. Almost 80% of the entrepreneurial activity on the bookkeeping farms was subject to the Act on the Income Tax of Agriculture, and the most common lines of business among these were machine contracting, farm holidays, food processing and manufacturing of timber and wood products. Below some general information is given on the most important activities classified as entrepreneurial activity or special agriculture that are practised both on farms and as industries of their own.

There are about 2,000 enterprises offering rural holiday services. According to data collected by the theme group for rural holidays, 93% of the enterprises offer accommodation services, 43% restaurant services and 62% specialise in various kinds of programme services. Rural holidays employ people corresponding to about 2,000 AWU. The theme group for rural

Small enterprises operating on farms in 1996.

	Number of small enterprises	Number of staff	Turnover, FIM mill.	Share of pluriactive farms, %
Whole country	7,700	5,100	3,425	10
Southern Finland	3,100	2,200	1,335	10
Central Finland	1,700	1,000	695	10
Ostrobothnia	2,000	1,400	1,004	12
Northern Finland	800	500	364	9
Åland	80	40	28	10

Sources: Statistics Finland, Information Centre of the Ministry of Agriculture and Forestry and Agricultural Economics Research Institute.

Distribution of small rural enterprises into lines of business.

Line of business	Enterprises without farm background			Enterprises operating on farms		
	Number of enterprises	Turnover/ enterprise FIM 1,000	Number of staff/ enterprise	Number of enterprises	Turnover/ enterprise FIM 1,000	Number of staff/ enterprise
Total	53,400	977	1.42	7,700	446	0.66
Road transportation	8,300	372	0.74	1,110	810	1.61
Building	8,000	66	0.11	1,370	86	0.12
Trade	6,100	661	1.11	420	574	0.95
Manufacturing other than processing on farm products	4,400	1,337	1.99	460	498	0.52
Agriculture, forestry and fish. industry	3,900	1,648	3.12	1,860	283	0.42
Processing of farm products[1)]	4,500	550	1.10	610	98	0.15
Activities serving business	3,400	1,797	3.89	310	1,329	2.51
Accommodation and restaurants	2,700	514	1.21	170	470	0.91
Digging of minerals	800	14,663	11.21	260	1,254	0.92
Other	12,400	961	1.02	1,100	479	0.42

[1)] SIC95: 15, 18, 20 and 36.
Sources: Statistics Finland, Information Centre of the Ministry of Agriculture and Forestry and Agricultural Economics Research Institute.

holidays has set as an objective that the employment in this sector would correspond to 5,000 AWU by the year 2005 and the annual turnover would be FIM 1.5 billion, which is ten times the current turnover. Activities related to rural holidays have expanded rapidly in the course of years, but problems are caused by the seasonal nature of tourism and the resulting low used capacity. The accommodation facilities of rural holiday enterprises operating all year round are used for only ten weeks per year. Efforts are made to raise the used capacity especially by increasing the foreign sales. At present about 80% of those using the accommodation services are Finnish.

Fur farming is practised both on farms and as an industry of its own. According to the Association of Fur Farmers, in 1997 the number of fur farms was about 2,200. Four out of five fur farms are located in the province of Western Finland. In terms of numbers the most important fur animals are blue fox and mink, but silver fox, finraccoon and fitchew are also raised.

Fur farming employs 6,000-7,000 persons, and when the indirect employment effect is taken into account the number of people employed in fur industry rises to 10,000 people. 98% of fur production is exported, and Finland is the leading producer of fox pelts with a 60% share of the world market. The exports are mainly directed to Russia, China, Italy, Greece and South Korea. Trade industry is characterised by considerable business fluctuations. After the early 1990s there has been a boom in fur industry and the export income has been about FIM 1.5 billion per year. However, the economic crisis in Russia is going to be reflected in the export income, and in the sale period 1998/1999 the income is expected be considerably lower than in the previous years.

In 1997 there were 4,100 professional fishermen in Finland, and two-thirds of these practised their trade part-time. According to the Finnish Game and Fisheries Research Institute, the total catch of pro-

Food companies improve the viability of rural areas and increase the range of foods available to consumers

Sari Forsman

In recent years the significance of small-scale food processing companies as a rural industry has increased considerably. A large number of small companies have been established in rural areas, and in most of these the processing and marketing of the products is directed at the local market. A considerable share of these companies operate on farms, processing the raw materials produced on the farm. Small-scale processing of foodstuffs is an important source of additional income for many farmers, and raising the degree of processing results in a better price for the raw material and, through this, improves the economic result of the farm enterprise. On many farms efforts were made to raise the degree of processing in order to prepare for the EU membership and the consequent fall in the producer prices. Basic agriculture alone was not considered adequate to secure the livelihood in the changing market environment.

Typical lines of food processing practised on farms are meat processing (sale of fresh meat, smoked meat products, sausages), bakery and mill products, milk processing (cheeses) and the processing of potatoes, vegetables as well as berries and fruit (preserves, juices, wines). In most cases the annual turnover is less than FIM 0.5 million, and typically the business activity employs 1-2 persons. In many enterprises there is also labour from outside the farm, especially when the processing has become the main industry and source of livelihood for the farm family.

Differentiation of the products as a competition factor

The basis and strength of food processing in rural enterprises is the differentiation of the products and services. In fact, differentiation is the only way of gaining entry to the market that is characterised by the centralisation of both the food industry and retail trade and competition for market shares at very low prices. The purpose of differentiation is to distinguish the products from the competing ones and create value added for which the customers are willing to pay a higher price than for the mass products. The interest in launching food processing companies and faith of the existing companies in the continuation of their activity shows that there is demand for the differentiated products. The demand is based on the concentration on bulk products among the large companies as well as the diverse needs of the consumers and efforts to preserve local eating habits.

A high degree of differentiation does not automatically make it possible to set the price above the average level in the field, but this must first be marketed to the customers. In order to succeed in this the potential customers – a target group – must be identified. This has been neglected in many companies. Benefitting from differentiation is largely based on the ability to fulfil the needs of a carefully delimited target group or to fulfil a gap in the market that the other companies

have failed to notice. Thus, customer-oriented thinking is the key factor in the success of small-scale food companies.

On the food market there is a large number of small rural enterprises that have managed to differentiate their products to the extent that it has been possible to set the price at a higher level. The owners of these companies are quite satisfied with the price level of the products as well as the profitability of the business activity. The products of these companies are typically gourmet products, unique for one reason or another, or organic products. The origin of the product or the raw material used is emphasised very strongly, and this seems to reduce the significance of competitive prices as a competition factor and the price level of other companies operating in the field as a factor influencing the pricing, as well as to promote to the marketing of the products in a larger market area, too. Successful positioning on the market is often also based on training in the different aspects of business operations.

Examples of typical competition factors, advantages and problems related to market channels.

Market channel	Competition factors	Advantages and problems in the use of the channel
Direct sale	Local special products Traditional, farm products Raw material produced on farm Different raw material content of products Traditional recipes Unique products Fresh products	+ Direct customer contact + Price competitiveness better than in other channels – Distance from customers – Small volumes
Retail stores	Special and gourmet products Variety to customers Different raw material content of products No additives Different method of preparation Non-industrial image	+ Better availability to consumers + Increased market area – Small volumes – Concentration of retail trade reduces negotiation power – Marketing of differentiation more difficult than in direct sale
Restaurants, catering firms, and institutional food service units	Flexibility Customer-oriented service Customised products Fresh products Local products	+ Role of service in differentiation + Interaction with customers – Firms not actively visible – Service not emphasised adequately in marketing – Purchase organisation of different types of customers not known
Wholesale stores	Competitive price	+ Increased market area + Increased turnover – Price more important – Small volumes

Direct sales closer to the customers

The most common marketing channels used by rural food companies are direct sales, retail stores, restaurants, catering firms, and institutional food service units and wholesale stores. In farm enterprises, in particular, direct sales often form the basis for the processing activity. The problem is, however, that the manufacturer of the product and the potential buyer may never meet. Due to the remote location of the companies and small number of customers the efforts to increase the production and sales quantities do not usually succeed in direct sales, but alternative, complementary marketing channels must be searched for. However, many small firms find the entry to the marketing channels very difficult. The entry can be made easier by product differentiation and adjustment of the competition factors according to the channel.

Is small-scale food processing profitable?

According to the estimates of the entrepreneurs, the business activity is in most cases reasonably profitable. The views concerning the profitability are in general more positive in meat and milk processing companies than in the other lines of business. However, measured by means of economic key figures the estimates on the profitability would probably be weaker. This is mainly caused by the fact that many of the entrepreneurs do not take the remuneration for their own work into account when estimating the profitability. One reason why it is difficult to assess the profitability in a reliable way is the fact that the business activity is often included in the taxation of agriculture, and there is no data on the results and balances available for the business activity only.

According to the entrepreneurs, cooperation with other companies is one important way of improving the profitability, but in practice there is very little cooperation between food companies. However, the significance of cooperation in reducing the costs, increasing the production quantities and strengthening the marketing is going to increase in the near future. The number of small food companies operating in rural areas is growing steadily, and it would be vital for the small companies to join their forces in order to improve their negotiating power and economic preconditions for the activity.

Operating according to the market terms requires good skills, a lot of work, and faith in oneself and one's products. In the rural food companies there is faith in the continuation of the activity and often the turnover is also expected to grow in the next few years. It is obvious that strengthening small-scale food processing takes time. The activity and continuous development of the skills among the entrepreneurs as well as the large number of development and research projects related to food companies have shown that it is possible for small companies to gain entry to the market. Consequently, small-scale food processing is one way of supporting the basic agriculture and developing the activities on the farm.

fessional fishing was about 120 mill. kg and the value of this was FIM 190 mill. Only about 4% of the catch comes from inland waters, but the value of this is about 20% of the total value. Baltic herring accounts for more than half of the value of the catch from the sea areas, and the shares of cod and salmon are about 10%. The most important fishes caught from inland waters are vendace and powan with shares of over 70% and 16%, respectively. In 1997 there were 670 fish farms in the sea and inland waters, and 287 of these produced fish for human consumption. The total amount of fish produced for human consumption, almost solely rainbow trout, was 16 mill. kg, and the value of this was FIM 220 mill. 18 mill. kg of fish and fish products fit for human consumption, mainly baltic herring, rainbow trout and spawn was exported, and the value of this was about FIM 103 million. The total amount of fish and fish products imported was 38 mill. kg (FIM 527 million).

Reindeer husbandry is the main source of livelihood for about 700 households in Lapland, and in about 1,500 households it is an important secondary occupation. In the reindeer herding year 1997/98 the total number of reindeer owners was about 6,700. In the round-ups of 1997/98 the number of reindeer totalled 198,300 and 89,000 of these were slaughtered. Meat production totalled about 2.4 mill. kg and the value of this was about FIM 70 mill. Reindeer meat is exported mainly to Sweden and Norway.

The picking of wild berries and mushrooms provides important additional incomes especially to people living in Northern and Eastern Finland. In 1997 the total amount of wild berries, mainly bilberries, lingonberries and cloudberries, entering the trade was 11 mill. kg and that of wild mushrooms 0.6 mill. kg. The income from picking berries totalled FIM 62 mill. and from mushrooms FIM 7 mill.

Beekeeping (apiculture) is a source of additional income in about 4,000 households, and the total number of colonies of bees is about 42,000. Variations in the domestic honey production are considerable, and the yield is mainly dependent on the weather conditions during the summer. Within the past ten-year period there has been both the record yield of 2.4 mill. kg in 1989 and the poorest yield of 0.8 mill. kg in 1998. The value of production was about FIM 21 mill. in 1998. In addition to the production of honey, the bees perform important work in pollinating the plants.

1.2. Finnish farm

Finland is located between the 60th and 70th parallel. From south to north Finland is almost 1,100 km long, which means that the differences in the climatic conditions are considerable. The length of the thermal growing season, i.e. the season in which the average temperature during the day is over +5°C, varies from a little less than 6 months in the south to 2-3 months in the north. In Southern Finland the growing season begins in late April and continues until mid-October. The effective temperature sum varies between 500 and 1,300°C. The average precipitation during the summer months is 180-220 mm.

In summer 1998 the temperatures were close to normal, but it was exceptionally rainy. In general the precipitation varied from 250 mm to almost 400 mm. There were hardly any extremely hot days or frost.

It has been necessary to breed varieties suitable for the Finnish conditions, which get the maximum benefit from the short and cool but very light growing season and which suffer from frost as little as possible. The varieties cultivated in Finland due to the short growing season are not as high-yielding as the varieties grown in Central and Southern Europe. The long and cold

winter also makes it more difficult to cultivate winter cereals in Finland, which affects the yields.

The location of plant production is largely determined by the climatic conditions. Bread cereals and oil-seed plants are cultivated in Southern Finland only. Instead, fodder cereals, grass fodder and potatoes can be cultivated in the whole country, except in the very northernmost parts.

The area of Finland is 338,100 km^2. 27,500 km^2 (8%) of this is farming land and 230,000 km^2 (68%) is forest and other area covered by trees, 9,600 km^2 (3%) is constructed area and 37,000 km^2 (11%) is wetland and other open land. Inland waters cover 33,600 km^2 (10%) of the area of Finland. The share of arable land and gardens of the land area is 8.3%. In Finland the share of forest land is the largest

Average length of the growing season (average temperature of the day over +5 °C) in Europe in 1960-1990. Source: Finnish Meteorological Institute.

in the EU; when the international criteria for the estimation of the forest resources are applied, 71% of the area of Finland is classified as forest land. In Sweden the total forest area is larger than in Finland, but its share in the total area is smaller, 66%. In the EU forest covers about 36% of the land area. The commercial forests of Finland and Sweden account for 40% of the commercial forests in the EU.

In 1998 the area under cultivation in Finland was 2.17 mill. ha, including 0.17 mill. ha set-aside area. Of the area under arable crops the share of bread cereals, i.e. wheat and rye, was 9%, that of oats and barley 48%, oil-seed plants 3%, potatoes 2%, sugar beets 2% and grass fodder 34%. In 1997 the number of farms with over 1 ha arable land was 159,581, and the average area per farm was 15.8 ha. The number of farms with over 1 ha arable land practising farming or other entrepreneurial activity was 90,203, and the average area of these was 24 ha. Between 1995 and 1998 the number of farms that applied for agricultural support fell from 95,600 to 85,000 farms. The total number of active farms in the EU is about 7.3 mill. and the total arable land area is 128 mill. ha.

The average arable area of farms grows when agricultural production is terminated on small farms. However, the growth is very slow and there has been hardly any increase in the number of large farms. The arable area under cultivation has mainly increased through leasing rather than through purchases of additional arable land. In 1997 25% of the area under cultivation or set-aside, i.e. 544,700 ha was leased. According to the register on the sale prices of real estates of the National Land Survey, the number of transactions of additional arable land made by the end of November 1998 was 703, which is 148 more than in the whole year 1997. The median price paid for a hectare of

Structure of agriculture in the EU countries.

	Average arable area, ha	Farms with over 100 ha, %	Yield level, f.u./ha	Average number of cows	Average number of sows
European Union	17.5	2.9	-	23	35.5
Austria	15.4	1.3	-	8	15.1
Belgium	18.8	1.2	5,290	31	82.5
Denmark	39.6	7.3	5,470	44	86.5
Finland	21.7	0.8	3,600	12	29.8
France	38.5	9.6	5,630	29	62.0
Germany	30.3	3.5	5,410	26	35.3
The Great Britain	70.1	16.7	5,190	67	89.8
Greece	4.5	0.1	4,920	7	11.3
Ireland	28.2	2.7	5,400	31	78.4
Italy	5.9	0.5	5,650	19	20
Luxembourg	39.9	6.6	*	35	33.7
The Netherlands	17.7	0.8	5,360	46	172.6
Portugal	8.7	1.2	1,690	7	6.0
Spain	19.7	3.6	2,520	11	27.6
Sweden	34.4	6.3	4,220	27	33.8

** Combined to Belgium.*
Source: Eurostat 1997.

Distribution of farms into farm size classes according to the average cultivated area 1997.

	Farms with over 1 ha		Active farms	
	1,000	%	1,000	%
Whole country	160	100	90	100
1-4.9 ha	52	33	8	9
5-9.9 ha	31	19	14	16
10-19.9 ha	34	21	27	29
20-49.9 ha	35	22	34	37
50-99.9 ha	7	4	7	8
100- ha	1	1	1	1

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

additional arable land was FIM 17,800/ha. The median price varied from FIM 25,200 in Southern and Western Finland to FIM 3,700 in Kainuu and Lapland.

Finnish agriculture is based on family farms. 87% of farms are privately owned and 12% are owned by heirs and family companies. In 1996 the average age of farmers on privately owned active farms was 46.4 years. Full-time farmers were somewhat younger than part-time farmers.

Animal husbandry is the main production line on the majority of farms. 32% of active farms are dairy farms, 9% raise beef animals or other cattle, 6% practise pig husbandry and 2% are poultry farms. 45% of active farms practise plant production, and on 30% cereal cultivation is the main production line. From 1991 until 1998 the number of farms delivering milk to dairies fell from 40,000 to 26,000. However, due to the increase in the average herd size and the average milk yields there has been no significant change in the amount of milk delivered to dairies, but it has stayed around 2.3 million litres.

Compared to the most important competitors among the EU countries, the average unit size of the Finnish farms practising animal husbandry is still relatively small. In 1997 the average unit sizes in the main production lines were as follows: dairy farms 13.5 cows, cattle farms 10.2 beef animals or 12.5 suckler cows, fattening pig and piglet farms 151 fattening pigs or 46 sows, poultry farms 2,590 hens or 21,300 broilers.

Climatic conditions influence the use of arable land and location of the different production lines so that plant producing farms are mainly located in Southern Finland whereas most of the cattle farms are in the central, eastern and northern parts of the country. Pig and poultry husbandry is concentrated to the western and southern parts of Finland, and almost all of the farms producing bread cereals are in Southern and Southwestern Finland. Fodder cereals can be cultivated in the whole country, except in the very northernmost parts. The location of cattle farms, especially dairy husbandry, is reflected in the distribution of the land use so that in the province of Lapland the share of grass fodder in the area under arable crops is 90% and in Eastern Finland 60%, whereas in Southern Finland only 22% of the cultivated area is under grasses.

On the Finnish farms the machinery capacity is relatively high in the cultivation of arable crops in proportion to the average area under cultivation. The need for a

Average arable land and forest area of active farms in 1995-1997, ha/farm.

	Arable land and garden			Forest land
	1995	1996	1997	1996
Whole country	21.7	22.9	24.0	44.4
Support area A	30.8	32.1	33.5	30.0
Support area B	22.9	24.3	25.4	37.7
Support area C	19.2	20.2	21.2	50.9

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

large capacity in machines is due to the small farm size as well as the short growing season and variations in the weather conditions.

The total capital stock in agriculture has been estimated at FIM 77 bill. The share of land in this is about FIM 27 bill., when FIM 11,600/ha has been used as the price for arable land. According to the statistics on the credit portfolio, the debts of agricultural entrepreneurs totalled about FIM 21 bill. in autumn 1997. About a third of the farms have no debt.

Forest is an integral part of the Finnish farm, and only 5% of active farms have no forest. Of the forest area in Finland 62% is privately owned, the state owns 25%, companies 9% and other owner groups 5%. The state forests are mainly located in Northern Finland, where the forests are less productive than in the south. The share of privately owned forests of the growth in the standing crop is 72%. In 1996 the average forest area of active farms was 46 ha. In Southern Finland the average area of forest holdings on farms was considerably smaller than in Northern Finland.

1.3. Agriculture and the national economy

The growth of the national economy in Finland continued in 1998, and the total production grew by 4.9%. In the early part of the year it was estimated that the growth could be much stronger, but the disturbances in the international economy in the autumn were reflected in the Finnish economy as well.

Due to the turn towards the end of the year the production fell below the level of the previous year in most of the sectors of the manufacturing industry, except in electronics industry, which continued to grow. The rapid growth in the telecommunication sector has resulted in considerable changes in the structure of the Finnish manufacturing industry and exports. The increase in building activity and trade were also significant factors behind the positive economic development during 1998.

The significance of agriculture in the Finnish economy has been on the decrease for some time. The growth in the production is much slower than in the other sectors of the economy. Agriculture also

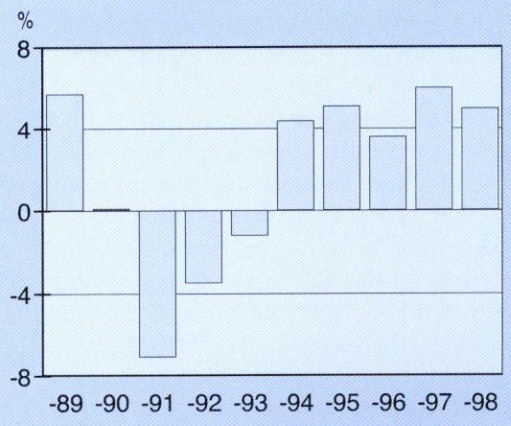
Gross domestic product (at basic prices) and investments in the whole national economy and in agriculture.

Year	Gross domestic product			Investments		
	Total FIM bill.	Agriculture FIM bill.	%	Total FIM bill.	Agriculture FIM bill.	%
1997	538.1	7.1	1.3	104.9	3.5	3.3
1996	498.6	7.3	1.5	92.0	2.7	2.9
1995	482.0	8.1	1.7	85.1	2.2	2.6
1994	447.2	12.7	2.8	74.2	2.2	2.9
1993	421.2	11.8	2.8	71.2	2.1	2.9
1992	415.7	10.9	2.6	88.0	2.3	2.6
1991	427.8	13.1	3.1	110.1	3.8	3.4
1990	447.5	15.2	3.4	139.1	5.1	3.7

Source: Statistical Yearbook of Finland.

purchases more and more implements and services from other sectors, and thus an increasing share of the value of the production is transferred outside agriculture. In 1997 the share of agriculture in GDP was 1.3%, and in 1998 it is likely to fall close to 1% due to the crop failure.

However, the significance of the total food chain in the national economy is much greater than indicated by the share of agriculture in GDP alone. Most of the input, transportation and processing sectors related to agriculture are closely linked to the extent and functioning of the domestic agriculture. For example, the gross value of the production of the food industry in 1997 was about FIM 49 bill. The value added of FIM 11.2 bill. was much higher than that of agriculture. In the consumption the focus is moving towards more highly processed foodstuffs, which reduces the share of the raw material in the price of food. In terms of the value added the most important sectors of the food industry are meat processing, manufacturing of bakery products and milk processing.



Growth in the volume of market price GDP in 1990 prices (%/year).

The forestry sector continued to grow. In 1997 the commercial felling, 53 mill. cubic metres, hit an all-time record, but this was broken already in 1998 when the felling rose to 55 mill. cubic metres. About 49 mill. cubic metres were cut from private forests. The stumpage money income totalled FIM 9.3 mill. in 1998, which was 7% more than in the previous year. According to calculations made at the Forest Research Institute, agricultural entrepreneurs own more than half of the privately owned forest land, and they make more sales at delivered price as well as sell more timber per hectare than other private forest owners, and thus their share on the timber sale income is larger than the share of the forest area. The gross income from timber sales in 1998 was estimated at about FIM 3.6 bill. The increase in the stumpage money income compensates the farms to some extent for the effects of the crop failure.

In 1992-1995 agricultural investments fell to less than half of the level of the late 1980s as a result of the growing uncertainty concerning the future agricultural policy and development of the preconditions for profitable production, as well as the depression that affected the whole national economy. In recent years investments in agriculture have recovered, mainly due to the extensive public investment aid programme. A considerable increase has occurred in the investments in machinery and implements. However, the level of investment is still far below that of the investment boom a decade ago.

Agriculture is a very capital intensive industry. In 1997 the share of agriculture in the investments of the whole national economy was 3.3%. The degree of investment, i.e. the share of investments in the value added, was above the average of the national economy until the 1970s. Consequently, the amount of capital tied to agriculture is larger than its share in the GDP.

The investments have increased rapidly in the whole national economy after the bottom figures reached during the depression. Private investment started to grow rapidly in 1995, and the growth in public investment began a year later. However, in 1998 investments fell slightly compared to 1997. The recent development of investments is mainly based on the building of houses especially in larger population centres. Instead, in 1998 there was no growth in the investments of manufacturing industry and in the forestry sector the investments have actually started to decrease.

Finland has a small open national economy, where the role of the foreign trade has traditionally been decisive. Exports grew rapidly in the early part of 1998, but after September exports fell to a lower level than in the previous year. By the end of October the value of exports was 10% and that of imports 9% higher than in 1997. The trade balance showed a surplus of FIM 49.2 mill., which means that the surplus for the whole year exceeds the level of FIM 52 mill. reached in 1997. 55% of the Finnish exports were directed to the EU countries, and the share of Germany was about a fourth of this. In the case of imports the share of the EU was about 60%. Despite the deeper integration of the single market the trade with countries outside the EU grew more rapidly than with the EU countries in both 1997 and 1998.

The exports of the products of the electronics industry grew the most. The development of both the export quantities and prices of paper industry was positive until the growth came to an end in the autumn and exports fell clearly below the level of 1997. However, the value of exports in 1998 was still higher than in 1997. The exports of sawn timber goods and pulp fell slightly.

Food exports fell by about 15% in 1998, while the import of foodstuffs continued to grow. The share of foodstuffs in the total Finnish exports is about 2%, and food products account for about 5% of imports.

Consumer prices rose by only 1.2% in 1997, and in 1998 the growth increased only slightly in spite of the economic growth that had continued for some time. Moderate wage settlements as well as decrease in the raw material and import prices have kept inflation at a low level.

The stable interest rate market and low interest rates have encouraged the entrepreneurs – as well as farmers – to make investments. The stable interest rate level has resulted in an increase in the domestic demand. The real income increased, and private consumption continued to grow very strongly. There was a considerable increase especially in the purchases of durables. The participation of Finland in the euro area should guarantee the low interest rate level in the future, too.

Finland joined the Economic and Monetary Union of the EU in conditions of considerable economic uncertainty. The positive trends include the growth in the private consumption, low inflation and considerable surpluses in the trade balance and balance of current accounts. However, the growth in the production of the manufacturing industry has stopped, and the high rate of unemployment casts a shadow over the future prospects. The tight public economy slows down the growth in the public consumption and keeps the taxation at a level that is internationally very high. The situation in the public sector is reflected in the operating conditions of agriculture. In the future, too, the development of the incomes and profitability of the Finnish agriculture will be tied to the level of the support payments from the EU and the state budget.

2. MARKET SURVEY

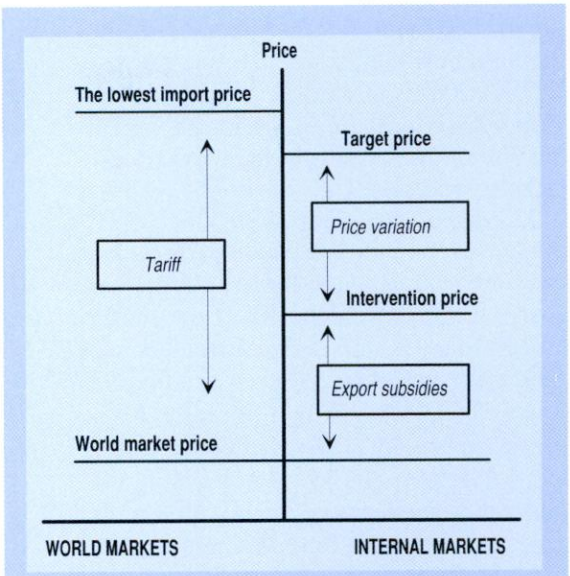
2.1. Market system

The common market system is an important means in order to reach the objectives of the common agricultural policy of the EU (CAP). The market system consists of, among other things, intervention activity in order to balance the disparities and timing between the supply and demand. Another objective of the intervention activity is to maintain the price level on the single market and through this to influence the income level of the producers. The market system covers 19 agricultural products or product groups for which institutional prices are decided annually by the Commission and the member states. The market arrangements for milk and sugar also include quota systems restricting the production, i.e. price support is paid only for a certain production quantity established for each farm.

The prices on the single market are kept above a certain level by means of public intervention purchases, prices of products coming from outside the EU are raised to the level prevailing on the single market by means of import duties, and exports are subsidised. As a result of the CAP reform of 1992 the institutional prices for cereals and beef were lowered closer to the world prices. The producers were compensated for the reduction by means of direct support, and thus these have gained a central position in the price and market systems of individual products. According to Agenda 2000 the reduction of the institutional prices will be continued and extended to the dairy products, too. This increases the significance of the support based on the area or number of animals. The operation of the market system is financed from the Guarantee Section of the European Agricultural Guidance and Guarantee Fund (EAGGF).

Institutional prices play the central role in the price system of the EU. The Council of Ministers ratifies the prices annually on the submission of the Commission, and these stay in force for a market year, which in the case of the most important products is from July till June. The price is, however, not a guarantee price, but a theoretical price that influences the different kinds of decisions concerning the export subsidies and intervention actions. The factors influencing the price level set as the target include e.g. income development of producers, overall cost development, market situation and financing situation of the Community.

Different titles are used for the institutional prices of the different products, but the principle is the same. Intervention price is applied for cereals (except oats) and beef. A target price is set for milk, and to realise



The price system of the EU.

this intervention prices are set for butter and skimmed milk powder. National intervention bodies are obliged to purchase all products offered at this price, provided that certain quality requirements are fulfilled. In the case of beef intervention purchases are launched if the market price falls clearly below the intervention price. If necessary due to the market situation, the intervention purchases can be stopped for a certain period of time. Private storage is also supported. The price for pigmeat and mutton is basic price, but this has very little significance. The prices vary according to the market, and in practice the basic price has no influence in the price formation.

In order to liberalise the world trade and facilitate the entry to the EU market it was agreed in the GATT Uruguay round that the threshold prices and import levies applied at the Community borders are replaced by various kinds of import duties. According to the agreement, the import duties on each product based on the value and quantity of the products must be lowered by 36% between 1995-2000, and in principle the lowest import price that was administratively set was abolished. Thus the import price of a product is determined on the basis of the world price and duties. However, in the case of many important agricultural products the EU may raise the duties within the limits set in the GATT agreement should a considerable fall occur in the world prices.

Intervention stocks are either discharged on the single market or exported by means of subsidies, because the single market prices are clearly higher than the world prices. In the GATT Uruguay round it was also agreed that the export subsidies are reduced by 36% and the amount of subsidised exports by 21% by the end of the period. Export subsidy is not simply the difference between the intervention price and the world price, but it is determined by actions regulating the market, such as the export ceilings according to the GATT agreement and the budget situation of the Community.

Price settlement for the market year 1998/1999

The Agricultural Council makes the decision on the market arrangements in the so-called annual price package. The price package for the market year 1998/1999 was part of a compromise concerning the reform of the market arrangements for olive oil, tobacco and bananas approved by the Council. In the package various kinds of detailed requirements by the member states concerning the market arrangements were approved. Finland required that in the future the aid for protein plants is paid for the mixed growth of fodder peas and cereals if peas is the dominating plant. The compromise made in connection with the price package also includes the exception granted to Finland according to which the area under set-aside can be reported after filing an application for aid due to the bad

Institutional prices for the market year 1998/1999.

	EURO/1,000 kg
Cereals	
- intervention price	119.19
- monthly raise	1.00
Sugar	
- basic price for sugar beet	47.67
- intervention price for white sugar	631.90
Milk	
- target price	309.80
Butter	
- intervention price	3,282.00
Skimmed milk powder	
- intervention price	2,055.20
Beef	
- intervention price (R3)	3,475.00
Pigmeat	
- basic price	1,509.39
Mutton	
- basic price	5,040.70

weather conditions during the growing season and the problems in sowing.

Compared to the previous market year there were no significant changes in the prices of agricultural products. The intervention price for rice was lowered by 5.3% and the hectarage support for hemp was cut by 7.5%. The share of set-aside was raised to 10% in 1999/2000, while in the crop year 1998/99 the mandatory set-aside area was only 5%.

Quota system for milk

In the EU the quota system for milk production was introduced in 1984 when milk production quantities for the next five years in each member state were for the first time established by a decision of the Council of the Ministers of Agriculture. Later on the quota system was continued, and the current system will stay in force until the end of March 2000. According to the ongoing reform of the agricultural policy it has been proposed that the quota system be continued until the year 2006.

The purpose of the quota system is to restrict milk production, and thus support is paid only up to the established quota. An additional quota charge has to be paid if the national quota is exceeded. In such a case it is up to the member state to decide how to take the amounts exceeding or falling sort of the quotas set for individual producers and dairies into account. From 1992 the additional charge has been 115% of the target price for milk.

In the quota year 1997/1998 the total quota of the Community was 117,494 million kg. In the accession treaty the dairy milk quota for Finland was set at 2,342 million kg on the basis of the amount of dairy milk in 1992, and the direct sales quota was set at 10 million kg. In the quota year 1997/1998 the national quota of Finland was 2,398 million kg as the so-called SLOM quotas were added to the national quota. SLOM quotas refer to the quotas of producers who had terminated milk production for a certain period of time, and according to the accession treaty production totalling 200 million kg can be resumed.

In Finland the trade in quotas is regulated by a so-called mixed system, according to which milk quotas can be purchased in three different ways. *In an administered transaction* milk quotas are applied for from the Employment and Economic Development Centre of the region. The potential buyers are divided into three groups, i.e. producers with extra space in the cowhouses, investing producers who are under 65 years old and other producers, including e.g. those raising local breeds and organic producers. The Ministry of Agriculture and Forestry determines the priority between these groups, because there are not enough quotas available for all buyers. The Employment and Economic Development Centre makes the decision on the final distribution of the quotas among the groups of applicants. In the administered transactions the price of a milk quota is FIM 0.65/l (+VAT).

Free trade in quotas is allowed within four trade zones. A producer who sells the quota without any arable land must sell at least half of the quota to the state at the administered price of FIM 0.65/l. The rest of the quota can be sold freely to another producer.

The third way of purchasing a quota is the quotas transferred together with a whole farm. These transactions are subject to the condition that at least 2/3 of the arable land of the farm is sold or leased when the quota is sold.

In 1998 about 30 million litres of quotas were transferred to the producers through administered transactions, where the priority is on investing producers. Quotas corresponding to about 10 million litres were transferred in transactions between producers. In the free transactions the prices were higher than in the administered ones.

In Southern Finland the average price of a quota was FIM 1.01/l and in Northern Finland FIM 1.06/l. The price was the highest in Central Finland, where the average was FIM 1.43/l.

2.2. Arable crops

Weather conditions

In February and March it was very cold in all parts of the country. In Eastern and Northern Finland there was more snow than usually and in the south, too, there was quite a lot of snow towards the spring. Thus the spring was delayed by about a week in the south and by about two weeks in other parts of Finland. The growth of grasses started quite well due to the sunny period and pasture season began towards the end of May in Southern and Central Finland. In most parts of the country the wintering of cereals and grasses succeeded quite well. Spring sowing started quite well, but it was interrupted by heavy rains, which delayed the sowing especially in Central and Northern Finland, and in some places sowing could not be completed at all. According to a decision by the management committee the producers of support area C were allowed to increase their set-aside area after having filed the application for aid. This was an exceptional decision, and achieving it required considerable efforts and a lot of work from both the administration and the producer organisations.

The early part of the growing season was sunny, but soon the weather turned very rainy. In most parts of the country the precipitation in June-August was 1.5 times or even twice the normal. The precipitation during the summer totalled 300-400 mm, when the average is between 150 and 200 mm. In terms of the temperatures the summer was quite normal; in some places the average temperature was about a degree below the long-term average and the night-time temperatures were exceptionally high. The number of very warm days when the temperature rose over 25 degrees was only 1-3, when during a normal summer this is 10-15 days.

The early part of the harvesting season was very rainy, and especially the harvesting of rye was very difficult. However, in most places it rained very little in September and it was quite warm and harvesting proceeded quite well, except that in some places the soft land due to the rains did not carry the heavy machinery and harvesting could not be completed. According to estimates about 442,000 ha suffered from crop damages. Due to rains some of the cereals turned yellow and the kernel size remained small. The cereals were also damaged by various plant diseases and mold. Thus the quality was week and hectarage yields were clearly below the average.

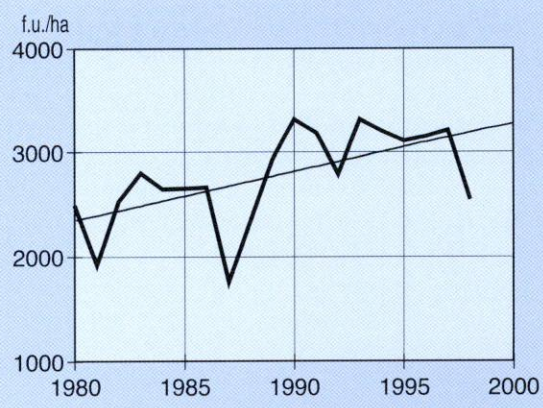
Areas and yield levels

The cultivated area has grown st eadily during the time Finland has been in the EU. From 1997 the cultivated area grew by 31,700 ha, and thus in 1998 the area under the most important arable crops was 1,999,800 ha. However, due to the rains during the growing season the crop remained unharvested on about 70,000 ha, and the harvested area of 1,933,900 ha was 32,800 ha smaller than in 1997. The total cultivated area was 2,166,300 ha, including 166,500 ha set-aside, i.e. 7.6%. The area under set-aside was slightly larger than in 1997.

The area under arable crops grew, while some decrease occurred in the area under dry hay and green fodder. The total increase in the area under arable crops was 3.5% i.e. 39,300 ha, mainly due to the increase in the areas under rye and oats. Proportionally the area under rye grew the most, by almost 60% (13,300 ha), and the area under oats increased by 5% (17,300

ha). The area under dry hay decreased by 10% (21,900 ha) and that of green fodder 15% (4,500 ha). The silage area grew by 8%, i.e. 24,400 ha.

In 1998 the yields were low enough to make it justified to say that there was a crop failure. The total cereal yield was 2,780 million kg, which is more than 1,030 million kg (27%) less than in the previous year. The average hectarage yield of cereals was almost 1,000 kg lower than normally and the quality of the crop was poor.



Total yield without straw in 1980-1998, f.u./ha.

Despite the increase in the cultivated area the total yield of bread cereals was 13% lower than in the previous year. Only about a third of the winter wheat and half of the spring wheat fulfills the quality requirements for bread cereals. The area under rye grew by almost 60% from the previous year, but the yield level fell by about 24%. The rye yield still exceeded that of 1997 by 1.7%, but half of the crop had suffered from quality damages. The need

Harvested areas and yields of main crops in 1997 and 1998.

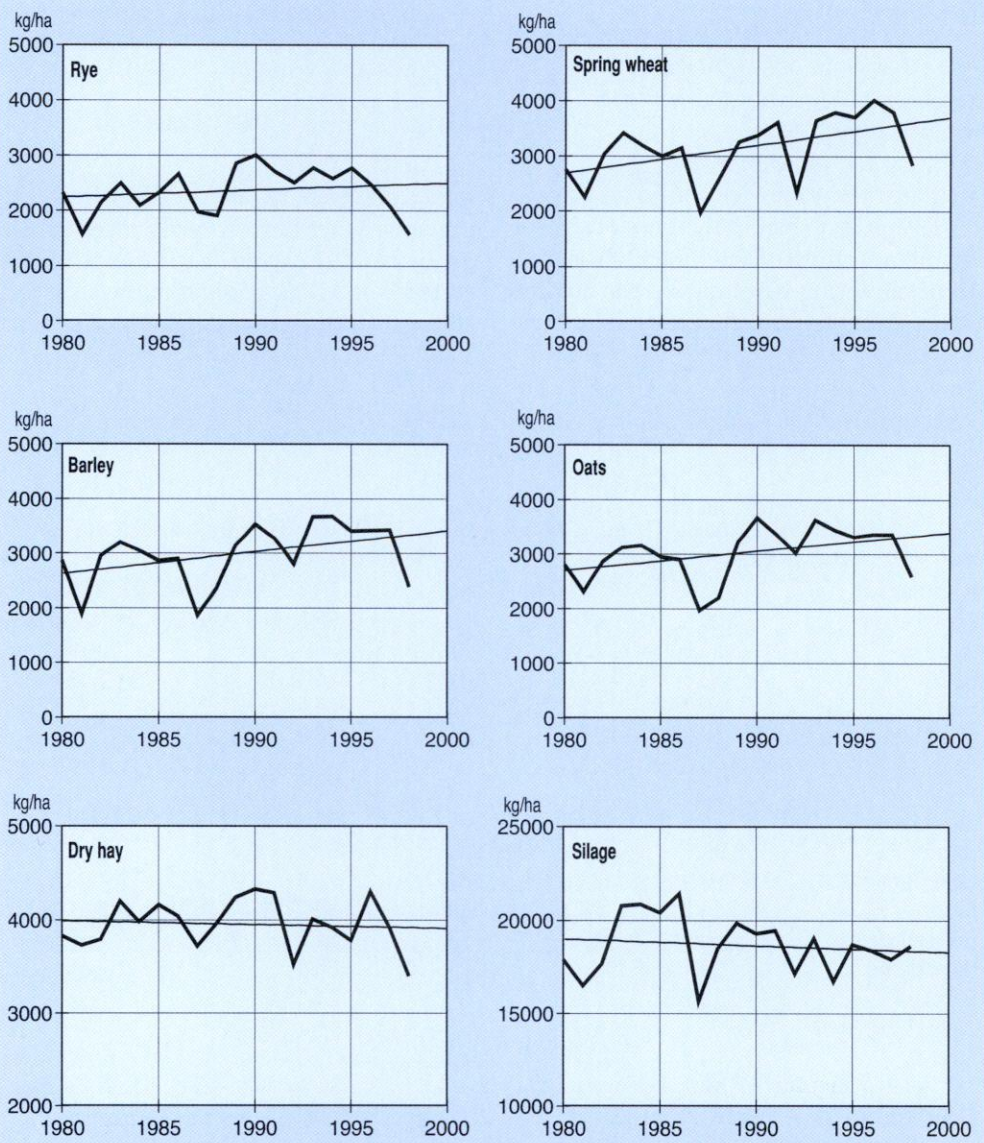
	1997			1998		
	Area 1,000 ha	Yield 100 kg/ha	Total mill.kg	Area 1,000 ha	Yield 100 kg/ha	Total mill.kg
Winter wheat	24.3	34.5	84	30.4	32.7	96
Spring wheat	100.5	37.9	380	106.8	28.5	304
Rye	22.8	20.7	47	36.1	15.7	49
Barley	582.8	34.4	2,004	578.1	23.9	1,316
Oats	369.2	33.7	1,243	386.5	25.9	975
Mixed cereals	16.2	29.9	49	16.2	23.4	35
Peas	6.0	21.9	13	4.9	4.2	4
Potatoes	33.2	227.1	754	32.8	186.3	591
Sugar beets	34.9	389.7	1,360	33.2	273.5	897
Hay	219.8	39.2	863	197.9	34.0	612
Green fodder	29.9	134.6	402	25.4	117.6	295
Silage	314.3	179.1	5,630	338.7	186.1	6,251
Oil-seed plants	60.6	15.3	93	64.8	11.1	64
Other crops	35.1			36.5		
Pasture	113.7			111.5		
Total	1,963.6	3,214 [1]	5,852 [2]	1,999.8	2,543 [1]	4,553 [2]
Set-aside	161.6			166.5		

[1] *f.u./ha without straw.*
[2] *mill. f.u. without straw.*

for rye imports is estimated at about 80 million kg, which corresponds to about 85% of rye consumption.

The yield of fodder cereals was almost 30% smaller than in 1997. The yield level was about 1,000 kg lower than the average and more than a third of the crop was damaged. The yield of malting barley was about a third smaller than in the previous year, and 65% of the crop fulfilled the quality requirements.

The total yield of oil-seed plants was also below the normal. The yield was 64 million kg, which is about a third smaller than in 1997. The quality was quite good. Oil-seed plants were destroyed on 7,300 ha, which is a little over 11% of the area under oil-seed plants.



Yields of main crops in 1980-1998.

Effects of the crop failure of 1998 on agriculture

Ahti Hirvonen

In 1998 the weather conditions were exceptionally bad during the growing season, and this caused income losses that will be reflected in the cash-based agricultural income of both 1998 and 1999 in the whole agricultural sector. The direct impacts were the greatest in plant production, where both the quality and quantity of the crop was poorer than the average, and thus on farms specialising in plant production the effect of the crop failure was reflected in the incomes already in 1998. On animal farms the impact of the poor crop is likely to be felt mainly during 1999, when the fodder reserved for winter period will be used up sooner than normally. This makes it necessary for animal farms to either reduce the number of animals by increasing the slaughtering or purchase additional fodder, which naturally increases the costs.

Cereal yield collapsed

The cereal crop of 1998, 2.8 billion kg, is more than 1 billion kg lower than in 1997. The yield of barley fell the most, as much as by a third from the previous year, and the yields of special crops and dry hay were also much lower than in 1997. Instead, the silage yield exceeded that of 1997, but the quality was below the average. In the case of other crops, too, the quality was poor, which lowered the prices paid for e.g. cereals. However, there was considerable variation between farms and regions in terms of the quantity and quality of the crop.

Income falls

In the case of cereals the decrease in the income due to the crop failure occurs in 1998 and 1999. According to the preliminary total calculation of agriculture, the return on sales of cereals fell almost FIM 300 million, which is 20% less than in 1997. In the case of other arable crops the return fell by FIM 100 million, i.e. 11% in 1997-1998. In horticulture the crop damages did not cause any income losses, because the lower yields were for the most part compensated for through the higher prices.

The crop damages should not influence the amounts of aid paid to the farms. The eligibility criterion concerning harvesting was moderated, i.e. crop that cannot be harvested due to difficult conditions is no obstacle to receiving the aid, and based on a special decision the aid for the production of bread cereals was paid on the basis of the area.

Costs increase

It is very difficult to present any accurate estimates of the cost effects of the bad weather conditions of 1998 and the resulting crop damages. In many cases the spring sowing was done in exceptionally wet conditions, and some of the area could not be sown at all. During the harvesting the conditions were more favourable, but the wet land and

poor quality of the plant stand increased the harvesting and drying costs. However, some cost savings were also gained due to the smaller area to be harvested and lower hectarage yields.

The bad weather and extremely wet conditions also affected the quality of the arable land and pastures. The effects of the deterioration of the soil structure will make the cultivation more difficult and reduce the yields in the coming years, too. However, it is impossible to establish any monetary values for these losses.

The weak cereal and grass fodder yields increase the costs of animal farms as both the quantity and quality of the fodder produced on the farms remain low. The shortage of own fodder has to be compensated for by purchased feeding stuffs. According to the preliminary total calculation of agriculture for 1998, the use of purchased fodder grew by 7% from the previous year, but due to the lower prices the cost of industrial fodder increased by only 2%, i.e. about FIM 50 million.

Compensation of crop damages

Agriculture is entitled to receive compensations for crop damages caused by exceptional natural conditions on the basis of the relevant legislation. The compensations are paid either to individual farms or as general compensations if the area affected is large and it can be clearly defined.

The amount of compensation may be the difference between the norm yield indicating the average yield of each crop and the yield of the year concerned, taking into account the excess deduction. The quality damages due to the factors involved are not compensated for, except if the quality is so badly affected that the crop is not fit for any uses. The norm yields and the unit prices for arable crops needed to determine the compensations for crop damages are established separately for each year.

The Ministry of Agriculture and Forestry has estimated the extent of the crop damages in 1998 and the amount of compensations to be paid for these. According to the estimate, after the excess deduction has been made the amount of money needed for the compensations is about FIM 320 million, and the share of the general compensation for grasses is about FIM 100 million. The compensations are paid in the early part of 1999.

Total effect of crop damages is billions

The Agricultural Economics Research Institute made an account of the total effects of the crop damages on the returns and costs of agriculture in autumn 1998. According to this, the combined effect of the income losses and increased costs on agricultural income is about FIM 1.7 billion. About 30% of this concerns the year 1998, and the effects of the rest will be seen in 1999. The bad yield of fodder crops affected the agricultural income the most, resulting in an increase in the fodder cost by about FIM 1 billion compared to an average year. When the compensations are taken into account, the reduction in agricultural income due to the crop damages is estimated at FIM 1.4 billion.

The silage yield was close to the average level and the total yield exceeded that of the previous year by about 10%. About 90% of the silage crop was estimated to be of good quality. Instead, the dry hay yield was clearly weaker than in 1997, because the amount of dry hay harvested was about a third smaller than in the previous year. 63% of the harvested crop was of satisfactory quality. The dry hay crop was destroyed on almost 20,000 ha.

The total potato yield was only 590 million kg, which is 22% smaller than in 1997. The average yield level was 14% below the normal level. The yield of sugar beets collapsed from the record yield of the previous year. The yield totalled less than 900 million kg, which 14% lower than the average yield and 34% below the yield of 1997.

Market prices of cereals in 1990-1998, FIM/kg[1)].

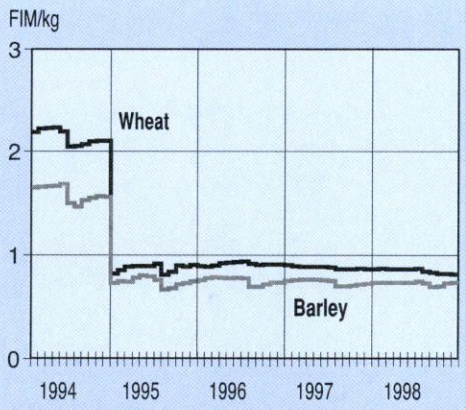
	Rye	Wheat	Barley	Oats
1998	0.87	0.85	0.73	0.66
1997	0.89	0.88	0.74	0.70
1996	0.90	0.91	0.75	0.74
1995	0.89	0.87	0.73	0.70
1994	2.52	2.13	1.57	1.48
1993	2.26	2.19	1.63	1.54
1992	2.72	2.19	1.65	1.55
1991	2.88	2.22	1.58	1.55
1990	3.03	2.54	1.76	1.72

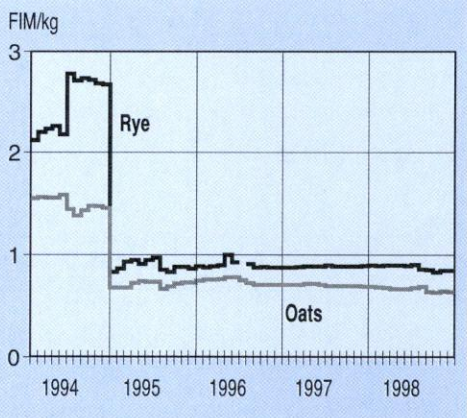
1) Producer prices until 1994.
Source: Grain bulletin.

Market prices for arable crops

Cereal prices are usually given as market prices, i.e. the price for cereals at the buyer's store. The producer price, i.e. the price paid to the farmer, can be obtained by deducting the transportation costs from the market price.

The market prices for cereals have been quite stable during the whole time Finland has been in the EU. The market price for barley has followed the intervention price quite closely, but in 1998 it was 2-3% below the market price almost the whole year. As a result of this the intervention purchases almost tripled from the previous year. The growing intervention stocks were discharged on the Finnish market, too, as the intervention cereals are normally sold to other EU countries or exported to third countries. The market prices for rye and wheat have been above the intervention price. In 1998 the price of rye was about the same as in the previous year, but the price of wheat fell by the average of 3%. Oats are not included in the intervention





Market prices of cereals in 1994-1998.

Market prices of cereals in 1998, FIM/kg[1)].

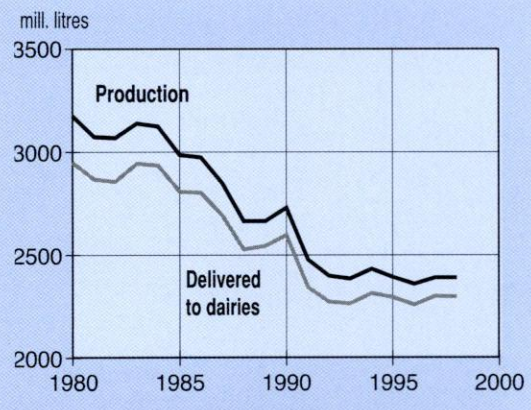
	Rye	Wheat	Barley	Oats
Finland	0.90	0.87	0.74	0.69
Sweden	0.69	0.73	0.67	0.65
Denmark	0.70	0.72	0.77	0.71
Germany	0.66	0.72	0.66	0.60
France	0.66	0.71	0.64	0.68
England	-	0.71	0.65	0.63
Spain	0.75	0.90	0.79	0.83
Italy	0.80	0.93	0.89	1.23

1) January-March.
Source: Eurostat.

system, and the market price has been clearly below the intervention price. In 1997-1998 the market price of oats fell the most, by about 5%.

In 1997 the market prices for wheat and rye in Finland were above the EU average, mainly due to the inadequate production in relation to the consumption. Instead, the prices for fodder cereals have usually been below the EU average, because their production exceeds the consumption.

In 1998 there was relatively little export demand for cereals, mainly due to the good crops in the main production regions, which filled the stocks. The yield level was below the normal one only in Russia, Brazil and Australia as a result of poor weather conditions. The economic crisis in Russia created an urgent need for food help, which strengthened the export market. This was reflected as a slight increase in the world market price for wheat towards the end of the year. However, the world price is still about 20% lower than the average price in 1997. The world price for barley is very low, and thus high export subsidies are needed for exports outside the EU.



Milk production and the amount of milk delivered to dairies in 1980-1998.

2.3. Livestock production

Milk

No significant change occurred in milk production between 1997 and 1998. The production totalled 2,300 mill. litres. During the quota period 1997/98 the production was very close to the quota, i.e. 99.9% of the quota. In the current quota period milk production is expected to fall, and according to forecasts the production will be 98.3% of the quota. The average yield was 6,300 litres per cow, which is 100 litres (1.6%) higher than in the previous year.

The number of milk suppliers continued to decrease during 1998: in the beginning of the year there were 27,220 milk producers, but in the end of 1998 their number was 25,430. The number of producers terminating their production was slightly smaller than in 1997, when 1,900 producers gave up milk production. The number of dairy cows was 381,000 in the end of 1998. The average farm size was 15 cows per farm.

Milk is produced in all parts of Finland, including the northernmost Lapland. However, the quantities are the highest in Ostrobothnia as well as Northern Savo and Northern Karelia. These areas account for

Livestock production in 1990-1998[1)].

	Dairy milk mill. l	Beef mill. kg	Pigmeat mill. kg	Eggs mill. kg	Poultry meat mill. kg
1998	2,300	93	186	63	61
1997	2,301	99	180	67	53
1996	2,261	97	172	71	49
1995	2,296	96	168	75	42
1994	2,316	107	171	72	39
1993	2,264	106	169	70	35
1992	2,274	117	176	67	36
1991	2,345	122	177	67	37
1990	2,600	118	187	76	33

[1)]The hot weight reduction of meat was abolished at the beginning of March 1990. As a result, the quantities are 3% bigger than earlier. The prices were also dropped by 3%. Starting from July 1, 1995 the hot weight reduction is 2%.

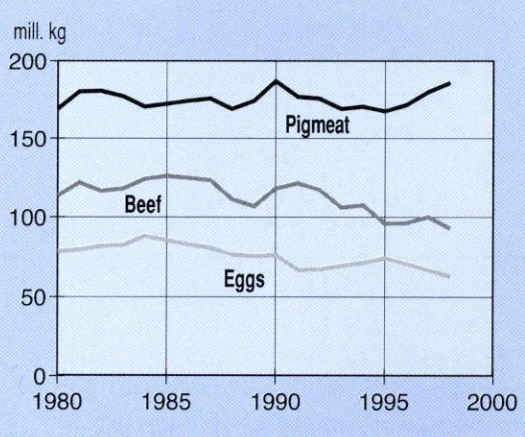
53% of the total milk production in Finland.

Beef

In 1998 beef production in Finland totalled 93 million kg, which is 6% less than in the previous year. Production is clearly smaller than the consumption, which was 99 million kg in 1998. The decrease in the production was caused by the fall in the slaughter weights as well as the decrease in milk production, because about 90% of the beef production is based on slaughter animals coming from milk production. Within the EU specialised beef production is supported by means of bull and suckler cow premiums, but there has been very little increase in the production due to e.g. profitability problems. The suckler cow and bull quotas of Finland were far from being fulfilled as in 1998 premiums were paid for less than 28,000 suckler cows and 190,000 bulls, while the number allowed by the quotas would have been 55,000 suckler cows and 241,553 bulls. Since 1995 the number of suckler cow premiums paid has increased by 14%, but that of bull premiums has fallen by as much as 27%.

Pigmeat

As a result of production investments pigmeat production grew by almost 5% from the previous year, and the production in 1998 totalled about 186 million kg. Pigmeat production is almost at the same level as the consumption. Pigmeat production is very strongly concentrated to Southwestern Finland and Ostrobothnia, which



Production of beef, pigmeat and eggs in 1980-1998.

account for almost 70% of the total production in Finland.

The growth in the oversupply in pigmeat in the EU led to problems in the Finnish pigmeat production. Difficulties were caused by the economic crisis in Russia and Asia. Furthermore, the USA was discharging its growing production to the saturated markets of the EU. The excess supply was followed by a dramatic fall in the producer price for pigmeat, which has been reflected in Finland, too. Danish ham was sold to the Finnish consumers at record low prices (as low as FIM 7.90/kg) before the Christmas.

Poultry meat

The production of poultry meat has been growing steadily for a number of years. In 1998 the production totalled 61 million kg, which is 16% more than in the previous year. Poultry meat production is mainly based on contracts, and the continuous increase in poultry meat consumption has encouraged the increasing of production.

Mutton

Mutton production suffers from poor profitability, partly due to the undeveloped market and small production quantities. In 1998 mutton production totalled 1.1 million kg, and about 1.9 million kg was consumed. Because of the small production quantities the slaughtering costs are very high, which makes the slaughterhouses less willing to invest in the slaughtering of sheep. The producer price has been clearly below the average price level in the EU.

In order to promote mutton production negotiations were conducted with the Commission on the possibility to obtain a temporary raise in the ewe premium, but these were unsuccessful. Private storage compensations can be paid in order to raise the price of mutton, but these have been taken advantage of by very few producers and the objective was not reached.

Eggs

Egg production fell by about 7% from the previous year, but the overproduction was still about 10 mill. kg. In 1998 the production was 63 mill. kg, while 53 mill. kg were consumed.

The problems in the Finnish egg production are the extremely high oversupply in proportion to the domestic consumption and low prices. In order to balance the production, egg producers and packaging firms made a so-called Rusko contract in spring 1998. However, the contract lapsed in the latter part of the year. The purpose of the contract was to balance the egg market by means of centralised exports, and export fund charges were collected from the producers to finance these. In order for the contract to work the whole production chain should have been committed to it. Negotiations on a new contract are underway, and these seem to be leading to a contract with adequate coverage.

The producer prices of the most important livestock products in 1990-1998 including production support (export cost fees and milk quota payments have been subtracted).

Year	Milk FIM/l	Beef FIM/kg	Pigmeat FIM/kg	Eggs FIM/kg
1998	2.58	13.30	7.50	3.84
1997	2.72	12.44	8.32	3.62
1996	2.73	13.25	7.96	4.18
1995	2.85	20.73	10.56	5.32
1994	3.27	30.45	16.14	11.15
1993	3.28	29.32	16.25	11.58
1992	3.17	30.04	16.30	11.95
1991	3.21	29.44	16.62	11.86
1990	3.17	32.11	17.66	11.81

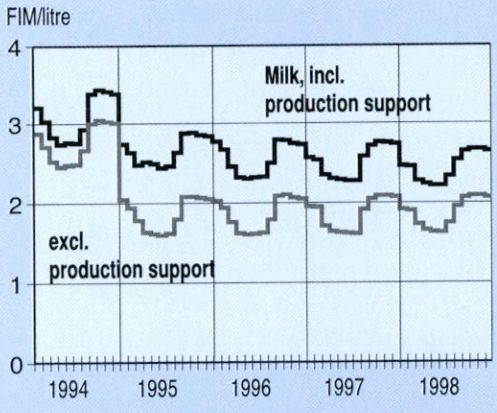
Source: Information Centre of the Ministry of Agriculture and Forestry.

Producer prices

The producer prices of animal products in Finland are quite close to the average prices in the EU, except in the case of mutton and eggs. These have been clearly below the EU average during the whole time Finland has been a member.

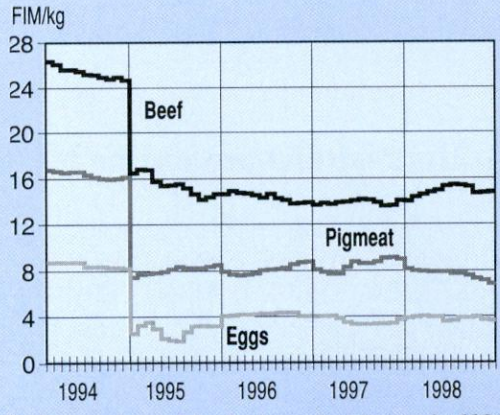
The producer price for milk used to be slightly higher than the average in the EU, but the price has fallen due to the increased competition on the liquid milk market. A new dairy cooperative was established on the domestic market (Aito-Maito Fin Ltd.), whose members are the Kainuu Dairy Cooperative and Maito-Pirkka, which detached itself from Valio. The amount of milk received by Aito Ltd. is a little over 200 million litres, of which a little under 100 million litres are processed into fresh dairy products. These compete for the contracts with the stores, which has obviously confused the liquid milk market and in certain areas lowered the producer prices more than FIM 0.10/l. In 1998 the producer price without the retroactive payments was FIM 1.88/l. The difference between the lowest and the highest producer price paid grew to FIM 0.17/l, when in 1997 it was FIM 0.15/l, without the retroactive payments. In 1998 retroactive payments are estimated to be less than FIM 0.10/l, while in 1997 they were FIM 0.15/l.

On the meat market the variations in the producer price were smaller than in the Community on the average. The crisis in the pigmeat sector was also reflected in the Finnish producer prices, but these have still been about FIM 8/kg, which is higher than the average producer price in the Community. Towards the end of the year the pigmeat prices fell below FIM 7/kg, which has already caused serious profitability problems on many farms. The EU has reacted to the exceptionally low market prices for pigmeat by doubling the export subsidies and opening the intervention stores to pigmeat.



Producer price of milk in 1994-1998.

The producer price for beef rose gradually to a higher level than in the previous year. The average price was FIM 14/kg, which is 4% higher than in 1997. Beef prices are still relatively low, but they follow the average price level in the EU quite closely. In the case of beef, too, the prices vary less than in the EU on average. The decrease in the beef supply has also increased the price.



Producer prices of beef, pigmeat and eggs in 1994-1998.

Market prices of livestock products in 1998, FIM/kg[1].

	Milk	Pigmeat	Beef[2]	Eggs[3]
Finland	1.80	8.02	16.4	3.94
Sweden	1.98	8.79	16.5	6.39
Denmark	1.99	7.42	16.3	..
Germany	1.82	7.71	17.1	6.58
France	1.91	7.61	17.7	4.27
Italy	2.14	..	19.2	7.27

[1] January-March.
[2] R3-class [3] Prices converted into these per kilo according to average weight of 62 g.
Source: Eurostat.

The average producer price for poultry meat was FIM 6.70/kg. The price rose by 2-3% from the previous year, partly due to the favourable development in the consumption and partly the fact that the production is largely based on contracts.

Between 1997 and 1998 there was some increase in the producer price for mutton, but it is still only about half of the average level in the Community. The average producer price for mutton in Finland was FIM 10/kg.

The producer price for eggs was about FIM 4 during the whole year 1998, but after the Rusko contract had lapsed the producer price fell towards the end of the year. The wholesale price was about FIM 6/kg, while the average in the EU was FIM 5/kg.

2.4. Horticultural production

Horticultural production in Finland comprises vegetable production in the open, the production of cultivated berries and apples and greenhouse production, and in some connections the production of cultivated mushrooms is also included.

In 1998 the gross return of horticulture totalled about FIM 2.0 billion. The share of greenhouse production is about 60% and that of horticultural production in the open 40% of the gross return. Greenhouse production is quite equally divided into the cultivation of ornamental plants and vegetables. In horticultural production in the open the value of vegetable production is 21%, that of berries 12%, nursery production 6% and apple production 1% of the gross return.

According to the register on horticultural enterprises the number of companies operating in this field was about 9,100 in 1997. Combined production of the different production lines is practised on about 1,500 farms, and the number of farms with horticultural production as the main production line is estimated at 4,300. Vegetable production in the open is mainly located in southwestern parts of Finland, berry production in the eastern parts, and apples are produced in Åland and Southwestern Finland. Half of the area under greenhouse vegetables is in Ostrobothnia, but the production of ornamental plants is more evenly distributed among the different parts of Finland.

Areas and yields

According to the support register, in 1997 the area under horticultural production was about 14,600 ha, of which 56% was under vegetable production in the open, 39% was used for berry production and 2% as apple orchards, and 3% was under greenhouse vegetables. The area under nursery production, which is not included in the support register, was 750 ha. According to the preliminary support register for 1998 the area under horticultural production increased by about 4% from the previous year. The aid for horticultural production in the open was applied for by 5,700 farmers and the average area per farmer was 2.6 ha.

In 1997 the area under vegetables produced in the open was about 8,200 ha, and

about 40% of this was used for the production of root plants, 24% for cabbage production and 11% for onions. The total area under greenhouse production was 390 ha. 80% of the greenhouse area was used for long-term cultivation of more than 7 months and about a fifth was for cultivated for 2-7 months. When combined production is taken into account, it is estimated that about 58% of the greenhouse area was used for the production of vegetables and 42% for ornamental plant production.

In 1996 the area under vegetables grown in the open fell by about 5% from the previous year, but it soon returned to the earlier level, followed by some growth in 1998. The changes in the vegetable production in the open mainly concern the area under cultivation contracts made with the processing industry, which has fallen by about 15% in 1995-1997. The area covered by contracts concerning outdoor cucumbers has decreased by a fifth, and in 1997 no new contracts concerning leek and bush bean were made.

The area under berry production increased by about 5%, i.e. almost 270 ha, in 1995-1998. The area used for contract production fell by about 10% in 1995-1997, but the area under fresh berries grew by about 7%, i.e. 300 ha. The areas under strawberries and raspberries have grown considerably, but the area under currants has decreased. The area under apple trees that yield a crop has diminished by 6%, but about the same area has been planted with young trees.

In 1997 altogether 1,780 producers applied for the aid for greenhouse production. The average size of greenhouse enterprises was 2,200 m^2, which was about 5% larger than in 1995. In 1998 the aid was applied for by 1,790 entrepreneurs, and the average size was 2,100 m^2. In order to be eligible for the national transitional aid for greenhouse production the area under horticultural production must be more than 300 m^2.

In the production of ornamental plants the area under potted and group plants grew the most in 1995-1997. The area under cut roses also increased by more than 1 ha. Instead, the production of carnations has stopped almost completely as a result of the EU membership, and the cultivation of cut chrysanthemums has decreased by about 50%.

In 1997 the most common vegetables grown in the open were garden peas, carrots, white cabbage and onions, and the total area under these accounts for almost 60% of the area under commercial production. The areas under garden peas and carrots grew by about 10% and the area under rutabaga by about a third in 1995-1997, and during this period the produc-

Areas under horticultural crops in 1995-1998 according to the support register, ha.

	1995	1996	1997	1998[e]
Area under horticultural production, total	14,638	14,002	14,605	15,166
Vegetables grown in the open	8,398	7,861	8,149	8,677
Berries	5,481	5,395	5,713	5,750
Apples	378	364	355	362
Greenhouse production, total	380	382	388	377
- vegetables	221	221	225	230
- ornamental plants	147	147	162	147

Source: Ministry of Agriculture and Forestry/Support register.

tion quantities of garden peas and white cabbage grew by almost 20% and that of carrots by about 10%. The amount of outdoor cucumber produced in 1997 increased in 1997 due to the good crop, but the area under this has decreased. The production of onions fell in 1997 as a result of the poor crop and the decrease in the cultivated area.

About 25% of the total area under commercial production of vegetables in the open is covered by contracts made with the processing industry. In the first years in the EU the area under contract production fell by about 9%, i.e. 250 ha, and the areas of cultivation contracts concerning garden peas, beetroot and special crops cultivated in a smaller area have decreased the most. Instead, the areas under contract production of rutabaga and especially carrot have increased during the whole 1990s.

Strawberry production accounts for two thirds of the area under berry production and 80% of the production quantity. The area under strawberries grew by 5% in 1995-1997. During the same time period the area under raspberries grew by a third. In 1997 about 9% of the total berry production was covered by production contracts.

The area under nursery production, which is included in horticultural production in the open, is about 750 ha, and it fell by about 7%, i.e. 55 ha in 1995-1997.

Areas under the most important horticultural products grown in the open and yields in 1995 and 1997.

	1995			1997		
	Area ha	Yield kg/ha	Total 1,000 kg	Area ha	Yield kg/ha	Total 1,000 kg
Vegetables grown in the open						
Garden pea	1,815	3,507	6,366	2,052	3,704	7,601
Carrot	1,784	34,385	61,343	1,954	34,747	67,895
Onion	938	18,287	17,153	852	15,959	13,602
White cabbage	899	27,034	24,304	921	31,186	28,722
Outdoor cucumber	686	21,168	14,521	548	29,288	16,037
Chinese cabbage	573	16,469	9,437	587	15,005	8,808
Rutabaga	529	23,639	12,505	720	25,419	18,314
Beetroot	540	20,400	11,016	534	27,702	14,797
Cauliflower	500	9,602	4,801	475	9,641	4,577
Other plants	1,463			1,403		
Total	9,727	18,254	175,809	10,047	20,031	195,546
- share of contract production	2,778	18,882	52,454	2,527	22,284	56,301
Berries and apples						
Strawberry	3,816	2 260	8,626	4,024	2,567	10,330
Black currant	1,249	1 572	1,963	1,220	1,381	1,685
Raspberry	204	1 508	308	271	978	265
Other berries	401			416		
Total	5,670	2,045	11,593	5,932	2,183	12,949
- share of contract production			1,004			1,108
Apple	419	5,818	2,438	452	6,031	2,725

Sources: Information Centre of the Ministry of Agriculture and Forestry, Register on Horticulture Enterprises 1997.

Areas under greenhouse vegetables and yields in 1995 and 1997.

	1995			1997		
	Area 1,000 m^2	Yield kg/m^2	Total 1,000 kg	Area 1,000 m^2	Yield kg/m^2	Total 1,000 kg
Total	2,674	22	58,211	2,616	24	62,730
Tomato	1,207	26	31,282	1,199	28	33,014
Cucumber	795	30	23,941	801	34	26,820
Other vegetables	672			616		

Source: Information Centre of the Ministry of Agriculture and Forestry, Register of horticulture enterprises 1997.

About 60% of the area under greenhouse production is used for the production of vegetables and 40% for ornamental plants. Tomatoes account for 45% of the area under vegetables and cucumber for almost a third. The share of tomato and cucumber in the total production quantity is 95%. There was hardly any change in the cultivated areas between 1995 and 1997, but the amount of tomatoes produced grew by 6% and that of cucumber by 12%. In the case of cucumber, in particular, the increase was due to the lengthening of the cultivation period, i.e. the production of the so-called winter cucumber became increasingly common. The production of potted vegetables has spread quite rapidly in the 1990s. In 1995 the number of potted vegetables produced was about 30 million, but in 1997 it was already more than 37 million.

The area under cut flowers has fallen by about 10% since Finland joined the EU. In 1997 the total area under cut flowers was 605 ha, and about two thirds of this was under roses. The production of blooming potted plants fell by about 8% in 1995-1997. The most important plants are Christmas flower, begonia and African violet, and in 1997 the total number produced was almost 12 million. The production of bulbous flowers has fallen throughout the 1990s. In 1997 the number of these produced was about 48 million, and the share of tulips was 75%. The cultivation of group plants has increased by 5% during the EU membership, and in 1997 the total number of these produced was about 40 million. The most important group plants are violet, petunia, lobelia and geranium.

Horticultural product market

Before the EU membership the Finnish horticultural production was protected by border controls based on duties and import levies. Foreign products were mainly exported when the domestic production season had not yet started or this had finished. Thus the producer price level was much higher in Finland than in the EU.

In the first year in the EU the producer prices of horticultural products fell by about a quarter. The prices of fresh vegetables fell by 25-30%, the prices of vegetables sold to the processing industry by 25%, those of berries by 15% and in the case of apples the prices fell as much as 30%. In the production of ornamental plants the average decrease in the producer prices was 30%, and the prices paid for cut flowers fell the most. For example, the producer price of carnations fell by 55% in 1995, and this stopped the production of carnations almost completely in Finland. The same has happened in the case of chrysanthemums.

Price development of the most important horticultural products not including VAT in 1992-1998, FIM/kg.

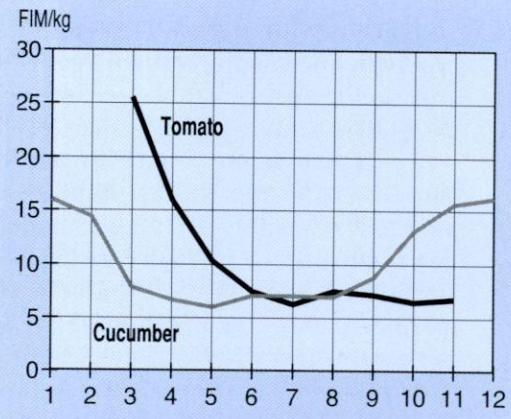
	1992-93	1994	1995	1996	1997	1998
Greenhouse production						
Rose (FIM/unit)	2.64	2.65	2.02	1.99	1.85	2.09
Tomato	9.72	8.92	6.21	7.56	6.54	8.04
Cucumber	8.51	7.89	6.18	6.99	6.24	7.23
Production in the open						
White cabbage	1.71	1.98	1.32	1.36	1.46	1.08
Onion	3.62	3.34	2.54	1.89	2.11	2.71
Carrot	3.62	3.25	1.7	2.46	1.51	2.07
Strawberry	16.00		14.51	13.69	13.33	14.95

Sources: Finnish Association of Fruit and Berry Growers, Food Facts Ltd., Glasshouse Growers' Association, Kasvistieto Ltd.

In 1996 the producer price of onions fell to about half of the price level before the EU membership. This was caused by the good crop in terms of both the quality and quantity in all parts of Europe. As a result of the dramatic fall in the price of onions Finland was granted the right to pay a raised transitional aid for onions in 1996-1999.

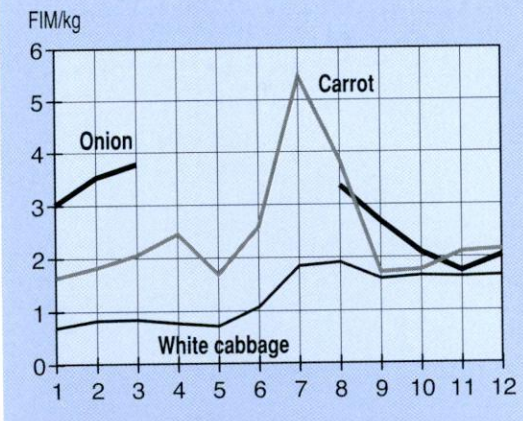
In recent years the producer prices of most horticultural products have risen from the quite low levels of 1995, but in the case of the most important products the price level prior to the EU membership has not been reached.

In 1998 the prices of most horticultural products increased. However, the producer price of e.g. white cabbage fell by about a quarter from the previous year. The poor weather conditions during the crop period of 1998 were clearly reflected in the producer price level. Even if the data on the quantities in 1998 are not yet available it is obvious that there have been considerable losses in terms of both the quantity and quality, especially in the vegetable and berry production in the open.



Price development of greenhouse tomato and cucumber in 1998, FIM/kg.

Considerable variation in the producer prices during the year is typical of most horticultural products. This is caused by the ripening of the domestic crop, conditions during the growing season and, based on these, the domestic supply, as well as the price level of imports. In 1998, for example, the producer price of white cabbage was extremely low during the storage period, but it rose to some extent when the new crop ripened. In the case of onion the development of the producer price was the opposite: during the storage period the price level was



Price development of certain vegetables grown in the open in 1998, FIM/kg.

high due to the poor crop in the previous summer, but after the quite good crop of 1998 came to the market the price level fell towards the end of the year. The rise in the price of carrots in the early season of the domestic production is reflected in the average price of carrots. The producer prices of greenhouse tomato and cucumber are typically the highest in the winter when the quantities are the lowest and the costs are very high.

2.5. Consumption and foreign trade

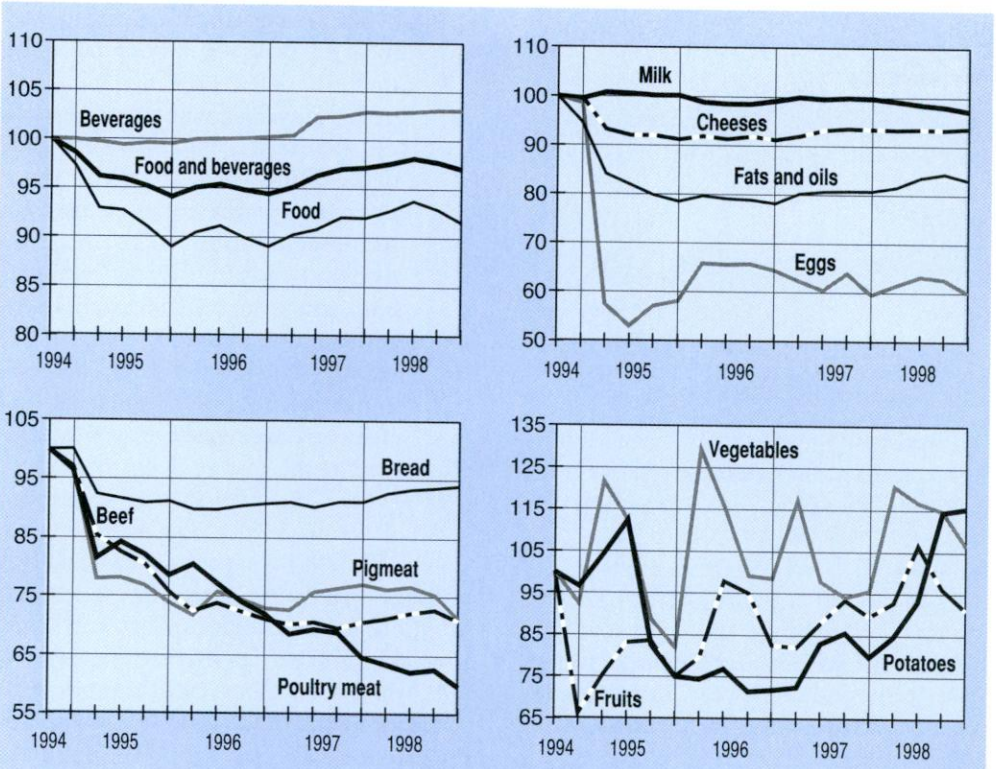
Consumption and consumer prices

In 1998 the consumer price of food products decreased by 0.5% on average. Compared to the period before the EU membership, September 1994, food prices have decreased by 8%. When inflation is taken into account, in December 1998 the real price of food was 12% lower than in September 1994. The average price of beverages didn't change in 1998. Also, compared to September 1994 the real price of beverages has remained the same.

The consumer prices of milk and meat fell in 1998, in both cases due to the market situation. The price of milk fell by 3%, mainly as a result of the increased competition between dairies, and the fall in the meat prices was in turn mainly caused by the disequilibrium in the production and consumption of pigmeat. The situation became even more difficult due to the problems in the exports outside the EU. The consumer price of poultry meat has also been on the decrease for some time, and at the end of 1998 the prices were 37% lower than in September 1994.

In 1998 the prices of fish and fish products rose by 9%, those of bread as well as edible fats and oils by 3%, and fruit, vegetables and berries 4%. From the end of 1997 until December 1998 the prices of potatoes rose as much as 45% as a result of the exceptionally poor crop. The egg market is in difficulties due to the high oversupply, and no solutions were found to the problems during 1998. The consumer prices stayed at about the same level as before, and eggs are still 37% cheaper than in September 1994.

The structure of the food prices changed considerably as a result of the dramatic decrease in the raw material caused by the EU membership and the lowering of the tax base. The shares of both the raw material and the value added tax in the consumer price fell. Even if the food industry and trade reduced their share in many products in monetary terms, their proportional share in the consumer price increased. Because of the change in the price structure the variations in the raw material prices will have less effect on the consumer prices of foodstuffs. The costs of the processing and trade and the market situation will determine the prices at which the foodstuffs are offered to the consumers.



Consumer prices of food products in each quarter of the year from September 1994 until 1998, index 9/1994:100. Source: Statistics Finland.

The value added tax on foodstuffs is 17% in Finland. Denmark is the only EU country where the value added tax on food is higher than in Finland.

Food consumption is influenced by the prices, disposable income of consumers and consumer habits. Consumer choices also depend on nutrition information and advising as well as advertising. However, eating habits are very slow to change, and this has held down the growth in the market shares of imported foodstuffs in Finland. Reaching an adequate level of nutrition is an obvious ceiling for the consumption of foodstuffs, but the rise in the standard of living changes the structure of the consumption.

The disposable income of consumers does not influence the demand for food to the same extent as in the case of most consumer products. The share of food in the consumer expenditure has been on the decrease, and between 1994 and 1997 the share of food, beverages and tobacco in consumer expenditure fell from 22% to 19%. If beverages and tobacco are excluded, the share of food in consumer expenditure was 13% in 1997.

The decrease in the food prices as a result of the EU membership was clearly reflected in the consumption of foodstuffs. Meat consumption increased by about 8%, egg consumption by 9% and cheese consumption by 6% in 1994-1995. However, lower prices did not increase the consumption of all products, e.g. the consumption of butter and butter-vegetable oil mixes fell by about 3% even if the price decreased by a fifth. The consumer prices of milk and dairy products stayed almost at the same

level as earlier, but the consumption of liquid milk products fell by almost 2%, which is in accordance with the trend throughout the 1990s.

The total meat consumption has grown in Finland, and in 1998 it increased as much as 5%. The average consumption per capita was 66 kg, which is almost 10 kg more than before the EU membership. No major changes have occurred in beef consumption. In 1998 the total beef consumption was 99 million kg, which exceeds that of the previous year only slightly. The share of imports was 12%, and there was some increase in 1997.

Instead, pigmeat consumption grew by 12% in 1994-1995. The consumption stayed at this level for the following two years, but in 1998 it again increased by 6%. The total pigmeat consumption was 174 million kg, and the share of imports was 8%. This was slightly larger than in 1997, when imports accounted for 7% of pigmeat consumption.

Since 1994 the consumption of poultry meat has grown by about 10% per year, and in 1998 the consumption totalled 61 million kg. Domestic production has been capable of meeting the growing demand. In 1998 the imports stayed at the same level as earlier, but due to the increase in the consumption the share of imports fell to 4%.

The consumption of liquid milk products has fallen by about 2% a year, and within the products groups the consumption is shifting towards low-fat products. The trend in the consumption of edible fats is decreasing. Between 1994 and 1998 the consumption of butter fell by 15%, that of butter mixes stayed at the same level, and margarine consumption increased by 2%. Instead, cheese consumption is growing, and in 1998 the increase was 4%. From 1994 cheese consumption has grown 17% per capita.

In the early 1990s egg consumption was about 11 kg per capita. In 1995 the consumption grew by a little under 10%, but since then it has been decreasing steadily. In 1998 egg consumption was 10 kg per capita despite the fact that the prices have been at a very low level due to the oversupply.

No major changes have occurred in cereal consumption, which in 1997 was 74

Consumption of milk products, margarine, meat and eggs per capita in 1990-1998, kg/l.

	Liquid milk[1)]	Butter	Butter mixes	Marga-rine	Cheese	Beef[2)]	Pig-meat[2)]	Poultry meat	Eggs
1998[e]	196.5	4.4	2.8	8.4	17.0	19.3	34.0	12.0	10.3
1997	199.4	4.5	2.6	8.5	16.4	19.3	32.2	10.7	10.4
1996	203.8	4.9	2.7	8.6	16.2	19.1	32.9	9.9	11.0
1995	203.2	5.3	2.6	8.3	15.3	19.4	33.3	8.7	11.8
1994	207.5	5.4	2.8	8.2	14.5	19.0	29.7	7.8	10.4
1993	211.9	5.6	2.9	8.7	14.3	18.9	30.8	7.3	10.7
1992	214.6	5.8	2.8	8.6	14.3	21.1	32.6	7.4	11.0
1991	215.7	6.1	2.6	7.9	13.8	21.3	32.9	7.2	10.7
1990	222.9	5.5	2.2	7.6	13.8	21.8	33.0	6.8	11.1

1) Includes also sour milk products and cream.
2) Hot weight deduction of 2% has been made in slaughter weights from July 1995. This was not the case in 1990-1995, and the consumption figures are thus somewhat higher.
Sources: Food Facts Ltd. and Information Centre of the Ministry of Agriculture and Forestry.

kg per capita. The consumption of fruit and vegetables is at a relatively low level in Finland compared to other countries. In 1997 the per capita consumption of vegetables was 70 kg and that of berries 58 kg. According to estimates, the consumption of cereals should stay at about the current level, but vegetable consumption is expected to grow.

Foreign trade

The outlook for food exports weakened considerably in 1998, mainly as a result of the economic crises in Asia and Russia. The increased pigmeat supply also confused the world market, which affected the Finnish exports, too.

In 1998 the value of the Finnish food exports was about FIM 5 billion, which is about 15% lower than in the previous year. The exports to Russia fell the most, from FIM 2 billion in 1997 to only 1.2 billion last year. The reduction in the exports to Russia is a severe blow to Finland, because one-third of the Finnish food exports has been directed to Russia during the last years. The share of the single market, i.e. other EU countries, is also about a third, and Sweden accounts for 13% of this. The significance of the EU countries for the Finnish food exports is growing.

The exports of meat and cereals fell the most. The pigmeat market was filled up, which made imports very difficult. Pigmeat exports fell by 14% and imports increased by 10% from 1997. Large quantities of pigmeat were imported from Denmark for the Christmas market. The difficulties in the pigmeat market were also reflected in beef exports, which fell by 43% compared to 1997. The exports to Russia, which is the most important target for the EU beef

Imports of some agricultural products in 1997 and 1998, mill. kg.

	1997	1998[e]
Beef	8.2	11.6
Pigmeat	10.9	12.0
Poultry meat	2.7	2.6
Cheese	17.6	16.7 [1)]
Wheat	133.8	228.2 [1)]
Rye	64.2	77.1 [1)]

[1)] January-November 1998.
Sources: Food Facts Ltd., National Board of Customs.

Exports of some agricultural products in 1990-1998, mill. kg.

	Butter	Cheese	Milk powder	Pigmeat	Beef	Eggs	Cereals
1998[e]	26.3	28.5	20.1	19.6	5.1	10.2 [1)]	435 [1)]
1997	26.8	31.6	19.8	22.8	9.0	12.9	621
1996	21.9	28.6	6.7	13.4	5.8	14.1	380
1995	18.3	29.5	5.7	7.3	4.1	13.8	385
1994	22.6	27.0	2.8	20.5	12.4	18.3	991
1993	16.6	24.9	3.3	15.0	14.5	15.1	762
1992	17.3	24.9	7.8	13.4	16.2	11.9	718
1991	22.7	27.8	16.5	14.5	18.5	12.9	1,114
1990	35.9	28.9	25.9	22.7	10.0	20.4	514

[1)] January-November 1998.
Sources: Food Facts Ltd., Information Centre of the Ministry of Agriculture and Forestry and National Board of Customs.

Exports and imports of agricultural products in 1990-1998, FIM mill.

	Exports total	Imports total	Coffee, tea and spices	Imports Fruits	Beverages and tobacco
1998[1)]	4,571	9,977	1,162	1,017	1,020
1997	6,091	11,556	1,477	1,298	1,095
1996	5,310	10,083	962	1,284	989
1995	4,246	8,001	783	965	839
1994	5,367	9,067	1,289	1,646	729
1993	4,299	7,545	814	1,239	718
1992	2,796	6,488	526	1,133	614
1991	2,375	5,795	562	1,016	561
1990	2,509	5,614	563	963	538

[1)] January-October 1998.
Source: National Board of Customs, Foreign trade.

exports, came to an end, and beef imports to Finland grew by 40% as a result. Domestic beef production does not meet the domestic consumption, and in 1998 the self-sufficiency in beef was 94%. Imports account for a little over 10% of the consumption.

Poultry meat imports stayed at about the same level as earlier, and exports fell by 15%. Mutton imports were 15% lower than in 1997. The production and consumption of mutton decreased by 12%.

Barley exports fell by 14% and oats exports by 28% from 1997. The reason for the decrease in oats exports was the strong competition of Canada for the export market of the United States.

The exports of milk products fell considerably from the previous year. Cheese exports are restricted by the stipulations on exports laid down by the GATT agreement, according to which the subsidies for cheese exports outside the EU are very low. The termination of the trade with Russia in the autumn was also reflected in cheese exports, which fell by about 10% from 1997. Butter exports decreased by 2%, but the exports of milk powders stayed at about the earlier level.

In 1998 there were no major changes in the imports of milk products, except that the imports of fresh milk products fell by almost 20% from the previous year.

3. AGRICULTURAL SUPPORT

Since 1995 the agricultural support mechanisms have been based on the starting points and principles of the common agricultural policy of the EU. When Finland joined the EU, the union had quite recently introduced an extensive agricultural policy reform. Market price support based on high border controls and export subsidies had been reduced, and new aid measures based on the arable area or number of animals had been introduced. The share of these direct income payments is going to increase as a result of the reform proposal put forth in the Agenda 2000.

The share of aid in the income formation of agriculture is higher in Finland than in the other EU countries. Without any support it would be impossible to practise agriculture in Finland, because the productivity is much weaker than in the EU in general due to the unfavourable natural conditions. The support measures are based on the general support systems of the EU as well as on the Accession Treaty, which also allows the payment of nationally financed aid to agriculture.

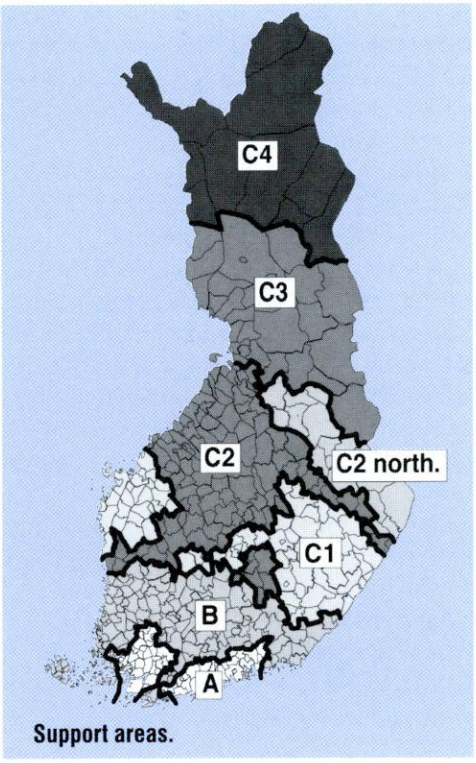
Various kinds of support measures are being applied. General measures of the CAP include the aid for arable crops and animals as well as the aid for less favoured areas (LFA). Environmental aid covers a larger share of agriculture than in any other EU country, except Austria. National support measures include Northern aid, aid for the transitional period, national aid for crop production, and certain other measures. Northern aid and national aid for crop production are long-term support measures, and the purpose of these is to compensate Finland for the weak competitiveness due to the northern location. Transitional aid is applied for five years, and this period comes to an end in 1999.

The purpose of the different kinds of support measures is to maintain the income level of the farm population and alleviate their adjustment to the new operating environment. Efforts are also made to reduce the environmental damages caused by agriculture and develop the structure of agriculture. This chapter is mainly concerned with income transfers to agriculture in the form of income support. Among the structural aid measures only LFA aid, aiming at securing the income level of farmers in less favoured farming regions, is dealt with in this connection. Other structural aid measures are presented in Chapter 4, and Chapter 5 deals with the environmental aid system of agriculture.

Structure of the support

Finland has been divided into three main areas for the distribution of agricultural support. Aid paid in the whole country consists of the CAP aid, environmental aid and transitional aid. LFA aid is paid in areas B and C, and northern aid is paid in area C. For further differentiation of the aid the area eligible for northern aid has been divided into five areas, and the total amount of aid per unit increases from the south to the north. The system is based on the support and price systems with a similar basic structure applied prior to the EU membership.

Since Southern Finland was excluded from northern aid, support areas A and B have received the so-called aid for serious difficulties from the beginning of 1997, which was agreed on the basis of article 141 of the Accession Treaty. For the part of animal products, greenhouse production and storage of horticultural products the aid is paid as a raised transitional aid. National aid for crop production was also part of the support agreement based on article 141 concerning the serious difficulties, and the aid package also includes,



Support areas.

among other things, raised investment aid, additional aid for young farmers, as well as temporary aid for farmers changing their production line.

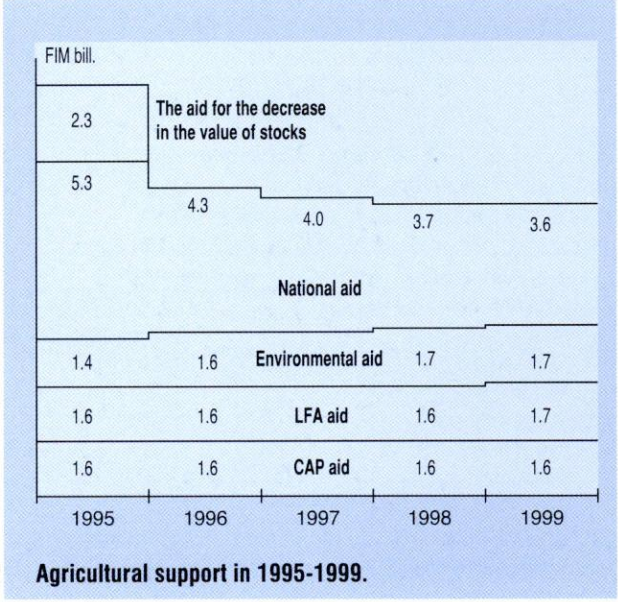
The total amount of aid financed in full or partly by the EU, paid in Finland has stayed at about the same level since 1995. Instead, national aid has decreased gradually, which is in accordance with the view that agriculture will adjust to the new environment and the aid can be lowered to the level that compensates the farmers for the permanent competitive disadvantage due to the natural conditions.

According to the decision in principle of the Council of State made in 1994, the national aid for agriculture and horticulture should have fallen to about FIM 3.85 billion by the year 2000. However, from 1996 the amount of aid per year was cut by FIM 750 million, but this was not realised in full, because in 1998 an additional appropriation of FIM 125 million was granted for national aid. The funds available for 1999 are FIM 267 million higher than was agreed in the Government programme.

There is also some leeway in the annual levels of aid, because in practise there is a possibility to transfer annual expenditure to be paid from the appropriations for the coming years. In 1998 the aid was raised by FIM 50 million on the basis of this, and thus the amount of national aid for agriculture and horticulture totalled FIM 3.7 billion.

In 1999 the funds available for national aid total FIM 3,567 million. The final level of aid is determined by the number of animals, cultivated area eligible for the aid, and production quantities.

From the year 2000 both the national and the EU support measures involve a great deal of uncertainty. The transitional period comes to an end, and thus decisions will have to made on the future of the



Agricultural support in 1995-1999.

support measures directed to Southern Finland. At the same time the changes resulting from Agenda 2000 are going to increase the significance of the CAP aid in the income formation of farmers.

The general criteria for support are presented briefly in the following chapters. A more detailed account of the level and regional differentiation of the different measures can be found in Annex 6.

3.1. Common aid measures of the EU

The aid for arable crops and animals financed by the EU are applied in all EU countries. Most of the aid for arable crops based on the arable area is paid for cereal production. Other EU aid based on the area include e.g. the compensatory payments for starch production and aid for grass seed production. The CAP aid for animals consists of the bull, suckler cow and ewe premiums. LFA aid, which is part-financed by the EU, is paid for 85% of the arable land area in Finland, and environmental aid of agriculture covers almost 90% of the active farms in Finland. Other aid measures part-financed by the EU are aid for giving up agricultural production and afforestation aid.

Agricultural support as well as the administered prices related to the market systems have been converted into national currencies according the so-called green rate of the ECU, which has prevented the changes in the exchange rates from influencing the price and support levels of agriculture. When Finland joined the Euro area in the beginning of 1999, there was no longer any need for a separate exchange rate system for agriculture. The support and prices are established in Euro and then converted into national currencies at fixed conversion rates.

The green rate of ECU for the Finnish markka was 1.3% higher than the rate of Euro, which causes income losses for agriculture. The losses are compensated to the farmers in connection with the direct aid during a period of three years. In countries not participating in the Euro, a system compensating for the income losses for

Aid financed and part-financed by the EU, FIM million.

	1995	1996	1997	1998[e]
Total	4,675	4,837	5,020	5,211
Aid for arable crops	1,245	1,295	1,304	1,360
Other aid based on area	48	52	48	47
CAP aid for animals	271	230	239	236
LFA aid	1,626	1,593	1,607	1,651
Share of the EU	*483*	*437*	*437*	*451*
National share	1,143	1,156	1,170	1,200
Environmental aid	1,422	1,567	1,645	1,690
Share of the EU	*710*	*777*	*817*	*841*
National share	712	790	828	849
Other part-financed aid	63	100	177	227
Share of the EU	*42*	*38*	*68*	*89*
National share	21	62	109	138
EU financing, total	2,799	2,829	2,913	3,024
National financing, total	1,876	2,008	2,107	2,187

agriculture due to the revaluation of the national currency is still necessary.

Aid for arable crops

The aid for arable crops is part of the CAP reform of 1992, aiming at bringing the market prices for cereals closer to the price level at the world market. The amount of aid is determined on the basis of regional productivity, and thus in Finland the aid per unit is below the EU average.

Aid for arable crops is paid to cereals, oil-seed plants, protein crops, oil flax and set-aside. The terms of the aid do not include any requirements concerning the age or residence of farmers, and the aid may be paid on the basis of either a general or simplified scheme.

a) In the general scheme the aid is paid for as large an area as the farmer wishes. This involves a set-aside obligation, which in 1998 was 5% of the area under arable crops and in 1999 it will be 10%. A farmer may receive a premium for set-aside area exceeding the obligation, too. In this case the total set-aside area may not exceed the area eligible for the aid for arable crops.

The aid for cereals is established according to regional average yields, and it amounts to about Euro 54/ton. The average yields are: area A 3.4 tons/ha, areas B and C1 2.8 tons/ha and areas C2-C4 2.3 tons/ha. The aid for oil-seed plants is of a deficit payment type, because it can be changed if the world prices differ from the reference prices of the EU in a significant way. The amount of aid is the same in all parts of Finland.

b) In the simplified scheme the aid is the same for all arable crops, and the amount is the aid for cereals in the general scheme. The scheme is intended for small farms with no set-aside obligation that cultivate mainly cereals.

A maximum area eligible for the aid for arable crops has been established for each member state, and in Finland this base area is 1.59 million ha. The area under arable crops eligible for the aid has been about 10% smaller than the base area, and thus the aid payments have been made in full.

A maximum area has also been established for the aid for oil-seed plants based on the general scheme. In Finland this is 63,000 ha. If the area under oil-seed plants in the EU is exceeded, aid is cut in member states that have exceeded their own quota.

Agenda 2000 reform will bring along changes in the aid schemes for arable crops. According to the Commission proposal, the intervention price for cereals will be lowered by 20% and the aid based on the area will be raised to 66 Euro/ton. The direct aid for oil-seed plants will be at the same level as that for cereals. Compulsory set-aside is abolished, but it can be reintroduced if the market situation calls for this. The possibility for voluntary set-aside is retained, and the premium is the same as in the case of cereals. There is some leeway in the amounts of aid based on the area in order to prepare for changes in the market situation.

CAP aid for animals

The institutional prices for beef were lowered in connection with the previous CAP reform. This was necessary to maintain the competitiveness of beef in relation to pigmeat and poultry meat. The decrease in the prices was partly compensated by the lower fodder costs, and bull and suckler cow premium were introduced to compensate the producers for the remaining income losses. The ewe premium system was also revised.

Suckler cow premium is FIM 862/suckler cow, and in addition to this FIM 179 is paid as national aid. If the number of livestock units is less than 1.4 per ha of fodder, an additional premium of FIM 214/suckler cow is paid for extensive production. This is raised to FIM 309 if the number of animals is less than 1/ha.

Bull premium is FIM 803/bull, and it is paid once in the animal's lifetime. The additional payments for extensive production are the same as in the case of suckler cows.

Ewe premium is paid annually, and its purpose is to compensate the producers for income losses, should the average price in the EU fall below a certain base price. The aid is paid as two advance instalments, and the final instalment is paid in the autumn of the following year. The ewe premium in 1998 is estimated at FIM 136/animal. An additional premium of FIM 40/animal is paid in the LFA area.

The limits for extensive production are set as livestock units per hectare (one bull over 2 years=1 LU, bull of 6-24 months =0.6 LU and ewe=0.15 LU). The number of animals the aid is applied for may not exceed 2.0 LU/hectare of fodder. Stocking density includes dairy and suckler cows, bulls and ewes. In the case of dairy cows the stocking density is established on the basis of the milk quota.

Despite the proposals of the Commission, in 1992 no major reforms were made in the dairy sector, and thus dairy cows are not eligible for the CAP aid for animals. In Agenda 2000 reform the Commission again proposes that the administered prices for milk products be lowered by degrees starting in the year 2000. The reduction is compensated for e.g. by the introduction of dairy cow premiums, part of which can be paid on the basis of the area.

As a result of the reform process the aid for the animals in the beef sector are going to increase after the year 2000. The bull and suckler cow premiums will be raised, following the reduction of the market price support. The member states have the right to decide, within the limits set by the Commission, how a certain part of the direct aid is paid. Premiums compensating for the reduction in cereal prices is also paid for dairy cows.

LFA aid

The aid for the natural handicap, i.e. the so-called LFA aid, is intended to secure the continuation of rural industries and preserve the rural population in less favoured areas. According to the Accession Treaty, 85% of the area of Finland is eligible for the LFA aid, which is paid according to the highest criterion, i.e. the aid for mountain regions.

In the case of animal farms the aid is paid according to the number of livestock units and the area and on other farms according to the area. It is not paid for wild meadows or pasture, area under wheat, apple orchards of over 0.5 ha or area under fodder for animals that are eligible for the LFA aid. The final amount of aid per unit is established in the autumn of each year when the total amount of units aid is applied for is known. The number of LFA units has increased in recent years as the periods of earlier contracts to reduce agricultural production have come to an end and new land has been cleared, and thus it has been necessary to cut the aid. In 1998 the aid was FIM 967/unit.

The number of LFA units of farms keeping cattle, sheep or horses is obtained by counting separately the livestock units and area under fodder and choosing the lower one. When compensation is applied for based on both the livestock units and arable area, arable area not included in the fodder area is added to the number of units obtained in the former calculation. In the case of other farms LFA aid is applied for on the basis of the arable area, from which the area under wheat or used for apple production is deducted. Wild meadows or pastures are not included in the arable area.

Environmental aid

The main purpose of the environmental aid is to compensate the producers for the

increase in the production costs and income losses due to the restrictions imposed by the terms of the aid. It consists of the General Agricultural Environment Protection Scheme (GAEPS) and the Supplementary Protection Scheme. Aid based on the GAEPS is paid on the basis of the area to farmers who commit themselves to taking measures that reduce the contamination of the farming environment. Farmers have to draw up an environmental management programme, which regulates e.g. the use of fertilisers and pesticides. The environmental aid of agriculture is dealt with more in detail in Chapter 5.

3.2. National aid

Decisions on national aid, together with the criteria to be applied in establishing the level and regional distribution of the aid, were made in connection with the negotiations concerning the EU membership. The aid may not be used to increase the production and the amount of aid may not exceed the total level of support before the EU membership. The aid is paid on the basis of the area and number of animals and as additional prices. It is differentiated by region and degressive. In the case of horticulture aid is paid for storage, on the basis of the area and as aid for greenhouse production.

The aid should be adequate to make it possible to continue agricultural and horticultural production in Finland. The EU Commission has set upper limits for the level of aid. The amounts of aid are usually below the maximum, because the poor state of the national economy has also been reflected in the amount of national aid.

Transitional aid

The purpose of transitional aid is to alleviate the adjustment to the common agricultural policy. According to the Accession Treaty, Finland is allowed to pay national adjustment aid in 1995-1999. The EU agreed to cover part of the costs due to the measures during the transitional period until 1998. In 1995 this transitional compensation paid by the EU totalled almost FIM 2.8 billion, but since then the EU financing has decreased year by year, and in 1998 the compensation was only less than FIM 200 million.

The transitional aid decreases every year during the transitional period. In 1995 altogether about FIM 4.3 billion was paid to agriculture as transitional aid proper. In addition, stock compensations amounting to about FIM 2.3 billion were paid. Transitional aid for agricultural production in 1998 totalled about FIM 1.8 billion. More than half of this was used for the production support of milk (FIM 628 million)

National aid for agriculture, FIM million (aid per production year).

	1995	1996	1997	1998[e]
Total	7,600	4,267	4,004	3,645
Transitional aid	4,307	3,367	2,712	1,816
Stock compensation	2,282			
Northern aid	811	789	1,070	1,328
National aid for crop production			123	395
Other national aid	200	111	99	106

and meat (FIM 515 million). The transitional aid for greenhouse production and vegetable production in the open was FIM 200 million.

As a result of the so-called aid for serious difficulties the transitional aid has stayed at quite high a level. According to the decision on this aid measure the national aid for animal production in Southern Finland is paid as a raise in the transitional aid. As the transitional period comes to an end in 1999, a new decision will have to be made on the aid for serious difficulties to prevent the aid for Southern Finland from decreasing considerably. It would be important for agriculture to reach a decision that would guarantee a long-term system of aid, such as the northern aid, for the whole country.

Northern aid

According to the accession treaty, Finland is allowed to pay national northern aid north of the 62nd parallel and in adjacent areas, i.e. support areas C. Northern aid consists of milk production aid, aid based on the number of animals, aid for slaughtered cattle, and aid based on the cultivated area. The northern aid also includes the storage aid for horticultural products, wild berries and mushrooms.

The northern aid paid to agricultural production in 1998 totalled about FIM 1.3 billion. The most significant single aid measures were the northern production aid for milk (about FIM 710 million) and northern aid based on the livestock units (about FIM 310 million). Northern aid has increased gradually during the transitional period, which compensates for some of the reduction in the transitional aid.

National aid for crop production

The national aid for crop production starting from 1997 was introduced as part of the aid for serious difficulties. The aid is paid as a national addition to the aid based on the GAEPS and thus the farmer has to fulfil the criteria for environmental aid. The aid is paid for cereals, starch potato, sugar beets, vegetables grown in the open, apples and grass. Except in the case of fodder cereals, in 1997 the aid was paid only in support areas A and B. From 1998 aid has also been paid for rye production in areas C1 and C2 and grass in the whole country.

The amount of the national aid for crop production rose from about FIM 120 million in 1997 to about FIM 400 million in 1998.

Other national aid measures

There are also other national aid measures paid through the state budget. The most important single measure among these is the aid for potatoes, which in 1998 amounted to about FIM 43 million. National aid was also available for the marketing of agricultural and horticultural products, training of farmers as well as domestic seed production.

Agenda 2000 and Finnish agriculture

Juha Marttila

No political breakthrough in Agenda 2000 reform was reached in 1998. The stands of the members states were still far from each other. However, the technical preparations of the agricultural policy reform have continued. The objective is to make the final decisions on the contents of the reform by March 1999.

The agricultural policy reform lowers the price level of agricultural products, increases direct support and revises the mechanisms of the structural and rural policy. The most important objective is to stop the growth of the expenditure in the agricultural budget and to improve the competitiveness of the agriculture and food economy of the EU on the international market. Restrictions are imposed on the use of export subsidies, and thus the food industry of the EU has to increase its efficiency and cut the costs in order to be able to maintain its market share on the growing world market.

The reform also emphasises environmental objectives. Farmers are encouraged to manage natural resources and to preserve the landscapes. Efforts are made to integrate the agricultural and rural policy more closely in the development of the income and employment opportunities of rural areas.

Finland has approved the main outlines concerning the need for reform presented by the Commission. The proposed reforms are going to prepare the EU for the future enlargement concerning the Central and Eastern European countries and strengthen the position of the EU in the coming WTO negotiations. Finland also agrees with the starting point for the reform, i.e. it continues, deepens and expands the reform of 1992. In the preparation work much more radical reform proposals were also put forth, but the majority in the Commission and among the member states prefer a more moderate reform process.

The reform concerning the market system of agriculture is based on the reduction of the institutional prices and increase in the direct aid. The price support for cereals and beef is cut, and aid based on the area or number of animals is increased. The Commission also proposes that the reform should be extended to the dairy sector. Part of the aid for animal production is paid from the "envelope" given to each member state, and the details of the use of this can be decided nationally.

In the opinions presented by Finland the changes in the price and support policy are approved, provided that a satisfactory solution is found for the special problems of Finland. So far the contents of the proposal do not take the special features of northern agriculture practised in very unfavourable natural conditions adequately into account.

Special problems of northern agriculture

The Commission proposes that the cuts in the prices be compensated only partly by the increase in direct aid. This is based on the experiences from the reform of the cereal sector in 1992. The demand resulting from the decrease in the prices and rise in the world prices raised the market prices more than had been expected, which led to overcompensation at the level of the whole EU. Finland considers that the preconditions for northern agriculture can be secured only if farmers receive a full compensation

for the price reduction. In the cereal sector, for example, there have been negotiations on the possibility to compensate farmers for costs due to the drying of cereals, which in Finland are a lot higher than in the other EU countries.

In the opinion of Finland the fact that the support levels for cattle husbandry according to the proposal are not adequate in the northern conditions has been emphasised very strongly. Both the current support system and the one being prepared improve the competitive position of silage maize compared to grass fodder, as maize is eligible for the aid for arable crops. At first the objective of the Commission was to remove maize from the list of crops eligible for this aid, but it had to step back and propose that the aid be retained. At the same time the Commission lowered the aid for cattle husbandry from the level proposed earlier. Maize is not cultivated in Finland, and thus the changes made during the preparation of Agenda 2000 were very unfavourable for Finland. One possible solution might be special aid for grasses in areas where maize cannot be grown.

One problem in the beef regime is the requirement concerning extensification included in the support system. Cattle cannot be grazed all year round in Finland. According to Finland, arable land area needed for the production of fodder for the indoor feeding period should also be included in the area eligible the premium for extensification. Also, Finland does not approve the Commission proposal concerning the reduction of the number of animals eligible for the suckler cow premium to a level that is close to the current number of these animals. The present suckler cow quota is based on the Accession Treaty, and Finland wishes to guarantee the possibility to increase the number of suckler cows in the future.

There is considerable disagreement between the member states on the future of the milk quota system. Some of the member states consider the quota system to restrict the international competitiveness of the EU dairy sector, and thus the system should be abolished as soon as possible. Finland supports the proposal by the Commission according to which the quota system should be continued until 2006 and beyond. Finland also approves the aid scheme proposed by the Commission, even if the level of aid is considered too low. Very difficult production regions should receive full compensation for the price reduction.

The increase in the milk quotas for mountain regions and young producers suits Finland very well. Increasing the quotas is not, however, a reason to cut the support, because the growth potential and profitability of the Finnish milk production may not be adequate to take advantage of the new production possibilities. Should the production grow, oversupply on the market would lower the price level of milk.

The proposals by France and later on also Great Britain concerning the gradual lowering of direct aid by 2006 brought new impetus to the preparation of the reform. The first reactions of Finland to these proposals have been negative.

In addition to the reforms concerning the market system the proposal also contains a reform programme for the rural policy. The proposal concerning an extensive regulation for rural areas comprises the investment aid and early retirement schemes, aid for less favoured areas and environmental aid schemes. Finland has taken a skeptical attitude to e.g. the inclusion of forestry measures to the development measures concerning rural areas, and Finland is also not in favour of the proposal on the environmental measures that form the eligibility criteria for LFA aid if these cause additional costs to agriculture.

4. REGIONAL AND STRUCTURAL POLICY

The increased efficiency of agriculture reduces the income and job opportunities offered by this sector. Thus a policy aiming at creating new possibilities for earning the livelihood is needed in order to preserve the viability of the rural areas. The objective of the regional and structural policy is both to improve the structure and competitiveness of agriculture and to alleviate the negative effects of the improvement in the competitiveness on the development of the rural areas. The central tools in this are the structural funds of the EU. The use of funds in these is based in objective programmes, and especially objectives 1, 5a, 5b and 6 are intended for the regional and economic development of rural areas. Other means include the LEADER, INTERREG and POMO development programmes.

4.1. Developing the structure of agriculture

Central means for improving the competitiveness are technical change, improving the quality and safety of agricultural products as well as increasing the size of farm enterprises. In Finland the objective in structural development is to reach a competitive farm size in order to be able to utilise the national production rights in full.

The structural aid for agriculture consists of aid part-financed by the EU through the objectives and national aid. Measures based on objective 5a include investment aid for agriculture, start-up aid for young farmers, LFA aid, aid for the processing and marketing in food industry, as well as aid for setting up producer organisations. The most important sources of structural policy funding in Finland are the Development Fund of Agriculture and Forestry and the European Agricultural Guidance and Guarantee Fund.

One of the most serious problems in the Finnish agriculture is the small farm size, which means that the most important tool in the structural policy is investment aid. The aid may not increase the production quantities at the national level. Thus the development possibilities of competitive farms depend a great deal on how long the farms intending to quit continue their production. Giving up agriculture is encouraged by means of aid for giving up agricultural production, early retirement scheme and afforestation aid.

There is both national funding and part-financing from the EU available for investment aid. Part-financing from the EU is based on Structural Regulation 950/97, and it is intended to be the primary source of funding in the member states. National investment aid is provided by the Act on Rural Industries (1295/90). The amount of national aid is also established by the Structural Regulation. The current legislation on the structure of agriculture is extremely complex, and a new Act on the Rural Industries Financing, which would cover the structural policy support, programme-based support as well as other aid measures related to agriculture, other small-scale rural industries, and rural areas in general, has been drawn up.

Investment aid part-financed by the EU

In the case of projects part-financed by the EU at least half of the income of the farmer has to come from an activity practised on the farm, at least a quarter from agriculture proper, and at least half of the working time has to be spent on the farm. The farmer must also have adequate professional skills, and a development plan must

be prepared for the farm. In certain respects the allocation of the aid can be influenced by national stipulations.

In 1998 investment aid part-financed by the EU was directed at the renovation and extension of cowhouses in support area C, building or extension of large dairy production buildings by single farms or combinations of farms in areas A and B, investments in sheep buildings in area C as well as additional aid for young farmers in connection with the above-mentioned investments. Investment aid may be granted only for projects fulfilling the set requirements concerning animal places, and the milk quota must correspond to the number of cow places.

Investment aid part-financed by the EU is paid as a subsidy. For example, in the cowhouse investments in support areas B and C the maximum level of aid was 40% of the cost estimate of the investment, and in area A the maximum share of aid is 35%. In area A the additional aid for young farmers may not exceed 8% and in areas B and C 10% of the cost estimate of the investment, and it may amount to no more than 25% of the actual investment aid granted to the applicant. The share of the EU is 50% in Objective 6 area and 25% in other areas, and in the case of additional aid for young farmers the share of the EU is 50%.

In addition to investment aid, young farmers are eligible for start-up subsidies for the purchase of their first farm or the agricultural movables of a leased farm. The purpose of the aid is to encourage the transfers of farms to descendants and in general to improve the age structure of the farm population. In 1998 the maximum amount of start-up aid was FIM 140,000, of which FIM 70,000 was granted as a subsidy and FIM 70,000 as an interest-rate subsidy. In addition to the aid, low-interest loan of no more than FIM 250,000 could be granted to the farm. In the case of leased farms the maximum amount of loan was FIM 150,000.

National investment aid

Efforts are made to promote structural development in agriculture from the national funds by means of subsidies, loans and interest-rate subsidies. National structural aid is directed at investments in agriculture and forestry and small-scale entrepreneurial activities in rural area or other measures promoting these industries, utilisation of the residential buildings in rural areas, water supply and sewerage, and preservation of traditional environments.

Farms that can be considered to possess the preconditions for continuous profitable activity are eligible for the national investment aid. The farmers have to present a calculation on the liquidity and profitability of the farm, and in the case of major investments a development plan is also required. Farmers have to possess adequate professional skills, and aid cannot be paid if the farmer has considerable income from outside the farm. The farmer has to live on the farm or within a short distance from it.

The current system differs considerably from the structural policy practised before the EU membership, because now the national aid for expansion investments is directed to farms whose size is above the average, and restrictions concerning the farm size have been established for the investments eligible for the aid. E.g. in the building of cowhouses in areas A and B the number of cow places after the investment has to be at least 23, and the milk quota of the farm must be at least 5,600 litres per dairy cow place. The building of pig production buildings is eligible for the aid if the number of fattening pig places after the investment is at least 400 or there are at least 65 sow places.

National investment aid consists of the transitional aid, aid for serious difficulties and other national investment aid. Transitional aid makes it possible to support the expansion investments in pig and broiler production as well as converting henhouses with coops into floor henhouses until the end of 1999. Expansion investments may not, however, lead to an increase in the total production volume. Aid for investments in pig husbandry is subject to the further condition that, based on calculations, at least 35% of the fodder for the pigs can be produced on the farm.

As a result of the negotiations on the so-called aid for serious difficulties based on article 141 of the accession treaty, Finland is allowed to grant raised investment aid in support areas A and B for investments concerning the rationalisation of the production in 1997-2001. The possibility to continue this aid measure is negotiated on during 1999. The eligibility criteria for this aid differ from the other national structural aid measures in that no maximum amounts have been set for the supported investments and income from outside the farm does not restrict the eligibility for the aid. Aid for serious difficulties is also paid as a raise of the start-up aid for young farmers in areas A and B. The aid is paid as a subsidy and it may not exceed 35% of the start-up costs of the farm. The maximum amount of aid is FIM 30,000.

Estimated on the basis of the number of farms the structural change has been quite rapid in the Finnish agriculture. Between 1990 and 1997 the number of active farms fell from 129,100 to 91,400, and in 1998 it is estimated to have decreased further to 88,000 farms. At the same time the average size of farms has grown from 17.6 ha to 23.7 ha. In terms of the unit size the Finnish farms are not competitive compared to the other northern members states of the EU.

4.2. Subsidised investments

Agricultural investments stopped for some time, but they recovered as a result of the investment aid scheme in 1996, and in 1998 agricultural investment has further increased. In particular, the raised investment aid for areas A and B based on the negotiations on the serious difficulties has encouraged farmers to make investments.

In 1998 the subsidies and interest-rate subsidies totalled about FIM 1,900 million. In terms of the number of investments, the majority of the subsidised investments were directed at the purchase of machinery and implements for joint use in agriculture and forestry. In 1998 subsidies were granted for 2,006 joint investments of machinery and implements. Aid was also granted for investments in the building of cowhouses (489) and pighouses (423), environmental protection (1,852), land improvement measures (1,342) and bookkeeping (1,482).

Instead, in terms of the amounts invested the investments in production buildings were the most significant ones in 1998. Subsidies totalling FIM 96 million were granted for 1,527 investments, and interest-rate subsidy loans totalling FIM 186 million for 1,262 investments. Subsidies granted for investments in pig production buildings amounted to FIM 73 million and interest-rate subsidy loans to FIM 117 million. In the case of investments in cattle buildings the subsidies totalled FIM 66 million and interest-rate subsidy loans FIM 55 million. Subsidies for joint purchases of machinery and implements were granted for FIM 50 million, and the interest-rate subsidies totalled FIM 69 million. Subsidies for the building investments related to environmental protection were altogether FIM 36 million.

Ranking investments to livestock buildings through options

Kyösti Pietola

The construction of an efficient production building is a long-term, major investment in relation to the turnover of the farm and income of the farmer. These investments involve high risks because the output prices are volatile. From the perspective of both the investing enterprise and the party financing the investment it would be important to be able to evaluate, in addition to the returns and costs, the risks involved and to take these into account in the investment and financing decisions.

In the financial market the investors apply option and futures contracts in the pricing of the risks involved in the investments in e.g. stocks and to protect themselves against the risk. The risks of investments in agricultural buildings can also be priced through methods comparable to the options in the money market, i.e. the so-called real options. The Agricultural Economics Research Institute has applied profitability calculations based on real options to the investments in livestock buildings. The most recent report on this subject was published in autumn 1998[1)].

The methods presented in the study can be used to find out the profitability of an irreversible investment in a situation where the return on the investment is uncertain. The guiding principle of the method is that the return on the invested capital should be the higher the greater the risks involved are. This method is the best suited for the assessment of the profitability of building investments, such as livestock buildings.

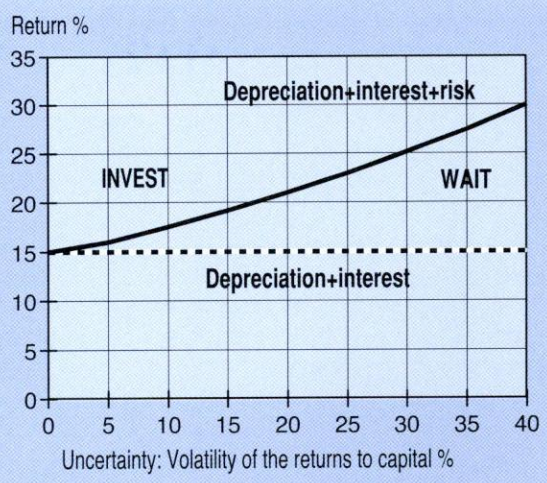
Transitional investment aid encouraged investments in 1998

According to the calculations made at the Agricultural Economics Research Institute, in 1998 the investment aid played a central role in launching investments in livestock buildings. The interest-rate subsidy loans and investment subsidies improved the profitability of the investments to the extent that it was satisfactory when calculated at the prices of spring 1998. However, even in the case of subsidised investments satisfactory profitability could be achieved only in the cases of very large investments in relation to the present farm size in Finland. The profitability threshold was exceeded as a result of the investment aid on large piglet farms (260 sows) and relatively large fattening pig farms (800 pig places).

The calculations showed that the profitability is weak in beef production. On farms with 100 cattle places the maximum bid price of an animal place was 60% of the guiding building cost even when an interest-rate subsidy and 30% investment allowance would have been granted for the investment. The profitability threshold seems to be fulfilled on farms with 200 cattle places, if a subsidy is granted for the investment in addition to the interest-rate subsidy.

1) The report includes an easily applicable Excel spreadsheet version of the method. This application can be used to calculate, for example, what is the highest profitable price for an animal place. The report can be ordered from the Agricultural Economics Research Institute (Research reports 229).

In dairy husbandry the profitability of the investments varied considerably according to the unit size and the technology used (substituting for labour). In units with less than 64 cows the profitability was weak also in the case of subsidised investments due to the high labour cost. According to the profitability calculation, in a unit with 32 cows the maximum price of a cow place was only FIM 3,000, while the guiding building cost of a cow place with a 40% subsidy was 13,900. In a larger unit with 64 cows the labour cost was already much lower and the profitability threshold was exceeded when the investment aid was taken into account, but there was no contribution margin left to cover the costs due to the milk quota. In the largest unit with 128 cows included in the comparison the scale benefits and investment aid improved the profitability to the extent that there was a compensation of FIM 0.46 at the capital value left for the milk quota.



Threshold returns to capital in investments where the capital cost is 15% (depreciation and interest) and the contribution margin on the capital is uncertain.

Investment subsidies facilitated the access of farmers to financing required for extensive investments in livestock buildings, because the subsidies reduced the need for loan financing without lowering the value of the building as a security. In 1998 the need for additional securities required for livestock buildings was reasonable, especially in investments benefitting from a subsidy according to the raised investment aid. For example, in the investments in pig husbandry in areas A and B the need for arable land as additional security was smaller than in the case of environmentally beneficially methods for the handling of animal manure.

Subsidies and loans to agriculture and rural industries in 1996-1998.

		1996	1997	1998
Area A	Subsidies			
	Number	268	1,640	2,381
	FIM million	11.1	89.3	121.4
	Loans			
	Number	412	1,228	1,372
	FIM million	86.9	221.5	233
Area B	Subsidies			
	Number	646	3,471	4,114
	FIM million	24.3	168.5	197.5
	Loans			
	Number	985	2,188	2,085
	FIM million	171.2	387.1	323
Area C	Subsidies			
	Number	4,088	5,750	7,759
	FIM million	100.5	239.2	350.6
	Loans			
	Number	3,082	4,309	2,409
	FIM million	493.4	650.6	303.5
Whole country	Subsidies			
	Number	5,002	10,897	14,254
	FIM million	135.9	497.1	669.5
	Loans			
	Number	4,479	7,725	7,624
	FIM million	751.4	1,259.2	1,223.7

Source: Ministry of Agriculture and Forestry.

In support areas A and B, i.e. in Southern Finland, most of the investment aid was directed at production buildings, while in area C the main emphasis was on environmental protection.

4.3. Development of rural areas

The purpose of the regional and structural policy of the EU is to reduce the differences in the development level between the different regions. Thus the aid is mainly directed to the weakest and declining areas, and most of the measures concern rural areas. The objective of the measures is to create new income and employment opportunities to rural areas as the possibilities offered by agriculture are diminishing. Aid granted from the structural funds consists of the so-called horizontal aid applied in all parts of the Community and regional measures as well as programmes based on Community Initiatives.

In Finland the rural and regional policies are implemented through Objectives 2, 5b and 6 as well as LEADER II and INTERREG II Community Initiatives. Of the Community Initiatives the former is directed at the development of rural areas and the latter at the cooperation across borders. In addition, there is a national rural programme called POMO.

The purpose of Objectives 5b and 6 concerning the rural areas is to strengthen the business activities in the rural areas and

improve the competitiveness of agriculture. The measures of the programmes include the development of diversified agriculture, promoting the use and management of forest as well as use of timber for energy production, small-scale wood processing on farms, rural holidays as well as technology projects improving the activity of farms. Small rural enterprises included in the regional development projects based on the Objectives are eligible for investment and development subsidies. In 1998 the EU funds available for the implementation of Objectives 5b and 6 were about FIM 150 million, and the national funding totalled about FIM 195 million.

Objective 5b is implemented in regions dominated by agriculture located in Southern and Central Finland. These regions are quite thinly populated and usually they are heavily dependent on agriculture. About a fifth of the population of Finland, 1.1 million people, live in these regions. Through the programmes efforts are made to create or secure 22,000 jobs as well as to set up 6,000 new enterprises, 3,000 of these on farms. The total costs of programmes based on Objective 5b in 1995-1999 amount to EUR 624 million, and the share of the EU is EUR 194 million.

Objective 6 is concerned with the development of the remote rural areas in Northern and Eastern Finland. The objective is to reduce the unemployment in the region by 2.1% and to create 17,500 new jobs in the service and industrial sectors. The regions covered by Objective 6 are very sparsely populated, because they account for 60% of the area of Finland, but only 16.6% of the population live in these regions. The share of the EU in the total funding of this Objective is 50%.

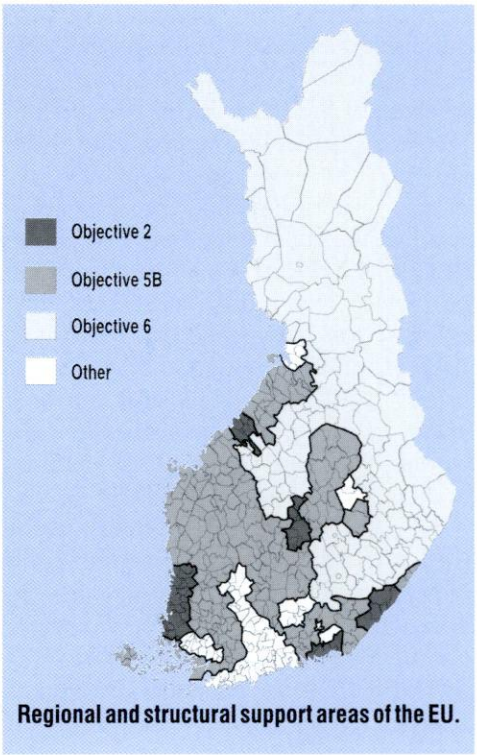
The purpose of the Community Initiative LEADER II is to preserve the viability of the rural areas, improve the preconditions for economic activity and create jobs in the countryside. In 1996-1999 LEADER II is implemented in regions covered by Objectives 5b and 6, and it supplements the development of the rural areas through the objectives. In LEADER II, however, the main emphasis is on the local initiative and activity of the people

Objectives in 1994-1999

Objective 1: Promotion of development and structural adjustment of the least developed regions
Objective 2: Assisting regions affected by industrial decline
Objective 3: Reduction of long-term unemployment and alleviation of the entry of young people and those outside the labour market to working life
Objective 4: Adjustment of workers to the structural change of industries
Objective 5a: Alleviation of structural problems in agriculture, forestry, and fisheries
Objective 5b: Development and structural adjustment of rural regions
Objective 6: Development and structural adjustment of northern, very sparsely populated regions

Objectives in 2000-2006

Objective 1: Development of regions lagging behind in development
Objective 2: Development of rural and urban regions with structural difficulties and in need of economic and social restructuring
Objective 3: Development of human resources, including e.g. promotion of local employment initiatives, lifelong education, and combating social exclusion



Regional and structural support areas of the EU.

living in the regions concerned, and it also aims at promoting the cooperation among the local residents. Projects may not be funded from both LEADER II and the Objectives.

POMO is a tool for the development of the rural areas and the archipelago that complements other regional development work, and it is funded from national sources. The programme has made it possible to extend the methods applied in LEADER programmes to new areas. Together LEADER and POMO cover about a third of the rural areas in Finland. The objective of the POMO programme for 1997-1999 is to create or preserve 800-850 jobs, contribute to the establishment of 200-225 new enterprises, as well as to achieve indirect employment effects corresponding to about 3,000 AWU. The total funding of the programme should be about FIM 168 million.

Of the INTERREG II programmes operating across the borders two are concerned with the development of agriculture and the rural areas in Eastern Finland and Russian Karelia. The programme for the arctic area of the Nordic countries Finland, Sweden and Norway contains measures e.g. to support the cooperation between small rural enterprises.

Agriculture and structural policy measures account for about 80% of the EU budget. The EU provides only partial funding for the development work, supplementing the national funding through the budgets of the member states as well as regional funding. In 1995-1999 the total amount of support Finland receives from the structural funds is about FIM 10 billion. The structural funds of the EU available for the current programme period total about FIM 872 billion.

The reform of the rural policy according to the Agenda 2000 proposal is based on the idea of integrated development of the rural regions. One important objective is to extend the social tasks of agriculture to cover environmental management and preservation of the structures of the rural regions. Thus regional policy supplements the market policy of agriculture. The objectives of the regional policy are to promote the competitiveness as well as to preserve and create jobs in the rural regions.

According to the Agenda 2000 proposal the number of objectives based on the structural funds will be cut to three. The development measures in rural regions not covered by Objectives 1 or 2 are financed from the Guarantee Section of the EAGGF. Environmental aspects receive increasing emphasis in the development policy for rural areas. On the request of the European Parliament the Commission proposes that forestry measures be more closely integrated in the development work directed at rural areas.

5. AGRICULTURE AND THE ENVIRONMENT

In 1998 environmental issues remained one of the most important topics discussed in the agricultural and food sectors. In March the Council of State made a decision on the new objectives in water protection. According to this, the phosphorus and nitrogen leaching from agriculture should be reduced to a half from the level of 1993 by the year 2005. The most serious problem is the eutrophication of water courses, especially in rivers and the sea area. In terms of meeting the objectives for water protection the nitrate directive is decisive, and the decision of the Council of State based on this came into effect in the beginning of April. The nitrate directive imposes maximum limits for the use of nutrients and restricts the spreading of animal manure in the autumn. Those criticising the directive fear that it may lead to soil compaction and thus, indirectly, actually increase the nutrient leaching. However, in practice the significance of the nitrate directive is relatively small, because the stipulations of the agri-environmental programme for 1995-1999 restricts the use of nutrients more than the nitrate directive.

Topics related to the health and living conditions of the production animals have been widely discussed due to actions by the so-called animal rights activists, and issues concerning the food and production safety have also gained increasing emphasis. One topic has been the resistance of pathogens to antibiotics. This is by no means a new problem, but the death of a Danish woman of salmonella that was resistant to antibiotics caught from animals was widely discussed in the media. In Finland this does not seem to be as serious a problem as in other parts of Europe or in the USA, even if the resistance of the bacteria causing bovine mastitis to antibiotics has increased in Finland, too. The discussion has already led to the tightening of the stipulations regulating the use of antibiotics in the EU.

BSE, i.e. the so-called mad cow disease, no longer received as much attention as earlier, even if more sick animals have been found in Central and Southern Europe. Some new threats to the health have also arisen. E.coli O157, i.e. the EHEC bacterium causing bad diarrhea caused a temporary epidemic in Finland. For the part of salmonella the situation is well in control in Finland, and no salmonella has been observed in the domestic foodstuffs. The numbers of cattle testing positive for salmonella fell clearly, and on pig farms salmonella was found only in few single cases. According to the Veterinary and Food Institute, the control programme for salmonella concerning basic foodstuffs has met its objectives.

The development of gene technology has aroused concerns about the uncontrollable side-effects of genetic modification. In some EU countries certain genetically modified crops have been prohibited against the official stand of the EU. Finland has been on the forefront in the application of gene technology, including e.g. the development of genetically modified sugar beets that would have better resistance against herbicides. Ultimately the future of the genetically modified foods will be decided by the consumers through their purchasing behaviour.

5.1. Environmental effects of agriculture

Farming affects the surrounding nature and landscape in a number of ways. The open arable land areas, which in the Finnish nature that is dominated by forest are a value as such, are often regarded as the

most important positive environmental impact. Over the years agriculture has also created special farming ecosystems, which differ considerably from the natural ones in terms of their sets of organisms. This has increased biodiversity, and the biodiversity created by farming ecosystems plays a central role in increasing the diversity of the rural environment.

However, agriculture has also negative environmental effects, because certain production inputs used in agriculture become harmful to the environment when they leave the farming system. Nutrients leaching from arable land, such as nitrogen and phosphorus, cause eutrophication of water courses, and nutrient leaching is considered the most serious environmental problem in agriculture. Pesticides destroy other living organisms besides those that are harmful for agricultural production. The negative environmental effects can be reduced by changing the production practices, but the problems cannot be totally abolished.

In recent years especially the extensive occurrences of blue-green algae in the Gulf of Finland and certain lakes has been widely discussed in the public, and actions are called for to reduce nutrient emissions. In particular, getting rid of the blue-green algae would require a reduction in the amounts of phosphorus entering the water courses, because the algae are self-sufficient in nitrogen, i.e. they area capable of binding nitrogen from the atmosphere.

Agriculture plays a central role in the reduction of phosphorus load, but reducing the load is not an easy task. Abundant phosphorus fertilisation was applied from the 1960s until the 1980s, and thus phosphorus has been stored in the soil. The impoverishment of this reserve takes time, and the reduction in phosphorus fertilisation in recent years may not be reflected in the state of the water courses for a number of years. Efforts should also be made to reduce the loading by preventing the entry of soil with high phosphorus content to water courses e.g. by combatting erosion by means of plant cover and filter strips. Nitrogen is not stored in the soil in the same way, and thus changes in nitrogen fertilisation are relatively rapidly reflected in the leaching, too.

The environmental issues of agriculture also include the welfare of animals. It is very important for consumers how the animals are treated on the farms. The actions of animal rights activists, which so far have mainly been directed against fur farming, may in the future be targeted at farms practising animal husbandry if agriculture is not capable of convincing the consumers that the production ethics in Finland is at a high level and the animals are treated in an acceptable way.

5.2. Agri-environmental programme

Environmental issues have a relatively short history in the Finnish agricultural policy. There has been some goal-oriented environmental policy of agriculture since the early 1970s, when the first basic programme for water protection was published. The main objective at that time was to show that the agricultural sector reacted to the discussion on the load on water courses caused by agriculture.

The first programme concerning agri-environmental measures that actually obliged the authorities was drawn up in 1988, when the Ministry of the Environment published the basic programme for water protection until 1995. This called for a similar reduction in the load on water courses from agriculture as from the other actions causing the load. The agri-environmental policy in the late 1980s and early 1990s was characterised by efforts to change the processes and structure of agricultural production (e.g. good production practices and support for environmen-

tal investments). The role of agriculture in providing environmental services was also emphasised in the discussion on environmental issues in the early 1990s, In general, efforts were made to integrate the environmental policy of agriculture more closely to the objectives of the general agricultural policy.

So far the environmental policy of agriculture has culminated in the agri-environmental programme for 1995-1999 based on Council Regulation 2078/92, which came into effect when Finland entered the EU. The programme, including aid based on the General Agricultural Environment Protection Scheme (GAEPS) and Supplementary Protection Scheme as well as aid for training and experimental projects, is the most extensive environmental measure ever taken in Finland.

The financing of the agri-environmental programme is distributed equally between Finland and the EU, and at first FIM 1.6 billion per year were allocated for the implementation of the programme. Due to the wide interest in organic production the EU approved an increase in the funds by FIM 120 million, and thus there was FIM 1.7 billion available for the years 1998-1999.

The participation in the programme is voluntary for farmers. The aid is paid on the basis of the area to all farms that have made an environmental management programme as laid down in the terms of aid and commit themselves to taking certain environmental protection measures. The aid may be based either on the GAEPS which is intended for all farmers or on the Supplementary Protection Scheme requiring more efficient environmental protection measures. A farm must participate in the GAEPS in order to be eligible for the aid based on the Supplementary Protection Scheme.

The purpose of the environmental programme is to prevent nutrient leaching to water courses and groundwater, reduce ammonia emissions from animal manure as well as secure the purity of agricultural products. Attention is also directed to the management of the rural landscape.

The environmental programme has been well received among farmers, and almost 90% of active farms and more than 90% of the cultivated area is included in the GAEPS. According to the follow-up group for the agri-environmental programme, in terms of the coverage the objective of the programme has been reached.

Terms of the environmental aid

Farmers who make a commitment to the environmental aid programme have to implement a number of environmental protection measures on their farms. Aid is paid to compensate the farmers for the costs and income losses due to these measures as well as to secure the livelihood of farmers. Farmers eligible for aid based on the environmental programme must be under 65 years old with permanent residence in Finland. The farm must have at least 3 ha arable land under cultivation (0.5 ha in the case of horticulture). Aid is

Expenditure on environmental aid in 1995-1998, FIM million.

	1995	1996	1997	1998
Total	1,411	1,578	1,635	1,756
GAEPS	1,330	1,366	1,372	1,410
Supplementary Protection Scheme	76	150	195	223
Training, advising, environmental projects	5	62	68	14

paid for regularly cultivated areas, including land cleared after 1991.

The terms of the GAEPS are the following:

1. An environmental management programme is drawn up for the farm together with a trained advisor.

2. Quantities of fertilisers applied on the farm do not in general exceed certain base levels. In areas A and B the arable area for manure spreading must be at least 1 ha/1.5 livestock units. In most cases animal manure and urine must be stored in facilities adequate for the need of 12 months, and manure may not be spread on snow or frozen land. A transitional period of 4 years is allowed.

3. Headlands or filter strips of 1-3 metres covered by perennial vegetation must be left or established on the sides of main ditches and water courses.

4. In areas A and B at least 30% of the arable lands of the farms must be covered by plants or reduced tillage must be applied outside the growing season.

5. Pesticides may be spread only by trained persons using tested spreading equipment.

6. Farming landscape and biodiversity must be maintained on the farm.

Supplementary Protection Scheme

The environmental management programme of agriculture is quite extensive, as it includes various kinds of special aid measures in addition to the aid based on the GAEPS. The special measures are intended for the preservation and management of water courses, nature and the landscape. A farm eligible for the Supplementary Protection Scheme must participate in the GAEPS, i.e. the two aid schemes complement each other. A significant share of the aid based on the Supplementary Protection Scheme has in practice been used to support organic production, because the EU membership increased the interest in this among farms even if the aid for the conversion period is smaller than before the EU membership.

Organic production: Contracts concerning organic production are made for five years, involving a conversion period of three years, during which all arable land must be converted to organic cultivation.

Since 1997 the aid for the conversion period has been FIM 1,000/ha, and after this FIM 700/ha/year is paid for land under organic cultivation. In 1997 no new contracts could be made due to lack of funds, but in 1998 new contracts concerning organic production were again made.

Buffer zones: buffer zone is a managed, uncultivated area covered by perennial vegetation between arable land and water courses or in groundwater areas. These are useful, or even absolutely necessary, on steep lands susceptible to erosion located on shores or in areas that are frequently flooded.

In order to be eligible for the aid the buffer zone must be at least 15 metres wide, and no fertilisers or pesticides may be applied on it. The contract period is 20 years and the minimum area is 0.5 ha. The maximum compensation is FIM 3,600/ha.

Wetlands, sedimentation ponds, lime filter ditches and regulated subsurface drainage: The purpose of the contracts is to reduce the amount of soil particles, nutrients and pesticides entering the water courses by treating the runoff water. The contract period is either 5 or 20 years and the maximum compensation is FIM 1,750-3,600/ha.

Landscape management, traditional biotopes and biodiversity: The purpose of the management and protection of the rural landscape is, among other things, to maintain open farming landscapes and to prevent valuable landscape areas from becoming overgrown by bushes and trees. In the management of biodiversity the objective is to preserve farming environments

characteristic to each region and the organisms living in them.

It has been possible to make contracts concerning landscape management for 5 or 20 years, and the minimum area is 0.5 ha. The contracts made for 20 years are mainly intended for land areas removed permanently from cultivation. In the contracts for 20 years the maximum amount of aid is FIM 3,600/ha and in those made for 5 years it is FIM 1,750/ha.

Raising of local breeds: The purpose of the contracts is to maintain the diminishing populations of local breeds of domestic animals. The aid is about FIM 500/livestock unit.

More efficient use of animal manure: The purpose of the contract is to increase the efficiency in the utilisation of animal manure on farms. Farmers who have made this five-year contract commit themselves to receiving and utilising animal manure from another farm in an appropriate manner in terms of the environment. The compensation is FIM 200/ha.

Extensification of agricultural production: The purpose of the contract is to reduce the use of fertilisers and pesticides on farms and, through this, the leaching of these to water courses. This five-year contract obliges the farmers to apply only 50% of the amount of fertilisers established in the GAEPS, and chemical pesticides may not be used at all. This measure has not aroused any wide interest.

Environmental and economic effects of the agri-environmental programme

The effects of the agri-environmental programme for 1995-99 on the nutrient leaching have been studied in the so-called MYTVAS project conducted by the Finnish Environment Institute, and so far the results have been published in two reports. The estimates on the environmental effects are mainly based on model calculations, in which the initial data – fertilisation levels, tillage methods, etc. – are compiled by interviewing farmers from four different watershed participating in the follow-up.

The agri-environmental programme has clearly changed the farming practices in the four target areas of the MYTVAS project. Fertilisation has decreased and most of the other criteria for the aid have been fulfilled. On the basis of the data and weather information for 1981-91 a model calculation has been made, indicating the changes in the loading provided that farming is continued according to the practices now adopted.

According to the result for the target area in Southern Finland (Lepsämänjoki and Yläneenjoki), the leaching of liquid phosphorus would actually increase even if the terms of the environmental aid were complied with. This is mainly because in support areas A and B the reduced tillage by means of cultivators necessary to fulfil the plant cover requirement may increase the leaching of liquid phosphorus.

Nitrogen loading is estimated to fall by 3-14%, and this is almost directly based on the changes in fertilisation, i.e. the corresponding decrease in the use of nitrogen. According to preliminary estimates, the terms of the GAEPS should have reduced the nutrient loading from agriculture by

Change in the loading estimated on the basis of the model calculations in four watershed compared to the year 1995.

Watershed	Change in liquid phosphorus, %	Change in nitrogen, %
Lepsämänjoki	+6	–14
Lestijoki	–21	–3
Taipaleenjoki	–41	–6
Yläneenjoki	+13	–7

Source: Grönroos et al. 1998.

20%, and thus the objective has not been reached.

There is considerable variation between the effects of the agri-environmental programme on the economy of farms, and this depends largely on the changes that meeting the requirements for environmental aid has caused in the production practices of the farms.

5.3. Future trends in the environmental policy of agriculture

The Agenda 2000 proposal of the EU Commission contains a number of points emphasising the significance of the environment. The objective of the reforms is to developed a so-called European model of agriculture, and one central aspect in this is to create "agriculture based on such healthy and environmentally-friendly production practices, which is capable of producing quality products meeting the requirements of the society".

In the programme period 2000-2006 one important tool of the environmental policy of agriculture will be the regulation concerning the development of rural areas, including aid for e.g. sustainable forest management, maintenance and development of farming systems operating at low input levels, increasing significant natural values and preservation of sustainable agriculture that meets the environmental criteria.

The regulation on the development of rural areas comprises a large number of earlier regulations, sometimes with no essential changes in their contents. In the future, too, farmers are eligible for the environmental aid provided that the preservation and improvement of the environment, landscape features, natural resources, soil, and genetic biodiversity is taken into account in agricultural production.

The current agri-environmental programme comes to an end in 1999, but it will be followed by a programme for the period 2000-2006 including similar objectives and coverage. One of the main objectives of the new programme will also be to reduce the load on water courses, but the management of biodiversity is likely to receive more emphasis than before.

One obvious trend in the environmental policy of agriculture in the EU is that certain environmental requirements are also included in other aid measures, like the LFA aid and CAP aid. However, these requirements should not be too difficult to fulfil, but the main purpose of them is to make sure that appropriate cultivation methods that are not harmful to the environments are practised in each region. The guiding principle is that if a certain stipulation of the EU provides for certain measures related to the environment (cf. nitrate directive and maximum quantities of nitrogen), such measures are not eligible for compensations through environmental aid or other aid measures.

The emphasis on environmental issues by no means concerns agriculture alone, because in the EU sustainable development is realised by means of penetration principle. All industries and sectors of the society have to take environmental considerations into account in their actions, but the close operational connection between agriculture and the environment highlights the role of agriculture not only as a user but also as a developer and preserver of the environment and renewable natural resources.

Organic farming in Finland

Kauko Koikkalainen

Organic farming has a relatively short history in Finland. The first pioneers started organic production about 25 years ago, and it started to be used as a form of agricultural production by a larger share of farmers only after the systems of aid related to the EU membership were introduced.

Organic production began to increase as a result of the changes in agricultural policy due to the EU membership, because in the new situation the difference in the profitability between organic and conventional farming started to decrease. Another essential factor in the development of organic farming is the extensive discussion over the negative environmental effects of agriculture during the 1990s, which has made farmers more aware of environmental issues. In the end of 1998 the area under organic production or conversion into this was about 127,000 ha, which is 6% of the total cultivated area in Finland. This exceeds slightly the objective set in the current agri-environmental programme. At the same time more than 5,000 farms were included in the control system for organic farming, which means that the average arable area of farms practising organic farming is about 25 ha, i.e. a little more than the average arable area of active farms.

Organic crop production is based on the Council Regulation on the organic production practices for agricultural products and the marking indicating this in agricultural products and foodstuffs (EEC no. 2092/91), and legislation concerning organic animal production is being prepared in the EU. At present the criteria for animal production of the Association for Organic Production are being applied in Finland. A symbol for organic products indicates and guarantees that the product originates from controlled organic production. There are three different symbols: the official control symbol of the Ministry of Agriculture and Forestry, the ladybird symbol of the Association for Organic Production and the Demeter symbol of the Association for Biodynamic Farming. The reference to the official inspection by the EU: "Organic agricultural production – EEC control system" can also be used in the marketing of products produced and controlled according to the Regulation on organic production. There is no single official symbol for organic products based on the Regulation used by all organic producers in the EU, but this is being planned.

Development of organic production in Finland in 1989-1998.

	1989	1991	1993	1994	1995	1996	1997	1998[e]
Organic area (ha)	1,500	3,500	13,332	19,351	23,139	27,218	42,748	84,300
Area under conversion (ha)	800	9,781	7,008	6,471	21,556	57,338	59,594	42,900
Total (ha)	2,300	13,281	20,340	25,822	44,695	84,556	102,342	127,200
% of cultivated area	0.1	0.6	0.9	1.1	2.1	4.0	4.9	5.9
Number of organic farms	373	950	1,599	1,818	2,793	4,452	4,381	5,087
Size of organic farms (ha)	6.2	14.0	12.7	14.2	16.0	19.0	23.4	25.0

Source: Plant Production Inspection Centre.

Organic production in Finland has been regulated by the state since 1990, when the aid for the conversion period was introduced. At that time the guidance was based on the Act on the Balancing of Agricultural Production. Since 1995 organic production has been supported on the basis of the agri-environmental programme according to EEC Regulation (2078/92). No major changes have occurred in the main features of the aid scheme since it was first introduced, but the amounts of aid have varied from one year to another according to the amount of funds available, the number of farmers willing to convert into organic production and the order of priorities established for aid measures based on the Supplementary Protection Scheme. The state also has to supervise that the criteria set for organic production are complied with. At present the control system prescribed by law concerns only crop products, wild plants and the processed products made from these, and the Association for Organic Production together with the Plant Production Inspection Centre are responsible for the organisation of the monitoring of organic animal production, which covers a little over 300 farms. In organic production the use of inputs is reduced compared with conventional production, and chemical fertilisers and pesticides may not be used at all. In crop production a maximum has been set for the use of organic fertilisers, which is the amount of animal manure from 1.5 livestock units/ha/year. Other stipulations restricting the use of inputs are the requirements concerning roughage in animal production and crop rotation. The purpose of the restrictions on input use is to avoid excessive loading of the environment and to secure the high quality of the products as well as the availability of appropriate fodder for the animals.

In organic production the yield and return levels are in general lower than in conventional farming. Roughly, the hectarage yields in cereal production can be estimated to fall by about 35% and in the case of grasses by about 25% compared to the average yields in conventional farming. There may be considerable variation in the change in the yields between farms due to the cultivation history, yield levels, crop rotation, use of animal manure, etc. On farms specialised in cereal production the amount of crop sold from the farms usually falls more than the hectarage yield, because part of the area must be under green manure plants. In organic farming nitrogen is usually the factor restricting the yields the most, especially in the early part of the growing season.

In the Finnish organic production the main emphasis is on crop products, even if almost half of the farms practising organic crop production also have domestic animals. In 1998 the area officially approved as organic area was about 84,000 ha. The share of grasses was 41% and that of cereals 40%. The share of land under peas and potatoes was about 2% each, and vegetables, berries and aromatic herbs accounted for about 5% of the organic area. The share of set-aside was about 10%. The cereals the most commonly produced organically were oats and rye, and the share of land under oats was 12% and that under rye 10% of the organically cultivated land area. The yield of organically produced oats was more than 18 million kg, that of rye about 11 million kg, wheat a little under 5 million kg and barley about 6.5 million kg. In the autumn the organic producers seeded about 4,000 ha with rye and 400 ha with winter wheat. The share of organic production in the total area under rye was 40%.

Even if grasses account for more than half of the total area under organic production, the amount of organically produced animal products on the market is relatively small. This is partly due to the fact that the aid for organic production concerns crop production only, and according to the terms of the aid the livestock

production on the farm may be conventional even if the farm were an organic farms in terms of the crop production. The processing and marketing of organic animal products is undeveloped, except in the case of milk, which makes farmers less interested in introducing organic production practices in livestock production. Development is also needed in the organic vegetable and berry production, partly due to the cultivation techniques requiring a lot of manual labour and partly because of the support policy that does not favour these production lines. It can be assumed, however, that the willingness of consumers to pay for organic products could be the most easily realised in the production of vegetables and berries, because these are often consumed in an unprocessed form, which means that the taste, healthiness and other subjective views are highly significant in making the purchase decisions.

The amount of agricultural production falls by about a third per unit of area when the farm converts into organic production. However, considerable cost savings can be achieved in organic farming compared to conventional production. Artificial fertilisers and chemical pesticides are not used at all, which reduces the production costs considerably. The current profitability of organic production is in the first place based on the support system, which provides higher aid based on the area to the organic farms. The prices paid for the organic products are usually higher than those of conventional products, but the variations in the producer prices are considerable.

Estimated on the basis of the data from the bookkeeping farms compiled at the Agricultural Economics Research Institute, the profitability of organic cattle production has been at about the same level as in conventional cattle production, but organic crop farms have not reached the same level of profitability as conventional ones. It should be noted, however, that part of the organic farms included in the profitability study are still going through the conversion phase, and animal production may still be conventional, i.e. organic production practices have been introduced in crop production only.

Even if the demand for organic products has increased rapidly in recent years, the markets are quite undeveloped in many respects. In organic production the small quantities and the consequent irregular availability of the products reduce the interest in organic production in the retail trade and especially in the wholesale business. This is also the case in the processing industry, which considers the small production volumes and low security in the delivery to make it impossible to process organic products in a profitable way. The same factors are also considered to impede the export efforts, even if the primary objective of organic production should be to meet the local demand. Consequently, the weakness of organic production is that its operating principles are not fully compatible with the prevailing operating practices of the food chain. The share of directs sales is considerable, especially in the marketing of vegetables and meat, and almost half of the organically produced potatoes are sold from the farms directly to consumers. In the case of pigmeat the share of direct sales is 40%, and about 60% of organically produced eggs are sold directly. Instead, 90% of the organically produced milk ends up in the processing industry.

One important guideline in the current public policy has been to promote sustainable development. As a result of the redefinition of the objectives for agricultural policy starting from the principle of sustainable development, in the future organic production may have an advantage over conventional farming. What is needed is a long-term development programme for organic production, and the commitment of as many parties as possible to this programme.

6. INCOME AND PROFITABILITY

6.1. Agricultural income

The Agricultural Economics Research Institute follows the development of farmers' income by means of a total calculation, which is based on the money flows in each calendar year. Due to the cash-based calculation method e.g. the compensations for crop damages that are paid in the following year are included in the income of that year. Changes in the stocks of both final products and production inputs are not taken into account.

Compared to the previous years the total calculation has been revised by including horticulture for the first time in full in the calculation. The calculation of the depreciations measuring the wearing of fixed assets has also been revised. Investments in fixed assets are taken into account at the amount of the real annual investments.

According to a preliminary calculation, in 1998 the agricultural income indicating the compensation for farmers own capital and labour was FIM 5.3 billion, which is FIM 0.9 billion (14%) less than in 1997. The gross return on agriculture totalled FIM 20.6, which is FIM 0.8 billion lower than in the previous year. The share of agricultural support in the gross return was FIM 8.5 billion, i.e. 41%.

The most significant change in the returns was the reduction in the return on crop production by FIM 0.4 billion, i.e. 17%, between 1997 and 1998. The main reason for this was the crop failure. Both the sales quantities and prices of cereals fell compared to the previous year. The return on livestock production fell from FIM 8.2 billion to 8.0 billion, i.e. 2%, mainly due to the reduction in the pigmeat prices by 10%, even if this was partly compensated by the increase in the production quantities.

The return on horticultural production was FIM 2 billion, and it had fallen by 3% from the previous year mainly because of the decrease in the aid. The costs grew by a little under 1%. Income from horticulture included in agricultural income totalled FIM 478 million, which is about 10% more than in 1997.

The costs of agriculture totalled FIM 15.3 billion, which is about the same as the year before. The use of concentrated fodder increased by 7%, but the prices fell and the costs rose by only 2%. The prices of fuel and lubricants also fell and the cost decreased by 12%. The amount of fertilisers sold grew by 7%, but as a result of the fall in the prices the cost rose by only 3%. Depreciation costs were about the same as in the previous year.

Agricultural income at current prices in 1992-1998, FIM million and as an index.

	Gross return	Total cost	Agricultural income	Index
1998[e]	20,568.8	15,283.5	5,285.3	65
1997	21,445.0	15,286.8	6,158.3	76
1996	21,696.0	15,274.5	6,421.6	79
1995	22,349.9	15,015.8	7,334.1	91
1994	25,389.3	17,089.8	8,299.5	103
1993	24,496.9	18,016.0	6,480.9	80
1992	26,163.4	18,075.9	8,087.4	100

Agricultural income has fallen by 36% from 1994, i.e. before Finland joined the EU. In 1995 agricultural income decreased by 12%, in spite of the compensations for the reduction in the value of stocks amounting to FIM 2.3 billion. Since then agricultural income has been falling steadily due to e.g. the decrease in the transitional aid. During the first years in the EU the prices have varied more than earlier and the aid payments have often been delayed.

6.2. Income and profitability of farm enterprises

The Farm Accountancy Data Network (FADN) of the EU includes about 1,000 Finnish bookkeeping farms. The most recent results are from 1997. The average agricultural income per farm was FIM 130,400, which is 4% less than in 1996. Compared to the average agricultural income in 1992-1994, agricultural income was 2% lower. The average size of farms has grown, and thus the income per hectare has fallen by 17%. The profitability of agriculture has also deteriorated clearly.

The income and profitability of bookkeeping farms continued to fall in 1998. It is estimated that the average agricultural income of all farms fell by 19% from 1997, and the fall in the profitability of agriculture was about the same. The forecasts for different production lines and support areas are based on the results of 1997, taking into account the changes in the quantities and quality of arable crops, changes in the prices of products and inputs as well as in agricultural aid, and the estimated growth in the farm size.

Cereal production

According to a preliminary estimate, in 1998 the agricultural income on cereal farms in areas A and B in Southern Finland was 40% lower than in the previous year. In support area C in Central and Southern Finland the income of cereal farms was less than half of the level of 1997.

In 1995 the agricultural income of cereal farms in Southern Finland was 30% lower than the average of 1992-94. In 1996 the result improved considerable mainly due to the higher, almost record yields. In 1997 the average agricultural income of farms was FIM 99,000, and in areas A and B the average arable area of cereal farms participating in the bookkeeping was 58 ha, which is 5 ha more than the average of 1992-94. Consequently, income per hectare has fallen slightly more than the income per farm.

In support area C the agricultural income of cereal farms has been decreasing steadily during the EU membership, and in 1997 it was FIM 68,000, which is a third lower than the average of 1992-94. The arable area of farms was 51 ha, and the average size had grown by 7 ha from the average of 1992-94.

There is considerable variation in the profitability of cereal farms from one year to another. In 1996, when the yields were excellent, the profitability of cereal farms in Southern Finland exceeded the level prior to the EU membership, but in the following year the profitability deteriorated clearly. In 1998 the profitability coefficient used as the indicator for profitability was only 0.65 on cereal farms in Southern Finland. In this case only 65% of the wage demand for farmers' own labour (FIM 41/h) and interest demand on capital invested in agriculture (5%) was realised. The profitability of cereal farms in area C is estimated to have deteriorated even a little more.

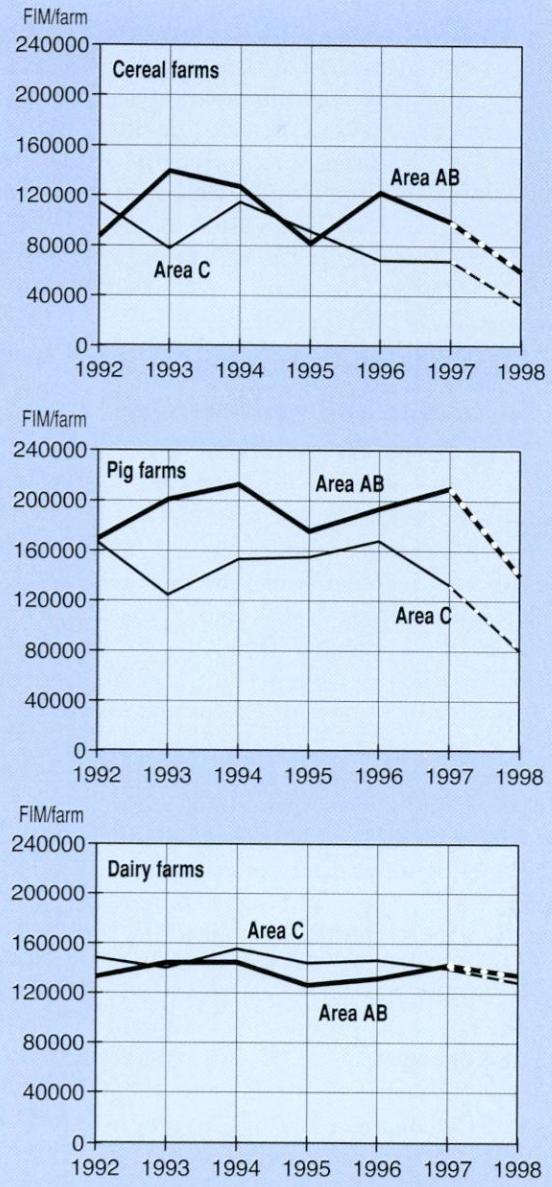
Pig husbandry

The agricultural income of 1998 on farms specialising in pig husbandry is estimated to have fallen by 35% from the previous year. The poor cereal crop lowered the sales return and increased the fodder costs. Pigmeat prices also fell considerably to-

wards the end of the year. In areas A and B the income of pig farms fell by 33% and in area C they fell as much as 40%.

Pig farms have made considerable investments since 1996. In 1997 agricultural investments had doubled compared to 1994. Increased investments have raised the depreciation cost of farms. The results of pig farms are the average results from fattening pig, piglet and combined pig production. The different production lines are quite equally represented in areas A and B, but in area C the number of fattening pigs was much smaller than in areas A and B, while the average number of sows was about the same. In all areas no major changes have occurred in the number of fattening pigs since 1994, but in 1997 the number of sows per farm was 31, which is 25-30% more than in 1994.

In 1995 the profitability of pig production fell by 9% from the average of 1992-94. Since then the profitability improved on pig farms in Southern Finland until 1997. In area C the profitability in 1997 was much weaker than in the previous year. It is estimated that the profitability has fallen clearly between 1997 and 1998. The compensation for the labour and own capital of the farm family is 85% of the level set as the objective, and in area C it is only 54% of this.

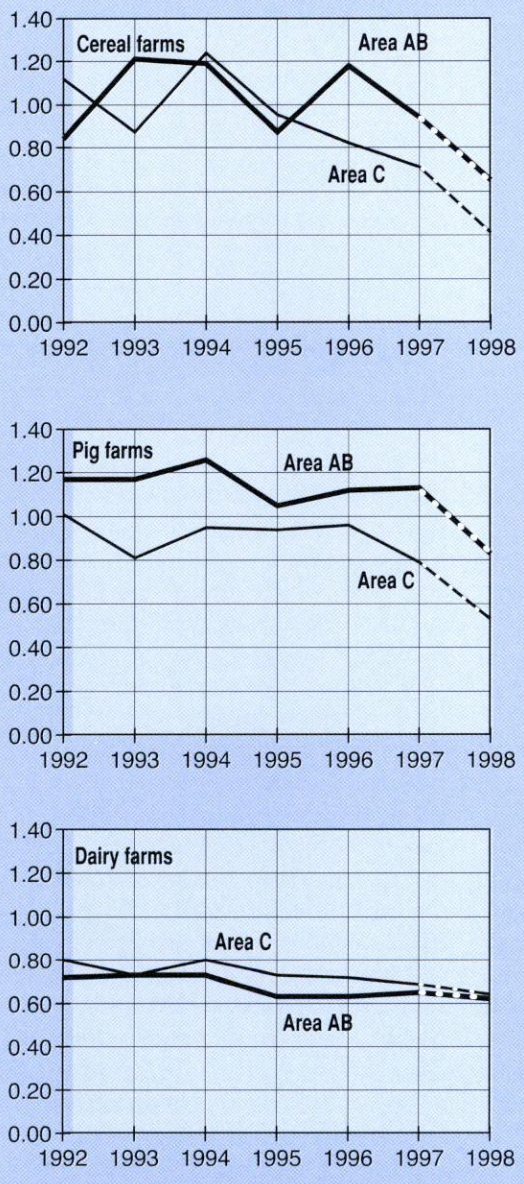


Agricultural income on cereal, pig and dairy farms in 1992-1998[e], FIM/farm.

Milk production

In 1998 the average agricultural income of dairy farms is estimated to have fallen by 8% from the previous year, mainly due to the decrease in the aid for milk production and poor fodder crop. The effects of the crop failure will also be reflected in the results of 1999, when more purchased fodder is needed than usually.

The agricultural income of dairy farms in areas A and B is estimated to have decreased by almost 6% and in area C by almost 9%. Compared to the average of



Profitability of cereal, pig and dairy farms in 1992-1998[e], profitability coefficient.

1992-94 the agricultural income in area C fell more than in Southern Finland. On milk farms the variation from one year to another has been smaller than on cereal and pig farms. In 1997 the average herd size of bookkeeping farms specialising in milk production was 16 cows, which is the same than the average of 1992-94.

In the first year in the EU dairy farms concentrated on amortising their debts, and very few investments were made. Investments grew in 1996 and 1997 as a result of the investment aid. Farmers have avoided taking up loans, and investments have mainly been financed by the surplus of the cash-flow financing of the enterprise, supplemented by forest income.

The profitability of dairy farms has deteriorated in all areas. It is estimated that in 1998 the farms reached only 63% of the wage demand for own labour and the return demand for own capital. The profitability coefficient indicating the ratio fell to 0.62 in Southern Finland and 0.64 in area C. This level of profitability is about 18% weaker than the average in 1992-94.

Horticultural production

There is a significant amount of agricultural production in most horticultural enterprises. On farms practising vegetable production in the open, on average, about 45% of the total income of the farm family comes from horticulture, 21% from other crop production and 14% from livestock production. Work outside the farm provides 14% of the income of the farm family. In greenhouse enterprises the average of 84% of the income of the farm family comes from horticulture, and the average share of berry production in the income of the farm family is 26%.

In 1995 there was considerable variation in the agricultural income between the main lines of horticultural production in

Return (turnover), costs and income of agriculture and horticulture in 1997, FIM/farm.

	Production in the open		Greenhouse production		
	Vegetable production	Berry production[1)]	Ornamental plants	Vegetable production	Average
Gross return	648,000	259,000	1,551,000	1,018,000	1,227,000
Costs	504,000	251,000	1,482,000	882,000	1,117,000
Agricultural income	144,000	8,000	69,000	136,000	110,000
Horticulture % of agricultural income	89	33	100	100	100
Profitability coefficient	0.93	0.13	0.31	0.71	0.53

[1)] *In 1996.*

the open. Agricultural income from the production of root plants fell by about 50% and that from currants by 30%. In other production lines the development was the opposite, in cabbage production agricultural income grew by 30%, in the production of onions by 45% and in strawberry production by almost 90%. On average the agricultural income from horticultural production in the open rose by about 4%.

Horticultural income from greenhouse production, which corresponds to the concept of agricultural income, grew on average by 28% in 1994-1995. In enterprises specialising in the production of ornamental plants horticultural income fell by 4%, but in the production of cucumbers and tomatoes it rose by about 50%. The reduced producer prices were compensated for by lower production costs as well as national transitional aid.

The average total return on agriculture and horticulture on farms practising vegetable production in the open was FIM 648,000 in 1997, and the share of horticulture is estimated at 87%. The main crops on farms practising vegetable production in the open included in the profitability study were cabbage, carrots and onions. Their average agricultural was FIM 144,000, which is 22% of the gross return, and almost 90% of the agricultural income came from vegetable production. On farms practising vegetable production in the open the profitability coefficient of agriculture was 0.93, which means that 93% of the calculated wage and labour income demand was realised.

In 1996 the average agricultural income on farms practising berry production was about FIM 8,000, and the share of horticultural production was about a third. The gross return of berry farms was FIM 295,000, and the share of berry production in this was 93%. Agricultural income remained low, because in the year in question the area under berries had been increased and renewed more than usually. The depreciations related to the renewal of the plant stand accounted for about a fifth of the costs of berry farms. The average area under horticultural production on berry farms was 8 ha. The income of berry farms can be expected to grow in the next few years. Only 13% of the calculated labour and capital income objective was reached in 1996.

In greenhouse production the average horticultural income that constitutes the compensation for the labour and capital of the farm family was FIM 167,000 in 1996 and 110,000 in 1997. The gross return on greenhouse production (turnover) was about FIM 1,227 million in 1997, which is

about 3% higher than in the previous year. In the enterprises included in the study the production consisted of horticulture alone. Unlike farms practising basic agriculture, most of the greenhouse enterprises are companies, and the share of the company in the taxes is not included in agricultural income in this connection. In 1996 the average profitability coefficient in greenhouse production was 0.77 and in 1997 it was 0.53.

In the production of ornamental plants horticultural income was about FIM 69,000/enterprise in 1997, which was 4.5% of the gross return. In vegetable production horticultural income was FIM 136,000/enterprise, i.e. 13% of the gross return. In the production of ornamental plants the horticultural income per m^2 of greenhouse area was FIM 22 and in vegetable production this was FIM 39. In vegetable production the average income margin as well as profitability were higher than in the production of ornamental plants.

In greenhouse production there is a great deal of variation in the results between enterprises, but in general the result was the best in enterprises specialising in potted plants and cucumbers, where the production intensity is above the average. Prior to the EU membership the border controls for potted plants were the weakest among ornamental plants, and thus the fall in the producer prices due to the abolition of the border protection was proportionally smaller than in the case of other ornamental plants. The benefits from the marketing and packaging cooperation between companies located in Ostrobothnia were clearly reflected in the results of vegetable production.

6.3. Production costs

The production costs of agricultural products have been calculated on the basis of the data of the profitability study of the Agricultural Economics Research Institute.

In 1997 the average production cost of milk was FIM 3.37/l, which was 34% higher than the producer price in 1997, including both the transitional aid and the northern price support. Labour cost was the largest cost item among the production costs, and in 1997 the share of this was 41%. Labour cost and its proportional share in the production costs decrease as the farm size grows. On farms with over 30 cows the labour cost accounts for only 32% of the production costs. Labour cost is the most important factor explaining the differences in the production costs between farms of different sizes. In 1997 the production cost of milk was on average 5% lower than in 1995, and the cost had fallen the most on large farms. From the time before the EU membership the production cost had fallen

Production cost of milk in different farm size classes in 1997, FIM/l.

	Cows/farm				Average	
	<10	10-20	20-30	>30	1997	*1995*
Implement costs	0.80	0.73	0.70	0.65	0.72	*0.78*
Machinery and building cost	0.60	0.52	0.56	0.55	0.54	*0.56*
Interest cost of capital	0.30	0.26	0.26	0.30	0.26	*0.31*
Labour cost	2.29	1.44	1.08	0.89	1.38	*1.43*
Other cost	0.55	0.46	0.47	0.39	0.47	*0.48*
Production cost	4.54	3.41	3.07	2.78	3.37	*3.56*

Production cost of cereals in different farm size classes in 1997, FIM/kg.

	Arable area, ha/farm				Average	
	<30	30-50	50-100	>100	1997	*1995*
Implement cost	0.43	0.41	0.35	0.37	0.39	*0.41*
Machinery and building cost	0.44	0.34	0.32	0.32	0.35	*0.43*
Interest cost of capital	0.34	0.31	0.29	0.30	0.31	*0.42*
Labour cost	0.48	0.38	0.31	0.23	0.36	*0.45*
Other cost	0.35	0.28	0.21	0.18	0.26	*0.27*
Production cost	2.04	1.72	1.48	1.40	1.67	*1.98*

by about 12%. The cost of purchased fodder fell the most as a result of the decrease in fodder prices.

The average production cost of cereals was FIM 1.67/kg. The average arable area of cereal farms included in the data was 57 ha. Due to allocation problems related to costs it has not been possible to calculate the production costs of the different cereals from the data, and thus only the average costs of cereals, including both bread and fodder cereals, can be presented. In cereal production the largest cost item were the capital costs, i.e. interest and depreciation cost, which in 1997 constituted, on average, about a third of the production cost.

The interest cost of cereal farms as well as the depreciations on machinery and buildings have decreased considerably from 1995 as a result of the decrease in the amount of debt and investments. Investments have grown in 1996 and 1997, but they have mainly been financed by cash flow financing, which has improved the solvency of farms.

Some decrease has also occurred in the costs due to the increase in the average farm size. On farms with over 100 ha the labour cost per kilo of cereals was less than half of that on small farms. Between 1995 and 1997 the average labour cost per kilo of cereals fell from FIM 0.45 to 0.36 mainly as a result of the increase in the average arable area of this farm group from 48 ha to 57 ha. The difference in the production costs between the largest and smallest farm size classes was FIM 0.64. The unit costs are also dependent on the yield level, and the yields are clearly higher on the largest farms than on small farms.

Decrease in the number of farmers affects the pension system

Leena Rantamäki-Lahtinen

In Finland the first earnings-related employment pension systems came into force in the early 1960s. The employment pension system is based on the so-called life span principle, according to which only part of the total remuneration for labour is paid as wages or salaries and part is transferred to be paid later on as pensions. Pension policy as such is one of the most important instruments of the welfare state: the income distribution through pension systems is considerable, and the significance of these has increased over the years. While in 1950 the share of pension expenditure in the GDP was less than 2%, in 1994 this accounted for 14% of the GDP.

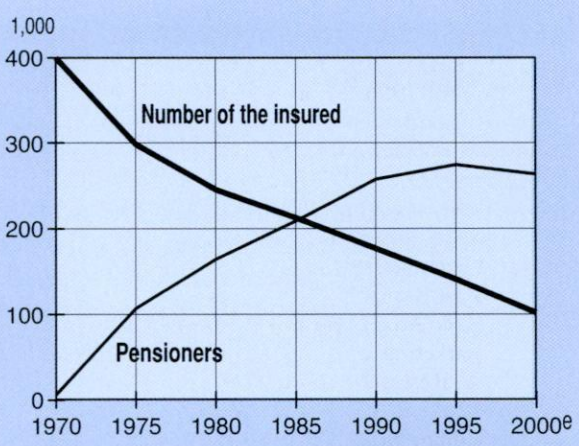
The pension systems of farmers have been developed alongside with the other pensions. In a few decades the centuries old life-annuity contract system was replaced by a system which makes it possible for farmers to obtain employment pension, too. The objective of the Farmers' Pension Act was to make farmers equal to other population groups with respect to employment pensions and to secure a reasonable livelihood for the old age or in case of disability. Over the years improvements have been made in the pension system, which very good compared with the farmers' pension systems in other West European Countries.

The old age pension of farmers is constructed in the same way as that of other people entitled to earnings-related pensions: pension payments are based on income earned during the active working life as well as the length of the active period. Earnings-related pensions are supplemented by a national pension, which decreases as the earnings-related pension increases. The income of farmers is estimated on the basis of a calculated labour income. A so-called labour income tube has been established around the so-called normal labour income tied to the area of the farm, and the farmers may estimate the labour income corresponding to their earnings within the tube. The labour income of the whole farm is divided among the members of the farm family working on the farm. The labour income forms the basis for both the pensions to be paid later on and the pension payments made by farmers during their active period. The pension payments made by farmers are tied to the general level of employment pension payments. The majority of farmers make the pension payments according to a reduced percentage, which in 1999 was 10.25% of the labour income, when the basic percentage was 21%.

The pension systems applied in almost all OECD countries are based on income transfers between generations. This income transfer system refers to a situation in which the current pensions are paid from funds collected from the generation participating in the active working life. Because the pension payments are reserved in the funds only partly, each generation pays the pensions of the previous generation, and the pensions of the former are in turn paid by the next generation.

The population structure is changing in all western countries due to the decrease in the birth rate and increased expectation of life. The wars are clearly reflected in the population structure of Finland. After the so-called large generations born in 1945-1950 the birth rate has been decreasing gradually. The large generations will reach the retirement age in 2010-2030. As the number of people in the active working life (16-

64 years old) is falling in proportion to the elderly people (over 65 years), the financing of the pensions by means of income transfers between generations is becoming increasingly difficult. The growth in the share of the older age groups and the decrease in the number of the active population has caused pressures to raise the pension payments, and these have quadrupled in Finland since 1970.



Development of the number of farmers covered by the Act on Farmers' Pensions and pensioners in 1970-2000. Source: Farmers' Pension Institution.

In the case of farmers the ratio between those making the pension payments and the pensioners is particularly unfavourable. In 1995 the ratio between the recipients of employment pensions and working population for the part of all people covered by the employment pension system was 0.46, while in the case of farmers this was 1.4. The poor ratio is caused by the aging of the farm population as well as the structural change in agriculture. The number of farmers falls along with the number of farms. When the farmers' pension system was set up in 1970 the number of those insured was 400,000, but this has fallen by about a third in 25 years. At the same time the number of pensioners has increased, and in 1986 their number was the same as that of farmers making pension payments. The increase in the number of pensioners stopped in 1995, and some decrease is expected in the future. According to forecasts made at the Farmers' Pension Institution, in 2000 the number of agricultural entrepreneurs covered by the system is about 100,000, while the number of pensioners is about 200,000.

In principle farmers' pensions are financed from three different sources: return on the investment activity of the Farmers' Pension Institution, payments from the state and insurance payments from farmers. Even if the pension payments have increased considerably over the years, the income from these payments and the investment activity covered only a fraction of the pensions paid. Due to the age structure of farmers the state support for the system is decisive, and it may be very vulnerable to e.g. budget cuts. The raise in the pension payments and weakening of the pensions have been due to the tight national economy. At present the state finances more than 70% of the pensions based on the Act on Farmers' Pensions. The pension payments of farmers cannot be raised to a much higher level, and thus the share of the state in the pensions paid to farmers is going to increase in the future.

Sources

Agenda 2000. The legislative proposals 1998. European Commission.

C.A.P. Monitor 1996. A continuously up-dated information service on the CAP of the EU. Agra Europe. London.

Compendium of Laws and Statutes.

ETT. Statistics of Food Facts Ltd. Espoo.

European Commission. Situation and Outlook Dairy Sector. CAP 2000 Working Document. Directorate-General for Agriculture.

Eurostat. Luxembourg.

Finnish Forest Research Institute. Finnish Statistical Yearbook of Forestry.

Forsman, S. & Aro, J. 1998. Elintarvikealan yritysten keskeiset markkinointikanavat [Abstract: Main marketing channels of rural firms in food sector]. Agricultural Economics Research Institute, Research reports 226.

Grönroos, J. et. al. 1998. Maatalouden ympäristötuki. Finnish Environment Institute. Finnish Environment No. 239.

Information Centre of the Ministry of Agriculture and Forestry. Farm Register, Yearbook of Farm Statistics, Monthly Review of Agricultural Statistics, Grain bulletin.

Koikkalainen, K., Vehkasalo, V., Linjakumpu, H. & Aakkula, J. 1998. Luomutuotannon kehittämisvaihtoehdot – taustamuistio kansallisen luomustrategian suunnittelun pohjaksi [Abstract: The future development of organic farming in Finland: Three alternative scenarios for the purposes of agricultural policy-making]. Agricultural Economics Research Institute, Working papers 6/98.

Lehtimäki, S. 1998. Suomen puutarhatuotannon EU-sopeutumisen jatkoseuranta ja EU:n puutarhareformi. Puutarhaliiton julkaisuja 300.

Ministry of Agriculture and Forestry. Statistics of the Department of Rural and Natural Resources, Support register.

Ministry of Finance. Economic Survey: February 1998.

National Board of Customs. Foreign trade statistics.

National Land Survey of Finland. The market price register of real estates.

Pietola, K., Lempiö, P. & Heikkilä, A-M. 1998. Kotieläinrakennusinvestointien kannattavuus ja maksuvalmius [Abstract: Estimating maximum bid prices and returns to livestock production facilities in Finland]. Agricultural Economics Research Institute, Research reports 229.

Rantamäki-Lahtinen, L. 1999. Viljelijöiden eläketurvan taloudellinen tarkastelu [Abstract: The economic prospects of farmers' retirement program in Finland]. Agricultural Economics Research Institute, Research reports 231.

Statistics Finland. Consumer price statistics, Income and Tax Statistics of Agriculture and Forestry, Statistical Yearbook of Finland, Register of Enterprises and Establishments.

Statistics of Kemira Agro Ltd. Helsinki.

Statistics of the Agricultural Economics Research Institute. Helsinki.

Statistics of the Finnish Association of Fruit and Berry Growers. Helsinki.

Statistics of the Association of Reindeer Herding Co-operatives. Helsinki.

Statistics of the Farmers' Social Insurance Institution. Espoo.

Statistics of the Finnish Beekeepers Federation. Helsinki.

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 the Plant Production Inspection Centre. Helsinki.

Statistics of the Theme group for rural holidays. Helsinki.

Producer price index and cost price index in agriculture with subsidies (1990=100).[1)]

	Producer price index of agriculture	Production inputs Total index	Goods and services	Investments	Buildings
1998	59.9	88.6	85.4	95.6	95.7
1997	60.5	90.0	87.8	94.6	94.2
1996	61.3	88.0	85.5	93.4	90.4
1995	71.5	86.6	83.6	93.0	91.0
1994	96.0	107.6	107.1	108.8	101.0
1993	96.4	108.2	109.4	105.4	98.6
1992	96.5	105.5	107.8	99.8	98.8
1991	96.6	103.8	105.5	99.5	101.6
1990	100.0	100.0	100.0	100.0	100.0

1) Indices are based on EU's classifications.
Source: Statistics Finland.

Some figures of the agricultural structure.

	Number[1)] of farms 1,000	Average[1)] size of farms, hectares	Number of milk suppliers 1,000	Employed in agriculture 1,000 persons	% of employed
1998	..	..	26	120	5.4
1997	160	15.8	28	130	6.0
1996	155	15.8	30	122	5.8
1995	170	14.9	32	130	6.3
1994	190	13.7	34	142	7.0
1993	192	13.5	35	146	7.2
1992	198	13.1	36	157	7.2
1991	200	12.9	40	166	7.1
1990	199	12.8	45	170	6.9
1989	..	..	48	179	7.2
1988	189	12.8	53	197	8.1
1987	192	12.6	58	206	8.5
1986	195	12.4	63	218	9.0
1985	201	12.1	66	228	9.4
1984	204	11.9	70	242	10.0
1983	208	11.6	74	246	10.3
1982	213	11.4	78	255	10.7
1981	219	11.2	85	250	10.6
1980	225	11.0	91	251	10.8

1) over 1 hectare
Sources: Information Centre of the Ministry of Agriculture and Forestry and Statistics Finland.

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

	Dairy cows 1,000	Yield per cow litres	Pigs 1,000	Hens 1,000
1997[1)]	391	6,183	1,467	4,152
1996[1)]	392	5,993	1,395	4,184
1995[1)]	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
1989	507	5,246	1,291	4,923
1988	551	4,990	1,305	5,238
1987	589	4,905	1,342	5,342
1986	607	4,935	1,323	5,532
1985	628	4,812	1,295	5,922
1984	660	4,799	1,382	6,025
1983	663	4,778	1,441	5,440
1982	689	4,493	1,475	5,292
1981	701	4,450	1,467	5,200
1980	720	4,478	1,410	6,041

[1)]1.5.

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

	Nitrogen kg/ha	Phosphorus kg/ha	Potassium kg/ha	F.u. yield (incl. straw) f.u./ha
1997-98	86.4	11.6	33.1	..
1996-97	86.0	11.8	32.5	3,816 [1)]
1995-96	92.3	16.1	34.3	3,736 [1)]
1994-95	101.6	20.0	38.5	3,655 [1)]
1993-94	94.1	19.0	40.0	3,810 [1)]
1992-93	94.3	19.4	39.8	3,316 [1)]
1991-92	92.8	19.9	39.7	3,269 [1)]
1990-91	109.4	26.3	53.4	3,771 [1)]
1989-90	111.5	30.7	57.6	3,936
1988-89	100.3	29.7	56.1	3,554
1987-88	98.2	32.0	59.3	2,821
1986-87	94.4	31.0	56.5	2,100
1985-86	90.0	30.2	55.5	3,230
1984-85	88.9	30.8	56.5	3,235

[1)] New calculation method, 2% higher than before.
Source: Kemira.

Total calculation of agriculture (excl. horticulture) at current prices, FIM mill. [1)]

	1992	1993	1994	1995	1996	1997	1998[e]
CROP PRODUCTIONS							
- Rye	121.5	89.8	98.1	10.7	51.5	39.1	26.9
- Wheat	938.4	577.6	820.6	148.0	373.2	324.6	308.3
- Barley	1,730.6	1,409.8	1,779.9	457.2	610.5	710.1	549.8
- Oats	865.5	887.3	935.8	169.4	276.8	327.2	230.9
- Potatoes	489.7	331.2	496.0	392.7	260.0	294.6	248.3
- Potatoes for processing	155.1	171.8	170.4	113.1	123.4	108.4	109.0
- Seed potatoes	7.9	6.9	5.7	5.8	6.7	6.1	6.2
- Sugar beet	459.6	433.1	509.5	423.1	371.1	390.6	358.3
- Oil plants	326.3	416.5	336.7	71.0	126.3	122.6	104.6
- Pea	32.7	23.9	17.0	9.8	13.7	12.7	8.0
- Grass seed	21.3	13.1	22.3	11.5	13.1	13.1	9.9
Total	**5,148.8**	**4,361.0**	**5,192.1**	**1,812.2**	**2,226.3**	**2,349.2**	**1,960.4**
ANIMAL PRODUCTION							
- Milk	6,634.2	6,833.1	6,947.3	4,674.1	4,656.9	4,834.3	4,720.8
- Beef	2,912.9	2,505.2	2,635.6	1,394.6	1,288.2	1,247.2	1,256.7
- Veal	0.3	0.3	0.3	0.2	0.4	0.7	0.3
- Pork	2,863.4	2,744.4	2,747.0	1,330.7	1,373.4	1,502.2	1,393.3
- Mutton	28.2	28.5	31.9	16.0	12.1	11.2	11.1
- Horse meat	21.3	17.9	13.9	3.3	3.6	3.0	3.4
- Poultry	449.9	423.1	476.1	259.1	316.0	343.8	410.2
- Eggs	606.4	619.9	622.4	211.4	295.9	241.5	241.9
- Wool	0.4	0.5	0.2	0.5	0.6	0.4	0.4
- Exports of animals	2.5	2.2	1.6	2.3	1.4	1.4	1.4
Total	**13,519.6**	**13,175.0**	**13,476.4**	**7,892.1**	**7,948.6**	**8,185.7**	**8,039.5**
Gross return at market prices	**18,668.4**	**17,536.0**	**18,668.4**	**9,704.3**	**10,174.9**	**10,534.9**	**9,999.8**
STOCK COMPENSATION	**0.0**	**0.0**	**0.0**	**2,281.8**	**0.0**	**0.0**	**0.0**
COMPENSATIONS FOR CROP DAMAGES	**15.0**	**133.0**	**7.9**	**11.9**	**34.0**	**7.0**	**20.0**
INCOME FROM RENTS							
- Means of production	460.4	345.4	255.2	204.5	210.3	195.5	192.6
- Buildings and land	180.7	169.8	163.9	160.8	161.8	164.3	161.8
Total	**641.1**	**515.2**	**419.1**	**365.4**	**372.1**	**359.8**	**354.4**
SUBSIDIES							
- CAP-subsidy for field crops	0.0	0.0	0.0	1,153.7	1,361.9	1,364.7	1,347.0
- CAP-subsidy for livestock	0.0	0.0	0.0	98.3	280.3	235.6	234.7
- LFA	0.0	0.0	0.0	1,614.8	1,604.0	1,604.6	1,640.6
- Environmental subsidies	0.0	0.0	0.0	1,365.3	1,526.3	1,580.0	1,583.3
- Subsidy for animal units (nordic subsidy)	0.0	0.0	0.0	80.1	87.6	193.7	313.0
- Subsidy for animal units (subs. of tr.per.)	0.0	0.0	0.0	282.5	256.8	227.6	177.1
- Subs. for animals slaught. (- " -)	0.0	0.0	0.0	0.0	936.5	772.2	585.4
- Other national subsidies for animals	0.0	0.0	0.0	259.9	219.5	183.9	168.6
- Subsidy for field area (subs. of tr.period)	0.0	0.0	0.0	0.0	299.6	213.2	145.7
- Other national subsidies for field areas	0.0	0.0	0.0	0.9	473.6	408.4	559.9
- Production subsidies							
- milk	737.6	763.6	758.3	1,825.6	1,579.1	1,501.1	1,321.9
- cattle meat	606.9	609.3	640.7	616.1	4.6	0.0	0.0
- pork	6.5	6.7	6.1	410.4	3.1	0.0	0.0
- sheep meat	12.8	14.2	17.0	20.0	0.1	0.0	0.0
- poultry meat	0.0	0.0	0.0	88.4	0.7	0.0	0.0
- eggs	200.5	187.5	177.1	162.1	7.5	0.0	0.0

[1)] Exchange rates: FIM 1 = EUR 0.168 = USD 0.195 (Jan. -99 average) = SEK 1.53 (Jan. -99 average).

	1992	1993	1994	1995	1996	1997	1998[e]
- wool	2.7	3.1	4.2	0.0	0.0	0.0	0.0
- rye	0.0	0.0	0.0	0.0	9.4	17.2	8.6
- wheat	0.0	0.0	0.0	0.0	77.7	106.2	50.8
- barley (malt)	0.0	0.0	0.0	0.0	43.8	38.7	20.8
- sugar beet	11.1	6.7	5.1	7.1	52.3	40.8	35.4
- potatoes (starch)	8.0	8.6	8.1	0.0	7.5	7.7	4.7
- pulse	0.0	0.0	0.0	0.0	1.1	0.0	0.0
- Subsidies granted before 1995	3,202.9	2,679.0	2,479.2	18.2	0.0	0.0	0.0
Subsidy paid by the common measures of the EU	0.0	0.0	0.0	4,232.1	4,772.6	4,784.8	4,805.6
National subsidies	4,788.9	4,278.7	4,095.9	3,771.2	4,060.6	3,710.6	3,391.9
Total subsidies	**4,788.9**	**4,278.7**	**4,095.9**	**8,003.4**	**8,833.2**	**8,495.4**	**8,197.5**
GROSS RETURN TOTAL	**24,113.4**	**22,462.9**	**23,191.3**	**20,366.8**	**19,414.1**	**19,397.1**	**18,571.7**
COSTS							
- Fertilizers	1,495.9	1,633.1	1,483.0	1,108.1	1,115.9	993.6	1,020.0
- Lime	156.6	264.0	275.7	215.4	251.6	260.0	233.6
- Feed concentrates							
- mixture	2,655.5	2,584.0	2,722.3	1,927.7	1,988.8	2,092.0	2,142.5
- other	42.0	39.3	52.5	55.4	55.4	57.1	76.7
- Feed conserving chemicals	137.6	115.2	161.9	117.3	119.8	121.2	136.3
- Plant protection products	271.0	270.0	264.2	225.7	212.3	240.4	242.0
- Purchased seeds	260.5	303.5	336.7	258.7	172.7	225.3	210.3
- Fuel and lubricants	651.5	699.3	560.8	500.4	551.0	599.1	526.2
- Electricity	434.3	462.9	454.0	377.0	418.0	432.5	434.7
- Agricultural firewood and timber	67.7	60.9	61.1	60.3	58.8	59.5	60.0
- Delivery of calves and pigs	55.4	52.7	53.4	46.6	51.5	53.4	52.1
- Overhead costs	1,564.2	1,610.6	1,673.9	1,491.3	1,459.2	1,419.4	1,401.9
- Hired labor costs							
- wages	389.0	350.6	352.0	347.8	434.4	441.9	462.6
- social expenses	246.9	247.4	239.2	228.7	276.5	285.4	327.3
- Machinery and equipment expenses							
- depreciations	2,630.1	2,539.2	2,345.5	2,177.0	2,073.1	2,017.0	1,973.8
- maintenance	927.7	863.0	703.9	714.4	749.5	783.0	791.4
- Equipment	157.1	167.3	167.7	137.8	201.0	200.8	203.1
- Building expenses							
- depreciations	1,236.1	1,223.5	1,241.9	1,228.9	1,223.5	1,296.2	1,317.3
- maintenance	295.2	235.9	201.4	197.0	207.0	224.8	227.5
- Ditches, bridges, etc.							
- depreciations	498.5	408.9	374.1	408.7	400.4	407.2	398.5
- maintenance	161.2	140.4	108.2	97.0	100.0	106.0	108.5
- Interest payment	1,653.6	1,586.3	1,151.4	977.5	907.0	726.0	691.0
- Imports of animals	5.7	3.1	4.2	1.6	2.2	2.2	2.2
- Rent expenses							
- means of production	289.4	283.7	179.1	168.0	207.0	178.6	175.9
- buildings and land	324.8	336.2	340.3	399.2	413.1	419.5	413.0
- Farmers' share of cost from							
- accident insurance payment	42.9	40.0	61.3	55.7	63.0	63.0	63.3
- outside help	25.0	36.7	46.2	40.0	56.0	58.4	59.0
- day-off scheme	17.0	12.6	11.2	14.8	14.0	13.2	14.0
TOTAL COSTS	**16,692.2**	**16,570.3**	**15,627.1**	**13,577.9**	**13,782.7**	**13,776.7**	**13,764.5**
FARM INCOME	**7,421.1**	**5,892.6**	**7,564.2**	**6,788.9**	**5,631.5**	**5,620.5**	**4,807.2**

Gross return of horticulture at current prices, FIM mill.

	1992	1993	1994	1995	1996	1997	1998[e]
FIELD PRODUCTION							
- Vegetables	360.0	370.0	455.0	320.0	350.0	363.0	379.0
- Berries and fruits	267.0	191.0	238.0	217.0	246.0	178.0	157.0
- Others	113.0	113.0	112.0	116.0	111.0	107.0	107.0
Total	**740.0**	**674.0**	**805.0**	**653.0**	**707.0**	**648.0**	**643.0**
GREENHOUSE PRODUCTION							
- Ornamental plants	720.0	630.0	743.0	570.0	550.0	538.0	541.0
- Vegetables	590.0	730.0	650.0	470.0	546.0	511.0	511.0
Total	**1,310.0**	**1,360.0**	**1,393.0**	**1,040.0**	**1,096.0**	**1,049.0**	**1,052.0**
Grorr return at market prices	**2,050.0**	**2,034.0**	**2,198.0**	**1,693.0**	**1,803.0**	**1,697.0**	**1,695.0**
SUBSIDIES							
- Subsidies for greenhouses	0.0	0.0	0.0	244.2	358.6	238.4	202.9
- Subsidies for field production	0.0	0.0	0.0	0.0	55.5	47.8	34.6
- Other subsidies	0.0	0.0	0.0	45.9	64.8	64.7	64.6
Total	**0.0**	**0.0**	**0.0**	**290.1**	**478.9**	**350.9**	**302.1**
GROSS RETURN TOTAL	**2,050.0**	**2,034.0**	**2,198.0**	**1,983.1**	**2,281.9**	**2,047.9**	**1,997.1**
COSTS							
- Fertilizers, lime	42.0	42.0	44.0	40.0	40.0	39.3	37.0
- Plant protection products	35.0	37.0	37.0	28.0	27.0	25.2	25.0
- Seeds, seedlings, plants	80.2	80.0	80.2	80.2	80.2	80.2	80.0
- Other material	180.0	180.0	180.0	180.0	184.6	189.3	189.0
- Hired labor costs	271.0	296.0	309.0	324.0	346.0	359.7	381.0
- Fuel and lubricants	84.0	102.0	93.0	68.0	78.0	85.2	75.0
- Electricity	75.0	87.0	91.0	81.0	94.0	103.2	109.0
- Interests paid	111.0	108.0	106.0	104.0	101.0	88.0	85.0
- Depreciation of machinery	89.9	93.0	100.4	107.8	113.0	116.0	115.0
- Depreciation of buildings	116.2	117.4	115.7	116.9	117.4	111.0	110.0
- Depreciation of bridges, ditches, etc.	7.2	8.7	9.5	8.7	8.9	9.0	9.0
- Other costs	292.2	294.6	296.9	299.3	301.7	304.0	304.0
TOTAL COSTS	**1,383.7**	**1,445.7**	**1,462.7**	**1,437.9**	**1,491.8**	**1,510.1**	**1,519.0**
HORTICULTURAL INCOME	**666.3**	**588.3**	**735.3**	**545.2**	**790.1**	**537.8**	**478.1**

Total calculation of agriculture (incl. horticulture) at current prices, FIM mill.

RETURN ON AGRICULTURE	24,113.4	22,462.9	23,191.3	20,366.8	19,414.1	19,397.1	18,571.7
RETURN ON HORTICULTURE	2,050.0	2,034.0	2,198.0	1,983.1	2,281.9	2,047.9	1,997.1
RETURN, TOTAL	**26,163.4**	**24,496.9**	**25,389.3**	**22,349.9**	**21,696.0**	**21,445.0**	**20,568.8**
COSTS OF AGRICULTURE	16,692.2	16,570.3	15,627.1	13,577.9	13,782.7	13,776.7	13,764.5
COSTS OF HORTICULTURE	1,383.7	1,445.7	1,462.7	1437.9	1,491.8	1,510.1	1,519.0
COSTS, TOTAL	**18,075.9**	**18,016.0**	**17,089.8**	**15,015.8**	**15,274.5**	**15,286.8**	**15,283.5**
AGRICULTURAL INCOME	**8,087.5**	**6,480.9**	**8,299.5**	**7,334.1**	**6,421.5**	**6,158.2**	**5,285.3**

Agricultural aid*).

AID FINANCED COMPLETELY OR PARTLY BY THE EU IN 1998
FIM/ha or FIM/LU

Aid area	A	B	C1	C2	C2 North.	C3	C4
CAP ARABLE AREA PAYMENT							
General scheme							
Cereals	1,114	917	917	753	753	753	753
Oil seed plants	1,637	1,637	1,637	1,637	1,637	1,637	1,637
Seed flax	2,154	1,774	1,774	1,457	1,457	1,457	1,457
Protein crops	1,609	1,325	1,325	1,088	1,088	1,088	1,088
Set-aside	1,411	1,162	1,162	954	954	954	954
Simplified scheme							
Cereals, oil seed plants, protein crops and seed flax	1,114	917	917	753	753	753	753
Average regional cereal yield, tn/ha	3.4	2.8	2.8	2.3	2.3	2.3	2.3
Av. regional oil seed plants yield, tn/ha	1.59	1.59	1.59	1.59	1.59	1.59	1.59
Mandatory set-aside, lower limit ha	27.1	32.9	32.9	40.0	40.0	40.0	40.0
CAP SUPPORT							
Special beef premium	814	814	814	814	814	814	814
extensification premium							
– 1-1.4 LU/ha	217	217	217	217	217	217	217
– <1 LU/ha	313	313	313	313	313	313	313
Suckler cow premium	1,054	1,054	1,054	1,054	1,054	1,054	1,054
extensification premium							
– 1-1.4 LU/ha	217	217	217	217	217	217	217
– <1 LU/ha	313	313	313	313	313	313	313
Annual ewe premium	136	176	176	176	176	176	176
LFA AID							
B- and C-areas FIM 967/LU							
ENVIRONMENTAL AID							
Cereals, oilseed plants, protein crops, starch potatoes	1,053	597	400	253	253	253	253
Grass and other crops	1,727	850	850	850	850	850	850
Perennial plants	4,409	4,409	4,409	4,409	4,409	4,409	4,409
Vegetables (field production)	1,727	1,727	1,727	1,727	1,727	1,727	1,727
Set-aside, perennial green fallow	597	400	0	0	0	0	0

**)This appendix includes only the main agricultural products and therefore the list of various support measures is not complete.*

	Unit	1996 FIM/unit	1997 FIM/unit	1998 FIM/unit	1999 FIM/unit
NATIONAL AID FOR AGRICULTURE AND HORTICULTURE					
A. TRANSITIONAL AID					
Production aid for animal husbandry					
A- and B-areas excl. Archipelago					
Milk	FIM/kg	0.52	0.45	0.42	0.39
Male bovines ≥15 months	FIM/slaughtered animal	1,787	1,609	1,447	1,304
- " -, beef races and crossings	- " -	2,184	1,966	1,768	1,593
Heifers ≥12 months, male bovines 11-14 months	- " -	1,024	922	830	746
Dairy cows	- " -	138	124	112	101
Ewes	- " -	226	203	183	164
Pigs	- " -	210	192	169	158.50
Broilers	FIM/100 slaughtered animals	240	213	169	133
Laying hens	FIM/animal	32	26	23	23
C-area excl. Archipelago					
Milk	FIM/kg	0.52	0.33	0.21	0.10
Male bovines ≥15 months	FIM/slaughtered animal	1,787	1,279	793	510
- " -, beef races and crossings	- " -	2,184	1,564	970	623
Heifers ≥12 months, male bovines 11-14 months	- " -	1,024	648	388	178
Dairy cows	- " -	138	46	0	-
Ewes	- " -	226	162	107	51
Pigs	- " -	210	163	104	56
Broilers	FIM/100 slaughtered animals	240	179	125	56
Laying hens	FIM/animal	32	21	14	8
Archipelago, A- and B-areas					
Milk	FIM/kg	0.62	0.55	0.52	0.47
Male bovines ≥15 months	FIM/slaughtered animal	2,864	2,578	2,319	2,087
- " -, beef races and crossings	- " -	3,501	3,151	2,834	2,550
Heifers ≥12 months, male bovines 11-14 months	- " -	1,730	1,558	1,402	1,262
Dairy cows	- " -	138	124	0	0
Ewes	- " -	349	314	282	254
Pigs	- " -	246	215	180	170
Laying hens	FIM/animal	40	31	27	26
Archipelago, C-areas					
Milk	FIM/kg	0.62	0.44	0.27	0.11
Male bovines ≥15 months	FIM/slaughtered animal	2,864	2,357	1,063	510
- " -, beef races and crossings	- " -	3,501	2,880	1,300	623
Heifers ≥12 months, male bovines 11-14 months	- " -	1,730	1,354	700	178
Dairy cows	- " -	138	46	0	0
Ewes	- " -	349	278	169	90
Pigs	- " -	246	200	124	56
Laying hens	FIM/animal	40	26	18	8
Production aid for arable crops					
Starch potatoes	FIM/kg	0.027	0.018	0.013	0.005
Malting barley	FIM/kg	0.16	0.11	0.09	0.05
Wheat	FIM/kg	0.23	0.18	0.13	0.07
Rye	FIM/kg	0.25	0.19	0.13	0.07
Sugar beet	FIM/kg	0.046	0.032	0.024	0.012
Transitional aid per hectare					
Pea (for human consumption)	FIM/ha	600	415	310	156
Hectarage support for other crops excl. set-aside and pea (for human consumption)	FIM/ha	190	125	80	0
Aid for horticultural products grown in the open (max.)					
Apples	FIM/ha	2,750	1,970	1,480	790

	Unit	1996 FIM/unit	1997 FIM/unit	1998 FIM/unit	1999 FIM/unit
Vegetables, excl. onion, A	FIM/ha	4,800	3,450	2,410	1,200
Vegetables, excl. onion, B	FIM/ha	4,100	3,000	2,155	1,100
Vegetables, excl. onion, C	FIM/ha	4,100	2,600	1,835	800
Berries, A	FIM/ha	2,750	1,950	1,480	790
Berries, B and C	FIM/ha	1,900	1,350	1,000	500
Aid for young farmers, A- and B-areas	FIM/ha	200	150	100	50
Storage aid for horticultural products, AB-areas (max.)					
Storage with heating systems	FIM/m^3	114	108	100	93
Other storages	FIM/m^3	76	72	67	62
Aid for horticultural products, A- and B-areas (max.)					
>7 months	FIM/m^2	100	72	65	61
2-7 months	FIM/m^2	50	36	33	31
Aid for horticultural products C-area (max.)					
>7 months	FIM/m^2	100	72	43	20
2-7 months	FIM/m^2	50	36	22	10
Transitional aid per headage or per livestock unit					
A- and B-areas					
Aid for animal husbandry, suckler cows	FIM/animal	570	540	486	437
- " -, sows	FIM/animal	1,540	1,380	1,214	1,140
- " -, hatching broiler	FIM/animal	58	52	45,8	41.80
- " -, hatching turkey and other hatching poultry	FIM/animal	85	75	60.2	47.30
- " -, goats incl. aid for milk	FIM/animal	1,500	1,386	1,275	1,142
Additional aids, Archipelago and some local authorites					
Cattle and ewes	FIM/LU	1,615	1,530	1,377	1,239
Dairy cows, area [1]	FIM/LU	380	360	324	292
Hartola, Mäntyharju	FIM/LU	285	270	243	219
Male bovines, area [1]	FIM/LU	315	297	267	241
area [2]	FIM/LU	95	90	81	73
Ewes, Hartola, Mäntyharju, area [1] and area [2]	FIM/LU	650	585	527	474
Aid for animal husbandry, chickens	FIM/animal	2.46	1.50	1.0	-
- " -, horses	FIM/LU	2,900	2,250	1,800	1,650
C-areas					
Aid for animal husbandry, suckler cows	FIM/animal	570	450	350	200
- " -, sows	FIM/animal	1,540	1,132	625	207
- " -, hatching broiler	FIM/animal	58	42	30.6	15.30
- " -, hatching turkey and other hatching poultry	FIM/animal	85	65	45	20.90
- " -, goats incl. aid for milk	FIM/animal	1,500	1,157	821	485
- " -, chickens	FIM/animal	2.46	1.10	1.00	-
- " -, horses	FIM/LU	2,900	2,250	1,800	1,000
B. NORTHERN AID					
Aid per livestock unit					
Aid for animal husbandry, suckler cows					
C1	FIM/LU	100	495	680	850
C2	FIM/LU	150	540	730	900
C2 North.	FIM/LU	600	945	1,180	1,350
C3	FIM/LU	1,050	1,395	1,630	1,800
C4	FIM/LU	2,150	2,495	2,720	2,900

[1] *area = Ikaalinen, Jämijärvi, Kankaanpää, Pomarkku.*
[2] *area = Kiikoinen, Kullaa, Lavia, Mouhijärvi, Noormarkku, Pori, Suodenniemi, Juupajoki, Längelmäki, Kuhmalahti, Jämsä, Kuhmoinen, Hartola, Mäntyharju.*

	Unit	1996 FIM/unit	1997 FIM/unit	1998 FIM/unit	1999 FIM/unit
Aid for animal husbandry, male bovines >6 months					
C1	FIM/LU	650	1,100	1,550	2,000
C2	FIM/LU	700	1,150	1,600	2,050
C2 North.	FIM/LU	1,150	1,600	2,050	2,500
C3	FIM/LU	1,600	2,050	2,500	2,950
C4	FIM/LU	2,700	3,150	3,600	4,050
Aid for animal husbandry, ewes and goats					
C1	FIM/LU	650	1,100	1,550	2,000
C2	FIM/LU	700	1,150	1,600	2,050
C2 North.	FIM/LU	1,150	1,600	2,050	2,500
C3P1-P2	FIM/LU	3,100	3,350	4,000	4,450
C3P3-P4	FIM/LU	3,700	4,150	4,600	5,050
C4P4	FIM/LU	4,800	5,250	5,700	6,150
C4P5	FIM/LU	6,400	6,850	7,300	7,750
Aid for animal husbandry, pigs					
C1	FIM/LU	0	355	841	1,346
C2	FIM/LU	0	370	862	1,366
C2 North.	FIM/LU	590	920	1,382	1,886
C3	FIM/LU	590	920	1,382	1,886
C4	FIM/LU	900	1,240	1,812	2,316
Aid for animal husbandry, poultry (max.)					
C1	FIM/LU	0	385	693	1,154
C2	FIM/LU	0	397	720	1,180
C2 North.	FIM/LU	590	952	1,240	1,700
C3	FIM/LU	900	1,272	1,650	2,110
C4	FIM/LU	2,400	2,672	2,850	3,310
Northern aid paid for slaughtered animals					
Male bovines					
P1-P2	FIM/animal	780	780	780	780
P3-P4	FIM/animal	1,080	1,080	1,080	1,080
P5	FIM/animal	1,980	1,980	1,980	1,980
Heifers					
C1	FIM/animal	460	730	1,080	1,206
C2	FIM/animal	470	740	1,100	1,226
C2 North.	FIM/animal	780	1,050	1,400	1,526
C3	FIM/animal	1,060	1,310	1,650	1,776
C4	FIM/animal	1,640	1,840	2,160	2,286
Northern production aid for milk					
C1	FIM/kg	0.16	0.26	0.32	0.41
C2	FIM/kg	0.17	0.28	0.35	0.44
C2 North.	FIM/kg	0.28	0.37	0.44	0.52
C3P1	FIM/kg	0.46	0.54	0.61	0.69
C3P2	FIM/kg	0.56	0.64	0.71	0.79
C3P3-P4	FIM/kg	0.71	0.79	0.86	0.94
C4P4	FIM/kg	0.98	1.06	1.13	1.21
C4P5	FIM/kg	1.50	1.58	1.65	1.74
Northern aid per hectare C1-, C2- and C2North. and Archipelago					
Wheat	FIM/ha	0	200	400	550
Rye	FIM/ha	0	200	400	600
Malting barley	FIM/ha	0	70	210	275

	Unit	1996 FIM/unit	1997 FIM/unit	1998 FIM/unit	1999 FIM/unit
Hectarage support for other crops excl. wheat rye, malting barley, feed grains and set-aside	FIM/ha	0	70	210	225
Sugar beet	FIM/ha	500	785	990	1,150
Starch potatoes	FIM/ha	400	495	550	600
Vegetables grown in the open (also C3 and C4)	FIM/ha	0	845	1,110	1,800
Apples	FIM/ha	0	205	360	550
General aid per hectare C2-C4					
C2, C2 North. and Archipelago	FIM/ha	200	200	160	160
C3	FIM/ha	400	360	320	285
C4	FIM/ha	800	720	630	595
Hectarage aid for young farmers C1-C4	FIM/ha	200	180	160	160
Aid for greenhouse products, C-areas (max.)					
>7 months	FIM/m^2	0	0	22	41
2-7 months	FIM/m^2	0	0	11	21
Northern storage aid for horticulture products (max.)					
Storages with heating systems	FIM/m^3	120	108	100	93
Other storages	FIM/m^3	80	72	67	62
C. NATIONAL AID FOR CROP PRODUCTION					
A-area incl. Archipelago in A- and B-areas					
Rye	FIM/ha	0	260	900	1,050
Wheat	FIM/ha	0	260	420	594
Malting barley	FIM/ha	0	110	200	340
Hectarage support for other crops excl. wheat rye, malting barley, feed grains and set-aside	FIM/ha	0	110	200	250
Starch potatoes	FIM/ha	0	135	240	400
Sugar beet	FIM/ha	0	270	475	750
Vegetables grown in the open	FIM/ha	0	900	1,340	2,200
Apples	FIM/ha	0	205	360	550
B-area					
Rye	FIM/ha	0	200	800	850
Wheat	FIM/ha	0	200	340	514
Malting barley	FIM/ha	0	70	120	75
Hectarage support for other crops excl. wheat rye, malting barley, feed grains and set-aside	FIM/ha	0	70	120	75
Starch potatoes	FIM/ha	0	135	240	300
Sugar beet	FIM/ha	0	270	475	750
Vegetables grown in the open (incl. Archipelago)	FIM/ha	0	450	790	1,500
Apples	FIM/ha	0	205	360	550
Other national aid for arable crops					
A-, B- and C-areas, grass	FIM/ha	0	330	460	550
Archipelago in A- and B-areas, grass	FIM/ha	0	330	460	900
C1-area, feed grain	FIM/ha	0	70	210	185
C2- and C2 North-areas, feed grain	FIM/ha	0	70	290	300
C3-area, feed grain	FIM/ha	0	0	0	250
C1-, C2- and C2 North-areas, rye	FIM/ha	0	0	400	400

Aid during the transitional period:
Conversion factors with which the average number of animals is multiplated:

	LU		LU
Dairy cows	1	Horses >6 months	
Suckler cows	1	Mares for breeding, incl. ponies	1
Other bovines >2 years	1	Finnish horses	0.85
Other bovines 0.5-2 years	0.6	Other horses and ponies, 1-3 years	0.6
Ewes, goats	0.15		

Nordic aid:
Conversion factors with which the average number of animals is multiplied:

Dairy cows	1	Laying hens	0.013
Suckler cows	1	Broilers	0.0053
Male bovines >2 years	1	Hatching broilers and other poultry	0.026
Male bovines, other bovines 0.5-2 years	0.6	Horses >6 months	
Ewes, goats	0.15	Mares for breeding, incl. ponies	1
Sows, boars	0.7	Finnish horses	0.85
Pigs >3 months	0.23	Other horses and ponies, 1-3 years	0.6
13 slaughtered pigs[1)]	1		

LU = livestock unit
[1)] since 1999

The local authorities in different areas:

P1 = County of Oulu: Haukipudas, Kiiminki, Oulu, Utajärvi, Ylikiiminki, Parts of Oulunsalo.
P2 = County of Lapland: Kemi, Keminmaa, Simo, Tervola, Tornio.
County of Oulu: Hailuoto, Hyrynsalmi, Ii, Kuhmo, Kuivaniemi, Yli-Ii
P3 = County of Lapland: Kemijärvi, Pello, Ranua, Rovaniemen mlk, Rovaniemi, Ylitornio.
County of Oulu: Pudasjärvi, Puolanka, Suomussalmi, Taivalkoski
P4 = C3: County of Lapland: Posio, County of Oulu: Kuusamo.
C4: County of Lapland: Kolari, Pelkosenniemi, Salla, Savukoski; Parts of Kittilä and Sodankylä.
P5 = County of Lapland: Muonio, Enontekiö, Inari, Utsjoki; Parts of Sodankylä and Kittilä.
Archipelago: Parts of areas C1 and C2.

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