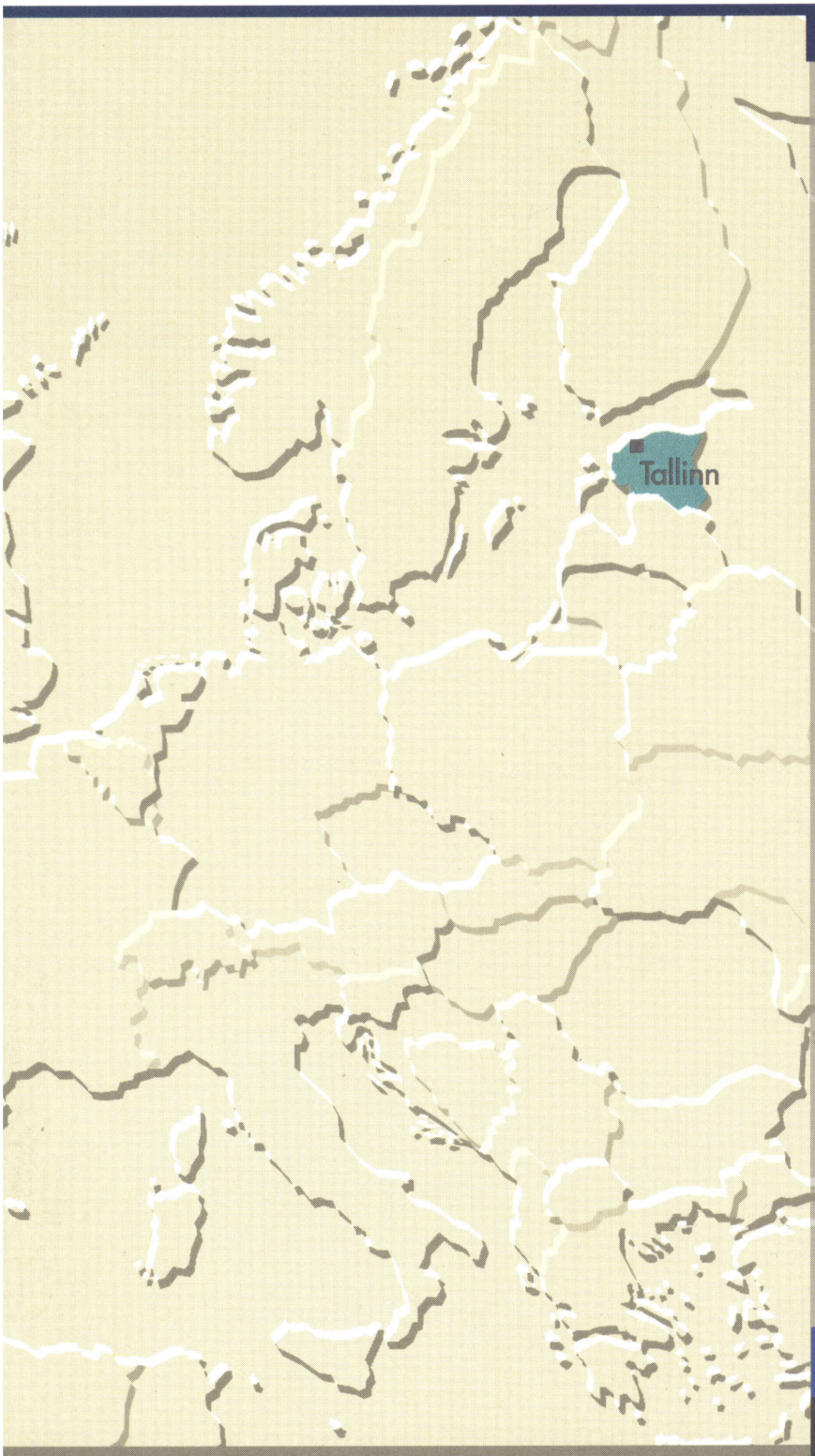
European Union
Agriculture and rural development

# Agricultural Situation and Prospects




## in the Central and Eastern European Countries

# Estonia

Working Document
May 1998

European Commission
Directorate General for Agriculture (DG VI)

# Estonia

# Agricultural Situation and Prospects in the Central and Eastern European Countries

## Working Document

This Report has been prepared by DG VI in close collaboration with Mati Sepp, Estonian Institute of Agrarian Economics, and Christian Boese and Barbara Pohl, ASA Institut für Sektoranalyse und Politikberatung GmbH. Assistance was given by DG II, DG IA, EUROSTAT and TAIEX.

The manuscript was prepared by Heikki Laurinen and Martin Scheele. The authors accept full responsibility for any errors, which could still remain in the text.

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A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server (http://europa.eu.int).

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# Introduction

In 1995 DG VI published a series of ten country reports and a summary report on the agricultural situation and prospects in the associated countries of Central and Eastern Europe (CEECs). The reports provided an analysis of the transition agriculture and the agro-food sector in these countries were going through in the first half of the nineties and an assessment of the outlook for the main agricultural commodity markets till the year 2000.

With three years more of information the current publications, which cover Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia, provide an update of the 1995 reports and take the outlook horizon till 2003. The underlying working hypothesis for the reports is that the first CEECs will join the Union and will start to be integrated in to the single market and the Common Agricultural Policy after 2003.

The accession process was officially launched on 30 March 1998 with the submission to the applicant countries of the Accession Partnerships, which for each country set out the principles, priorities, intermediate objectives and conditions leading up to accession. A main priority is adoption of the "acquis", the body of Community legislation, including for agriculture the sensitive areas of veterinary and phytosanitary legislation.

As was the case in 1995 the individual country reports have been prepared by the services of the Commission in close collaboration with national experts of the countries concerned and with the help of scientific advisers.

The country reports and the summary report attempt to provide an objective analysis of the current situation in agriculture and the agro-food sector and an assessment of where the candidate countries can be expected to be in their agricultural development by the time of the next enlargement.

# About the data...

The data used in the country reports are derived from a CEEC dataset established by DG VI in cooperation with other services of the European Commission and with external experts. Data originate from various sources, mainly national statistics and economics institutes, FAO, OECD, and the European Commission (DG II, Eurostat).

For agriculture in general the FAO data were used, but for certain countries and/or for certain products, and in particular for the most recent years, the figures were adjusted or replaced by data from other sources, after discussion with country specialists. For the commodity supply balance sheets a simpler approach than by the FAO was used, taking into account trade in agricultural commodities up to the first processing stage, but not in further processed products.

The main objective was to obtain a dataset which was as coherent as possible, offering a good comparability of data.

Despite all efforts to create a coherent, reliable and up to date dataset, all figures presented in the country reports should be interpreted with care. Significant changes in data collection and processing methods have sometimes led to major breaks in historical series as the countries concerned have moved from centrally planned to market economies. One general impression is that these problems may have led to overestimate the decline in economic activity in general and of agricultural production in particular in the first years of transition, data from 1989 and before being somewhat inflated and data after 1989 underrecording the increase in private sector activity. More recently many CEECs have undertaken serious efforts to start to harmonise data collection and processing methods with EU practices.

With three more years of data and experience the original 1995 dataset has been improved and further adapted to DG VI's analytical needs.

# Executive Summary

## General economic situation

The transition of the Estonian economy from a central planning to a market economy resulted in a significant decrease in GDP. 1995 was the first year of resuming growth with a rate of 4.3% in real terms. The preliminary figures for the first two quarters of 1997 show a growth of 11.7% as compared to the same period in 1996.

Inflation has decreased remarkably since the beginning of independence. Whereas in 1993, consumer prices increased by 89.8%, inflation slowed down in 1996 to 23%. In March 1997, the annual inflation rate was 9.1%, the lowest level since 1991.

Unemployment was estimated at 10.5% of the total labour force in the second quarter of 1997. Major job losses occurred in manufacturing, construction and agriculture. Employment is increasing especially in the service sector.

Estonia remained a net-importer after independence. The foreign trade balance is deteriorating rapidly, due to a rapid economic growth. In 1997, the deficit boosted to 20 917 million EEK (52% of exports). The total balance of payments continued to be positive due to a remarkable foreign direct investment and tourism.

## Agriculture in the national economy

Agriculture has traditionally been one of the most important sectors in the Estonian economy. Before independence, the primary sector employed 20% of the labour force. In 1996, agriculture accounted for 5.5% of Estonian GDP; employment went down to 8.1% of the labour force.

Agricultural trade has traditionally been an important element of Estonian foreign trade. Despite decreased volumes, food exports remain the second biggest group of exports after clothing, footwear and headgear. In 1997, agricultural exports accounted for 16.3% of total exports. The share of agricultural imports was 16.5%.

The trade balance for food products has been negative since 1995. The trade deficit increased threefold in 1996 to 2 054 million EEK and further to 3 529 million EEK in 1997. Transit trade is important, and re-exports accounted for 23% of total food exports.

The former Soviet Union has traditionally been the most important export destination accounting for 59% of Estonian food and beverage exports. Exports to the EU accounted for 20% of total agricultural exports in 1996.

## Land use and farm structures

The Estonian agricultural area is 1.450 million hectares, which represents one third of the whole territory. 45% of the whole territory is covered by forests. Arable land covers 1.128 million hectares.

The percentage of unused arable land is stabilising at around 20% of the total arable land. 0.310 million hectares are permanent pastures and the remaining 0.015 million hectares are used for permanent crops i.e. fruit and berries. Comparatively low soil quality and a short growing season lead to relatively low crop yields.

A key issue in the structural development of the farm sector has been the privatisation of land. The privatisation process is based on the restitution of land to previous owners or their heirs. The whole privatisation process proved to be very time consuming. After

more than five years of land privatisation, preliminary results indicate that only one fourth of the land will finally be restituted.

In January 1997, the Estonian agricultural sector accounted for 898 farm enterprises with an average size of 450 hectares, 22 722 private family farms with an average size of 22 hectares, and 45 000 household plots with an average size of 4 hectares.

The share of farm enterprises in the cereal production dropped to 46% by 1997 (from 75% in 1992). By then, family farms accounted already for 51% of cereal production. Agricultural enterprises remain important in animal production with a production share 57% of all milk, 70% of pork, 48% of beef, and 64% of eggs. The production of household plots is most significant in animal production. In 1996, they produced 28% of milk, 41% of beef, 23% of pork, and 33% of eggs.

The profitability of agricultural enterprises per annual working unit reached only 60% of the level of private family farms.

## Agricultural production

By 1996, gross agricultural output declined by 27.6% as compared to the level of 1992. The decrease in livestock production (-36.9%) was more significant than in crop production (-14.2%).

In 1996, the area used for cereals fell close to 0.300 million hectares, a reduction of roughly one quarter as compared to the pre-independence period. In 1997, the cereals area increased again to 0.325 million hectares, mainly caused by a doubling of producer prices.

The area planted by fodder crops dropped to 0.481 million hectares, a reduction of 27% as compared to the level of 1990. More than 95% of the area is sown with perennial grass for silage and hay. Fodder roots are of minor importance, accounting in 1997 for only 0.007 million hectares. Green grain was 0.004 million hectares in 1997.

In 1997, the area used for potatoes was 0.035 million hectares, which represents a decrease of 29% as compared to the 1990 level. Foreign trade in potatoes is not important.

Spring and winter rapes are the most common oilseeds in Estonia. Due to increased export possibilities, the cultivation of oilseeds has increased rapidly since 1990. However, climatic conditions and weather uncertainty are limiting factors, resulting in yields lower than 2 tonnes/ha. In 1996, the rape seed area was 8.6 thousand hectares providing a yield of 10 thousand tonnes.

The production of vegetables is concentrated on private farms (50%) and household plots (41%). It is used largely for direct consumption by farm households. In 1996, the most important plants in open field production were cabbages (44%), carrots (17%) and red beet (13%).

Before independence, Estonia was an intensive animal producer. A significant share of production, based partly on imported low-priced grain, was dedicated to Russia. Pig, poultry, sheep and goat numbers decreased by about two thirds between 1988 and 1998. While the period of decline appears to be over, meat production has not yet reached a path of sustainable recovery.

The milk sector shows a certain stabilisation, being the only sector where self-sufficiency has been maintained. The direct support measures for milk will also help, from 1998 onwards, to stimulate production.

## Agricultural trade

Before independence, cereals imports were equivalent to more than half the domestic cereals production, since animal production was based largely on imported low-priced grain. As meat and milk production decreased dramatically, the need for imported grain decreased. In 1993 imports dropped to less than 10% of domestic production. By 1996, imports increased again to 246 thousand tonnes, as the decrease in animal production slowed down. Grain exports have been limited to less than 20 thousand tonnes, mainly barley and wheat. In 1997, imports declined due to the good harvest of 1996.

Imports of milk and meat products increased significantly since 1996. However, Estonia is still self-sufficient in dairy products. The self-sufficiency rate in 1996 was for milk approximately 134%, for butter 180%, for cheese 175% and for skim milk powder 333%. In 1996, milk and dairy products accounted for 29% of the agricultural exports.

## Up- and downstream sectors

Despite the decline in production, the food industry is still the main branch of manufacturing. The food processing industry is divided into fast-developing, exporting enterprises and smaller companies, which operate on the local markets. The food processing industry contributed 35% of gross industrial output in 1995.

Concentration of the industry will also continue in the future. At present, only two milk processing enterprises control 90% of the market.

The privatisation process of up- and downstream facilities advanced faster than the privatisation of land. Privatisation took place by tender, public or restricted auction or public offers for the sale of shares through the stock exchange. Shares in the agricultural enterprises are held either by producers, private shareholders or by foreign investors. Shares of these farm enterprises are quoted on the Tallin stock market, with relatively good success. Since 1996, the whole downstream industry is privatised.

A problem seems to result from the preferential treatment of processing co-operatives in the privatisation of the food processing industry which – given their lack of financial resources, and technical and business skills - seems to have contributed to a lack of a dynamic development of the food industry.

The preferential treatment of processing co-operatives may also explain also the low level of foreign direct investment, compared to other sectors of industry. Foreign direct investment was concentrated mainly in beverages, fruit and vegetable processing, and tobacco.

The up-stream sector provides for a satisfactory supply of machinery and inputs of both domestic and European origin. Estonian products are cheaper, which makes them more popular. Leasing of machinery is common, since farms lack capital and collateral.

## Environmental aspects

In the 1980's, an estimated 76% of the nitrogen load and 20% of the phosphorus load which were leached into water bodies, originated from agriculture. The use of heavy machinery leads to compaction and a poor structure of soils.

Since then, agricultural production has declined and the intensity of agricultural production went down. At the same time, input prices increased rapidly. This led to a decreasing use of fertilisers and pesticides which, on the one side, lead to a lower fertility of soils whereas, on the other, the emission of pollutants was reduced.

In 1996, the area fertilised with mineral fertilisers was only 31%. Manure was used on 10% of the sown area. The intensity of the use of Nitrogen fertiliser was

low with only 19 kg per sown hectare and 62 kg per fertilised hectare.

The use of pesticides declined fivefold, according to national estimates. In 1996, farm enterprises used 0.6 kg/ha of herbicides and 1.0 kg/ha of fungicides. Herbicides were used on 140 000 hectares in 1996.

While the negative influence of agriculture on the environment decreased due to a decline in production, a full recovery of the environment may still take some time. In 1996, out of the tested samples of drinking water, 9.4% did not meet health standards.

## Agricultural policies

Since independence, Estonia has followed a liberal agricultural policy and all border protection measures have been abolished. By 1997, only a limited number of support measures were in effect. The main emphasis was on providing farms with loans at favourable terms. Compensation for fuel excise tax was of a certain importance, as were measures to improve the quality of inputs used. The use of direct support measures to agriculture was limited.

New tools for Estonian agricultural policy are being developed. An examples for this new development is the Rural Credit Guarantee Fund, which provides additional credit guarantees to farmer, and the Capital Grant Scheme supporting selected investments up to 30% of the investment. Estonia is also launching direct income support measures in 1998. Hectare payments shall account for 120 million EEK and support for milk producers will be 70 million EEK. The funds will be allocated only to the most efficient producers.

Although considerable progress can be stated, much work remains to be done in the veterinary field. This includes an approximation of the legislation as well as laboratories facilities and the establishment of a sufficiently equipped official veterinary service, including the effective control of trade at border inspection points.

The approximation of legislation in the field of animal nutrition is in an initial stage. As regards plant protection products and organic farming, legislation is not yet harmonised with EC legislation, but work on the adoption of the legislation has been initiated.

Since September 1997, an Estonian Approximation Strategy concerning environmental legislation has been elaborated. Estonian environmental legislation is being harmonised with that of the EU; the institutional conditions for implementation are being assessed.

## Outlook

The stabilisation and recovery of Estonian agriculture is dependent on general economic growth. In the first half of 1997, Estonia was one of the world's fastest-growing economies, reaching a real growth rate of 11.7%. For 1998 and 1999, a growth rate of 4.7% is expected; a growth rate of 4,5% is forecasted for 2000-2003. Domestic demand is expected to increase, a trend which will also hold for the demand for food products.

The share of food expenditures as a proportion of total household will start to decrease, although at a slow pace.

The overall trade deficit as a share of GDP is expected to decrease with an increasing variety of exported products and improved quality. The same will happen with agricultural trade, although at a slower pace, since changes in agriculture are slower than in the general economy.

The cereal area is expected to increase to 352 thousand hectares by 2003. The fodder crops area starts to increase, following an increase in the number of cattle. The share of idle land is expected to decrease, although parts of it will probably never come back into production.

The number of cattle has not yet reached its lowest level; it will start to increase, at the earliest, by 1999-2000. By 2003, the recovery should pick up to 2.5%. Beef production will remain a by-product of milk production.

The number of pigs is expected to recover by 1999 and reach a rate of 4% for the years 2001-2003. For poultry, an annual increase of 7,5% to 10% should be possible during the period 1998-2003.

The number of sheep and goats will continue to decrease and stabilise from 2000 onwards.

The agricultural economy has not yet reached a path of sustainable recovery. One of the main reasons is the lack of fundamental institutional arrangements: 75% of agricultural land remains in state hands. The uncertainty surrounding land ownership discourages much-needed investment and long-term planning. Farmers still have difficulties obtaining credits. Therefore, land registration and crediting of the farm sector will be key issues in the development of the farm sector.

Another key issue will be the up-grading of product quality in primary production and food processing.

# 1. General overview

## 1.1. The Estonian economy

### 1.1.1. Background

Estonia has an area of 45 230 km² and a population of 1.5 million, which represents respectively 1.4% and 0.4% of the present European Union. Administratively, Estonia is devided into 15 counties, with 254 municipalities. The largest city is the capital, Tallinn, with a population of 435 000. Estonian independence was declared in August 1991. The most recent parliamentary elections were held in March 1995 and the Coalition parties received 41 seats of 101 (Table 1).

Estonia has been an observer of the GATT since 1992, and requested accession in March 1994. Its application to become a member of the WTO is currently being examined. Estonia has 9 different free trade agreements. The free trade agreement with the EU came into force on 1 January 1995. Estonia presented its application for membership of the EU on 24 November 1995.

**Table 1. Main macro-economic indicators**

| | | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p | 1998e |
|---|---|---|---|---|---|---|---|---|
| Population (1.1) | 000 | 1 548 | 1 528 | 1 507 | 1 491 | 1 476 | 1 462 | |
| - of which rural | % | 28.8 | 29.4 | 29.7 | 30.0 | 30.2 | 30.6 | |
| - density | in/km2 | 34.2 | 33.8 | 33.3 | 32.9 | 32.5 | 32.3 | |
| Total area | 000 ha | 4 523 | 4 523 | 4 523 | 4 523 | 4 523 | 4 523 | 4 523 |
| - agricultural land | 000 ha | 1 455 | 1 454 | 1 450 | 1 450 | 1 450 | 1 450 | 1 450 |
| - forestry | 000 ha | 2 016 | 2 022 | 2 017 | 2 016 | 2 016 | 2 016 | 2 016 |
| GDP | | | | | | | | |
| - current prices | M EEK | 13 158 | 22 060 | 30 103 | 41 503 | 52 379 | | |
| | M ECU | | 1 425 | 1 948 | 2 768 | 3 324 | | |
| - change | % | -22.0 | -8.5 | -1.8 | 4.3 | 4.0 | 5.2 | 4.7 |
| - in PPS per capita | ECU | | 3 509 | 3 593 | 3 917 | 4153 | | |
| - share of GDP | % | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | | |
| Agriculture | % | 11.9 | 9.3 | 8.2 | 6.2 | 5.5 | | |
| Fishing | % | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | | |
| Forestry | % | 1.0 | 1.1 | 1.4 | 1.5 | 1.3 | | |
| Industry and constr. | % | 33.0 | 31.1 | 30.5 | 28.7 | 27.6 | | |
| Services | % | 53.5 | 57.9 | 59.3 | 63.2 | 65.1 | | |
| Exchange rate 1 ECU= | ...EEK | | 15.484 | 15.453 | 14.996 | 15.758 | 15.668 | 15.803[1)] |
| Inflation rate | % | 1 077 | 89.8 | 47.7 | 29.0 | 23.1 | 10.8 | 8.5 |
| Short term interest rate | % | 35.2 | 27.3 | 23.1 | 16.0 | 13.7 | | |
| Trade balance | M EEK | 421 | -1 195 | -4 567 | -8 063 | -13 565 | -20 917 | |
| - of GDP | % | 3.2 | -5.4 | -15.2 | -19.4 | -25.9 | -27.8 | -25.4 |
| Budget balance of GDP | % | 1.9 | 2.4 | 2.9 | -0.9 | -1.5 | | |
| Unemployment | | | | | | | | |
| - total labour force | 000 | 794.8 | 757.8 | 749.4 | 726.9 | 717.6 | 707.8 | |
| - of 15-69 yrs old pop. | % | 3.7 | 6.5 | 7.6 | 9.7 | 10.0 | 10.5 | |
| Monthly wage | | | | | | | | |
| - average | EEK | 549 | 1 066 | 1 734 | 2 375 | 2 985 | 3 419[2)] | |
| - agriculture | EEK | 388 | 641 | 1 010 | 1 405 | 1 811 | 2 063 | |

1) January 1998 2) figure indicates average I-III/97

Sources: European Commission CEEC database; Bank of Estonia; Statistical Office of Estonia

### 1.1.2. Economic recovery

Up to 1990 the Estonian economy grew slowly, but from 1991 onwards the transition from a centrally planned economy to a market economy led at first to a significant decrease in GDP. In 1992, the real change in GDP was -22%. Since then, significant progress has been made in terms of macro-economic development. In 1993, economic decline slowed down to -8.5% and in 1994 to -1.8%. The year 1995 was the first year of resuming growth with a rate of 4.3% in real terms. In 1996, economic growth continued at 4.0%.

The recovery in GDP growth can be explained, first of all, by an increase in the service sector, an increase in the number of new private businesses and a rise in foreign direct investment. However, an expansion in industrial production has also taken place. Estonia's economic success has partly been based on exceptionally liberal principles of trade, privatisation and a balanced state budget. The share of the private sector in GDP was estimated at 70% in mid-1996. In addition, the share of services in GDP is high, 65% in 1996. GDP per capita was about 23% of the EU average in purchasing power terms.

The preliminary figures for the first two quarters of 1997 showed a growth of 11.7% as compared to the same period in 1996. Growth in real terms was strongest in the financial sector (GVA +30%), manufacturing (+22%) and transport activities (+21%). Agricultural output has continued to decline by 2.5%. In 1996, the decline was 6.3%.

The strong growth of private consumption was influenced by a credit boom: according to the Bank of Estonia, total stock of loans to individuals increased in nominal terms by 70% from December 1996 to July 1997, which was also influenced by declining interest rates. In September 1997, the weighted average annual interest rate level was 10.6.%.

Estonia has had relatively high foreign investment activity, measured on a per capita basis. 55% of all direct foreign investment in 1989-1996 originated either in Finland or in Sweden. By May 1996, there were almost 9600 joint-ventures with foreign participation, the majority of them (5052) coming from Finland, followed by Russia (1145) and Sweden (1098). In 1993-1995, annual net direct foreign investments ranged between 2 000 - 2 800 million EEK. There had been concern that foreign investment would decline when privatisation was completed. In 1996, foreign net direct investment decreased to 1 330 million EEK. However, in 1997, by the third quarter, net direct investments accounted for 2 098 million EEK.

As with other CEECs, Estonia has difficulties in attracting investment to the primary processing sector. As regards the agro-food sector, this is mainly due to legislation in relation to privatisation: according to article 32 of the privatisation law, preference in ownership was given to processing co-operatives, which mostly consisted of farms. Foreign direct investment has concentrated mainly in beverages, because this field of activity was not covered by article 32, but also in fruit and vegetable processing, and tobacco.

### 1.1.3. Employment and domestic demand

Major changes in employment took place in 1992-1994. Unfortunately, several changes in the statistical methods used to calculate the employment structure make it difficult to accurately compare pre- and post-independence employment structures. For example, before privatisation, many former non-agricultural employees of collective and state farms were counted as agricultural employees.

The official unemployment rate stayed close to 4-5% during 1993-1996. This figure does not include the part of the labour force that is seeking work because it is employed on a short-term basis. Using the ILO method, the unemployment rate was 3.7% in 1992, showing since then a steady increase. Unemployment was estimated at 10.5% of the total labour force in the second quarter of 1997. It has to be considered, however, that the ILO-method does not cover unregis-

tered job-seekers. Therefore, the real unemployment in certain rural areas may be as high as 25-30%.

Employment is increasing especially in the service sector. Major job losses occurred in manufacturing, construction and agriculture. Despite this, manufacturing has maintained its leading position as the most important employer with a share of 24%. Before independence, the employment share of the primary sector was approximately 20% of the workforce. By 1996, the primary sector of agriculture employed not more than 8%. Including hunting and forestry, the primary sector employed altogether 9.1% of the section of the population aged 16-69. The primary sector as employer is nevertheless still a very significant employer in the counties of Jõgeva (25%), Järva (22%) and Põlva (15%) (Table 14).

New business start-ups are highest in the Tallinn region, and other urbanised areas as well as in the western part of the country. The eastern part of Estonia is less buoyant. Income levels are lowest in southern and eastern Estonia. Also, unemployment figures are relatively high in south-eastern Estonia. In the north-eastern part of the country, heavy industry was heavily hit by the breakdown of former Soviet Union markets.

Inflation has decreased remarkably since the beginning of independence. In 1993, the increase in consumer prices was as high as 89.8%, but by 1996 inflation had slowed down to 23%. In March 1997, the annual inflation rate was 9.1%, the lowest level since 1991. Since then, the change in consumer prices accelerated steadily to 12.5% by December 1997. After a period of steady decline, the inflation rate is increasing again, due to the exceptionally fast pace of economic expansion and strong domestic demand exceeding supply, indicating a widening trade deficit. However, for 1998 inflation is still expected to slow down to 8.5%.

In 1995, real income per household increased slightly, but in 1996 real income dropped by 0.2%. Income differences are large and widening. 39% of consumer expenditure is still used on food, although some 7% is self-produced. During the third quarter of 1997, the decile with lowest income spent 60% it's income on food, whereas the decile with highest expenditure used only 24%. Half of households used more than 50% of total expenditure on food.

### 1.1.4. Foreign trade

Estonia has followed a liberal course on trade policies, abolishing trade barriers and allowing free trade without any import duties or tariffs for most commodities. Should ongoing discussions on trade policies finally lead to an imposition of import tariffs for some agricultural products, this would signal a fundamental shift in Estonia's trade policy. Estonia verified the maximum tariff levels in October 1997, but up to now, there has been no decision on tariffs, which will be implemented. Estonia has committed itself to establishing tariff levels no higher than 10-15%.

In 1992, Estonia's exports exceeded imports by 8%. Since 1993, Estonia has remained a net-importer. In 1994 the trade deficit was 4 567 million EEK (27% of exports). However, the foreign trade balance is deteriorating rapidly, due to rapid economic growth. In 1996, the deficit increased to 13 565 million EEK.

**Table 2. Structure of employment: 3 most important sectors and primary sector**

| | 1992 | 1993 | 1994 | 1995 | 1996 | II/1997 |
|---|---|---|---|---|---|---|
| Manufacturing | 23.6% | 21.4% | 20.7% | 24.8% | 23.9% | 24.3% |
| Wholesale and retail trade | 9.4% | 11.4% | 12.7% | 12.6% | 13.3% | 13.5% |
| Transport, storage, communication | 8.0% | 8.3% | 8.4% | 10.0% | 10.0% | 9.6% |
| Agriculture, hunting and forestry | 16.3% | 14.3% | 12.6% | 9.6% | 9.2% | 9.1% |

Source: Statistical Office of Estonia, employed population aged 15-69 by economic activity

In 1997, the deficit boosted to 20 917 million EEK (52% of exports). Nevertheless, the total balance of payments has continued to be positive because of the remarkable foreign direct investment and tourism, with 1.2-1.3 million visitors annually.

In 1997, exports accounted for 40 408 million EEK and imports were 61 325 million EEK. In 1996, as regards exports, no single sector is dominant. The most important exports are textiles (14.3%) and footwear and headgear (1.6%) with a share of 15.9%. Food products have a share of 15.7% and machinery and equipment of 13.4%. Also the wood, pulp and products of wood are of importance with a share of 13.4%. Major trading partners are EU-countries (50%), Russia (17%) and the two other Baltic states (14%). While EU companies want to benefit from the low labour costs in Estonia, Russia has its semi-finished products processed in Estonia because of its relatively higher production quality.

As regards imports, the most important product categories are machinery and equipment (22% in 1996), food products (16%) and chemical products (14%). Almost two thirds of imports originate from within the EU, especially from Finland (29%). Russia has a share of 13%.

As regards agricultural trade, since 1995, the trade balance for food products has also been negative. The trade deficit increased threefold in 1996 to 2 054 million EEK and further to 3 529 million EEK in 1997 (54% of exports). In 1996, exports of fish and milk products accounted for over 3/5 of agricultural and food exports. Transit trade is important, and re-exports accounted for 23% of total food exports. Food products destined for the former Soviet Union have traditionally been the most important exports and thus NIS-countries accounted for 59% of Estonian food and beverage exports. Exports to the EU accounted for 20% of total exports in 1996.

As regards imports, no single group is dominant. The 5 biggest HS-groups[1] accounted in 1996 for 40% of all imports, of which beverages and tobacco were the two biggest groups. 58% of all food imports originate in the EU, especially Finland, the Netherlands and Germany. The trade balance with the EU shows a strong deficit for Estonia, 2 691 million EEK or respectively 129% of total deficit in 1996.

## 1.2. Agriculture in the economy

### 1.2.1. Share of agriculture in the economy

Agriculture has traditionally been one of the most important sectors in the Estonian economy. In the Soviet era, Estonia exported 30-50% of its milk and meat production. Since then, production has declined sharply and currently Estonia is not even self-sufficient in meat and cereals.

The value of agricultural production in 1995 was approximately 0.13% of that of the EU. In 1996, agriculture accounted for 5.5% of GDP and employed 8.1% of the labour force. These figures are above the EU averages (respectively 1.8% and 5.3% in 1995). When forestry and fishery are included, the share of GDP is 7.3%. The drop in agricultural employment from 18% in 1989 to 8% in 1996 illustrates not only dramatic developments, but is also attributable to several statistical changes (Table 3).

Despite the decline in production, the food industry is still the main branch of manufacturing. It contributed 35% of gross industrial output in 1995. The share of agri-food exports in total exports declined from 23.5% in 1993 to 16.3% in 1997. At the same time, the share of agri-food imports has increased slightly from 14.7% to 16.5%. Agricultural trade has experienced a rapidly deteriorating deficit since 1995.

[1] In international trade statistics, products are classified into HS-groups. The food products are divided into 24 different main product categories called HS-groups, like "meat and edible meat offal".

**Table 3. Share of agriculture in the economy**

| | | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|
| Share of agriculture[1] | % GDP | 9.3 | 8.2 | 6.2 | 5.5 | |
| - including forestry and fishery | % GDP | 11.0 | 10.2 | 8.2 | 7.3 | |
| Share of food industry | % GDP | 5.0 | 4.8 | 4.2 | 4.0 | |
| Agricultural GDP | % change | -13.8[2] | -13.2 | -2.2 | -4.2 | -5.0 |
| Employment[3] | 1000 | 708.1 | 692.6 | 656.1 | 645.6 | 633.7 |
| - share of agriculture[1] | % | 13.0 | 11.0 | 8.5 | 8.1 | |
| - agriculture, forestry and fishery | % | 16.6 | 14.6 | 10.5 | 10.0 | 9.9 |
| - share of food industry | % | 3.6 | 3.7 | 4.8 | 4.7 | |
| Foreign trade | | | | | | |
| - share agri-food exports | % | 23.5 | 22.1 | 16.4 | 15.8 | |
| - share agri-food imports | % | 14.7 | 15.9 | 14.2 | 15.6 | |

1) Excluding forestry and fishery 2) including forestry
3) Data of the Estonian Labour Survey, population aged 15-69, 1997 represents II/97 situation.
Sources: Commission PECO-database and Statistical Office of Estonia

## 1.2.2. Structure of agricultural output

By 1996, gross agricultural output declined by 27.6% as compared to the level of 1992. The decrease in livestock production (-36.9%) was more significant than in crop production (-14.2%). At the same time, the share of crop production increased to 48.8% of gross agricultural output. This development is understandable in an environment of fundamental change, as arable cultivation needs less investment than animal production and is therefore easier to rebuild. Also, the loss of traditional markets for animal products is another important factor (Table 4).

The decline in output slowed down in 1997, but agricultural economy is not yet ready for sustainable recovery. One of the main reasons is the lack of fundamental institutional arrangements: 75% of agricultural land remains in state hands. This uncertainty surrounding land ownership discourages much-needed investment and long-term planning. Furthermore, under present conditions, farmers have difficulties obtaining credits.

Milk production started to recover slightly in 1997, however the rest of the animal production sector doesn't show signs of any clear recovery. The number of animals born continued to decrease in 1997. The change in crop production is affected by the changes in international grain prices, as there are no border protection measures. The increase in international grain prices has tended to support an increase in the cultivation of cereals, which had adverse effects on the competitiveness of the animal sector.

**Table 4. Structure of gross agricultural output (million EEK in prices of 1995)**

| | | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|---|
| Total | M EEK | 7 716 | 6 838 | 5 956 | 5 968 | 5 589 |
| - crop production | M EEK | 3 175 | 3 114 | 2 641 | 2 847 | 2 725 |
| - livestock production | M EEK | 4 541 | 3 724 | 3 315 | 3 121 | 2 864 |
| Share crop production | % | 41.1 | 45.5 | 44.3 | 47.7 | 48.8 |
| Share livestock production | % | 58.9 | 54.5 | 55.7 | 52.3 | 51.2 |
| Change, total | % | | -11.4 | -12.9 | 0.2 | -6.3 |
| - crop production | % | | -1.9 | -15.2 | 7.8 | -4.3 |
| - livestock production | % | | -18.0 | -11.0 | -5.9 | -8.2 |

Source: Estonian Institute of Agrarian Economics

## 1.2.3. Price development

For inputs, the Statistical Office of Estonia has calculated a price index since 1995. There is no index available with a base year prior to 1995. The animal feed prices have the biggest influence on the overall index. Together with energy they account for 72% of the whole index. According to the input price index, by the third quarter of 1997, input prices had risen by 51% compared to 1995. While the price of pesticides declined, pesticide use has not yet come back to the normal.

There is no detailed data available concerning output prices. The calculation of an output price index is scheduled to start in 1998. However, some rough estimates can be done on the basis of national accounts and nominal producer prices. In 1996, the nominal producer price level of all products rose significantly compared to 1995; but in 1997, the nominal cattle and poultry meat prices decreased by 2-3% and the milk price rose by 5% compared to 1996. Comparing 1997 to 1995, the average producer prices rose by 12% for beef and 24% for milk. The average cost level rose during the same period by 51%, which indicates a reduction of profitability at farm level.

Changes in international prices have immediate effects on Estonian producer prices because of the lack of border protection. Since the fourth quarter of 1996, pork prices have been at exceptionally high levels increasing within one quarter from 20 840 to 24 892 EEK per tonne, affected by international markets and the lack of domestic supply. During the fourth quarter of 1997, the pork price level even slightly exceeded the EU-level, being 25 610 EEK or 1 618 ECU per tonne. During the fourth quarter of 1997 pork prices were 44% higher than in 1995. Despite the higher prices, costs have risen more than the revenue from the markets (Table 5).

**Table 5. Input price index**

| | Weight | 1995 | 1996 | III/97 |
|---|---|---|---|---|
| Feeds | 485.7 | 100 | 139.6 | 144.9 |
| Energy, fuel, lubricant | 237.8 | 100 | 121.6 | 159.7 |
| Maintenance and repairing of buildings and equipment | 69.7 | 100 | 123.6 | 136.5 |
| Livestock | 63.1 | 100 | 117.8 | 159.7 |
| Fertilisers, bedding | 60.5 | 100 | 123.3 | 162.9 |
| Seeds | 40.2 | 100 | 172.8 | 187.8 |
| Materials and small tools | 25.1 | 100 | 108.8 | 146.2 |
| Pesticides | 10.7 | 100 | 97.8 | 96.8 |
| Communication | 7.2 | 100 | 123.9 | 144.6 |
| TOTAL | 1000.0 | 100 | 131.8 | 150.8 |

Source: Statistical Office of Estonia

It can be summarised that Estonian agriculture faces the problem of increasing input prices with producer prices increasing at a much slower rate (Table 6).

**Table 6. Price indices. Base year 1995**

| | 1993 | 1994 | 1995 | 1996 | III/97 |
|---|---|---|---|---|---|
| Consumer price index | 52 | 78 | 100 | 123 | 139 |
| Retail food price index | 64 | 86 | 100 | 118 | 123 |
| Input price index | | | 100 | 132 | 151 |
| Output price index[1)] | 68 | 94 | 100 | 124 | |

Source: Statistical Office of Estonia and 1) Commission calculations

Currently, there is little economical data available concerning farm income. Based on the information in Estonian national accounts, in 1996, the operating surplus[2] of agriculture and hunting after taxes was 12.4% of the gross output of 7 150 million EEK. Referring to this indicator would - other than the above-mentioned comparison of the cost/revenue development - support the hypothesis of an improved profitability in farming, given that, in 1994, the operating surplus was still slightly negative at -0.2% of gross output. Investments in fixed assets showed some increase within agriculture, hunting and forestry. In 1995, investments were 296 million EEK, a figure that doubled from 1994. However, the level of investments does not cover depreciation.

[2] Operating surplus is value added - wages and salaries - social contributions - consumption of fixed capital - taxes on production.

The statistical situation will improve when the FADN[3] system will have been implemented by the Estonian Institute of Agrarian Economics. 400 family farms and 150 farm enterprises are scheduled to be included in this system. 50 family farms and 50 agricultural enterprises were included already on a voluntary basis in 1997. Very preliminary results for 1996 show that arable and mixed farms were doing best, which may result from the strong increase in producer price of cereals (see 3.2.2.). Concerning arable production, the labour income was in 1996 approximately 6 825 ECU at private family farms (utilised agricultural area 44 hectares with 1.9 annual working units). In comparison, the income per annual working unit at agricultural enterprises was 2 934 ECU. These farms had a utilised agricultural area of 781 hectares with 33.8 annual working units.

These preliminary FADN results show that the profitability of pork farms was strongly negative in 1996. The income in the field of dairy was 4 520 ECU at private family farms with 16.4 cows, 27.1 hectares of utilised agricultural area and 3.3 annual working units. At agricultural enterprises, the profitability per annual working unit was approximately 60% of the level at private family farms.

[3] Farm Accountancy Data Network

# 2. Agriculture and rural society

## 2.1. Agricultural production and consumption

### 2.1.1. Land use

The total agricultural area comprises 1.450 million hectares, which represents one third of the total land area. 45% of the total area is forest. Land structure varies from county to county. The share of arable land is biggest in Tartu County (55% of all land) and the share of forest is biggest in Hiiumaa. (42%).

Arable land covers 1.128 million hectares, representing 78% of the agricultural land. 0.310 million hectares are permanent pastures and the remaining 0.015 million hectares are used for permanent crops i.e. fruit and especially berries. Comparatively low soil quality and a short growing season lead to relatively low crop yields. Thus, the main part (56%) of the cultivated arable land was used for fodder crops and 39% for cereals, in 1997. The remaining 5% were used to grow industrial crops, potatoes and vegetables.

Currently, the percentage of unused arable land is stabilising around 0.220 million hectares, which is equivalent to 20% of the total arable land. In 1992, only 1% of the arable land was idle. There are three principal reasons for this situation. Incomplete land registration is one of the key elements, as 75% of agricultural land is still in the hands of the state. The land privatisation process is proceeding slowly and, so far, idle land also remains in the hands of the state because there are no claims on such land at all. In addition, farmers find it unprofitable to produce, and thirdly, the quality of soils on the remaining state owned land is lower than the national average.

One possible outcome may also be that a main part of the idle arable land will not return into agricultural use and the land will gradually start to become woodland. This phenomenon also has a regional dimension - most of the idle land is situated in the south-eastern part of the country. The share of idle land is even much higher when the idle natural grassland area - approximately 0.175 million hectares - is included. This means, more than one fourth, 0.4 million hectares, of the total agricultural area of 1.45 million hectares is currently idle.

Nearly 2/3 of the arable land was drained over the past 40 years, but as collective farms were dismantled after 1991, the drainage system lacked maintenance and, therefore, often can be found in a bad condition requiring investment. This also has a negative impact on yields. From the World Bank and national funds, a total of $ 5.5 million has been made available for the maintenance of the drainage system. The Ministry of Agriculture has chosen the maintenance of the drainage system as one of the key investment areas. However, the program only got underway in 1997.

### 2.1.2. Arable Crops

#### 2.1.2.1. Cereals

In 1996 the area used for cereal production in Estonia ceased to decline. In the period 1985-1990, the total cereals area was approximately 0.400 million hectares. In 1995-1996 it fell close to 0.300 million hectares, a reduction by roughly one quarter compared to the pre-independence period. In 1996, producer price for cereals almost doubled, which resulted in an increase of the cereals area in 1997 to 0.325 million hectares.

In 1998, the state of Estonia decided to launch a direct income support scheme for cereals, oilseed and flax, after years of poor profitability and a lack of direct support measures. The budget allocation is limited to 120 million EEK, but the decision itself represents a

significant change in the attitude towards agriculture. This decision will help to some extent to stabilise cereal production, as the total revenue per hectare will increase by 5-8%.

The importance of agricultural enterprises[4] in cereals production has declined remarkably. In 1992, farm enterprises still accounted for 75% of total cereal area, but by 1997 their share dropped to 46%. In 1997, family farms accounted already for 51% of cereal production. This means that most production takes place on small farms. At the same time, most household plots have ceased cereal production, concentrating instead on fodder crops.

Total grain yield dropped from pre-independence level of 900-950 thousand tonnes to 615 thousand tonnes in 1997. Due to unstable weather conditions, the annual yield levels vary broadly from 1.5 to 2.5 tonnes per hectare. Annual yield fluctuation has increased in recent years. One reason for this is a low utilisation of fertilisers. The area fertilised with mineral fertilisers counted in 1996 for only half of the cereal area and the levels used were comparatively low, some 62 kg of Nitrate per hectare. Additionally, organic manure was used for 1/6 of the cereal area, but the amount per hectare decreased from 40 t/ha in 1994 to 30 t/ha in 1996.

Most of the decrease in the cereal area is attributable to a reduction in the barley area, which remains the most important crop with a share of 50%. This was due to the drop in demand for barley as animal food. In the period 1985-1990, the barley area varied from 0.250 to 0.300 million hectares. By 1996, however, the sown barley area decreased to 0.150 million hectares. In 1997, cultivation of barley increased to 0.164 million hectares. Farm enterprises account for more than half of the production. The yields achieved during the Soviet era were 2.1-2.4 t/ha. Yields decreased nowadays to 1.5-2.1 t/ha due to the insufficient use of fertilisers and plant protection products, but also due to the severe drought in 1992.

Wheat and rye count altogether for one quarter of the cereal area. The wheat area doubled during the time of independence to 0.050 million hectares and the rye area fell to half to 0.032 million hectares. Cultivation

**Table 7. Cereals supply balance**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Area | 000 ha | 397 | 418 | 454 | 375 | 320 | 306 | 289 | 325 |
| Yield | t/ha | 2.41 | 2.24 | 1.33 | 2.16 | 1.60 | 1.67 | 2.17 | 1.89 |
| Production | 000 t | 957 | 939 | 592 | 811 | 510 | 515 | 629 | 615 |
| Imports1) | 000 t | | | 184 | 59 | 94 | 172 | 246 | 140 |
| Exports1) | 000 t | | | 3 | 16 | 12 | 12 | 19 | 20 |
| Stock change | 000 t | | | -47 | -38 | 103 | 8 | -99 | -20 |
| Avail for utilisation | 000 t | | | 726 | 816 | 695 | 683 | 757 | 715 |
| Seed use | 000 t | | | 90 | 77 | 65 | 65 | 63 | 70 |
| Feed use | 000 t | | | 386 | 471 | 357 | 323 | 389 | 335 |
| Processed | 000 t | | | 80 | 87 | 94 | 109 | 114 | 120 |
| Waste | 000 t | | | 10 | 10 | 8 | 12 | 11 | 6 |
| Human consumption | 000 t | | | 160 | 170 | 170 | 173 | 182 | 184 |
| " cons. Kg/capita" | Kg | | | 104 | 112 | 113 | 116 | 123 | 125 |
| Self sufficiency2) | % | | | 82% | 99% | 73% | 75% | 83% | 86% |

1) As cereals equivalent 2) Calculated as production per domestic utilisation

Sources: Commission PECO-database, Statistical Office of Estonia and FAO

[4] See closer chapter 2.3. In this publication, agricultural enterprises refer to former state farms and collectives, of which most are now privatised, although the state still mostly owns the land on which they operate. Family farms are private farms, which operate on restituted land, which they own. Household plots were under the Soviet regime used by workers of state farm and collectives and they still in most cases don't own the land.

of wheat continues to increase. Sowings of winter wheat were 5% higher in 1997 than in 1996. Bread grain quality has often been insufficient for bakeries partly because of problems of varieties and partly due to an insufficient application of fertilisers (Table 7).

In the Soviet era, cereals imports equalled more than half the domestic cereals production and animal production was based largely on imported low-priced grain. As meat and milk production decreased dramatically, the need for imported grain decreased. In 1993 imports dropped to a level of approximately 59 thousand tonnes, less than 10% of the domestic production. By 1996, imports increased again to 246 thousand tonnes, as the decrease in animal production slowed down more than the production of cereals. Another reason is low yields. Grain exports have been limited to less than 20 thousand tonnes, mostly barley and wheat. In 1997 the imports declined due to a good harvest in 1996.

The grain markets are also affected by changes in state grain security levels. In 1996, security levels were cut from 54 thousand tonnes to 32 thousand tonnes. In 1997, it was the intention of the Estonian government to increase the state grain security level to 37 thousand tonnes. By the year 2000, reserves are due to rise to 100 thousand tonnes.

### 2.1.2.2. Fodder crops

In 1997, 56% of the cultivated arable land was used to plant fodder crops. The planted area dropped to 0.481 million hectares, a reduction of 27% as compared to 1990. During the last three years, the fodder crops area was roughly 0.500 million hectares with a tendency to stabilise. More than 95% of the area is sown with perennial grasses for silage and hay. Fodder roots are of minor significance, accounting in 1997 for only 0.007 million hectares and green grain crops for 0.004 million hectares.

40% of the fodder crop area is sown by agricultural enterprises, 30% is cultivated by family farms, and 30% by household plots. The use of mineral fertilisers decreased heavily; the fertilised area is only 1/5 of the fodder crop area. In 1993, fertilisers were still used on 0.210 million hectares, but in 1996 only on 0.099 million hectares. Fertilisers use per hectare dropped from 120 kilos to 67 kilos as measured in active substance. The use of organic manure dropped by half to 20 tonnes per hectare in 1996.

### 2.1.2.3. Potatoes

In 1997, the area used for the production of potatoes was 0.035 million hectares, a decrease of 29% as compared to 1990. Most production is used for human consumption or for animal feed. Farm enterprises are of minor significance, producing 10% of potatoes with an average yield of 11 800 kg per hectare in 1996. Yields are remarkably higher (14 500 kg/ha in 1996) on household plots and private farms. 60% of the production takes place on household plots. Foreign trade in potatoes is limited (Table 8).

### 2.1.2.4. Industrial crops and sugarbeet

Industrial crops are not important in Estonian agriculture. The main plant is rapeseed with 8 thousand hectares in 1997; the area cultivated with other industrial crops is less than one thousand hectares.

Spring and winter rapes are the most common oilseeds in Estonia. Due to increased export possibilities, the cultivation of oilseeds has increased rapidly since 1990. However, climatic conditions and weather uncertainty are limiting factors, resulting in yields lower than 2 tonnes/ha. A programme for growing oil plants was launched for the years 1994-2000. The aim is to increase the cultivation of oilseeds to 30-35 thousand hectares or to 50 thousand tonnes. In 1996, the rapeseed area was 8.6 thousand hectares, providing a yield of 10 thousand tonnes. The yield level has so far recovered to a level of 1.17 tan/ha (Table 9).

Production of sugarbeet is of minor importance in Estonia. During the recent years, the cultivated area ranged from 0.2 to 0.6 thousand hectares. Total yield

**Table 8. Potatoes supply balance**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Area | 000 ha | 45.5 | 52.2 | 46.3 | 42.6 | 39.9 | 36.9 | 35.3 | 32.4 |
| Yield | t/ha | 13.6 | 11.3 | 14.5 | 12.6 | 14.1 | 14.5 | 14.2 | 14.3 |
| Production | 000 t | 618 | 592 | 669 | 539 | 563 | 537 | 500 | 462 |
| Import[1] | 000 t | | 0 | 0 | 7 | 10 | 6 | 7 | |
| Export[1] | 000 t | | 10 | 4 | 5 | 1 | 4 | 2 | |
| Stock change | 000 t | | 0 | 0 | 0 | 0 | -25 | 13 | |
| Available for util. | 000 t | | 582 | 665 | 540 | 572 | 515 | 518 | |
| Seed use | 000 t | | | 140 | 130 | 140 | 140 | 140 | |
| Feed use | 000 t | | | 282 | 179 | 209 | 175 | 185 | |
| Waste | 000 t | | | 39 | 29 | 32 | 27 | 21 | |
| Processed | 000 t | | | 43 | 30 | 15 | 13 | 14 | |
| Human consumption | 000 t | | | 164 | 172 | 176 | 160 | 158 | |
| - cons. kg/capita | kg | | | 106 | 113 | 117 | 107 | 107 | |
| Self sufficiency[2] | % | | | 101 | 100 | 98 | 104 | 96 | |

1) As equivalent. 2) Calculated as production per domestic utilisation.
Sources: Commission PECO-database, Statistical Office of Estonia and FAO

**Table 9. Production of rape seed**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Area | 000 ha | 0.6 | 1.1 | 2.7 | 2.8 | 2.6 | 6.0 | 8.6 | 8.2 |
| Yield | t/ha | 1.78 | 0.99 | 0.77 | 0.71 | 0.82 | 1.17 | 1.17 | |
| Production | 000 t | 1.1 | 1.1 | 2.1 | 2.0 | 2.2 | 7.0 | 10.0 | |

Sources: Commission PECO-database and Statistical Office of Estonia

**Table 10. Production of sugarbeet**

| | | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|---|---|
| Area | 000 ha | 0.022 | 0.598 | 0.200 | 0.478 | 0.421 | 0.092 |
| Yield | t/ha | 28.8 | 13.8 | 25.0 | 22.1 | 30.2 | 26.1 |
| Production | 000 t | 0.6 | 8.3 | 5.0 | 10.6 | 12.7 | 2.4 |

Sources: Commission PECO-database and Statistical Office of Estonia

was not more than 13 thousand tonnes. No processing plant for sugarbeet exists in Estonia. Processing into sugar takes place either in Finland or in Latvia; the refined sugar is imported back to Estonia (Table 10).

### 2.1.2.5. Permanent crops

Permanent crops do not play a major role in Estonian agriculture and there was no significant change in the production area. Farm household directly consumes most production. 75% of production area is concentrated on household plots and only 5% on agricultural enterprises. Two thirds is planted with apple and pear trees (Table 11).

The 1996 harvest was exceptionally weak, due to climatic conditions. For example, the apple yield was only 1/3 of the 1993-1995 average. The 1997 yield was exceptionally good. Low labour costs and climatic conditions favour the production of soft berries. The area under strawberries increased to 336 hectares in 1996, but is of marginal economic significance.

### 2.1.2.6. Fresh vegetables

The production of vegetables is concentrated on private farms (50%) and household plots (41%). It is used largely for direct consumption by farm households. In 1996 the most important plants in open field

**Table 11. Production of fruits and berries**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|---|---|---|
| Area | 000 ha | 11.5 | 12.2 | 12.0 | 11.4 | 11.8 | 11.7 | 11.6 |
| Yield | t/ha[1)] | 1.9 | 1.9 | 2.5 | 3.8 | 1.8 | 3.2 | 1.3 |
| Production | 000 t | 22.0 | 23.0 | 30.6 | 48.2 | 21.1 | 37.1 | 14.8 |

1) Calculated for all production area, not only plants in carrying age.
Sources: Commission PECO-database and Statistical Office of Estonia

**Table 12. Production of vegetables**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Open field area | ha | 5 200 | 5 700 | 5 085 | 4 588 | 4 409 | 4 621 | 4 245 | 4 188 |
| Yield | t/ha | 16.6 | 18.2 | 12.4 | 12.8 | 15.8 | 10.6 | 11.3 | |
| Production | 000 t | 86.0 | 103.7 | 63.0 | 58.9 | 69.9 | 48.8 | 48.1 | |
| Greenhouse area | ha | | 228 | 226 | 204 | 149 | 135 | 127 | |
| Production | 000 t | 19.0 | 16.7 | 15.4 | 11.0 | 8.1 | 8.0 | 6.6 | |

Sources: Commission PECO-database and Statistical Office of Estonia

production were cabbages (44%), carrots (17%) and red beet (13%) (Table 12).

The greenhouse area declined to 127 ha in 1996. Tomatoes were produced on 67 ha, yielding 2.7 thousand tonnes, a sharp decrease as compared to the 7.9 thousand tonnes of 1992. Cucumbers were produced on 43 ha in 1996, producing 7.5 thousand tonnes. In 1992, the total production of cucumbers was still 7.9 thousand tonnes. Due to increased energy prices, inefficient greenhouses have been abandoned. Producers are also growing crops that require minimal amounts of energy or which that can be grown in summer.

### 2.1.3. Livestock sector

Under the Soviet regime, Estonia was an intensive animal producer. A significant share of production, which was based partly on imported low-priced grain, was dedicated to Russia. As presented in table 13, pig, poultry, sheep and goat numbers decreased by two thirds or even more up to January 1998 as compared to 1988 levels. The decrease in cattle and dairy cow numbers was only slightly lower.

In 1992, animal production accounted for 59% of gross agricultural output, but by 1996 its share decreased to 51%. Agricultural enterprises remain important in animal production: in 1996, they produced 57% of all milk, 70% of pork, 48% of beef and 64% of eggs. This means that production takes place in large units. Production on smaller family farms is expanding only slowly (Table 13).

Currently, the milk sector only shows some degree of stabilisation being the only sector where self-sufficiency has been maintained. The direct support measures for milk will also help, from 1998 onwards, to stimulate production. In meat, the period of sharp decline in production is over, but the situation has not yet reached sustainable recovery. As in 1996 the producer price for cereals almost doubled, the producer price for meat did not follow the same development. Poor profitability discouraged farms from making new investments. New investment support measures may in future help to stabilise production. Imports of milk and meat products increased significantly since 1996.

As can be seen from table 14, the trade balance of meat and meat products changed dramatically in 1996. In the beginning of independence, Estonia was still a net-exporter of meat and meat products as measured by weight. By 1996, the country became a net-importer. In 1997, the foreign trade in poultry meat increased heavily. This is due to re-exports to Russia.

**Table 13. Number of animal as of 1 of January**

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998p | Change 88-98 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cattle | 821 | 819 | 806 | 758 | 708 | 615 | 463 | 420 | 370 | 343 | 313 | -62% |
| - o.w. cows | 303 | 301 | 294 | 281 | 264 | 253 | 227 | 211 | 185 | 172 | 162 | -47% |
| Pigs | 1084 | 1099 | 1080 | 960 | 799 | 541 | 423 | 460 | 449 | 298 | 301 | -72% |
| Poultry | 6776 | 6897 | 6923 | 6537 | 5538 | 3418 | 3226 | 3130 | 2911 | 2325 | - | -66% |
| Sheep&goat | 136 | 135 | 140 | 140 | 143 | 123 | 83 | 62 | 50 | 45 | 36 | -74% |

Source: Statistical Office of Estonia

In 1997, imports of poultry meat were 76.9 thousand tonnes and exports stood at 63.3 thousand tonnes, representing 84% and 90%, respectively, of the foreign trade in meat (Table 14).

### 2.1.3.1. Milk and milk products

In the Soviet era milk was a key element of Estonian agriculture, with high export volumes. This situation has not changed despite the fact that production volumes decreased remarkably. Nowadays, Estonia is still self-sufficient in dairy products. The self-sufficiency rate in 1996 was for milk approximately 134%, for butter 180%, for cheese 175% and for SMP 333%. In 1996, milk and dairy products accounted for 29% of all Estonian agricultural exports (Table 15).

Cow numbers started to decrease in 1988 from a level of 303 000 cows. The biggest decrease took place from 1993 to 1995. In January 1998, the number of cows was 162 300, indicating a reduction of 47% as compared to 1988.

Despite the continued decrease in cow numbers, there has been a recovery in milk yield per animal since 1993. This is because farmers are slaughtering animals with a weak production potential, which increases the average production per cow. It can be estimated that in 1997, the yield per cow recovered close to the level of 1990, leading to a recovery in milk production for the first time since 1987. Milk production is estimated to be 700 thousand tonnes in 1997. Milk yield per cow on agricultural enterprises is 11% lower than on private farms and household plots.

In 1998, direct support measures will be launched for milk production, encouraging farmers to some extent to expand production. The planned direct payments will reach 70 million EEK. However, only 60% of the present cowherd are expected to be entitled to the

**Table 14. Foreign trade of meat products (tons)**

| | | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|
| 02 01-10 | Meat and edible meat offal | | | | | |
| | - imports | 3 839 | 10 511 | 12 743 | 25 748 | 91 936 |
| | - exports | 7 319 | 2 416 | 5 813 | 3 279 | 70 704 |
| | - balance | +3 480 | -8 095 | -6 930 | -22 469 | -21 232 |
| 16 01 | Sausages and similar products | | | | | |
| | - imports | 695 | 2 027 | 1 185 | 1 235 | 14 596 |
| | - exports | 2 353 | 3 267 | 2 285 | 1 160 | 17 462 |
| | - balance | +1 658 | +1 240 | +1 100 | +75 | +2 866 |
| 16 02 | Other prepared preserved meat... | | | | | |
| | - imports | 299 | 1 465 | 1 177 | 2 678 | 1 493 |
| | - exports | 1 797 | 1 553 | 452 | 462 | 2 817 |
| | - balance | +1 498 | +88 | - 725 | -2 216 | +1 324 |

Source: Statistical Office of Estonia

**Table 15. Production of milk and dairy products. Animal number of 1 January**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Cows | 000 | 294 | 281 | 264 | 253 | 227 | 211 | 185 | 172 |
| Yield per cow[1] | kg | 4 123 | 3 975 | 3 530 | 3 322 | 3 455 | 3 588 | 3 809 | |
| Milk production | 000 t | 1 208 | 1 093 | 919 | 807 | 771 | 707 | 675 | 700 |
| Imports, fluid milk | 000 t | 0 | 0 | 0 | 0 | 2 | 2 | 3 | |
| Exports, fluid milk | 000 t | 0 | 27 | 0 | 8 | 14 | 12 | 22 | |
| Net-exports, f. milk | 000 t | 0 | 27 | 0 | 8 | 12 | 11 | 20 | 21 |
| Available | 000 t | 1 208 | 1 066 | 919 | 799 | 759 | 696 | 656 | 680 |
| Feed | 000 t | 114 | 154 | 205 | 101 | 76 | 91 | 99 | 101 |
| Avail. for processing | 000 t | 1 094 | 912 | 714 | 698 | 683 | 605 | 557 | 579 |
| - net-export of proc. Prod. | 000 t | | | 175 | 254 | 262 | 206 | 177 | 174 |
| - human consumption [2] | 000 t | | | 540 | 445 | 421 | 400 | 404 | 404 |
| - self-sufficiency[3] | % | | | 124% | 148% | 155% | 144% | 134% | 139% |
| Cheese | | | | | | | | | |
| - production | 000 t | 16.3 | 13.8 | 9.7 | 8.8 | 10.7 | 8.6 | 8.9 | |
| - imports | 000 t | | | 0.0 | 0.2 | 1.0 | 1.8 | 2.5 | |
| - exports | 000 t | | | 4.0 | 3.4 | 5.5 | 4.7 | 6.3 | |
| - human consumption | 000 t | | | 5.7 | 5.6 | 6.1 | 5.8 | 5.1 | |
| - kg/capita | kg | | | 3.7 | 3.6 | 4.1 | 3.9 | 3.4 | |
| - self-sufficiency[3] | % | | | 169% | 158% | 175% | 149% | 175% | |
| Butter | | | | | | | | | |
| - production | 000 t | 29.4 | 28.4 | 26.8 | 23.1 | 18.9 | 15.6 | 17.2 | |
| - imports | 000 t | | | 0.2 | 0.7 | 1.0 | 4.4 | 8.3 | |
| - exports | 000 t | | | 13.0 | 18.9 | 13.7 | 13.2 | 15.9 | |
| - stock change | 000 t | | | -5.0 | 5.0 | - | - | - | |
| - human consumption | 000 t | | | 8.9 | 9.9 | 6.2 | 6.8 | 9.6 | |
| - kg/capita (own) | kg | | | 5.8 | 6.5 | 4.1 | 4.5 | 6.5 | |
| - self-sufficiency[3] | % | | | 300% | 233% | 304% | 230% | 180% | |
| SMP | | | | | | | | | |
| - production | 000 t | 20.2 | 18.8 | 20.5 | 25.5 | 22.0 | 19.6 | 21.6 | |
| - imports | 000 t | | | | 3.2 | 1.4 | 6.2 | 8.3 | |
| - exports | 000 t | | | | 22.3 | 23.0 | 23.9 | 23.4 | |
| - available | 000 t | | | | 6.4 | 0.4 | 1.9 | 6.5 | |
| - self-sufficiency[3] | % | | | | 399% | 5653% | 1013% | 333% | |

1) Calculated with average numbers of animals per year 2) As milk equivalent, excluding butter 3) Calculated as production per domestic utilisation
Sources: Commission PECO-database, Statistical Office of Estonia and FAO

support, given the restrictive requirements of the scheme. In order to be eligible, the farm must participate in the milk recording system, exceed a certain reference yield per cow and, in addition, the dairy cow herd must at least count for five cows. According to the estimates of Ministry of Agriculture, the aid per cow will equal to approximately 700-750 EEK.

Agricultural enterprises still produced 57% of milk in 1996, despite the fact that since 1992, the number of cows decreased by 52% to 102 000 cows in January 1997. Household plots accounted for 28% of milk production in 1996. After 1994, the number of cows on household plots started to decrease annually by some 10%. This was also the case for farm enterprises. Private farms are of minor importance in milk production, accounting for 15% in 1996. The number of cows on private farms is increasing slowly; during 1994-1996, the annual increase was on average 3.7%. This is partly due to poor profitability, which discouraged farmers from making further investments. An additional reason is the difficulty with obtaining credits.

According to FAO estimates, feed use of milk seems to be stabilised round 100 thousand tonnes. Com-

pared to 1990, butter production dropped by 41% to 17.2 thousand tonnes in 1996, showing some stabilisation during 1995-1996. Cheese output stabilised at a level of 8.9 thousand tonnes in 1996, which represents a drop of 45% as compared to 1990.

Imports of dairy products, traditionally of minor importance, have risen in recent years. Butter imports increased to 8.3 thousand tonnes (48% of production) in 1996 and cheese imports to 2.5 thousand tonnes (28% of production). This is due to the decreased domestic production and the abolition of all border protection measures, changing consumer preferences, wide income differences and due to re-exports. Exports of cheese and butter increased in 1996-1997.

The main export destinations are still Russia and the former Soviet countries. Due to the difficulties in complying with EU hygiene standards, the Estonian EU-quota for exports of cheese has not been utilised. The quotas for skimmed milk powder and butter were eventually fully utilised, which was mainly due to re-exports. However, in January 1998, EU banned all Estonian dairy imports, after EU inspectors reported that Estonia failed to meet the EU health and hygiene standards.

### 2.1.3.2. Beef

Beef production is largely a by-product of the dairy sector and there are no herds specialised in beef production. Since 1988, the number of cattle dropped by 62% and up until now this decline did not stop. In 1997, beef production accounted for approximately 21 thousand tonnes, a decrease of two thirds as compared to 1990. Producers slaughtered dairy cows with a weak production potential, which indicates that the fall in cattle number will continue for some time. This will also affect beef production. In 1997, the number of calves born continued to decline by 7%. In addition, most calves were slaughtered, because of the low profitability of beef production (Table 16).

In spite of the significant and continuous decrease in cattle numbers on agricultural enterprises, they still account for two thirds of all cattle. Household plots account for 21% of the cattle herd, an annual decrease of 11% since 1994. The number of cattle on private farms is increasing slowly, by only 2% in 1997. In the medium term, beef production will continue to be concentrated in large herds on farm enterprises. The support measures for dairy production from 1998 will also help to stabilise beef production, but the impact will not be major over the next two-year period.

**Table 16. Beef supply balance**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Cattle number | 000 | 806 | 758 | 708 | 615 | 463 | 420 | 370 | 343 |
| Imports live | 000 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 |
| Exports live | 000 | 23 | 18 | 27 | 7 | 2 | 1 | 0 | 0 |
| Slaughters | 000 | 299 | 268 | 277 | 297 | 206 | 186 | 161 | 152 |
| Average live weight | kg | 424 | 398 | 350 | 306 | 312 | 295 | 292 | 290 |
| Average carc weight | kg | 211 | 194 | 164 | 144 | 151 | 139 | 137 | 140 |
| Production | 000 t | 63.0 | 52.0 | 45.4 | 42.6 | 31.0 | 25.8 | 22.1 | 21.3 |
| Imports[1] | 000 t | | | 0.0 | 1.0 | 1.6 | 0.9 | 4.6 | |
| Exports[1] | 000 t | | | 6.7 | 4.7 | 2.1 | 1.8 | 0.1 | |
| Human consumption | 000 t | | | 38.7 | 38.8 | 30.6 | 24.9 | 26.7 | |
| - kg/capita | kg | | | 25.0 | 25.4 | 20.3 | 16.7 | 18.1 | |
| Self-sufficiency[2] | % | | | 117% | 110% | 101% | 103% | 83% | |

1) As meat equivalent 2) Calculated as production per domestic utilisation.

Sources: Commission PECO-database, FAO and Statistical Office of Estonia

Beef exports declined from 20 thousand tonnes in 1986-87 to less than 1 thousand tonnes in 1995-1996. For a long time a large-scale net-exporter of beef, Estonia became a net-importer of beef in 1996. In 1996 beef imports showed a remarkable increase to 4.6 thousand tonnes, of which 3.4 thousand tonnes was meat and the rest was processed products. This is due to insufficient domestic production and abolishing all trade barriers. Additionally Estonia has not yet succeeded in complying with the EU hygiene standards necessary to be able to export to the EU.

### 2.1.3.3. Pork, poultry and eggs

PORK

Developments in the pig meat sector largely reflect those in the beef sector. The relative decrease in production is quite similar. Pig number fell by January 1997 by 73% as compared to 1988 levels. In 1997, pork production was estimated at approximately 30 thousand tonnes, a decrease of 60% as compared to 1990.

Under the Soviet era pork production was highly dependent on imported feed and concentrated on large units. 85% of pigs still remain on farm enterprises and only 6% on family farms. The increase in pig numbers on family farms has been slow, indicating that production will continue to be concentrated on large units. One of the latest trends is vertical integration: some meat processing plants bought pork producing farm enterprises (Table 17).

Pork exports declined to 2.5 thousand tonnes in 1996 from a level of 20 thousand tonnes in the 1980s. Exports of live animals stopped almost totally. Imports of pork show a sharp increase totalling 19% of production in 1996. Domestic consumption of pork declined from some 45 kilos per capita during the Soviet era to 25 kilos in 1996.

The profitability of pork has been poor. For pork production, there will be no direct support measures in 1998. The proposals to launch border protection measures for pork as the only agricultural product had been withdrawn in autumn 1997. Since the third quarter of 1996, pork prices have been at exceptionally high levels increasing from 20 EEK/kg to 25 EEK/kg, even exceeding the EU-level. This reflected the situation on international markets and the lack of domestic supply. Compared to 1995, pork prices were 41% higher during the third quarter of 1997. Despite this, pig and poultry numbers decreased in 1996-1997 due to a worsening of the price ratio between meat and cereals.

**Table 17: Pork supply balance**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Pig number | 000 | 1 080 | 960 | 799 | 541 | 423 | 460 | 449 | 298 |
| Imports live | 000 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Exports live | 000 | 65 | 66 | 50 | 2 | 11 | 4 | 1 | 2 |
| Slaughters | 000 | 1 317 | 1 090 | 797 | 550 | 450 | 522 | 503 | 418 |
| Average live weight | kg | 105 | 101 | 96 | 96 | 102 | 100 | 93 | 106 |
| Average carc weight | kg | 72 | 69 | 63 | 63 | 68 | 68 | 63 | 72 |
| Production | 000 t | 95.1 | 75.2 | 50.1 | 34.7 | 30.4 | 35.4 | 31.7 | 30.1 |
| Imports[1] | 000 t | | | 0.2 | 2.7 | 7.9 | 4.6 | 9.3 | |
| Exports[1] | 000 t | | | 1.3 | 5.0 | 5.1 | 3.6 | 2.5 | |
| Stock change | 000 t | | | -5.0 | 1.0 | 4.0 | 0.0 | -1.3 | |
| Human consumption | 000 t | | | 44.0 | 33.4 | 37.3 | 36.4 | 37.3 | |
| - kg/capita | kg | | | 28.4 | 21.9 | 24.7 | 24.4 | 25.2 | |
| Self-sufficiency[2] | % | | | 114% | 104% | 82% | 97% | 85% | |

1) Expressed as meat equivalent. 2) Calculated as production per domestic utilisation.
Source: Commission PECO-database, Statistical Office of Estonia and FAO

**Table 18. Poultry supply balance**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Poultry number | 000 | 6 923 | 6 537 | 5 538 | 3 418 | 3 226 | 3 130 | 2 911 | 2 325 |
| Imports life | 000 | | 0 | 0 | 978 | 1 848 | 590 | 1 101 | 818 |
| Exports life | 000 | | 2 335 | 1 682 | 274 | 790 | 1 012 | 57 | 34 |
| Slaughters | 000 | 15 892 | 14 741 | 8 664 | 4 123 | 5 307 | 5 111 | 3 802 | 3 982 |
| Average live weight | kg | 1.9 | 2.0 | 1.7 | 1.8 | 1.9 | 1.7 | 1.7 | 1.7 |
| Average carc weight | kg | 1.4 | 1.5 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 |
| Production | 000 t | 21.6 | 22.0 | 10.5 | 5.1 | 6.6 | 5.8 | 4.3 | 4.5 |
| Imports[1] | 000 t | | | 0.0 | 1.2 | 4.2 | 8.9 | 15.0 | 71.5 |
| Exports[1] | 000 t | | | 0.2 | 0.6 | 1.1 | 4.0 | 2.3 | 58.1 |
| Human consumption | 000 t | | | 10.3 | 5.6 | 9.7 | 10.7 | 16.9 | 17.9 |
| - kg/capita | kg | | | 6.7 | 3.7 | 6.4 | 7.2 | 11.4 | 12.2 |
| Self-sufficiency[2] | % | | | 102% | 90% | 68% | 54% | 25% | 25% |

1) As meat equivalent. 2) Calculated as production per domestic utilisation.
Sources: Commission PECO-database, Statistical Office of Estonia and FAO

Figure 1 explains the reasons for the recent significant de-stocking of pigs and poultry. In 1994, only 4 kg of pork or poultry meat was needed to purchase 100 kg of barley, but by 1996 the ratio worsened to 8 kg. This development results from the fact that, from 1995 to 1996, the average producer price of barley almost doubled, increasing from 995 EEK to 1 723 EEK per tonne. At the same time, the producer price of poultry meat remained almost unchanged and the producer price of pork increased at the end of year by 20%. Additional reasons for de-stocking were increased low-priced pork and poultry meat imports.

In 1996, the average import price of poultry meat was only 54% of producer price. As a consequence, many large agricultural enterprises sharply reduced their production capacity and some of them were closed, like the Pärnu Pig Factory with 20 000 pigs. In 1997 the price ratio improved again, resulting in a stabilisation of animal numbers (Figure 1).

### Poultry

Under the Soviet regime poultry production was also heavily based on imported and highly subsidised concentrate feed. Production was concentrated on large farms. Since then, poultry numbers decreased sharply by 66%. After independence, feed prices rose significantly weakening the profitability of production. The dramatic decrease in animal numbers in 1996-1997 was due to the worsening of the price ratio between

**Figure 1. Price ratio: how many kg of meat is needed to purchase 100 kg of barley.**

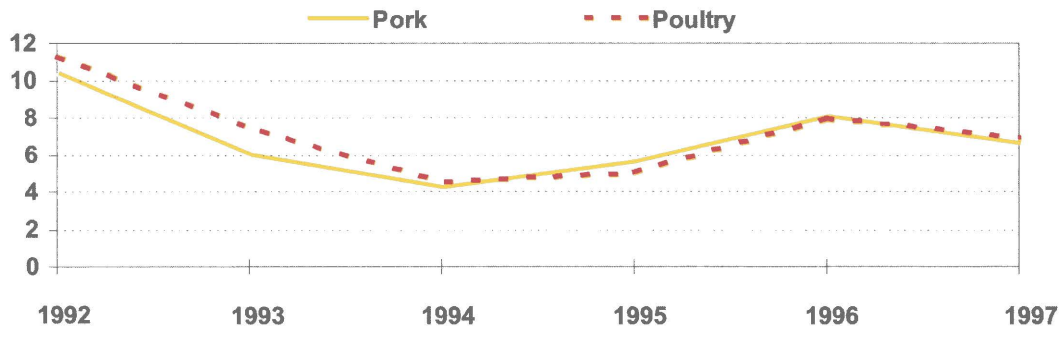


**Table 19. Egg supply balance**

| | | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|
| Production | 000 t | 28.3 | 21.5 | 22.5 | 20.4 | 18.8 | 18.3 |
| Imports[1] | 000 t | 0.4 | 1.9 | 1.2 | 0.7 | 1.5 | |
| Exports[1] | 000 t | 3.4 | 3.1 | 1.5 | 1.0 | 0.8 | |
| Avail for utilisation | 000 t | 25.3 | 20.3 | 22.1 | 20.1 | 19.5 | |
| - kg/capita | Kg | 16.4 | 13.3 | 14.7 | 13.5 | 13.2 | |
| Self-sufficiency[2] | % | 112% | 106% | 102% | 101% | 97% | |

1) As equivalent. 2) Calculated as production per domestic utilisation.
Sources: Commission PECO-database, Statistical Office of Estonia and FAO

meat and barley as explained earlier (see figure 1, section "pork"). In 1997, the number of slaughtered animals experienced some stabilisation and production can be estimated to a total of 4.5 thousand tonnes. This is due to a slowdown in the decrease in poultry population, increased imports and a drop in exports of live animals (Table 18).

During the mid-1980s, exports of poultry meat accounted for 5 thousand tonnes annually, dropping during the first years of independence to less than 1.0 thousand tonnes. In 1995 and 1996, exports showed some recovery, which was mainly due to re-exports. In 1997, foreign trade in poultry increased dramatically, imports reaching 71.5 thousand tonnes and exports 58.1 thousand tonnes. Imports came mainly from USA and Canada and are re-exported to Russia. Imports are low-priced meat, equalling on the average half of the domestic producer price. This development led to a situation, where the self-sufficiency rate of poultry meat fell to 25% in 1996. Since 1997, consumption of poultry meat recovered to its pre-independence level of 12 kilos per capita. Increased consumption of poultry meat can be estimated to continue in Estonia, reflecting world-wide trends.

EGGS

Since 1990, egg production declined sharply, by approximately 45% to 18.8 thousand tonnes in 1996. In 1997, production of eggs is assumed to have decreased by 2.4% to 18.3 thousand tonnes, while the number of laying hens shows some sign of stabilisation (Table 19).

Two-thirds of egg production takes place on agricultural enterprises in large units and one-third takes

**Table 20. Sheep and goat meat supply balance**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|---|---|
| Animal number | 000 | 140 | 140 | 143 | 123 | 83 | 62 | 50 | 45 |
| Imports life | 000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exports life | 000 | 1 | 0 | 2 | 18 | 3 | 1 | 0 | 0 |
| Slaughters | 000 | 103 | 94 | 83 | 61 | 57 | 38 | 25 | 23 |
| Average live weight | kg | | | 47 | 44 | 49 | 44 | 42 | 42 |
| Average carc weight | kg | 24 | 23 | 22 | 21 | 23 | 21 | 20 | 20 |
| Production | 000 t | 2.5 | 2.2 | 1.8 | 1.2 | 1.3 | 0.8 | 0.5 | 0.4 |
| Imports | 000 t | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Exports | 000 t | | | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Stock change | 000 t | | | | | | | | |
| Avail for utilisation | 000 t | | | 1.8 | 1.3 | 1.3 | 0.8 | 0.5 | 0.5 |
| - kg/capita (own) | kg | | | 1.1 | 0.8 | 0.9 | 0.5 | 0.3 | 0.3 |
| Self-sufficiency[1] | % | | | 104% | 99% | 99% | 100% | 99% | 100% |

1) As meat equivalent. 1) Calculated as production available for utilisation.
Sources: Commission PECO-database, Statistical Office of Estonia and FAO

**Table 21. Estonian catches**

| | | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|---|
| Distant fisheries | 000 tn | 73.7 | 88.6 | 72.4 | 70.1 | 34.7 |
| Baltic sea fishery | 000 tn | 36.9 | 41.6 | 46.1 | 59.2 | 71.4 |
| Inland water fisheries | 000 tn | 3.5 | 2.4 | 1.9 | 2.4 | 2.4 |
| Total | 000 tn | 114.1 | 132.7 | 119.3 | 131.6 | 108.5 |

Source: State of Estonia

place on household plots for direct consumption. This relation is probably not going to change in the medium term. As regards foreign trade, exports decline and imports increase, which matches the overall tendency for all other animal products.

### 2.1.3.4. Sheep and goat meat

Sheep and goat meat production is of minor importance in Estonia. Production declined by 80% to 0.5 thousand tonnes in 1996. Consumption of sheep and goat meat is also limited. Up until now, there is no sign of stabilisation in animal numbers (Table 20).

## 2.1.4. Fisheries

Fisheries play an important role in the Estonian economy. In 1996, fishing provided 0.5% of GDP, excluding the fish processing industry, which is the fourth biggest branch of the food industry, contributing 2.0% of the value added. Fisheries employ approximately 20 000 workers. The whole sector is privatised.

**Table 22. Estonian fishery quotas**

| | | 1996 | 1997 | 1998 |
|---|---|---|---|---|
| Distant water | | | | |
| Redfish | 000 tn | 22 801 | 22 801 | 18 005 |
| Squids | 000 tn | 5 000 | 5 000 | 5 000 |
| Cod | 000 tn | 1 078 | 588 | 195 |
| Baltic sea | | | | |
| Baltic herring | 000 tn | 56 800 | 56 800 | 56 800 |
| Baltic sprat | 000 tn | 51 500 | 56 650 | 56 650 |
| Cod | 000 tn | 2 937 | 3 200 | 2 492 |
| Salmon | 000 tn | 102 | 93 | 93 |

Source: State of Estonia

Before independence, fish was largely exported to the former Soviet Union. The situation changed due to the collapse of traditional markets, increased costs for energy and technical equipment. For example, the distant water fleet was reduced from 75 vessels in 1991 to 31 vessels in 1996, reflecting the decline in production and exports. Between 1991 - 1996, the catch of the distant water fleet fell from 230 thousand tonnes to 35 thousand tonnes. In addition, in 1996, there were in the Baltic Sea 161 vessels operated by small private companies and a further 500 boats under 12 meters. Baltic Sea catches increased from 42 thousand tonnes in 1993 to 71 thousand tonnes in 1996. Inland water catches were at a level of 2.4 thousand tonnes in 1996. In fish farming the dominant species are rainbow trout and carp, but production decreased from 1.7 thousand tonnes in 1989 to 0.3 thousand tonnes in 1996 (Table 21).

Over half of the fleet is more than 20 years old and would need considerable investment in order to maintain the utilisation of the different quotas at its present level. However, those fishermen who would like to make investments often lack the necessary guarantees. The machinery and equipment of the fish processing industry is in most cases outdated and productivity is low (Table 22).

In 1995, exports of fish and crustaceans were 55 thousand tonnes accounting for 14% of the value of total agricultural exports. In 1996, exports decreased by 25% because of the bankruptcy of the state-owned company "Ookean". However, exports of prepared and preserved fish continued to increase reaching 48 thousand tonnes in 1996. 85-95% of all

fish product exports are directed to the former Soviet Union. Annual per capita consumption of fish and fish production was a little bit more than 20 kilos in 1996.

### 2.1.5. Forestry

Forestry is a crucial part of Estonian economy, as forests cover 45% of the total land area with 1.9 million hectares in January 1997. The main tree species are birch (31%), pine (29%), fir tree (25%) and grey alder (11%). In 1996, forestry accounted for 1.3% of GDP and manufacture of wood and paper products 1.1% of GDP.

Only 10% of the forests are managed by private forest owners. In August 1996, 57% of the forests were managed by state forest districts. Privatisation of forests encountered the same problems as restitution of arable land. The 22 000 private family farms each have at present approximately 8 hectares of forest on average.

Total growing stock increased steadily to 295 million cubic meters in 1997. The annual growth of forests varies between 7-10 million cubic meters, but it is not fully utilised. Annual felling increased from 2.92 million cubic meters in 1990 to 4.03 million cubic meters in 1996. At the beginning of the 1990s, final felling and reforestation were in balance. However, in 1996, final felling covered 9 800 hectares, but reforestation accounted for only 5 400 hectares (Table 23).

The forest industry is export-oriented. Timber, paper and products thereof represented the fourth biggest group of merchandise exported in 1996, with a share of 12.7% of total exports. In 1994, the share was 11.0%.

The furniture industry, especially highly specialised manufacturers, has some competitive advantages due to inexpensive wood, a skilled, low-cost labour force and a low capital investment need, due to the high share of manual work. The competitive situation of processing forest industry is much more difficult. Notably, the pulp industry is technologically obsolete and causes great environmental damage.

## 2.2. Agricultural trade

### 2.2.1. Agricultural trade within global trade

Agricultural trade has traditionally been a key element of Estonian foreign trade. Despite decreased volumes, food exports remain the second biggest group of exports after clothing, footwear and headgear. In 1997, agricultural exports accounted for 16.3% of the total exports. Share of agricultural imports was 16.5% (Table 24 - Figure 2).

**Table 23. Production of wood**

| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|---|
| Growing stock total | mill m³ | | | | 274.0 | 277.4 | 284.5 | 294.9 | 295.1 |
| Growing stock | m³/ha | | | | 142.7 | 152.7 | 153.7 | 153.6 | 153.8 |
| Felling | mill m³ | 2.92 | 3.00 | 2.15 | 2.44 | 3.62 | 3.82 | 4.03 | |
| Harvesting intensity | m³/ha | 1.58 | 1.62 | 1.08 | 1.21 | 1.80 | 1.89 | 2.00 | |

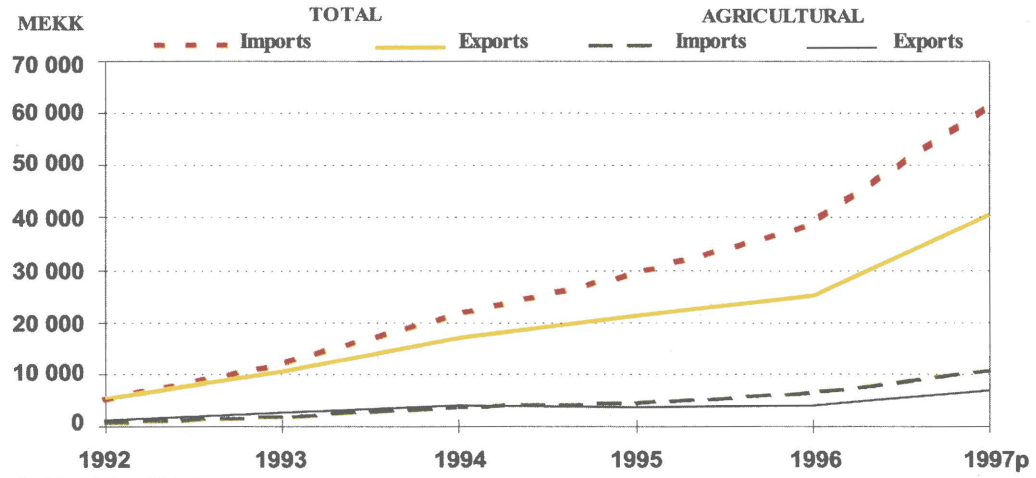
Source: Statistical Office of Estonia

**Table 24. Agricultural trade**

| | | 1992 | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|---|
| Total foreign trade | | | | | | | |
| - exports | M EEK | 5 549 | 10 636 | 16 942 | 21 049 | 24 988 | 40 408 |
| - imports | M EEK | 5 128 | 11 831 | 21 509 | 29 112 | 38 553 | 61 325 |
| - balance | M EEK | +421 | -1 195 | -4 567 | -8 063 | -13 565 | -20 917 |
| Agricultural products | | | | | | | |
| - exports | M EEK | 974 | 2 499 | 3 748 | 3 453 | 3 937 | 6 589 |
| annual change | % | | +156 | +50 | -8 | +14 | +67 |
| - imports | M EEK | 517 | 1 741 | 3 430 | 4 137 | 6 014 | 10 118 |
| annual change | % | | +237 | +97 | +21 | +45 | +68 |
| - balance | M EEK | +456 | +758 | +318 | -684 | -2 078 | -3 529 |
| - exports of total | % | 17.5 | 23.5 | 22.2 | 16.4 | 15.8 | 16.3 |
| - imports of total | % | 10.0 | 14.7 | 15.9 | 14.2 | 15.6 | 16.5 |

Source: Statistical Office of Estonia

**Figure 2. Development of foreign trade**




Source: Statistical Office of Estonia

The overall trade balance has been negative since 1993. For food products, the trade balance has also been negative since 1995. The annual increase of agricultural imports was greater than the increase of exports, which also here lead to a rapidly deteriorating trade balance. The trade deficit increased threefold in 1996 to 2 054 million EEK, due to rapid economic growth. In 1996, the annual increase in food imports was 45%, whereas increase in exports was only 14%.

During 1997, the increase in imports boosted, due to the strong growth of the economy, but the development of exports was also positive. Transit trade is important, re-exports accounted for 23% of total food exports. Some black market activities also exist, however there are no estimates as to the volumes concerned.

## 2.2.2. Analysis by category of product

(Table 25)

The export side is clearly more concentrated than the import side. 2 HS-chapters[5] of all 24 account for 52% of all agricultural exports. The biggest group is dairy and eggs with a share of 29.1%. In second place is preparations of meat and fish, with a share of 22.8%.

[5] In international trade statistics, products are classified into HS-groups. The food products are devided into 24 different main product categories called HS-groups, like "meat and edible meat offal".

**Table 25. Structure of agricultural trade**

| | 1995 | | 1996 | | Of which | | |
|---|---|---|---|---|---|---|---|
| | M EEK | % | M EEK | % | EU | CIS | others |
| EXPORTS | 3 452.0 | 100.0 | 3 936.8 | 100.0 | 788.1 | 2337.3 | 811.4 |
| 04 Dairy and eggs | 1 013.8 | 29.3 | 1 144.8 | 29.1 | 355.6 | 598.5 | 190.7 |
| 16 Preparations of meat and fish | 805.2 | 23.3 | 897.9 | 22.8 | 34.0 | 720.9 | 143.0 |
| 03 Fish | 481.9 | 14.0 | 351.0 | 8.9 | 151.5 | 156.4 | 43.1 |
| 18 Cocoa and cocoa preparations | 163.6 | 4.7 | 267.7 | 6.8 | 16.3 | 206.2 | 45.2 |
| 22 Beverages | 169.1 | 4.9 | 254.2 | 6.5 | 29.3 | 68.6 | 156.3 |
| 17 Sugar and sugar confectionery | 109.2 | 3.2 | 155.6 | 4.0 | 15.3 | 107.3 | 33.0 |
| 08 Edible fruits and nuts | 46.1 | 1.3 | 92.7 | 2.4 | 70.0 | 17.2 | 5.5 |
| 09 Coffee, tea, mate, spices | 72.4 | 2.1 | 90.7 | 2.3 | 20.3 | 40.4 | 30.0 |
| Others | 590.7 | 17.1 | 682.2 | 17.3 | 95.8 | 421.8 | 107.9 |
| IMPORTS | 4 134.5 | 100.0 | 6 014.4 | 100.0 | 3479.1 | 623.2 | 1912.1 |
| 22 Beverages | 470.9 | 11.4 | 568.2 | 9.5 | 425.9 | 27.3 | 115.0 |
| 18 Cocoa and cocoa preparations | 235.8 | 5.7 | 515.9 | 8.6 | 161.4 | 0.9 | 353.6 |
| 04 Dairy and eggs | 345.3 | 8.4 | 481.7 | 8.0 | 190.0 | 103.8 | 187.9 |
| 17 Sugar and sugar confectionery | 323.4 | 7.8 | 433.3 | 7.2 | 374.0 | 25.8 | 33.5 |
| 19 Preparations of cereals, flour | 221.0 | 5.3 | 399.1 | 6.6 | 354.7 | 13.8 | 30.6 |
| 02 Meat and edible meat offal | 169.7 | 4.1 | 398.0 | 6.6 | 87.6 | 0.2 | 310.2 |
| 21 Miscellaneous edible products | 337.2 | 8.2 | 386.5 | 6.4 | 294.9 | 10.3 | 81.3 |
| 15 Animal/vegetable fats and oils | 359.2 | 8.7 | 365.2 | 6.1 | 339.1 | 19.0 | 7.1 |
| Others | 1 672.0 | 40.4 | 2 466.5 | 41.0 | 1252.5 | 422.1 | 792.9 |
| BALANCE | -682.5 | | -2077.6 | | -2691.0 | 1714.1 | -1100.7 |

Source: Statistical Office of Estonia

When the third biggest group, fish, is included, these three sectors account for 61% of all exports. However, as mentioned already, in 1996 exports of fish decreased to 351 million EEK, because of the bankruptcy of the state-owned company "Ookean". Foreign direct investment in the beverage sector seems to have an impact also on exports. The export of beverages is rising strongly at a rate of 50% in 1996.

Agricultural imports are more fragmented; no single group is dominant. The five biggest groups accounted in 1996 for 40% of all imports. The 16 smallest groups accounted for 40% of the imports. Beverages and cocoa products were the two biggest groups. Imports of the latter product group showed a strong increase, as did the imports of meat products.

## 2.2.3. Analysis by partner

59% of all agricultural exports in 1996 were destined for the NIS-markets and 20% to the EU-markets. In 1995, the related figures were 53% and 29%, respectively, indicating that the increase in exports to the NIS-markets is stronger than the increase in exports to the EU-markets. In 1996, EFTA-countries had a share of 1%. Russia still remains the most important trading partner with a share of 37.8%, despite the import tariffs which Russia has put in place in relation to products exported from Estonia. Ukraine also had an important share of 12.6%. The third ranking trade partner in 1996 was the Netherlands with a share of 9.6%. In 1997, the share of the Netherlands increased due to the important role of the country as a re-exporting trade partner (Table 26).

In 1996, 58% of all food imports came from the EU, especially from Finland (16.2%), Germany (8.4%) and Netherlands (8.0%). This means, that Estonia has a remarkable trade deficit of 2 709 million EEK with the EU. Estonia has a permanent, significant trade surplus with the NIS-countries. Imports from CEECs show a strong increase since 1992 and the former trade surplus changed to a trade deficit in 1996.

**Table 26. Direction of Estonian agricultural trade (M EEK)**

| | EXPORTS | | | | | IMPORTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1992 | 1993 | 1994 | 1995 | 1996 | 1992 | 1993 | 1994 | 1995 | 1996 |
| TOTAL | 974 | 2 497 | 3 751 | 3463 | 3 936 | 517 | 1 741 | 3 430 | 4 137 | 6 058 |
| EU-15 total | 368 | 669 | 809 | 998 | 789 | 334 | 1 360 | 2 458 | 2 721 | 3 498 |
| EU-12 total | 257 | 447 | 557 | 821 | 561 | 202 | 866 | 1 417 | 1 601 | 2 239 |
| - Netherlands | 159 | 296 | 302 | 523 | 377 | 31 | 248 | 381 | 425 | 482 |
| - Finland | 84 | 151 | 153 | 116 | 152 | 122 | 402 | 747 | 839 | 974 |
| - Germany | 34 | 70 | 95 | 76 | 88 | 85 | 237 | 310 | 379 | 505 |
| - Sweden | 27 | 58 | 77 | 55 | 72 | 10 | 86 | 249 | 225 | 242 |
| - Denmark | | 64 | 120 | 98 | 61 | | 104 | 213 | 210 | 264 |
| CEEC total | 131 | 507 | 760 | 500 | 606 | 33 | 90 | 230 | 403 | 691 |
| - Latvia | 9 | 283 | 346 | 241 | 285 | 13 | 27 | 59 | 155 | 191 |
| - Lithuania | 7 | 124 | 322 | 187 | 250 | 4 | 22 | 52 | 98 | 183 |
| NIS total | 412 | 1 111 | 2 055 | 1 841 | 2 336 | 83 | 158 | 318 | 397 | 627 |
| - Russia | 219 | 858 | 1 639 | 1 260 | 1 487 | 34 | 67 | 177 | 231 | 215 |
| - Ukraine | 51 | 138 | 183 | 313 | 495 | 18 | 29 | 93 | 116 | 289 |
| - Belarus | 5 | 32 | 123 | 168 | 165 | 2 | 2 | 11 | 13 | 22 |
| Others | 63 | 210 | 127 | 124 | 205 | 67 | 133 | 424 | 616 | 1 242 |

Source: Statistical Office of Estonia

**Table 27. Farm structure in Estonia (1.1.1997, land use 1996 consisting rented land)**

| | Number of farms | Agri-cultural land (ha) | (ha) | Arable land (%) | (%) | Average size (ha) | GAO[1] in 1996 (M EEK) | % of total GAO |
|---|---|---|---|---|---|---|---|---|
| Farm enterprises | 898 | 409 600 | 395 100 | 35 | 44 | 440 | 3 262 | 47 |
| Family farms | 22 722 | 377 100 | 319 000 | 28 | 35 | 14 | 1 630 | 24 |
| Household plots | 45 000[2] | 251 400 | 193 600 | 17 | 21 | 4 | 2 052 | 30 |
| Idled land | - | 396 600 | 220 100 | 20 | | | - | - |
| Total | 65 692 | 1 449 600 | 1 127 800 | 100 | 100 | | 6 944 | 100 |

1 Gross Agricultural Output, 2 Estimate, State of Estonia.

Source: Statistical Office of Estonia

## 2.3. The evolution of farm structures and privatisation

In the Soviet era 360 state farms were responsible for the major agricultural production. The average size was 3 700 hectares. In addition, there were numerous household plots for the use of workers on the state farms.

In January 1997, the total number of all farms was approximately 65 000. Less than 900 of these farms were agricultural enterprises. The number of private family farms almost tripled in 5 years from 8 400 farms to 22 700 farms. Agricultural enterprises are referred to as former state farms and collectives, of which most are now privatised, although the state still owns the land on which they operate. Family farms are defined as private farms which operate on restituted land and which is owned by the farmer. Household plots were under the Soviet regime used by workers of state farms and collectives and they still in most cases don't own the land. The difference between a private family farm and a household plot is not always clear. Some of the farms, privately owned by a family, are counted as household plots because farmers resist having their farm included in the Farm Register in order to avoid obligatory book keeping (Table 27).

The land reform process is based on the restitution of land to previous owners or their heirs. In principle, the deadline for receiving claims has elapsed. The whole privatisation process proved to be time consuming in Estonia. After more than five years of land privatisation policy preliminary results indicate that only one fourth of the land will finally be restituted. Originally, there were claims covering only 50% of the arable land; during the process half of the claims were withdrawn. Many people who had the right to claim land had other professions; in many cases they were city dwellers so that starting farming would require moving to the countryside. Also the attitude of the general public towards agriculture was not encouraging. Some people even questioned whether Estonia needs agricultural production at all. Combined with poor profitability and lack of functioning land markets, these reasons resulted in a low rate of claims.

The price of land fell as a result of poor profitability and inadequate land markets in Estonia. Land tax is approximately 1-2% of the taxation price of land. In 1993, the taxation price of arable land was 6 000 EEK, but by 1995 the taxation price decreased to 3 000 EEK. The bureaucratic process of buying land costs, in many cases, as much as buying the land.

Farmers have the possibility to expand their crop production without purchasing land, as unused arable land is available. Non-privatised land can be used on the basis of a request to the local community, but only on an annual basis, and without having any security to continue. The charge for using this land corresponds to the land tax. There is a strong need for a functioning land market and land rental market, since land would be needed as a collateral for loans. Efforts for creating a land registry have been made, but progress is still limited.

### 2.3.1. Agricultural enterprises

In 1990, there were 117 state farms and 212 collectives in Estonia. After independence these farms were to be privatised, and land and other assets returned to previous owners or to their heirs. The implementation of the privatisation policy at farm level was done by local reform commissions.

New agricultural enterprises are organised mostly as joint stock companies, but also as co-operatives and partnerships. In January 1997, there were 898 farm enterprises with an average size of approximately 450 hectares. 44 of these are agricultural auxiliary farm enterprises, which are relatively small in size, indicating that the size of the remaining 854 large-scale farm enterprises is above the average.

The share of arable land used by agricultural enterprises decreased from 1.019 million hectares in 1992 to 0.395 million hectares in 1996. In 1996 agricultural enterprises cultivated 45% of total arable land. 40% of the land is used to grow cereals and 55% is used for forage crops. The agricultural enterprises still have a major role in animal production. In 1996, they produced 57% of all milk, 48% of beef, 70% of pork and 64% of eggs. In addition, agricultural enterprises still produced 52% of all cereals, although their cereal area was only half of the 1992 figures.

New agricultural enterprises had start-up difficulties. If needed, the sale of buildings and other assets was often difficult, because there was no market for them or their market value was insufficient to cover the debts to which they are attached as collateral. At the same time, the profitability of farming decreased dramatically.

The privatisation process involved new obligations for agricultural enterprises. Firstly, they must pay compensation of 377 million EEK to 100 000 qualified claimants. Secondly, they must recognise labour shares of 987 million EEK for 185 000 former workers. In January 1997, the agricultural reform was completed in 178 state farms and 85% of the compensations and 94% of the labour shares were paid. The reform was well advanced in most of the remaining farms.

Overall, the operational efficiency of agricultural enterprises has not improved, this is partly due to the prevailing uncertainty concerning future developments. In most cases, they own buildings and machinery, but not a single hectare of land. Land was rented to the agricultural enterprises on a short-term basis, awaiting final arrangements. As long as the agricultural enterprises do not have titles to their land, in many cases they are not able to raise new loans because of the lack of guarantees. The consequences were often weak internal management, and low work morale. New investments were lacking; existing livestock and machinery were sold to pay the salaries of the workers.

Privatisation of the land of the agricultural enterprises would be possible either by selling it to the current members of agricultural enterprises or by opening competition to buyers on the basis of auctioning. There are also proposals for creating the legal framework for leasing. If farmland can't be privatised by selling it, a long-term lease would solve the problem for some time. At the expiration of the lease period, the parcel would be auctioned for sale again. Leased land could be used as a guarantee for loans and selling part or all of the lease would be possible.

## 2.3.2. Private family farms

In January 1997, there were 22 722 private family farms. The average size was 22 hectares of which approximately 14 hectares was arable land and the rest forest or other land. 29% of the farms have less than 10 hectares and 24% have more than 30 hectares. In the period 1992-1997, the number of smaller farms increased more than the number of bigger farms. At the same time, the share of cultivated arable land operated by private family farms increased from 0.088 million hectares to 0.319 million hectares, representing 35% of all cultivated arable land (Table 28).

40% of the land is under cereals and 43% is sown to forage crops. In 1996, family farms produced 44% of all cereals, 49% of industrial crops and 30% of potatoes. They are less significant in animal production. In 1996, they produced only 15% of milk, 11% of beef, 7% of pork and 3% of eggs.

The need for advisory services is strong, because many family farmers have no advanced farming or management skills. Family farmers can be divided into four different groups:

- management level staff of former state and collective farms highly skilled to run their farm
- specialised workers of former state and collective farms with limited management skills
- families on household plots with farming experience but a lack of capital
- persons with no farming experience receiving the land which their family had held before

**Table 28. Number of family farms by size.**

| | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|
| up to 5 ha | 659 | 818 | 1 634 | 3 490 | 2 901 |
| 5.1 - 10.0 ha | 1 040 | 1 298 | 1 827 | 2 898 | 3 644 |
| 10.1 - 20.0 ha | 2 269 | 2 823 | 3 750 | 5 272 | 6 364 |
| 20.1 - 30.0 ha | 1 804 | 2 191 | 2 721 | 3 574 | 4 299 |
| 30.1 - 50.0 ha | 1 811 | 2 090 | 2 488 | 3 175 | 3 800 |
| 50.1 - 100.0 ha | 784 | 879 | 1 027 | 1 273 | 1 574 |
| over 100.0 ha | 45 | 54 | 66 | 85 | 140 |
| Total | 8 412 | 10 153 | 13 513 | 19 767 | 22 722 |

Source: Statistical Office of Estonia

For a long time, many of the private family farms had only temporary titles to their land. In August 1994, the land registry included only 3500 private farmers, although there were more than 10 000 private farms established. There are several reasons for this. Firstly, many landowners deliberately delayed registration of their land to avoid land taxes. Secondly, a lot of the registration work was left undone and new data about land use is missing, because there are not enough land registration specialists for each local administration and not enough money to pay for these services. By 1.1.1997 only 11.7% of the total area of Estonia was registered. By summer 1997, an estimated 20% of arable land was under formal title. The situation is improving and land users who haven't registered their land formally by 1 January 1998 will start paying additional land taxes to the state.

### 2.3.3. Household plots

About 45 000 household plots exist with an average size of approximately 4 hectares. Household plots are cultivated by workers of former state and collective farms, accounting for 21% of the cultivated arable land. The difference between a private family farm and household plot is not always clear. Some of the farms, although privately-owned, are counted as household plots, because they are not enrolled into the Farm Register.

Less than 5% of the land is used to grow cereals declining from 56 000 hectares in 1992 to 8 500 hectares in 1996. The main emphasis is on forage crops (84%) and potatoes (11%). In 1996, the household plots produced 61% of potatoes. The importance of household plots is greater in animal production. In 1996, they produced 28% of milk, 41% of beef, 23% of pork and 33% of eggs.

Household plots face the same uncertainty as farm enterprises, because the occupiers were not given titles to their land. The well-run and productive household plots are suffering from a relative disadvantage compared to private farms, because they can't use the land as a guarantee for bank loans for investments.

### 2.3.4. The diversity of farm structure - the example of the dairy farms

More detailed information is available on the basis of the data of the Milk Recording Centre. In 1990, 85% of all cows were included in the milk yield recording system. At that time, there were 340 farms with dairy cattle and the average herd size was 862 cows. Production was concentrated in large units, only 7 farms had less than 100 cows and two thirds had 300-900 cows. By 1993, the number of farms participating in the milk yield recording was at its highest level, at 3 797 farms, covering 80% of all cows. In that year 54% of the farms had only 1-4 cows, indicating a radical change in farm structure.

In January 1998 milk, yield recording covered about 72% of all cows. Average herd size was 44 cows. Half of the farms have 1-6 cows, having only 3.6% of the total herd. The 90 largest units - with more than 300 cows per farm - account for only 3.4% of all farms but for 41% of the total herd. Milk production is still heavily concentrated on large units. Those farms which are not participating the milk yield recording are probably relatively small farms or household plots with some 45 000 cows.

When direct income measures will be put in place in 1998, as envisaged, only those farms which are participating in milk yield recording will be entitled to aid. However, those farms must exceed also a certain regional reference yield level, and have at least five cows in order to be eligible. The Ministry of Agriculture intends to promote only the most efficient farms (Table 29).

**Table 29. Structure of dairy farms as of 1 of January**

| Herd size | 1990 Number of farms | 1990 % | 1993 Number of farms | 1993 % | 1996 Number of farms | 1996 % | 1998 Number of farms | 1998 % | 1998 Cattle at farms | 1998 % |
|---|---|---|---|---|---|---|---|---|---|---|
| 1-2 | - | - | 1 248 | 33 | 871 | 30 | 512 | 19 | 660 | 0.6 |
| 3-4 | - | - | 803 | 21 | 615 | 21 | 406 | 15 | 1 403 | 1.2 |
| 5-6 | - | - | 398 | 11 | 301 | 10 | 386 | 15 | 2 095 | 1.8 |
| 7-8 | - | - | 222 | 6 | 205 | 7 | 248 | 9 | 1 847 | 1.6 |
| 9-10 | - | - | 144 | 4 | 136 | 5 | 182 | 7 | 1 722 | 1.5 |
| 11-50 | - | - | 291 | 8 | 291 | 10 | 472 | 18 | 9 204 | 8 |
| 51-100 | 7 | 2 | 161 | 4 | 127 | 4 | 124 | 5 | 9 262 | 8 |
| 101-300 | 24 | 7 | 342 | 9 | 278 | 10 | 226 | 9 | 42 141 | 36 |
| 301-600 | 107 | 32 | 120 | 3 | 74 | 3 | 71 | 3 | 28 616 | 25 |
| 601-900 | 114 | 34 | 27 | 1 | 14 | 0.5 | 12 | 0.5 | 8 994 | 8 |
| 901-1200 | 54 | 16 | 6 | 0.2 | 5 | 0.2 | 4 | 0.2 | 4 193 | 4 |
| 1200- | 34 | 9 | 5 | 0.2 | 3 | 0.1 | 3 | 0.1 | 5 938 | 5 |
| Total | 340 | 100 | 3 767 | 100 | 2 920 | 100 | 2 651 | 100 | 116 075 | 100 |
| Aver. size | 862 | | 67.2 | | 42.1 | | 43.7 | | | |
| Included* | 85% | | 80% | | 66% | | 72% | | | |

* Share of cows included in milk recording, of total number of cows.
Sources: Animal Recording Centre, Estonia

## 2.4. Rural development

### 2.4.1. Regional economy

In 1995, the GDP per head was about 23% of the EU average in purchasing power terms. GDP levels vary largely from county to county. New business establishment is highest in the Tallinn region and other urbanised areas as well as in the western part on the country. The eastern part of Estonia has more problems, where also employment in public sector is relatively high. Income levels are lowest in southern and eastern Estonia.

The average official unemployment rate is around 4-5%, whereas the unemployment rate according to the ILO method was 10.5% of the total labour force in the second quarter of 1997. Unemployment is relatively high in the south-eastern part of Estonia. The main reason for the economic depression in the north-eastern part of the country is the decline of heavy industry, which was hit by the breakdown of former Soviet Union markets and is fighting for economic survival. The unemployment figures are to some extent higher in rural areas than in urban areas. The difference has increased among males during recent years. In 1996, the unemployment rate of rural males was 11.8% and respectively 10.3% among urban males. The labour force participation rate of females is remarkably lower in rural areas (55.0%) as compared to the rate in urban areas (64.3%). However, the real unemployment rate in certain rural areas may be even 25-30% due to high number of unregistered job seekers (Table 30).

**Table 30. Unemployment rate in rural and urban areas,%**

| | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|
| Total | 3.7 | 6.5 | 7.6 | 9.7 | 10.0 |
| - rural | 3.0 | 6.6 | 8.0 | 10.6 | 11.1 |
| - urban | 4.0 | 6.5 | 7.4 | 9.4 | 9.6 |
| Females | 3.4 | 6.6 | 7.9 | 8.8 | 9.2 |
| - rural | 2.4 | 7.0 | 7.9 | 8.5 | 10.0 |
| - urban | 3.8 | 6.5 | 7.9 | 8.9 | 9.0 |
| Males | 3.9 | 6.5 | 7.3 | 10.6 | 10.7 |
| - rural | 3.3 | 6.3 | 8.2 | 12.2 | 11.8 |
| - urban | 4.1 | 6.6 | 6.9 | 9.9 | 10.3 |

Source: Statistical Office of Estonia

### 2.4.2. Rural and urban population

The population is 1.462 million (on 1.1.1997). The population peaked in 1990 at 1.574 million, but since then it has been decreasing. This can be explained mainly because of the re-migration of Russians, but also by a declining birth rate. The Russian minority is large, representing 28% of the total population, declining from 475 000 inhabitants in 1989 to 413 000 inhabitants in 1997.

30.6% of the population lives in rural areas. The share of the rural population is increasing, due to a decrease in the urban population, as a result of migration back to Russia. In absolute numbers, the rural population decreased only by 0.3% between 1990-1997.

Administratively, Estonia is divided into 15 counties, which encompass the altogether 254 self-governed units. There are 207 municipalities and 47 towns, of which the biggest is Tallinn, the capital, with a declining population of 420 000 in 1997. In 1990, Tallinn had 480 000 inhabitants. The second biggest town, Tartu, has a population of 102 000 (in 1990 114 000) and Narva 75 000 (in 1990 82 000). Up until now, the population in the biggest towns has decreased.

The average population density in Estonia is 32.3 inhabitants per $km^2$, which is remarkably higher than in Finland and Sweden, but below that of Ireland.

## 2.5. Agriculture and the environment

In the Soviet era, Estonia was an intensive animal producer, based on low-priced, heavily subsidised, imported inputs. Also fertilisers and pesticides were highly subsidised. Exports were up to 60% of production of milk and meat products. The high intensity of livestock production led to problems with organic fertiliser disposal. National investigations estimated that in the 1980's, 76% of the nitrogen load and 20% of the phosphorus load that were leached into water bodies originated from agriculture. The use of heavy machinery lead to compaction and a poor structure of soils.

Since then, agricultural production has declined sharply and the intensity of agricultural production went down. At the same time, prices of inputs increased rapidly leading to low purchasing power at farm level. This led to a decreasing use of fertilisers and pesticides.

Fertilisers are not used at all over large areas which considerably increased in 1995 and 1996. In 1988, the area fertilised with mineral fertilisers was 92% of the sown acreage, while in 1996, the coverage was only 31%. Manure was used on 10% of the sown area. Also the intensity of fertilisers used per hectare was reduced significantly. In 1988, for the whole sown area, 250 kg/ha of NPK was applied; in 1996 the figure was only 25 kilos. Nitrate was used in 1996 at an intensity of only 19 kilos per sown hectare on the average and 62 kg per fertilised hectare. As a consequence, the fertility of soil decreased significantly. In 1997, a slight recovery took place.

The use of pesticides declined fivefold, according to national estimates. In 1996, farm enterprises used 0.6 kg/ha of herbicides and 1.0 kg/ha of fungicides. Herbicides were used on 140 000 hectares in 1996. Use of all other pesticides was rare, ranging from 100 to 27 000 hectares. Insufficient use of pesticides led to a reduction of yields.

The negative influence of agriculture on the environment decreased remarkably. Due to the decline in production capacities, the emission of pollutants to the environment decreased and the general state of the environment improved. However, despite the sharp decrease in the use of fertilisers, the recovery of the environment will take a long time. Under the Soviet era ground water became increasingly polluted. At the end of 1980s, there was even the danger that large areas would have problems with usable drinking water. In 1996, out of the tested samples of drinking water, 9.4% did not meet health standards (Table 31).

**Table 31. Use of fertilisers and pesticides**

| Agricultural crops | | 1988 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|
| Sown area | 000 ha | | 1 068 | 948 | 862 | 871 | |
| Fertilised area of sown area | | | | | | | |
| - mineral fertilisers | % | 92 | 42 | 43 | 38 | 31 | |
| - manure | % | 12 | 9 | 12 | 10 | 10 | |
| Use of mineral fertilizers[1] | | | | | | | |
| - for the whole sown area | NPK kg/ha | 250 | 62 | 44 | 32 | 25 | 27 |
| Nitrate | kg/ha | 101 | 29 | 28 | 22 | 19 | 20 |
| $P_2O_5$ | kg/ha | 60 | 11 | 5 | 4 | 3 | 3 |
| $K_2O$ | kg/ha | 89 | 22 | 11 | 5 | 3 | 4 |
| - for the fertilised area | NPK kg/ha | 272 | 144 | 102 | 83 | 83 | |
| Nitrate | kg/ha | 110 | 66 | 64 | 57 | 62 | |
| $P_2O_5$ | kg/ha | 65 | 27 | 12 | 11 | 10 | |
| $K_2O$ | kg/ha | 97 | 51 | 26 | 14 | 11 | |
| Use of manure | | | | | | | |
| - for sown area | tn/ha | 12 | 5 | 5 | 4 | 3 | |
| - for fertilised area | tn/ha | 65 | 53 | 45 | 41 | 32 | |
| Use of pesticides at agricultural enterprises | | | | | | | |
| - fungicides | kg/ha | | 0.9 | 0.7 | 1.3 | 1.0 | |
| - herbicides | kg/ha | | 1.1 | 1.0 | 0.9 | 0.6 | |
| - seed treatment preparations | kg/ha | | 0.2 | 0.3 | 0.4 | 0.5 | |
| - insecticides | kg/ha | | 0.4 | 0.3 | 0.3 | 0.1 | |
| - retardants | kg/ha | | 1.1 | 1.2 | 1.3 | 0.3 | |
| - desiccators | kg/ha | | 0.4 | 0.9 | 1.3 | 0.9 | |

1) in terms of active substance
Source: Statistical Office of Estonia

The number of registered violations of nature protection regulations almost doubled in the last three years. 6 800 violations of nature protection regulations were registered in 1996, causing damages of estimated 21.9 million EEK. The value of damages against forest and other flora protection regulations was the highest with 17.9 million EEK. The environment protection expenditures of non-financial corporations and municipalities increased significantly: in 1995 the total expenditure was 471 million EEK, increasing to 941 million EEK in 1996.

## 2.6. Upstream and downstream activities

### 2.6.1. Upstream services

During the pre-independence period, the upstream sector was only represented by one state organisation, Estonian Agricultural Machinery (EPT). It was responsible for the sales of machinery, fertilisers, and other inputs, but also of technical and transportation services. ETP had 27 subsidiaries, one or two located in each county. Nowadays, there are about 120 upstream manufacturers, of which 20 are larger in turnover. Most of the production is directed to domestic markets, only minor amounts are exported to Finland and Sweden, mainly fertilisers. Production facilities for fertilisers need to be modernised significantly and large investments are needed to protect the environment. Since 1997, the whole upstream industry has been privatised.

The up-stream sector provides for a satisfactory supply of machinery and inputs of both domestic and European origin. The Estonian products are cheaper, which makes them more popular. Some foreign manufacturers, like the Danish Kværneland, have joint venture companies in Estonia. Leasing of machinery is common, since farms lack capital and collateral.

**Table 32. Industrial production indices (at constant prices)**

| | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|
| Manufacturing total | 100.0 | 62.0 | 50.5 | 48.9 | 50.3 |
| Manufacture of food products, beverages and tobacco | 100.0 | 73.6 | 57.9 | 51.9 | 50.2 |
| - fish and fish products | 100.0 | 66.2 | 71.0 | 89.1 | 80.9 |
| - bakery products | 100.0 | 80.7 | 72.2 | 73.5 | 69.6 |
| - meat and meat products | 100.0 | 76.0 | 60.7 | 42.3 | 42.4 |
| - dairy products | 100.0 | 82.5 | 41.1 | 37.1 | 32.7 |
| - grain mill products | 100.0 | 75.1 | 32.4 | 30.7 | 31.2 |
| - prepared animal feeds | 100.0 | 55.6 | 41.1 | 33.9 | 22.1 |
| - beverages | 100.0 | 75.4 | 98.8 | 87.5 | 113.9 |

Source: Statistical Office of Estonia

## 2.6.2. Food industry

Industry had a share of 23% of GDP in 1995, accounting for 28% of employment. Within the industry (manufacturing, constructing and energy) the food processing industry accounted for 21% of the GDP and 20% of its employment. As compared to the total GDP, the food processing industry had a share of 4.8% (Table 32).

Production capacity of the Estonian food industry was originally planned to meet not only domestic demand, but also the demand of many parts of the FSU. Market collapse led to sharp output reductions. Until 1995, the manufacture volume of food products, beverages and tobacco products declined by 50% as compared to the 1991 figures. In 1995, manufacture of grain mill products was only 31% and of dairy products 33% as compared to 1991. The food industry is still the most important sector within Estonian manufacturing. Agricultural exports accounted for 15.8% of the total exports in 1996. 59% of exports go to NIS-countries.

The privatisation process of up- and downstream facilities advanced faster than the privatisation of land. It had been handled by the Privatisation Agency. Within the food industry, privatisation reached its peak in 1994-95. Privatisation took place by tender, public or restricted auction, or public offers for the sale of shares through the stock exchange. Shares in agricultural enterprises are held either by producers, private shareholders or by foreign investors. Shares of these farm enterprises are quoted on the Tallin stock market, with relatively good success. Since 1996, the whole downstream industry is privatised.

According to Article 32 of the privatisation legislation, priority in the privatisation process was given to processing co-operatives, which consist of farms and possibly of co-operatives with the same product specialisation. Article 32 gave them the right to buy the whole farm enterprise or parts of them for a deposit of 10% of the fixed price. The remaining 90% of the purchasing price are to be paid within 10 years.

The producer co-operatives met severe problems: given their lack of financial resources and of technical, marketing and business skills, the preferential treatment of processing co-operatives seems to have contributed to a lack of a dynamic development of the food industry, which causes adverse effects also on agriculture. This may explain also the low level of foreign direct investment compared to other sectors of industry.

Up until now, the Estonian food processing industry has not succeeded in attracting many foreign direct investors, which has been the case also in most CEECs. Open tenders concentrated foreign direct investment on farm enterprises not covered by Article 32. This meant, that foreign direct investment was concentrated on the drinks and beer industry, but also on agricultural enterprises, which were privatised under bankruptcy procedures. In addition, the food

**Table 33. Food processing industries, all and enterprises with more than 50 employees**

| | N of enterprises | | | Number of | | Sales 1995 | Sales -96 per |
|---|---|---|---|---|---|---|---|
| | All | > 50 empl | | Employees | M EEK | share | enterprise[1] |
| | 1995 | 1995 | 1996 | 1995 (all) | (all) | >50empl | M EEK |
| **All manufacturing** | 4 593 | | | 130 808 | 21 400 | | |
| **Manufacture of food** | | | | | | | |
| beverages, tobacco | 431 | 119 | 126 | 26 343 | 7 554 | 90% | 60 |
| - dairy products | 39 | 20 | 23 | 4 058 | 1 883 | 93% | 93 |
| - fish and fish prod. | 57 | 19 | 21 | 7 895 | 1 309 | 92% | 59 |
| - meat and meat prod. | 81 | 15 | 16 | 4 566 | 1 241 | 86% | 62 |
| - bakery products | 129 | 18 | 18 | 4 230 | 756 | 86% | 44 |
| - prep. animal feeds | 22 | 5 | 5 | 840 | 292 | 95% | 33 |
| - grain mill products | 19 | 5 | 5 | 397 | 79 | 84% | 17 |
| - beverages | 36 | 23 | 23 | 2 369 | 1 546 | 100% | 66 |
| - others | 48 | 14 | 15 | 1 988 | 448 | | |

1) Enterprises with more than 50 employees
Source: Statistical Office of Estonia

industry developed some international co-operation, such as with the Finnish dairy company Valio.

During the pre-independence period, there were 48 state-owned food-processing companies, among them 11 dairy enterprises, 12 large-scale slaughterhouses and meat processing plants, and 9 mills. At present, the food processing industry is still concentrated in a few large companies. The Statistical Office of Estonia has an enterprise register for companies with more than 50 employees. In 1995, there were altogether 119 large-scale food processing enterprises, accounting for approximately 90% of total food industry sales. In addition, there are many small enterprises, especially in the meat processing industry. For example, in 1996, the meat processing industry included 16 companies with more than 50 employees, while 184 meat-processing businesses were registered for veterinary licences. Altogether there are 430 companies producing food products and drinks (Table 33).

The food industry has also a regional dimension in Estonia. 44% of the functioning food industry is concentrated at the north coast of Estonia, meaning Tallinn, Harju, Ida-Viru and Lääne-Viru. 48% of the people employed worked in this area.

There is a tendency towards a further concentration of the processing industry, especially in the field of milk processing. In 1996, the processing undertaking "United Milk Processors", was created. This consists of three of the four largest processing enterprises, processing approximately 40% of Estonian milk production and is planning to build a plant to Russia. In addition, there is a central co-operative, which processes some 20% of Estonian milk. This group includes co-operation in marketing and product development. The two main enterprise groups control approximately 90% of the market.

In the meat processing industry, the ETFC group is dominant. It has the largest meat processing enterprise in Rakvere, processing half of all meat in Estonia. The new production complex was completed in 1990. In May 1997, the Rakvere meat processing enterprise bought a meat processing enterprise in Latvia, in Riga, with 20% of Latvia's meat processing capacity. Part of the ETFC group is the Tallinn Piimatööstus Ltd., the third biggest milk processing enterprise in Estonia, with a market share of 18% of whole milk products.

As a recent trend, vertical integration of food processing industry into primary production can be observed. The Rakvere meat processing enterprise is

the biggest shareholder of the Viljandi pork production company.

The Estonian food industry has encountered severe problems in meeting EU hygiene and quality standards. This is due to many reasons. Firstly, there are still management problems and operating difficulties in companies, which require profound reform. It takes time to change the ideas, principles and functions of a planned economy to a market-oriented one. Secondly, production facilities need modernisation and large-scale investment.

Steps were taken on the legislative side to improve quality and to meet the requirements. In addition, a project was launched under PHARE to upgrade the quality level of the dairy industry to comply with EU-standards. According to national expert assessments, the dairy sector needs to make total investments of 2.86 billion EEK. 1.5 billion EEK are needed for the renewal of dairy production technology, 1.0 billion EEK for the renewal of feed production technology and an additional 0.36 billion EEK for the reconstruction and re-equipping of the dairy industry.

### 2.6.3. Banking system

Banks had a limited interest to grant loans to agriculture. One reason is that, until recently, there was an overall lack of long-term financing. For example, in the processing industry only 20% of the investments were financed by bank loans during the first 9 months in 1996. Another reason results from the fact that the agricultural sector is more risky and less profitable than other sectors of the economy which provide more secure and higher revenues. In addition, the high level of interest rates was an additional difficulty for farmers. During the last quarter of 1996, the average interest rate for agriculture was approximately 16%, when the general average rate was 14.1% for short-term loans and 14.7% for long-term loans. However, the effective interest rate was low, or even negative due to high inflation.

In the light of the above-mentioned problems, specialised funds were established. These funds operate with state budgetary financing, providing interest subsidies and some of them also loan guarantees. The main element was the Agriculture and Rural Life Credit Fund, with total funds of 400 million EEK. The funds are channelled to customers via authorised banks and lease companies. Both short- and long-term loans are possible and the authorised institutions carry the main part of the risk. Mainly the Union Bank of Estonia and the Estonian Land Bank are involved in lending to agriculture and rural areas.

An additional problem is to find the necessary collateral. The land registry does not yet work well, there is no functioning land markets and only about 25% of agricultural land is in private hands. To help to solve this problem, at the end of 1996, the Rural Credit Guarantee Fund was established with total funds of EEK 50 million to give additional guarantees to rural enterprises. With the help of a PHARE-programme, it is being estimated that a functioning land register will be established within the following two years. This is seen as a priority, since - as long as farmers are not acting on the basis of well-defined property rights or contracts – the resulting uncertainty would hamper the recovery and sustainable development of agriculture.

The establishment of leasing contracts sometimes helps to overcome the problem of being unable to obtain credit on favourable terms. The following forms are used:

- the United Milk Processors provide farmers with milk coolers and the financing takes place gradually by deducing parts from the producer payments
- the Tartu Lease sells fertilisers to farmers and the payment takes place in autumn by delivering the grain to Tartu Lease.

# 3. Agricultural and rural policies

## 3.1. The budget of the Ministry of Agriculture

Since independence, Estonia has followed a liberal agricultural policy and all border protection measures have been abolished. By 1997, only a limited number of support measures were in effect. The main emphasis was on arranging financing for agriculture and rural development with favourable credit terms with the help of credit subsidies, loan guarantees and capital support. Compensation for fuel excise tax was of importance, as also to a certain extent were the measures to improve the quality of the inputs, soil and cattle used. The use of direct support measures to agriculture was limited. The budgetary resources allocated for agriculture and rural life are presented in the table 34. The state of Estonia has notified following support measures to the WTO.

During the first years of independence, most branches of agriculture proved to be unprofitable. By 1997, proposals for direct income support measures were not accepted despite the Agricultural Producers' Income Law. This was due to budgetary considera-

**Table 34. Budgetary resources for agriculture and rural life (M EEK)**

| | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|
| GREEN BOX MEASURES | 167.5 | 251.4 | 276.3 | 325.8 |
| General services | 115.6 | 166.7 | 163.7 | 204.0 |
| - research | 17.4 | 23.1 | 23.7 | 26.2 |
| - pest and disease control, inspection services | 26.4 | 37.4 | 44.6 | 52.3 |
| - extension and advisory services | 19.7 | 20.7 | 22.3 | 47.1 |
| - marketing and promotion services | | | | |
| - support participating in exhibitions and affairs | 4.2 | 4.2 | 4.8 | 4.8 |
| - State development programs for grain, sugar, oilseed, flax, organic products | 6.6 | 11.6 | 15.3 | 17.2 |
| - infrastructure services (drainage, roads, wells etc) | 41.3 | 69.7 | 53.0 | 56.4 |
| State grain, meat and butter reserves | 9.6 | 10.4 | 11.1 | 12.2 |
| Investment subsidy for agricultural producers | 0.0 | 0.0 | 0.0 | 20.0 |
| Income tax exemption farmers with income less than 35 000 EEK | 19.3 | 51.3 | 70.0 | 40.0 |
| Structural adjustment assistance through inv. aids | 10.0 | 10.0 | 14.0 | 15.5 |
| - privatisation of land: restitution and registration | 5.0 | 5.0 | 9.0 | 8.0 |
| - interest rate reduction (ARLCF) | 5.0 | 5.0 | 5.0 | 5.6 |
| - loan guarantees (ARLCF) | 0.0 | 0.0 | 0.0 | 1.7 |
| condemnation of debts of agricultural producers | 0.0 | 0.0 | 0.0 | 0.2 |
| Environmental programmes (tax relief) | 1.0 | 1.0 | 1.5 | 0.1 |
| Rural development programmes: assistance and special credit measures | 12.0 | 12.0 | 16.0 | 34.0 |
| Others | 10.0 | - | - | |
| NON-PRODUCT SPECIFIC MEASURES | 4.4 | 6.3 | 83.7 | 70.9 |
| Compensation of fuel excise tax | - | - | 38.5 | 59.1 |
| Interest subsidy | 4.4 | 6.3 | 45.2 | 11.8 |
| TOTAL EXPENDITURE | 171.9 | 257.7 | 321.5 | 396.7 |
| - in M ECU | 11.1 | 17.2 | 20.4 | 25.3 |

Source: State of Estonia

tions to maintain a balanced budget. In the initial stage, the main emphasis was on the development and recovery of the overall economy.

However, new tools for Estonian agricultural policy were recently developed, after years of limited state support. Examples of recent changes are the Rural Credit Guarantee Fund, providing nowadays also for an additional credit guarantee and the Capital Grant Scheme supporting selected investments up to 30% of the investment amount. Both measures were established in 1997. For 1998, the budget allocation for these measures increases remarkably.

In addition, direct support measures for dairy and cereals production are foreseen for 1998. The state budget allocation 1998 for these measures reaches 190 million EEK, which represents a remarkable increase in state support to agriculture. The aid will be directed only to the most efficient producers, enhancing the development of efficiency and progressive production methods. The agricultural budget allocation for 1998 is 558 million EEK, representing 3.7% of the total budget expenditure. It should be noted, that this figure is not perfectly comparable with the figures presented in table 34.

## 3.2. Agricultural market policy

In the Soviet era, both agricultural production and distribution of inputs were centrally planned. The philosophy of production was based on low input prices, high producer prices and low retail prices. The aim was to provide citizens with cheap food. Currently, market policy for agricultural products in Estonia is based on liberal principles. In practice all production is free of regulations or quotas. However, there is currently a certain tendency to move towards a more regulated and supported agricultural sector. Starting in 1998, for the first time since independence, some direct payment schemes will be launched.

The Ministry of Agriculture and the Ministry of Environment are the main bodies responsible for agricultural policy. The Food Board operates under the control of the Ministry of Social Affairs. An inter-ministerial Food Policy Council provides support to the agricultural decision-making process. Also, a Chamber of Agriculture and Commerce was established in June 1996.

### 3.2.1. Income policy and direct support measures

Under the Soviet era, agricultural production was heavily subsidised. For the period 1986-1991, OECD calculated an average net PSE of 72%. Since independence there has been a sharp decrease of support. The year 1992 was the most dramatic one for Estonian farmers with an average PSE of -91%, which means a remarkable, implicit tax upon agriculture. By 1996 the average PSE figure increased to 7% with beef and veal remaining at -43% and poultry high with +43%.

In summer 1993, the Estonian government passed the Agricultural Producers' Income Law. According to this law, producers and the state should negotiate the target prices at a level that ensures income parity between the agricultural and industrial sectors. The required level of support for the agricultural sector is defined as the difference between the market price and a target price multiplied by projected output levels. Up until 1997, agriculture did not receive any income support payments because of budgetary reasons. Initially, the emphasis was on the development and recovery of the overall economy.

Only a limited range of support measures was in use by 1997. However, Estonia is launching direct income support measures in 1998. Planned hectare payments account for 120 million EEK and those for milk producers 70 million EEK. These support schemes will not cover all farmers. The funds will be allocated only to the most efficient producers, who meet certain criteria. The aim is to enhance the productivity of agriculture. For hectare payments, the requirements are a minimum of 5 hectares of a supported crop and a cer-

tain level of agro-technology. For the headage payments, the preliminary requirements at farm level are to have at least 5 milking cows, participating and registering under the milk recording scheme and exceeding certain regional reference yields. As a consequence, only 60% of total dairy cattle are estimated to be eligible under the support scheme. The direct support measures will stimulate milk production only slightly, increasing the revenue per cow approximately only by 700-750 EEK or 7%. Thus, the support may not have a significant impact on the production volume. More significant will be as to whether the dairy processing industry increases the producer price - as requested by farmers - by more than 20% from 2.6 EEK per litre to 3,2 EEK per litre.

### 3.2.2. Price levels compared to EU

Estonia is a small country, which means that it is destined to be a price-taker on the world market. The difference between Estonian and EU producer prices decreased remarkably since 1993. However, this is not the case for all products. The domestic markets are only starting to stabilise. But still imbalances and fluctuations in supply and demand could have an impact on price relations. Estonia has no quota system for milk production, nor for any other products. And finally, Estonia had practically no support measures for agriculture. 1998 will be the first year with direct payments. Since Estonia abolished all consumer subsidies and all border protection measures, the markets are strongly affected by changes in international prices. For this reason, the stabilisation of production proved to be difficult, and the profitability of farming varies strongly.

Price differences vis-à-vis the EU were also caused by a lower quality of products. This is the case, in particular, for beef and milk. In addition, the downstream industry is still relatively inefficient and the collection of raw material is not effectively organised.

Price information is collected by the Statistical Office of Estonia, with the help of different sampling methods, which may however affect to some extent the results. The following producer prices are converted into ECU using an annual exchange rate. Compared prices are EU-15 average market prices (Table 35).

**Table 35. Estonian producer prices, % of EU prices**

| | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|
| Wheat | 47 | 50 | 68 | 88 | |
| Rye | 40 | 44 | 64 | 97 | |
| Barley | 36 | 36 | 50 | 85 | 89 |
| Milk | 27 | 33 | 48 | 54 | 56 |
| Beef | 30 | 34 | 36 | 46 | 43 |
| Pig meat | 69 | 93 | 87 | 84 | 96 |
| Poultry | 63 | 88 | 114 | 118 | 121 |

Source: Statistical Office of Estonia

#### Cereals and other crops

Barley is the most important type of cereal, and is mostly used as animal feed. Because of the decrease in animal production, the producer price for barley was initially well below the EU-prices. By 1996, the difference declined to 85% and further to 89% in 1997. The producer price of barley increased by one third from 1995 to 1996, causing severe problems to pork and poultry production due to increased costs. As a consequence, the numbers of pigs and poultry decreased during 1996.

The cultivation of wheat has doubled since independence, partly due to the higher world market prices and insufficient domestic supply. Since 1993, the price difference relative to EU-prices was smallest in cereals, declining to 88% by 1996. With the rye area declining by half, the price difference in comparison with EU-prices was wide. However, by 1996, the nominal producer price of rye increased considerably to 97% of EU-prices. This, together with the direct hectare payments to be launched in 1998, may enhance production to some extent. In autumn 1997, winter sowings were 31 500 hectares, at the level of three previous years.

Most of the potato yield is directly consumed by households. Potato prices in Estonia varied between

92-111 ECU per tonne in the years 1994-1996. In 1996, the Estonian price was approximately 85% of the EU-price. It has to be noted, however, that the producer price for potatoes varies greatly also among the EU-countries.

The cultivation of rape-seed increased due to increased export possibilities and high world market prices, which affected directly the Estonian prices.

**Milk**

In 1997, the milk producer price was only 56% of the EU level. This is partly due to the low milk quality in Estonia. However, the difference is still high. The Estonian Association of Milk Producers demanded dairies to increase the producer price from 2.6 EEK per litre in 1997 to 3.2 EEK in 1998. Thus the Estonian price would be two-thirds of the EU level. Estonian dairies do not see the possibility to increase the price to this level because of the threat of low-priced imports. The producer price for milk in Estonia is close to the world market level: in 1995 the Estonian milk price was approximately 110% of milk price in New Zealand.

Milk production continued to decrease until 1996. However, in 1997, milk production increased. The farmers have been slaughtering animals with weak production potential, which increased the average yield level per cow. Estonia was traditionally strong in exporting dairy product. If production starts to recover, the surpluses will starts to increase further. In 1996, the self-sufficiency rates were as follows: butter 180%, cheese 175% and SMP 333%.

Recently, a strong indication of concentration emerged in the milk processing industry. In 1996, the undertaking "United Milk Processors" was created, consisting of three of the four biggest dairies in Estonia. This increased additionally the bargaining power of the processing industry vis-à-vis the milk producers.

**Beef**

In 1996, the Estonian beef price represented only 46% of the EU level, being the only type of meat with such a big price gap vis-à-vis the EU. In 1996, self-sufficiency for beef was 83%. The main reason for the price gap is the lower quality of beef, partly resulting from beef production being a by-product of milk production. The Estonian producer price in 1995 was approximately 65% of the world market price of beef. In 1997, the price gap became smaller with the Estonian price increasing by 14% of the 1995 level.

As a consequence of low prices and hence of low profitability, only few of the born calves were left alive for meat production in 1997.

**Pig meat**

Pork prices in 1993-1995 were remarkably closer to the EU level than the cereal price, reaching 69-93% of the EU level. In 1996, pork prices increased strongly both in Estonia and the EU: the Estonian price was 84% of the EU level. At the same time, the producer price of barley in Estonia almost doubled and reached 85% of the EU level, diminishing strongly the profitability of pork farms. In 1997, the average Estonian pork price increased by 18%, influenced by the high international prices, reaching 96% of EU-prices. Imports of pork increased during 1996-1997, while exports declined. This implied that Estonia was no longer self-sufficient (85% in 1996) for pork.

**Poultry**

In 1997, the consumption of poultry meat recovered to the level of 12 kilos per capita, from a level of 4 kilos per capita in 1992. The producer price level was in 1994 approximately 88% of EU level. Since then Estonian producer price has exceeded EU-level. Estonia has not been self-sufficient in poultry since 1993 and imports increase steadily. In 1996, self-sufficiency was 25%, but imports of live animals pushed the real rate even lower. In 1997, a new feature is the re-exporting of poultry; exports equalled 13 times the

domestic production. Poultry meat represented 85-90% of the total volume of foreign trade in meat. Meat is exported from USA and Canada to Russia via Estonian dealers.

### Eggs

For eggs, there is no EU reference price available. The producer price in Estonia increased to 838 EEK per 1000 pieces or 13 400 EEK per tonne in 1996. Imports of eggs increased and self-sufficiency declined, being 95% in 1996. Two thirds of the egg production takes place on agricultural enterprises in large units and one third takes place on household plots for direct consumption.

## 3.3. Trade policy

Since independence, Estonia has pursued a liberal trade policy. Border protection measures have been abolished. No legislation on trade barriers or quantitative restrictions is in force. Licences are needed only for the importation of alcohol, tobacco, cars, pharmaceuticals, arms, precious metals and metals. All prices are freely determined by the market, with the exception of some energy prices.

Estonia applies only limited export support in the form of export promotion, and export credits. In 1995, export promotion accounted for 10 million EEK. The State Export Crediting Fund was established in 1993 to provide loans on favourable interest terms. In 1996, the funds accounted for 40 million EEK.

Estonia's liberal trade policy caused severe adjustment problems to farmers as well as the Estonian food processing industry. Import possibilities are open to foreign competition facing low or no import tariffs. A severe obstacle for trade results from the fact that the Estonian food processing industry is not able to meet the hygiene and quality standards demanded by the EU or other western markets. Therefore, exports of agricultural products are still mainly directed to CIS-countries. There is an urgent need to upgrade the quality of Estonian food products. This is reinforced by the fact that consumers can also buy western products on the market and they will demand a higher quality also for domestic products. However, as an important constraint on the domestic market remains the low purchasing power of consumers. In 1996, as much as 32.4% of the household income was spent on food products.

Recently, increasing pressure emerged for some protective measures to be established to counteract perceived unfair foreign competition with exceptionally low import prices. Domestic production dropped below self-sufficiency levels for meat products in 1996 (beef 83%, pork 85% and poultry 25%). Agricultural imports have been increasing and the agricultural trade deficit has widened rapidly from 684 million EEK in 1995 to 2 078 million EEK in 1996. The growth in the trade deficit is clearly not slowing down, as in 1997 the agricultural trade deficit reached 3 529 million EEK. Also, potential membership of the WTO and the EU are increasing the pressure to impose border protection measures.

Estonia has been an observer at the GATT since June 1992 and requested accession in March 1994. Its application to become a member of the WTO is currently being negotiated. At the time of preparation of this report, discussions with the USA, Canada, New Zealand and Australia were still ongoing. The negotiation process is expected to be finalised in the course of 1998.

Estonia offered to bind its AMS[6] to 1.2 billion EEK and agreed in the course of the negotiations to further substantial reduction. Negotiations are going on as to whether Estonia can restrict its AMS to 6 – 8% of the gross agricultural output over a period of maximal 8 years. The current WTO rule is 5%. Estonia's export

[6] Average market support

subsidies had been limited to 480 million EEK. The Government is open to disclaim further concessions in the field of export subsidies, if their position with AMS is being agreed too. With respect to market access, Estonia made related suggestion, although currently no import restrictions whatsoever are in force. For products which are sensitive for Estonia, a reduction of tariff equivalents in the range of 10 to 49% is discussed.

Achieving membership in both the WTO and the EU may cause domestically some political problems as to set priorities with partly conflicting requirements. The WTO is clearly demanding a more profiled trade liberalisation for agricultural products. In 1998, Estonia is taking first steps to launch for the first time direct income support schemes, but a significant increase in subsidy levels in real terms is not expected over the coming years.

Estonia has 12 different free trade agreements with the EU, EFTA, Baltic states, Ukraine, Czech Republic, Slovak Republic, Republic of Slovenia, Hungary, Poland and the Faeroe Islands.

The growth of trade volumes was most significant with the EU, the Baltic states and Ukraine. The free trade agreement with Ukraine came into force on March 1996, giving full access to the Ukraine markets. In 1996, Ukraine was the second biggest export destination for Estonian agricultural products with a share of 12.6%.

The Baltic free trade agreement came into force on 1 April 1994. Agriculture was first left out because of the differences in agricultural policies implemented by the Baltic countries. The agreement including agricultural products came into force on 1 January 1997. The agreement is intended to be the first step in the formation of a customs union. In 1997, the agreement resulted in a significant increase in trade between the Baltic states.

The free trade agreement between Estonia and the EU came into force on 1 January 1995. Since then, Estonian exports of agricultural products enjoyed mainly a 60% reduction in EU tariffs for quoted products. The quotas increased to some extent from the base level in 1995. Concerning dairy products, the quotas for milk powder and butter have been fully utilised, while the quota for cheese has not been utilised at all. In addition, the EU set a ban against all Estonian dairy imports in January 1998 due to non-satisfactory hygienic conditions in dairy plants. Estonia has also not been able to utilise its quotas for meat products due to problems in meeting EU hygiene standards. For cereals and cereals products, Estonia does not have any preference. The Europe Agreement with the EU was signed in June 1995.

Trade relations with Russia were affected by a special import tax on Estonian exports, introduced by Russia in July 1994. Inspite of this additional tax, Russia remained the most important export destination for Estonian agricultural products.

## 3.4. Veterinary and phytosanitary policies

Introducing the legislation identified in the White Paper is an important requirement for accession. Already now, it will be a precondition for allowing Estonia to develop its trade with the EU and other industrialised countries.

In the veterinary field, work remains to be done in adapting the Estonian national legislation to EC requirements. This includes an approximation of the legislation (the aim is to complete it by 1998) as well laboratories facilities and establishment of a fully resourced official veterinary service, including the imposition of effective controls at border inspection points, and on goods transiting the country. Considerable progress in establishing a State Veterinary Department can be stated. This service reports directly to the Ministry of Agriculture. The staff can be considered to be sufficient to cover the tasks of veterinary laboratories and border inspection posts. Certification procedures and the introduction of an effec-

tive animal identification system need to be further developed. Further legislation on animal welfare will be required. There also will be a need to upgrade certain food processing establishments both for trade and for the internal market.

In the field of animal nutrition current legislation appears to be inconsistent with Community rules. Approximation of legislation is in an initial stage, and no timetable is given for the completion of the work. As regards plant protection products and organic farming, legislation is not yet harmonised with EC legislation, but work on the adoption of the legislation has been initiated. It appears that pesticide residue monitoring is not carried out in Estonia at present. As regards seeds and propagation material, legislation is stated to be harmonised with that of the EC. Estonia does not enjoy equivalence for any EC species and it seems that considerable amount of work still needed to truly approximate and establish necessary developed infrastructure.

## 3.5. Structural policy in agriculture

### 3.5.1. Support to investments

In the first years after independence, only a few investment support measures had been applied. The state did not promote any particular type of farming. The development and structure of different farm types was determined by market development and general institutional reforms. In autumn 1995, the Agricultural Market Regulation Law passed. The aim of this law was to improve the structure of agriculture by providing favourable credit terms and interest subsidies to improve the profitability of production. This led finally to an increase in the application of measures to support investment, being also an indicator of a change in Estonian agricultural policy.

Currently credit subsidies and programmes for modernising production and improving quality are used as investment support measures. In addition, a credit guarantee fund was established recently. The state budget allocation for rural development support measures is presented at table 34 at page 44.

The main instrument in structural policy is the Agriculture and Rural Life Credit Fund (ARLCF) established in 1993. The ARLCF provides loans both to agricultural and other sectors. The share of loans granted to agricultural production was 64% in 1997. In August 1997, the total value of funds outstanding was 426.5 million EEK. In 1997, the value of loans approved was 173 million EEK. This state Fund provides aid for investments in the form of interest subsidies for both short- and long-term loans. Also, loan guarantees and capital support are possible. The funds are channelled through 9 authorised commercial banks and 5 lease companies to customers. The authorised banks are responsible for the assessment of loan applications and the evaluation of business plans. Interest rates up to 5% are offered to authorised institutes which in turn give loans to borrowers at appropriate interest rates.

In 1993, the average interest rate for these loans was 15%, but for 1997 - due to the introduction of competition between the commercial banks for fund resources - there were lower nominal interest rates for borrowers. The interest rate for these loans in 1993 was in real terms strongly negative, since the inflation rate was at 89.8%. In 1997, the interest rate on long-term loans (up to 10 years) was 10% and for short-term loans (under 1 year) 11%, equivalent to inflation. Since launching the fund, the share of short-term loans in all loans is approximately one third. In 1997, the share was 31.8% (Table 36).

In 1997, the Capital Grant Scheme was implemented for supporting investments to agriculture and rural development. The scheme provides support to selected investments with up to 30% of the investment. Support can be granted if the investment is made with the help of commercial loans, leasing contracts or with own capital. The minimum requirement for own capital is 30% and performance records must be made available for the last 3 years. The funds for this purpose were 20 million EEK in 1997, coming from the

**Table 36. Inflation rate and loans provided by the ARLCF**

| | | 1993 | 1994 | 1995 | 1996 | 1997p |
|---|---|---|---|---|---|---|
| Inflation | % | 89.8 | 47.7 | 29.0 | 23.1 | 10.8 |
| Average interest rate of ARLCF | | | | | | |
| - short term loans | % | 15 | 15 | 15 | 13 | 11 |
| - long term loans | % | 15 | 15 | 13-15 | 11 | 10 |
| Value of loans approved | M EEK | 116.1 | 139.9 | 148.4 | 213.8 | 173.0 |
| - share of short term loans | % | 43.1 | 33.6 | 35.6 | 27.9 | 31.8 |
| Loans granted to agricultural production | % | 69.3 | 55.0 | 61.8 | 60.9 | 64.2 |

Sources: State of Estonia and Statistical Office of Estonia

state budget. For 1998, the Council of ARLCF will decide the total amount of funds, whereas the preliminary decision is to allocate 57 million EEK of total 97 million EEK.

The Rural Credit Guarantee Fund was launched in 1997 under the guidance of Ministry of Agriculture. The main goal of this fund is to give additional guarantees to rural enterprises when they are borrowing more than their own collateral allows. The fund can guarantee only those enterprises which have been in business for at least two years. The fund is valued today at 50 million EEK and is able to guarantee up to 60% of the loan. The fund got its capital from selling European wheat aid. The fund guarantees long-term investment loans for the following purposes:

- agricultural production
- agricultural supplies and marketing of agricultural products
- establishment of enterprises
- fishery: inshore and fresh-water fishing and fish breeding, fish processing
- in rural areas also activities that are not directly connected with agriculture

Up until now, only five applications have been accepted with a total volume of 1.77 million EEK, corresponding loans of 3 million EEK. First applications were accepted in September, after a nearly one-year process of starting the fund.

There is also an investment programme for land improvement. In 1997, the aid was 31.5 million EEK.

### 3.5.2. Farming in Less Favoured areas

Estonia paid up to 1993 compensation to farmers in less favoured areas. In 1993, payments accounted for 4.7 million EEK. The country was divided into four different zones. Soil fertility, density of population and remote location from major roads and markets were taken into consideration. Since 1994, no compensation has been paid.

### 3.5.3. Taxation

Family farms are exempted from all taxes for the first 5 years, if the farm was registered before 10.12.1993. In addition, since 1996 the first 35 000 EEK of the yearly income of farmers is free from income tax. The normal rate for the income tax is 26%. The latter exemption had an economic significance of about 40 million EEK in 1997.

Producers are also entitled to have an excise tax reduction on diesel fuel. The reduction was worth 59 million EEK in 1997. The support is paid per hectare, using a flat rate. However, from 1998 onwards the scheme may change so that the type of crop grown will also influence the amount paid per hectare. For 1998, the total budget allocation is 89 million EEK.

Farmers pay an annual land tax up to 2%, varying between different parts of country. Family farms and household plots were exempted from this tax until the end of 1997 by decision of local authorities.

Estonia applies a single VAT rate of 18%. Certain activities are exempt from VAT relating mainly to activities in the public interest or financial and insurance services.

## 3.6. Rural development policy

In 1995, the Ministry of Agriculture formulated the policy proposals of the Government for the Development Strategy for the Rural Economy. The proposals highlighted the following topics:

- to ensure that the social environment and the quality of life of the rural population corresponds to the national average in order to preserve rural populations and the vitality and development of rural areas
- to guarantee that the population is supplied with high-quality food products at affordable prices
- to promote the development of competitive enterprises, efficient market structures and international trade relations.

Today, Estonia doesn't have any specialised laws on rural development and the formulation of rural development policy is still at an early stage. Only a few institutions are working in the field of rural development, but there is no Ministry exclusively responsible for all the implemented measures. Some progress is visible, since work started in 1996 to draft the new Law on Rural Life. This law is going to put more emphasis on rural development. The "Strategy for Regional Development" will be established by the end of 1998.

The Rural Development Board operates under the Ministry of Agriculture. The board supported the development of villages and farms, especially in border regions. Budgetary means were assigned also for improving the infrastructure in regions with a low density of population, and a good agricultural potential. Nowadays, there is a clear tendency towards more specialised programs. Since 1996, the state has been supporting the following 6 regional programmes. Programmes selected on the county level include:

- Promotion of the development of villages, aiming to support local initiatives
- Programme for the development of islands, aiming to develop the technical and social infrastructure
- Programme for economically backward country regions; for developing the technical and social infrastructure
- East-Virunmaa Programme; aiming to support the assimilation of non-ethnic population
- Programme for mono-functional settlements; for diversifying the entrepreneurial environment to create new jobs
- Programme for the development of border regions; aiming to support the settlement of these regions and the strengthening of border control system

In addition, several state-linked funds support and assist small- and medium-sized entrepreneurs in rural areas. In 1996, 40.6 million EEK were allocated for funding of all these programmes, including the 6 above-mentioned programmes.

- The Agriculture and Rural Life Credit Fund (1993) provides loans for small- and medium-sized agricultural and rural enterprises (see 3.3.1.). In August 1997, the total outstanding funds of ARLCF were 426.5 million EEK.
- The Regional-Political Credit Fund also uses state resources. Credits are made available according to regional priorities. The existence of collateral is not obligatory.
- The Rural Business Development Fund provides grants to rural businesses selected on a competitive basis.
- The Estonian Export Crediting State Fund (1993) provides loans for increasing the capacity of export production, single expenses related to starting exports, market research and advertising. Approximately 25% of the loans were reserved for

rural enterprises. Loan resources for 1996 were 46 million EEK.

- The Small Enterprises Crediting Fund (1993) provides state loans and loan guarantees for high-technology production with export potential. Loan resources for 1996 were 10 million EEK. Crediting is done through the banks and has to be secured by the bank. The fund has only a minor significance in rural areas.

## 3.7. Agri-environmental policy

Most efforts concerning environmental policies related to agriculture were linked to water pollution. This is due to the fact that, in the Soviet era, Estonia was an intensive animal producer, having serious problems of the disposal of organic fertilisers. According to national investigations, in the 1980's, 76% of nitrogen load and 20% of phosphorus load in water bodies originated from agriculture. Ground water became increasingly polluted. Since then, agricultural production declined sharply and the intensity of agricultural production went down.

The law of 1994 on water has a most significant influence on agriculture. The regulation reduces the nutrient leaking from agriculture through the following measures:

- Regulation on animal density. Maximum permissible animal density varies from 1.0 livestock unit per hectare in environmentally sensitive karst areas and environmentally vulnerable islands up to 1.5 livestock units per hectare in other regions.
- Fertiliser and manure application according to quantities and timing.
- Capacity of manure storage. Storage capacity should not be less than 8 months for cattle farms and 10 months for pig and poultry farms. Manure should be stored, spread and handled in such a manner that it would not endanger surface and ground water quality.

The Plant Protection Law regulates the use and export of pesticides. In addition, the Ministry of Agriculture runs, together with the County Environmental Departments, the Environmental Impact Assessment (EIA). EIA is used to evaluate the effects of proposed projects on the environment. Assessment covers the food industry and, at farm level, facilities for animal husbandry with more than 10 cows or 30 pigs and corresponding cattle sheds and poultry farms.

Since September 1997, an Estonian Approximation Strategy concerning environmental legislation has been elaborated within the PHARE-programme. Legislative gap analysis, implementation analysis and investment analysis started to harmonise Estonian environmental legislation with those of EU and to assess the necessary efforts to build up the institutional conditions for their implementation. This work is also dealing with directives related to agriculture and agricultural production, like the Nitrate Directive.

Nature conservation is based on a system of protected objects, protected species and protected areas. The total territory of protected areas is 472 000 hectares, accounting for 10% of the territory. The main part of the protected area consists of landscape reserves (Table 37).

**Table 37. Protected areas 1996**

| | Number | Area (000 ha) |
|---|---|---|
| National parks | 4 | 120.4 |
| Nature parks | 4 | 45.0 |
| Nature reserves | 53 | 115.6 |
| Landscape reserves | 156 | 190.7 |
| Total | | 471.7 |
| Programme area | | 640.0 |

Source: Statistical Office of Estonia

# 4. Long term outlook

## 4.1. Main hypothesis

The aim of this chapter is to describe the most recent development of Estonia in order to build the mid-term scenario for Estonian agriculture.

### 4.1.1. Overall economy

The stabilisation and recovery of Estonian agriculture is dependent on general economic growth. The development of food demand depends on the GDP growth and the change in consumers' real income. In spite of the strong growth of GDP, which started in 1995, the real income per household increased only slightly in 1995, and in 1996 the real income decreased by 0.2%.

In the first half of 1997, Estonia was one of the world's fastest-growing economies, reaching a real growth of 11.7% on an annual basis. The fast growth led to remarkable macroeconomic imbalances and in autumn 1997, the government undertook a number of policy measures to slow down the growth of the economy. These measures contributed to a situation where the stock market lost more than half of its value. For 1998 and 1999, the Commission indicates a growth of GDP by 4.7% in real terms, and further 4.5% for the period 2000-2003.

**Table 38. Forecast of main macroeconomic indicators**

| | | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|
| GDP, real change | % | 4.0 | 5.2 | 4.7 | 4.7 |
| Inflation | % | 23.1 | 10.8 | 8.5 | 7.5 |
| Trade balance | % of GDP | -24.4 | -27.8 | -25.4 | -20.8 |

Source: European Commission, DG II

These assumptions create a basis for predicting an increase of domestic demand influencing to some extent positively also on the demand of food products. However, still in 1996, one third of the household income was spent on food products. During the third quarter of 1997, half of the households spent more than 50% of their total expenditure on food. The share of food of total household expenditure will start to decrease, but at a slow pace. Income differences showed in 1993-1996 a strong increase, which will continue to some extent, affecting also food demand (Table 38).

Trade relations with Russia are affected by a special import tax on Estonian exports, introduced by Russia in July 1994. In spite of this additional tax, Russia remained the most important export destination, accounting for 38% of all agricultural exports in 1996. This high dependence on one market may be a risk in the future.

The exchange rate of the EEK against the ECU is rather stable since 1993 and no remarkable changes in this respect are expected. Estonia has fixed the exchange rate of the EEK against the German mark.

In 1997, Estonia had 1.46 million inhabitants. Due to a declining birth rate and re-migration of Russian citizens, the number of inhabitants will decrease to 1.43 million by 2000 and further to 1.40 million by 2003.

### 4.1.2. Agricultural economy

The share of agriculture within the Estonian economy decreased, being 5.5% of the GDP in 1996. In the future, this share will not decrease very much, first-

ly, because the level is already low compared to many other CEECs and, secondly, because agricultural production is starting to show a slow recovery. The share of agriculture of GDP will, however, depend on the overall growth in GDP. It can expected that the decrease of the Gross Agricultural Product will come to an end within the coming 2-3 years, showing a higher speed of increase after the year 2000.

Agricultural trade has shown a rapidly increasing deficit, mainly as a result of the fast-growing economy, and partly because of the lack of border protection. In order to maintain the balance of the economy, the trade deficit must start to decrease. The overall trade deficit as a share of GDP is expected to decrease with an increasing variety of exported products and quality improved. The same will happen with agricultural exports, but at a slower pace, since changes in agriculture are slower than in other parts of the economy.

Producer prices increased since 1993, with the effect that only milk and beef prices are remarkably below EU-prices. The producer prices of all other main agricultural products fall into the range of 88-120% of the EU-prices. In the future the price gaps will further decrease.

For 1998, the allocation of funds for the agricultural budget showed a remarkable increase after launching direct income support measures for milk and arable crops, reaching 190 million EEK. The measures launched represent one third of the total agricultural budget. From 1999 onwards, the nominal budget allocation may increase annually by 10-15%, which represents in real terms only a very slight increase.

However, after years of a very liberal agricultural policy and despite recent institutional improvements, there is no solid long-term security as regards the direction of agricultural policy, and the political climate towards agriculture may still change. The potential EU-membership will put pressure on maintaining at least the current measures. The outlook is based on the assumption that Estonia will slowly move into the direction of more regulated and supported agricultural sector. Otherwise the trade balance of agricultural products would show even a stronger deficit, as domestic production fails to meet demand.

### 4.1.3. Farm structures and food industry

The process of land privatisation has proved to be time consuming in Estonia. As a result of six years of land privatisation policy, only one fourth of the agricultural area is titled and the rest belongs still to the state. The slow pace of the land privatisation process may prove to be one of the major obstacles for stabilising the agricultural economy. Efforts have been made to establish a land registry. Without a functioning institutional framework, the stabilisation of agriculture will remain slow. This is particularly the case for those farmers who use land owned by the state on a short-term basis. Evidence of the negative consequences come from a further decreased use of fertilisers: farmers are not willing to invest in maintaining or improving the fertility of soils, because they have no security of continuing the cultivation of the same parcel next year.

The number of agricultural enterprises will further decrease. National estimates indicate that 1/3 of agricultural enterprises is doing well and 1/3 is operating on very low profit. The last 1/3 will go to bankruptcy and will be taken over by other agricultural enterprises.

The number of private family farms will continue to increase, but their importance in animal production will remain low. One reason for this is the limited availability of credit for private family farms. Lately, some improvements took place, but it will take time before significant results are visible. A second reason would be that the turnover of these farms is limited due to their small size, limiting also the size of possible investments which can be made on an economically stable basis.

Animal production is traditionally concentrated on the agricultural enterprises, which also have the best possibilities to invest by means of own resources, but also banks favour financing them. In principle, the investment possibilities are the same for all private family farms, but in practise much depends on the farmer. As a result of the privatisation process, not all farmers have advanced farming or management skills, which creates a strong need for advisory services.

The share of private family farms in crop production will continue to increase, because the investments necessary are lower than in animal production. In addition, the input suppliers also provide short-term credits for farmers and the repayment takes place in the autumn by selling the grain to the input suppliers.

Agriculture is highly dependent on the upstream and downstream sectors. During the coming years one of the key elements will be how the Estonian food industry succeeds to upgrade the quality of its products. By 1.3.1998, Estonia was not able to utilise its EU-quotas for meat products and cheese. Recently, the quotas for milk powder and butter were fully utilised, but on 1.1.1998, the EU set a ban for all Estonian milk products, as Estonia failed to meet the EU health and hygiene standards.

At present, two milk processing enterprises control 90% of the market. Concentration of the food industry will continue. The food processing industry is dividing into fast developing, exporting enterprises and smaller companies, operating on local markets.

In 1996, 59% of all agricultural exports went into NIS-countries and additionally 15% to CEECs. Up until now, Estonia has not taken a major effort to upgrade the quality of products, since exports to traditional markets have been successful with the present quality. However, this may be a risk for the agricultural exports in the future, should traditional trading partners set new criteria for the quality of products.

## 4.2. Commodity projections

In 1996, 20% of the agricultural land was idle. On this land, the quality of soil is low and parts of this area will perhaps never return into agricultural production. More emphasis is put on increasing the productivity of the presently cultivated area.

### 4.2.1. Land use

The cereal area will increase to 352 thousand hectares by 2003. The fodder crops area starts to increase as the number of cattle starts to increase as well. The share of idle land will decrease due to two reasons. Parts of it will be taken into other use, and parts of it will be used for cultivation due to increased need for cereals and fodder area (Table 39).

**Table 39. Projected land use**

| | | 1995 | 1996 | 1997 | 2000 | 2003 |
|---|---|---|---|---|---|---|
| Agricultural land total | 000 ha | 1450 | 1 450 | 1 450 | 1 448 | 1 445 |
| Arable land | 000 ha | 1130 | 1 128 | 1 128 | 1 127 | 1 125 |
| - cereals | 000 ha | 306 | 288 | 325 | 336 | 352 |
| - fodder crops | 000 ha | 494 | 516 | 481 | 482 | 487 |
| - others | 000 ha | 76 | 81 | 96 | 108 | 113 |
| - idle land | 000 ha | 254 | 244 | 226 | 200 | 175 |
| Natural grassland | 000 ha | 307 | 307 | 307 | 306 | 305 |
| Orchards | 000 ha | 15 | 15 | 15 | 15 | 15 |

## 4.2.2. Cereals

The state of Estonia made the decision for 1998 to launch a direct income support scheme for cereals, oilseed and legumes. The budget allocation is 120 million EEK, but it will help to some extent to promote the cereals production. However, the impact will be limited, as the total revenue per hectare will increase not more than 5-8%.

In 1996, cereals production reached its lowest level since independence. Producer prices for cereals almost doubled in 1996, which resulted in an increase in the cereals area in 1997. In 1997, wheat production is at a higher level - 0.054 million hectares in 1997 - compared to 0.012 million hectares in 1988. Weather conditions during the growing period have a great impact on the quality of wheat, which may differ largely from year to year, affecting also the yield per hectare. In 1996, the cultivation of barley was half of the pre-independence level, which was caused by a decrease of animal production. By 1997, rye production stabilised to 0.032 million hectares, which is half of the pre-independence level. The feed use of rye declined remarkably from 105 thousand tonnes in 1992 to 9 thousand tonnes in 1996.

### Main assumptions

- The cultivated area will increase to 0.352 million hectares by 2003, in order to meet increased demand for cereals and to decrease the need for imports.
- In 1995-1997, the average yield was 1.91 t/ha. Yields will stabilise at 2.10 t/ha by 2003, remaining well below pre-independence level. Due to unstable weather conditions, annual fluctuation of yields will remain high - especially if use of fertilisers does not recover.
- As a result of the development of area and yield, the production should increase to 741 thousand tonnes by 2003, from 614 thousand tonnes in 1997.
- Seed use will remain stable at 220 kg/ha.
- Feed use will increase as the animal production starts to recover. Feed use will increase to 381,5 thousand tonnes by 2003 from 335 thousand tonnes in 1997.
- Processing will continue to increase by 5% annually, due to increased demand (breweries).
- Human consumption will increase to 127 kg per capita by 2003 due to increased demand and increased number of tourists. Tourism is very

**Table 40. Projected cereals outlook.**

| | | 1995 | 1996 | 1997 | 2000 | 2003 |
|---|---|---|---|---|---|---|
| Area | 000 ha | 306 | 288 | 325 | 336 | 352 |
| Yield | t/ha | 1,67 | 2.17 | 1.89 | 2.00 | 2.10 |
| Production | 000 t | 515 | 629 | 614 | 668 | 741 |
| Imports[1] | 000 t | 172 | 246 | 140 | | |
| Exports[1] | 000 t | 12 | 19 | 20 | | |
| Net-exports | 000 t | -159,6 | -227 | -121 | -57 | -53 |
| Stock change | 000 t | 8 | -99 | -25 | | |
| Available for utilisation | 000 t | 682,6 | 757 | 715 | 726 | 795 |
| Seed use | 000 t | 66 | 63 | 70 | 74 | 77 |
| Feed use | 000 t | 323 | 389 | 335 | 327 | 382 |
| Processing | 000 t | 108 | 114 | 120 | 136 | 149 |
| Waste | 000 t | 12 | 11 | 6 | 7 | 7 |
| Human consumption | 000 t | 173 | 182 | 184 | 184 | 180 |
| - kg/capita | kg | 116 | 123 | 125 | 127 | 127 |
| Self-sufficiency[2] | % | 83 | 83 | 86 | 92 | 93 |

1) As cereals equivalent.
2) Calculated as production available for utilisation

important for Estonia, with some 1.2-1.3 million visitors annually.

- By 2003, utilisation will total 794,6 thousand tonnes. As production covers only 741 thousand tonnes of demand, Estonia will remain a net-importer with 52,8 thousand tonnes. The self-sufficiency will be 93% in 2003, which is significantly higher than in 1996 (83%) (Table 40).

The 1995 report was much more optimistic, as regards production and consumption of cereals. Expectations for the recovery of agriculture - and especially for animal sector - were at that time very optimistic. However, recent developments show that the recovery did not take place as expected.

Production of rapeseed is increasing strongly, but is still insignificant. The climatic conditions limit the production potential as well as yield levels per hectare. By 2003, production may increase to 0.020 - 0.030 million hectares or to 35 thousand tonnes.

### 4.2.3. Livestock

#### Main assumptions

- The number of cattle has not yet reached its lowest level; it will start to increase, at the earliest, by 1999-2000 at a very slow pace, depending directly on the development of cow numbers. By 2003, the recovery should pick up to 2.5%. Beef production will remain a by-product of milk production.
- The number of cows has not yet reached its lowest level. It will start to recover very slowly by 1999-2000 at the earliest. By 2003, the recovery should pick up to 2.5%.
- The number of pigs decreased in 1996-1997, due to a dramatic worsening of the price ratio between pork and cereals and increased low-price imports of pork. The number of animals will start to recover by 1999 with an annual increase of 4%.
- The number of poultry decreased remarkably in 1996-1997 due to a dramatic worsening of the price ratio between pork and cereals and low-priced imports of poultry meat. At farm enterprises, the number of poultry increased in 1997. For the period 1998-2003, the estimated increase will fasten from 7,5% to 10% per annum to meet the increasing domestic demand.
- Sheep and goats: In 1997 the number of sheep and goats decreased by 20%. The number of animals will continue to decrease until 2000 and then stabilise to the reached level (Table 41).

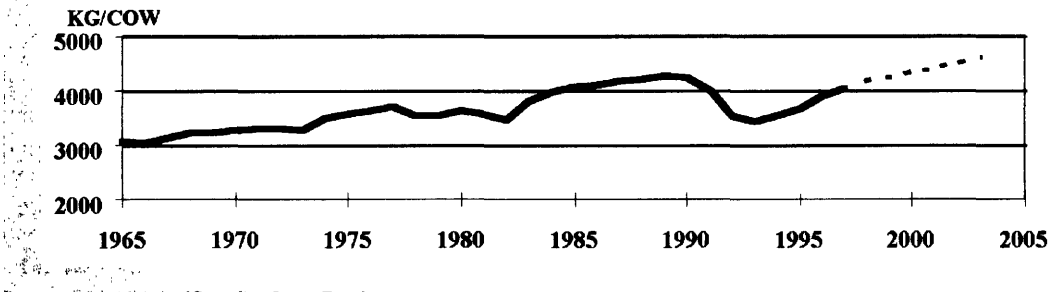
The new outlook differs from the 1995 outlook remarkably, especially concerning the production figures. The main reasons are improved statistics and delayed recovery of Estonian agriculture. Recent development also shows that the recovery of agriculture has not yet started as expected. The pace of recovery of animal production will not be fast. The level of investment to improve the fodder production and farm technology is low. In beef production, an additional problem is the low producer price, resulting in a very poor profitability.

The human consumption of meat was in 1996 approximately 55 kg per capita. By 2003, consumption is expected to the level of 62 kg, which is equivalent to human consumption of Finland in 1996.

**Table 41. Projected livestock outlook.**

| | | 1995 | 1996 | 1997 | 2000 | 2003 |
|---|---|---|---|---|---|---|
| Cattle (beef) | 000 | 420 | 370 | 343 | 325 | 348 |
| Dairy cows | 000 | 211 | 185 | 172 | 164 | 174 |
| Pigs | 000 | 460 | 449 | 298 | 321 | 361 |
| Poultry | 000 | 3 130 | 2 911 | 2 325 | 2 821 | 3 755 |
| Sheep and goats | 000 | 62 | 50 | 45 | 31 | 31 |

**Figure 3. The development of milk yields within milk recording herds.**




Source: 1965-1996, Animal Recording Centre, Estonia

## 4.2.4. Milk

Milk production is traditionally the key element of Estonian agriculture. In spite of the remarkable reduction in milk production since 1988, Estonia remained strongly self-sufficient in milk and dairy products unlike with all other main agricultural products. Dairy products accounted for 29% of all agricultural exports in 1996, which describes well the significance of this product group (Figure 3).

### Main assumptions

- The number of dairy cows will start to recover slowly by 1999-2000. Up until now, there is no evidence of a recovery of animal numbers. In 1997 the number of calves born decreased by 7%, which is more than the decrease in the overall animal number (-5%), indicating that reduction will continue. The direct support measures starting 1988 will stimulate the number of animals only slightly, increasing the revenue per cow approximately by only 700-750 EEK or 7%.
- Between 1965 and 1990 the average milk yield increased from 3000 kilos to 4250 kilos, equalling on an annual basis with an increase of 1.4%. The average yield per cow should increase to 4 458 kilos by 2003, which corresponds to the long-term growth. The exceptionally strong increase in yield in recent years was due to slaughtering of cows with weak production potential, which now has come to an end. In the future, the main empha-

**Table 42. Projected milk outlook**

| | | 1995 | 1996 | 2000 | 2003 |
|---|---|---|---|---|---|
| Dairy cow number | 000 | 211 | 185 | 164 | 174 |
| Average yield | Kg | 3 588 | 3 809 | 4 201 | 4 458 |
| Fluid milk production | 000 t | 707 | 675 | 694 | 785 |
| Imports, fluid milk | 000 t | 2 | 3 | | |
| Exports, fluid milk | 000 t | 12 | 22 | | |
| Net-exports, fluid milk | 000 t | 11 | 20 | 24 | 28 |
| Available for utilisation | 000 t | 696 | 656 | 670 | 758 |
| Feed use | 000 t | 91 | 99 | 107 | 114 |
| Imports, processed products1) | 000 t | 115 | 158 | | |
| Exports, processed products1) | 000 t | 321 | 335 | | |
| Net-exports, processed products1) | 000 t | 206 | 177 | 156 | 233 |
| Human consumption | 000 t | 400 | 404 | 407 | 410 |
| - kg/capita | Kg | 295 | 295 | 285 | 294 |
| Self-sufficiency2) | % | 144 | 134 | 135 | 150 |

1) Milk and all dairy products excluding butter, as milk equivalent.

2) Calculated as production per domestic utilisation

sis is put on increasing the yield instead of the number of cows.

- As a result of the expected development cow numbers and yield, the production should increase to 785 thousand tonnes by 2003 from 675 thousand tonnes in 1996.
- Feed use will increase annually by 2% due to the intensification of dairy production.
- Human consumption of milk and dairy products excluding butter will increase annually by 1% due to an increased demand (yoghurt, cheese).
- In 1996, the self-sufficiency level of milk was 134%, but the rate is expected to increase to 150% by 2003 due to increased production. Net-export figures of processed products result from the collusion of production and consumption. Net-exports of fluid milk will increase from 20 thousand tonnes in 1996 to 234 thousand tonnes by 2003. Net-exports of processed products - expressed as milk equivalent - will increase from 177 thousand tonnes in 1996 to 233 thousand tonnes in 2003 expressed as milk equivalent (Table 42).

## 4.2.5. Beef

Beef production is highly depending on the development in the dairy sector. The number of cattle continued to decrease by 8% in 1997 with an ending stock of 313 000 animals on 1.1.1998. The number of dairy cattle is expected to start to recover in 1999-2000, although at a very slow pace (1% per annum fastening to 2.5% by 2003) which implies that the number of cattle is starting to recover as well. The recovery can only be slow in the beginning, because the number of calves born in 1997 decreased by 7% as compared to 1996. Due to low producer prices for beef and hence a low profitability, few calves were left alive for beef production in 1997. This indicates that production of beef is continuing to decline.

### Main assumptions

- Total slaughters are linked to a certain ratio between cattle and slaughter numbers, according to which 44% of the total cattle number were slaughtered in 1996. The ratio is expected to decrease to 40% in 2003 alongside with an increasing carcass weight and a change from a destocking to increasing animal number. There is a certain potential in increasing the average carcass weight of animals from its present estimated level of 140 kilos of carcass weight to 168 kilos per animal. A low carcass weight would result from destocking.
- Human consumption declined sharply after independence from 25 kilos per capita in 1992 to 18 kilos in 1996. Consumer preference for beef is lower than for pork. Slowly increasing purchasing power is likely to result in an increase in pork consumption and in particular in poultry consumption. Beef consumption per capita will increase from 17.5 kg in 1998 to 18 kg by 2003.

**Table 43. Projected beef outlook.**

| | | 1995 | 1996 | 1997 | 2000 | 2003 |
|---|---|---|---|---|---|---|
| Cattle number | 000 | 420 | 370 | 343 | 325 | 348 |
| Total slaughters | 000 | 186 | 161 | 152 | 140 | 139 |
| Average carc weight | kg | 139 | 137 | 140 | 154 | 168 |
| Production | 000 t | 25.8 | 22.1 | 21.3 | 21.5 | 23.4 |
| Imports[1] | 000 t | 0.9 | 4.6 | | | |
| Exports[1] | 000 t | 1.8 | 0.1 | | | |
| Net-exports | 000 t | 0,8 | -4.6 | -4.2 | -3.8 | -1.8 |
| Human consumption | 000 t | 24.9 | 26.7 | 52,4 | 25.3 | 25.2 |
| - kg/capita | kg | 16.7 | 18.1 | 17,4 | 17.7 | 18.0 |
| Self-sufficiency[2] | % | 103 | 83 | 84 | 85 | 93 |

1) As meat equivalent 2) Calculated as production available for utilisation

- At present, the self-sufficiency level of beef is 83%, but the rate is expected to increase to 93% by 2003 due to increased production. Net-export figure result from collusion between production and consumption. Up until now Estonia has been a net-importer of beef (Table 43).

Milk and beef production is concentrated in big units. The milk recording system covers 72% of total number of cows. According to the information based on milk recordings, 78% of dairy cows are on farms with more than 100 cows and the 20 biggest herds account for 17% of the total herd. In the future, the milk and beef production is assumed to stay concentrated in big units. The increase of herds in private family farms has been slow.

### 4.2.6. Pig meat

The number of pigs decreased heavily, by 74% during the period 1988-1998. Even in 1996-1997 the number of pigs decreased heavily due to a dramatic worsening of the price ratio between pork and barley and increased low-priced imports of pork meat. Self-sufficiency dropped from 111% in 1992 to 85% in 1996. The most recent animal numbers from the beginning of 1998 indicate only a slight increase of 1% over a one-year period. However, the number of piglets born increased by 1% in 1997.

**Main assumptions**

- Total slaughters are take from the historical production cycle, being approximately 10 months taking into account the total pig number.
- Number of animals will start to recover in 1998 at a slow pace (3% per annum).
- Average carcass weight will increase by 1999 to 75 kilos.
- Due to the development in animal number and carcass weight, pork production will recover by 2003 to the level of 1996. The bottom of production will be reached in 1998; the recovery will not start before 1999. The net-imports of pork will peak in 1998-1999, equalling 10-11 thousand tonnes.
- Human consumption will increase from 25.2 kilos in 1996 to 28.6 kilos per capita by 2003, recovering to the 1992 level.
- In 1996, self-sufficiency level of pork was 85%, but the rate is expected to decrease further to 70% in 1998 due to a decrease in production and an increase in consumption. By 2003, self-sufficiency will recover to 81%.
- Net-export figures are a result of the collusion between production and consumption. Up until now, Estonia has remained a net-importer of pork. However the recent vertical integration between slaughterhouses and pork producing farm enterprises, may lead to a more speedy recovery of sector (Table 44).

**Table 44. Projected pork outlook**

| | | 1995 | 1996 | 1997 | 2000 | 2003 |
|---|---|---|---|---|---|---|
| Pig number | 000 | 460 | 449 | 298 | 334 | 361 |
| Total slaughters | 000 | 522 | 503 | 418 | 385 | 434 |
| Average carc weight | Kg | 68 | 63 | 72 | 75 | 75 |
| Production | 000 t | 35.4 | 31.7 | 30.1 | 28.9 | 32.5 |
| Imports[1] | 000 t | 4.6 | 9.3 | | | |
| Exports[1] | 000 t | 3.6 | 2.5 | | | |
| Net-exports | 000 t | -1.0 | -6.9 | -6.3 | -9.9 | -7.5 |
| Stock change | 000 t | 0.0 | -1.3 | 1.3 | | |
| Human consumption | 000 t | 36.4 | 37.3 | 37.7 | 38.8 | 40.0 |
| - kg/capita | Kg | 24.4 | 25.2 | 25.8 | 27.2 | 28.6 |
| Self-sufficiency[2] | % | 97 | 85 | 80 | 74 | 81 |

1) As meat equivalent. 2) Calculated as production available for utilisation

During 1996-1997, pork prices increased to the EU level. In spite of this, the profitability of pork production decreased significantly between 1994 and 1996 due to a fast increase in barley price. This resulted in a remarkable decrease in animal number in 1997 (see page 20). The price ratio between barley and pork is not expected to worsen further, because nowadays, Estonian producer prices for pork and barley match quite well with international prices. However, the fluctuation in international pork prices is expected to continue further, affecting also Estonian prices.

## 4.2.7. Poultry

The number of poultry decreased heavily, by 66% during the period 1988-1997. In 1996-1997 the number of poultry decreased further due to a dramatic worsening of the price ratio between poultry and barley and due to increased low-priced imports of poultry. The level of self-sufficiency dropped from 102% in 1992 to 25% in 1996. The price ratio improved again in 1997 which, according to the most recent figures, led to an increase animal numbers. Despite this, poultry production is at present affected by low-priced imports (Table 45).

**Main assumptions**

- Livestock number will start to recover in 1998 by 5%, increasing further in 2002-2003 to 10% in order to meet the increasing domestic demand.
- The price ratio between poultry and barley is not expected to worsen any more, because present Estonian producer prices compare quite well with international prices.
- Total slaughters are based on the historical production cycle; the intensity will continue to increase.
- Average slaughter weight will increase from 1.12 kg in 1996 to 1.24 kg by 2003 due to the intensification of production.
- As a combined effect of the number of slaughtered animals and carcass weight, production could increase from 4.3 thousand tonnes in 1996 to 10.4 thousand tonnes by 2003.
- Human consumption per capita will increase steadily by 2.2% per annum to 14.6 kg by 2003.
- Foreign trade expanded dramatically in 1996 and 1997. This is due to low-priced imports of poultry from USA and Canada, which were re-exported to Russia. An additional reason for increased imports is the insufficient domestic production. Net-imports will peak in 1997-1998 in an order of magnitude of 13.4 thousand tonnes. The level of net-imports will decrease to 10.4 thousand tonnes by 2003. Self-sufficiency is still low at 51% in 2003

**Table 45. Projected poultry outlook.**

| | | 1995 | 1996 | 1997 | 2000 | 2003 |
|---|---|---|---|---|---|---|
| Poultry number | 000 | 3 130 | 2 911 | 2 325 | 2 821 | 3 755 |
| Total slaughters | 000 | 5 111 | 3 802 | 3 982 | 5 501 | 8 448 |
| Average carc weight | kg | 1.13 | 1.12 | 1.13 | 1.18 | 1.24 |
| Production | 000 t | 5.8 | 4.3 | 4.5 | 6.5 | 10.4 |
| Imports[1] | 000 t | 8.9 | 15.0 | 71.5 | | |
| Exports[1] | 000 t | 4.0 | 2.3 | 58.1 | | |
| Net-exports | 000 t | -4.9 | -12.6 | -13.4 | -12.6 | -10.0 |
| Human consumption | 000 t | 10.7 | 16.9 | 17.9 | 19.1 | 20.4 |
| - kg/capita | kg | 7.2 | 11.4 | 12.2 | 13.4 | 14.6 |
| Self-sufficiency[2] | % | 54 | 25 | 25 | 34 | 51 |

1) As meat equivalent. 2) Calculated as production available for utilisation

# Glossary/Abbreviations

| | |
|---|---|
| ARLCF | Agriculture and Rural Life Credit Fund |
| EFTA | Baltic Free Trade Agreement |
| CEECs | Central and Eastern European Countries |
| CEFTA | Central European Free Trade Association |
| COMECON | Council for Mutual Economic Assistance |
| CPI | Consumer Price Index |
| ECU | European Currency Unit |
| EEK | Estonian Crown |
| EU | European Union |
| FAO | Food and Agriculture Organisation |
| FDI | Foreign Direct Investment |
| FTA | Free Trade Agreement (Tariff concession) |
| GAO | Gross Agricultural Output |
| GATT | General Agreement on Tariffs and Trade |
| GDP | Gross Domestic Product |
| ha | Hectare |
| IMF | International Monetary Fund |
| MFN | Most Favourite Nation |
| MMPP | Minimum Marginal Purchase Price |
| NIS | Newly Independent States (from the former Soviet Union) |
| OECD | Organisation for Economic Co-operation and Development |
| PPS | Purchase Parity Standard |
| SMP | Skim milk powder |
| TAIEX | Technical Assistance Information Exchange Office of the European Commission |
| WTO | World Trade Organisation |
| WB | World Bank |

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# Annex 1: The veterinary Sector in Estonia

## prepared by the Technical Assistance Information Exchange Office (TAIEX)

In Estonia agricultural trade is still of great importance to the agricultural sector. Risks arising from inadequacies in the animal and public health sector are therefore very big, as would the cost be of possible consequences arising from any shortcomings. Accordingly, the efficient functioning of the veterinary sector is essential for the accession of Estonia to the EU.

In a functional analysis of the veterinary sector at least five sub-sectors are to be distinguished.

## 1. Veterinary Education and Training Sector

1.1 The veterinary qualification can only be obtained at the Estonian Agricultural University at Tartu. The number of veterinary students accepted annually is about 25, which represents 0.0015% of the Estonian population, a percentage close to the average Member State figure (e.g. Germany). Enough veterinary professionals are therefore supplied. However, the Tartu veterinary faculty has not undergone a full evaluation procedure with regard to the application of EU training schemes and teaching programmes.

1.2 Postgraduate training has been provided by different TAIEX seminars and Phare programmes, on top of postgraduate studies organised by the State Veterinary Department, the Tartu Veterinary faculty and the Estonian Veterinary Association. This aspect seems to have sufficient coverage, if it is continued on the implementation and application of the EU veterinary acquis.

## 2. The State Veterinary Sector

2.1 The State Veterinary Sector in Estonia has recently been reorganised. Changes were introduced as from January 1998. As the traditional line structures and chain of command in the process of reorganisation are not yet clear, it would be appropriate to make an assessment of the efficiency of the new structures relatively soon.

2.2 Estonian veterinary legislation is still not completely in line with EU veterinary rules, represented by more than 100 basic directives and regulations. Because of the enormous workload, the progress in legal harmonisation and transcription has to be monitored quite carefully. The newly created Veterinary and Food Department in the Ministry of Agriculture (MoA) has been given the responsibility of preparing all aspects of veterinary and food legislation.

2.3 On the other hand, the State Veterinary Department, outside the Ministry of Agriculture but reporting directly to it, is now the structure for the execution of internal veterinary legislation and border controls. With the ongoing reorganisation, the division of tasks will become much clearer than it is for the moment. In the past there was a straight chain of command from the State Veterinary Department, headed by a Chief Veterinary Officer, down to 17 district veterinary offices and community veterinarians. The State and 10 district veterinary laboratories as well as 8 Border Inspection Posts (BIPs) were directly attached to that chain of command. The number of veterinary staff at all levels (617 employees) including community veterinarians seems sufficient to carry out present tasks. The competence given to cover the EU veterinary acquis is adequate.

2.4 However, it is appropriate to examine the new structure for the execution of veterinary legislation with regard to the veterinary line structures needed, including appraisal visits to laboratories and BIPs.

2.5 The veterinary BIPs need new structures for border inspections to be carried out according to EU requirements. Financial resources to establish inspection and storage facilities are to be allocated only for those BIPs needed following the accession of Estonia to the EU. The accession of neighbouring countries has to be considered in this context. In total, 11.000 consignments of items of veterinary concern were released through the Estonian veterinary BIPs in 1996, whereas 24.000 consignments were inspected for export.

2.6 All BIPs are linked with the State Veterinary Department through a computerised network. This is not the case for the district veterinary offices and laboratories, which should likewise be part of the communication network.

2.7 The animal health situation in Estonia is extremely good compared to the EU. There are no serious animal disease outbreaks except 100 cases of rabies per year. Disease monitoring and surveillance plans as well as contingency plans are to be elaborated under the ongoing Phare projects.

2.8 The application of EU technical standards in animal welfare for keeping pigs, calves, laying hens and laboratory animals as well as for the transport and slaughter of animals is pending enforcement, following the harmonisation of Estonian welfare legislation with the corresponding EU rules.

2.9 The application of technical standards and CP/HACCP principles by the industries concerned, particularly in the veterinary public health sector, is in its early stages, whereas the Estonian residue monitoring and sampling plan is seeking approval by the EU. The need for the elaboration of zoonosis control plans has also been recognised.

## 3. The Private Veterinary Sector

3.1 The private veterinary sector has been established in Estonia since 1992. Running a veterinary practice is subject to a license, issued by the State Veterinary Department. So far, 682 personal veterinary and 84 company veterinary licenses have been delivered. Some 240 private veterinarians also work as community veterinarians, under contract the State Veterinary Department. All private veterinarians are involved in animal disease control and are obliged to notify disease outbreaks to the State Veterinary Department. They also supply veterinary pharmaceuticals and biologicals like vaccines to the farmers.

3.2 There are now close contacts with the Federation of Veterinarians of Europe (FVE) to establish a professional regulatory body.

## 4. Livestock Sector

4.1 At present, there are no complete registers of holdings/herds in Estonia. It is therefore only possible to estimate the number of holdings/herds (~25.000 in 1997). The situation of cattle herds under a pedigree breeding and milk recording scheme is more clear, representing ~67% of all Estonian cows and 7% of the herds. At present, movement control within Estonia is based on certificates issued by community veterinarians. This system works for 50% of cattle movements.

4.2 There is no doubt that the identification and movement control systems for cattle (343.000 - 400.000 heads), pigs (301.000), sheep and goats (36.000) and horses (4200) will have to be improved and built up to the required EU standards.

4.3 Although the animal health situation is very good, the creation of a national animal health trust fund could help prepare for an emergency, in which the EU's eradication policy had to be applied to livestock. At present, rules on compensation for farmers exist in draft form only.

## 5. Processing Industry under EU Veterinary Legislation

5.1 EU veterinary legislation covers a wide range of industries which handle products of animal origin or produce products for animals, such as drugs or feed. Concerning trade, for Estonia by far the most important are the fish and dairy industries, followed by the meat industry. All have to meet detailed technical standards and to apply either CP/HACCP concepts or good manufacturing / good laboratory practices in their daily operations. It is evident that considerable investments have been made in the fish sector to upgrade processing facilities. A quarter of the 89 plants have been approved for exports to the EU; None of the 27 dairy, 231 red meat or 13 white meat plants have reached EU standards yet, according to the approval procedures.

5.2 In planning the agricultural budget, the need for substantial investment in these industries will have to be taken into account, if a major obstacle to improving the whole agricultural sector is to be removed.

## 6. Conclusion

Livestock, meat and dairy production remain important to the Estonian economy. For Estonia to trade with the EU in these products, EU equivalent veterinary standards must be introduced. This is now taking place and, so far, potential difficulties in maintaining adequate animal and public health controls during privatisation and restructuring of both land and the veterinary service have not been evident. However, further progress is required in introducing community veterinary systems, which would allow Estonian agriculture to be included in the EU's Internal Market. This will also require significant investment in slaughterhouses and processing plants and training of veterinary staff in both the public and private sectors. The fish sector, which is also important, has however benefited from much investment, with satisfactory results.

# Annex 2: Phare in the agricultural sector

## 1. Basic data

EU assistance to Estonia commenced under the 1991 TACIS programme, and has been extended by PHARE since 1992.

The overall PHARE allocation 1991/1997 amounts to 135 MECU. In addition, the EU provided 20 MECU of loans (structural adjustment).

During the same period, World Bank loans represented 75 Mio USD, and EBRD assistance amounted to 58 Mio USD.

The PHARE allocation for the period 1998-1999 is approximately 30 MECU.

## 2. Assistance in the agricultural sector

From 1991-1997, PHARE commitments in the agricultural sector amounted to 7.4 MECU, around 5% of the total commitments.

During the first years (1991-1994), assistance to agriculture has not been considered as a priority by the Estonian authorities and the Commission, and no PHARE funds were allocated.

From 1995 to 1997, approximately 10% were devoted to agriculture and food industry, to support projects in the field of :

- land reform, cadastre, land policy management (2 MECU)
- support to the Ministry of Agriculture (including policy advice, statistical registration system) (2.7 MECU)
- agriculture development (advisory service, micro-credit scheme, rural diversification (1.1 MECU)
- food control (1.1 MECU)
- food industry improvement (0.4 MECU)

Proposals for the 1998 programme, to be adopted in September, focuses (apart from 3 MECUS for the Special Preparatory Programme for the Structural Funds) on the phyto-sanitary sector (1.8 MECU) and statistical network (0.7 MECU)

The 1999 programme could be mainly devoted to the veterinary sector (after the results of a comprehensive evaluation of the state of play) and the continuation of the assistance in the statistical sector.

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